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EGEA
6th EDITION

Social and Health Benefits of Balanced Diet:
The role of Fruit and Vegetables

PROCEEDING BOOK

With the support
of the European Commission
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Agriculture and Fisheries

MINISTÈRE DE L'ALIMENTATION DE L'AGRICULTURE ET DE LA PÊCHE

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Contents **Page**

Opening Session 3

Session 1:
Preventing chronic disease – The role of fruits and vegetables:
The role of fruits and vegetables in healthy diets 22

Session 2:
Preventing chronic disease – The role of fruits and vegetables:
Increasing consumption of F&V in preventing chronic diseases 42

Session 3:
Translating evidence to policy:
The European "School F&V Scheme; SFVS" 67

Session 4:
Translating evidence to policy:
Addressing inequalities in health and diet - policies and programmes that target F&V consumption in low socioeconomic groups 95

Session 5:
Translating evidence to policy:
Promoting healthy diets in the European Union – EU projects 121

Session 6:
Translating evidence to policy:
Making the healthy choice the easy choice: the role of environmental change 141

Session 7:
Round Table:
Addressing inequalities in diet in Europe 166

French Versions 198

EGEA VI OFFICIAL OPENING SESSION

Thursday, May 5, 2010

Official Welcome Opening	Speaker	Page
	S. BARNAT (FR)	4
	I. ELMADFA (AU)	6
	L. HOELGAARD (EC-DGAgri)	7
	I. DE LA MATA (DG SANCO)	10
	A.TRONCOSO (E.U)	14
	MT. SANCHEZ-SCHMIDT (E.U)	18
Evidence-based promotion of fruit and vegetable consumption: the importance of socio-economic determinants	J. BRUG (NLD)	20

S. Barnat (EGEA Coordinator – Aprifel Scientific Director)

Distinguished guests, dear friends, ladies and gentlemen,
On behalf of the EGEA organizing committee I have the pleasure and the privilege to welcome you to Brussels for this sixth edition of EGEA conference.

First and foremost, I wish to express our sincere gratitude to the European Commission and particularly to the DG Sanco **for granting us the opportunity once again to hold the meeting in this wonderful setting.**
We are proud to welcome among our guests Mrs Troncoso, representative of the current EU presidency, and Mrs Schmid Sanchez, member of the European Parliament.
The strong EU presence confirms that Egea is indeed the right place **to conceive solutions to increase the diet quality and lower the risks of chronic disease for low income populations**.

Egea, to use Pr. Elmadfa's words, is a success story: for the first edition, in 2003, a core of scientists, health professionals, communication experts, policy makers and fruit and vegetable professionals gathered in Crete **to take part in the adventure and share the expertise and advice which have made Egea so unique.**
Talking about eminent scientists, I would like to **thank the very special contribution** of Professor Elio Riboli, **who has been the driving force behind each edition** of this conference since the beginning.

In Europe today, six out of the seven most important **risk factors for premature death** relate to how we eat, drink and move. Inadequate Fruit and Vegetable (F&V) intake is one of these six risk factors. **Eating F&V as part of a balanced diet keeps people in good health.**
To help us raise awareness of this simple fact, Professor I. Elmadfa, Director of the Institute of Nutritional Sciences, University of Vienna, **has generously accepted to co chair** this edition of the Egea conference. Thank you Ibrahim for your generosity of spirit, your understanding and patience.
In 2007, at the fourth edition of Egea, and **thanks to the participation of high-level speakers from different sectors**, including from the EU and WHO, EGEA conference **reached an agreement to implement three innovative solutions to F&V consumption**:
1. Increase access to F&V for children in schools, because our food habits are determined during the early years of our lives
2. Fight social inequalities in the consumption of F&V
3. Improve information on the health benefits of F&V and increase advertising

For the first solution, we are on the right track: the EU has launched in 2009 the Fruit School Scheme for better diet and healthier eating habits. The SFS is being implemented in 25 out of 27 Member States. Such a success deserves an evaluation at the European level.
I am especially **grateful to Lars Hoelgaard, leader of this scheme**, General Director Deputy of directorates C and D at the Dg Agri **for his gracious support**.
Thank you Lars for your permanent assistance and for being along with Ibrahim Elmadfa the co-chairman of EGEA 6. **Together, you represent the two faces of Egea**: Science and Action.

Regarding the second solution; fight social inequalities in the consumption of F&V:
There is still a lot to be done in Europe. Sometimes, it is our own systems which prevent us from taking action! For example, **providing vouchers for F&V could be one of the solutions to help the most vulnerable to have access to a healthy diet.**
Of course, resources are limited. So, we must be strategic in our approach:
This means we must select the most promising target groups within the low income populations: for example**, working with low income pregnant women can be a short, mid and long-term investment in public health**.

We will see tomorrow how such programs work in the UK and in the US.

Let me again welcome all the speakers who have accepted our invitation and **thank you all for your presence and commitment.**
I wish to convey my deep appreciation especially to our guests from the US and Australia. Your presence reveals that we are globally pursuing the same goal: we all need to **debate the basis for a coherent approach to the promotion of a healthy diet accessible and affordable for all.**
In doing so we will focus on the real obstacles to F&V intake, which we know too well such as the neighborhood food environment, the impact of the power of advertising, the lack of education or the influence of culture.
All these obstacles that prevent people and especially the most vulnerable to eat well and to be healthy

On behalf of the organizing committee of EGEA, I would **like to thank our distinguished partners** from public and private sectors **whose support highly contributed to make this happen.**
We look forward to stimulating discussions over the next two days and ultimately to agreeing upon concrete actions to take forward F&V consumption.
Thank you for your attention and please join me in welcoming Pr Elmadfa with a warm round of applause.

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I. Elmadfa (University of Vienne (A))

Good afternoon, ladies and gentlemen. My contribution as congress president to the opening session will be in two parts, a brief introduction and a short comment on the scientific program.

Generally spoken, the heavy burden of non-communicable diseases, which are nutrition-related chronic diseases, is increasing, especially in countries in transition and also in low-income countries and low-income regions.

When we talk about non communicable diseases, focus is on cardiovascular diseases, cancer, diabetes type II and also inflammation of the upper respiratory organs. Related to these four big diseases four risk factors are identified.
These are malnutrition, among adults especially low intake of fruits and vegetables. Other risk factors are lifestyle determinants like misuse of alcohol and tobacco consumption. To prevent these diseases efforts are made to focus on minimizing the impact of the described risk factors.

I will not go in-depth in this because these risk factors are part of presentations on their own. I just wanted to emphasize that for cancer we cannot generalize and say that fruit and vegetables are efficient against all types of cancer. However, epidemiological studies confirm that fruits and vegetables can be effective against certain cancers.

In the case of cardiovascular diseases, there is more reliable information. We will hear more on this in the keynote lecture. There is stronger evidence for the prevention of cardiovascular diseases.

With regards to obesity and the consumption of fruits and vegetables, the eating pattern should be considered. Habitually, people eat more or less the same amount every day. If we can change the composition of the diet, replacing certain components by other, low energy components, then we can decrease or lower the energy density of the diet. If that goes hand-in-hand with increasing the energy expenditure then the right energy balance, which is the basis of counteracting overweight and obesity, can be achieved.

Furthermore, two aspects are to be mentioned in the relation between the consumption of fruits and vegetables and the socio-economic status. There will be specialized presentations on this topic. There is evidence that low socio-economic status is related to low consumption of fruits and vegetables and low preference for this food group. Looking at the impact of education we will learn that the education level is also related to the complex pictures of fruit and vegetable consumption. Taken together, low income and low level of education can have a negative impact on the consumption of fruits and vegetables.

I am very pleased to see that EGEA 2010 is the 6th edition. The five successful editions before focused more on health issues. EGEA 2010 will include socioeconomic aspects of nutrition with some emphasis on low income population groups. The health benefits of a regular and sufficient intake of fruits and vegetables are more or less an “evergreen”, so we are accepting the idea that a justified positive effect can be expected. But widening the program of EGEA 2010 to include social, economic and the educational aspects is something that is happening accurately and timely.

I also thank Saida for this, we tried to assist her with setting up a program together, but she always came with dreams and ideas we tried to include in the program that is available for you now.

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L. Hoelgaard (EC-DG Agri)

Thank you Mr. Elmadfa. I'm, together with you, the co-chair and I would like to thank Saida for giving me this honor to participate and preside, if not all the sessions, but some of the sessions together with our co-chairman.

The EGEA Conference in 2007 was the first one I participated in on this question about obesity, lifestyle, Fruit and Vegetables (F&V) consumption, etc. And it certainly was for me a very important event. It was an eye-opener, and in that connection it inspired me to initiate within the Commission the starting up of the School Fruit Program on an EU basis.

The Conference we had then in Paris was a follow-up to that, basically, and I was happy to be able to record at that stage that we had actually arrived at the point where we had an adopted legislation with regard to School Fruit. Prior to that we went through the stages of an impact assessment, where we had to justify that a School Fruit Scheme on an EU basis would provide value-added. School Fruit was already an element on a national basis, was already running in a couple of Member States. I think we counted something like 7 or 8 on a national basis. They had different forms and structures, they had different budgets and some were only on a regional basis.

But what we felt was, given the magnitude of the problem, and given the alarming increases and figures of obesity, in particular among youngsters, and seeing the consequences for our societies in terms of the snowball effect on public health expenditure, in terms of having to 'repair' on all of these consequences of obesity and low intake of F&V. It became clear for me that we had to do something on an EU basis. We had to do something where we could put some muscle behind the Scheme, in terms of money. In fact, as I said at the lunch we just had in the Parliament here, DG Agri is looked at as the rich uncle. We have all this money here, so can't you spend a little bit for the poor, spend a dime like Donald Duck and his rich uncle? We're a bit of a meager miser, as well, I have to admit because we like to use our money for our farmers in the first instance.

But in this occasion here, we did actually manage to also incorporate a wider public, the European public, and in particular, our children. And it is in that context, as you said, Saida, that we now can see that there has actually been with the joint effort of the Member States, joint effort also of the European Parliament, joint effort of the scientific community, and also by the way, by the joint effort of the U.S. In this case here, we're happy to see Lorelei back and clearly on board and on our side, and even an inspiration for what we're doing in Europe in terms of promoting F&V. Because as Lorelei was saying at the lunch, it's a win-win-win. How may "wins" I don't know, but there are lots of wins around here. It's not the wind outside, but the win effect of the fact that we're getting benefits.

We're getting benefits in terms of agriculture, sustaining the consumption, and even hopefully increasing. The fact is that there has been an alarming trend also in a decrease in consumption, as we saw in our impact assessment on F&V. Now it may be stabilized, but it's not good enough to have it stabilized. It has to be increased. So we have a clear self-interest from a purely agricultural perspective, agricultural policy. We want to assure outlets for our farmers, in terms of F&V.

But in doing so, we're also doing something good for our health. We're doing something good for our children; we're doing something good in terms of preventing this explosion which is going to happen probably anyhow. But at least let's try to mitigate it, let's try to soften this

blow and explosion of public health expenditure as a consequence of this dramatic increase in obesity and cardiovascular disease, diabetes, and all your health-related diseases which are connected.

Just coming over here I saw, by the way, on the internet there was a report from the U.S. about 2 generals who were making a point about the dramatic increase in the number of eligible people who go for the military. Age group, was it 23 or 4 or lower, that 27% of these people, these guys, they were ineligible to serve in the military because they were too fat. They were just simply not able and capable to do the physical activity where they may have been risking their heart or whatever, if they were subjected to stress.

So again, this is just another way of highlighting that we're killing ourselves. We're killing ourselves by eating too much, by moving too little, not using our body. And as I said at the stakeholder session we had in February where this is coming out of the School Fruit Scheme, we had the decision in addition to starting up the School Fruit Scheme as such, we had the decision to establish 2 groups: a stakeholder group where we would combine the knowledge of the Member States and their representatives and the management committee on the market of management of F&V, and the people who are involved in the production of F&V, and in the sale of F&V, are stakeholders. A combined group which would combine the practice, the production, and the administration.

And in that meeting, it was clear that the focus of our attention is that not only is it good as such to start off a program, but that the element of forcing the authorities, on a national level, to cooperate in a way that, perhaps, they haven't been used to in the past. That is, between health officials, educational officials, agricultural officials, and agriculture, to force them to cooperate and to bring something positive on the table. Which is one of the things that we have to invest more in. Because we can preach as much as we want to the converted which are all here in this room. And hallelujah! But that doesn't make anything, in terms of the contribution to the people outside, to the people in the schools, to those who we are trying to target and which we have to convert.

So we have a mission, we have a very serious mission here. And it is the joint responsibility of all involved to try to find the methods and the instruments by which we can combine our efforts to invest in our future, in our children, so that we can get some control on this spiraling cost, this spiraling effect on our health, and the future way people are going to live and entertain their lives. I mean, it's fine to live longer, but if it's subjected to all sorts of additional diseases or corrections and all the rest, that doesn't serve much of a purpose.

Now, one of the elements on obesity, of course, as we know is linked to the socioeconomic factor. On that, maybe Schools Fruit can also contribute. I would be quite open to any suggestion of that kind. And there are lots of different ideas out there that we need to discuss and we need to see how we can focus. And also our [...].

So this Conference is another step in the direction of trying to get hold of this snowball and to avoid that the snowball keeps growing and we have an avalanche. As the snow comes down the mountain, it's going to bury us all.

The second element of the outcome of the School Fruit Scheme is to establish a scientific group. And we're going to, obviously, open a tender or a letter of interest for those scientists and experts who can contribute. We're going to do that quite soon, and we're going to have contributions coming in, of course, from Member States. And the purpose of this scientific group is to provide us with the latest state of knowledge, to give us the best input, in terms of how to structure programs, to learn from best practices of the experience, and to have some criteria for measuring what is the effectiveness of the different programs, and how can you

change them to become more cost effective, etc. All this is part of the process.

So we need to combine, as Saida said, the practice with the science to the best result, where we hope this group will be established sometime this autumn. And in the meantime, we are also working on an internet website which is going to be accessible to everybody who would like to be more informed about School Fruit, to learn also about best practices, to have as a continuous forum for exchanges of information. This website is in the process, and we hope to have it up and going and running within a month's time, or something like that. So that's another contribution to this process.

So with that, I think I've given my spiel, my introduction to this session here. We're looking forward to the contributions from the different participants, but at the end of the day when we're finished on Friday, let's not rejoice too much. Let's be quite clear about that there is an enormous task ahead of us and that we need to convert those guys out in the street. So with that I'm finished.

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I. de la Mata, DG SANCO (Representative of DG Sanco)

Good afternoon, ladies and gentlemen. Even if being a medical doctor, I'm not going to talk about science today. We are not making science in DG SANCO. We are applying science to develop policy commitments.

It's clear that the level of consumption of Fruit and Vegetables (F&V) in Europe is low, it's not satisfactory; and there are a lot of studies that show the evidence.

Studies show that F&V intake among 11-year-old-children from a sample of European countries is far from reaching population goals and national/international dietary guidelines. Only 27% of mothers in Europe consume enough fruit and vegetables (≥400 g/day as recommended by the WHO). This is very worrying as usually mothers transmit dietary patterns to their children.

There is a lot of evidence indicating that social-economic status has direct impact on diet of the population:

- >20% of obesity cases among men and >40% of obesity cases among women are attributable to inequalities in social-economic status (SES).
- Foods eaten by groups with lower social-economic status are higher in energy and lower in micronutrients compared to those of higher social-economic status.
- Members of lower social-economic status groups eat less fruit and vegetables. Obesity and overweight among children in Europe is associated with parents' SES.
- Prevalence of childhood overweight is linked to a Member state's degree of income inequality or relative poverty

We have a lot of data, but there is also simple observation. In schools where pupils come from families with higher level of incomes and education the obesity rate is not the one for the general population. That is the reality; the socioeconomic status has a clear impact, and a direct impact, on the diet of the population.

The European Commission is determined to support Member States and other stakeholders in their efforts to tackle inequalities between and within Member States. Last year the Commission adopted its Communication: Solidarity in Health (2009): Reducing social inequalities in the EU.

The major challenges which we have to face are the following are the large gaps in health between and within EU Member States, the increased unemployment and uncertainty arising from the current economic crisis that is further aggravating this situation and the restricted access to services and healthy food including fruit and vegetables for vulnerable groups like children, low socio-economic status and deprived areas of living.

The Commission's nutrition policy has been developing rapidly over the last few years.
This has seen the setting up of the EU Platform for Action on Diet, Physical Activity and Health; the adoption of our Green Paper in 2005 and finally with the White Paper adopted by the Commission on 30 May 2007, "A strategy for Europe on Nutrition, Obesity and Overweight".

The intention of the White Paper was to set out the Commission's vision as to how Community policies and actions can support efforts at the Member States level. Specifically, how

competences at EU level can be engaged to optimise the European response to this issue as a whole.

Therefore, although the White Paper draws attention to the obesity issue in particular, all the actions put in place are designed to improve nutrition and physical activity across the board.

Specifically, the Strategy is underlying the importance of Partnerships. They are essential and they should be developed at all levels: continue to develop EU Platform, encourage local multi-stakeholder networks and we have established the High Level Group that adds the Member State policy dimension to debate at EU level.

So, to foster further cooperation the European Commission has established two groups:

- The **High Level Group for Nutrition and Physical Activity,** that was established in 2007, to ensure exchange of policy ideas and best practises between Member States. It is composed of governmental representatives from all Member States.
- **The Platform for Action on Diet, Physical Activity and Health,** that was established in 2005. This Platform is a forum for European-level organisations, ranging from the food industry to consumer protection NGOs, and intends to tackle current trends in diet and physical activity. The EC committed itself to more than 200 actions in fields such as labeling; lifestyles; reformulation of foods, and self-regulatory action on marketing and advertising to children

The Strategy sets out inter-sectoral vision of the nutrition and physical activity policy which constitutes of promising initiatives, which exist, to share and to be transfer swiftly across the EU27. We try to facilitate dialogue and actions with European or global stakeholders on common issues, to develop partnerships where these add value and to improve awareness of local network actions for greater coherence and relevance.

According to the Commission if we want to act fast and achieve results, economic actors and other private actors have also a role to play in a series of areas.

For that we will build on the experience gathered by the EU Platform for Action on Diet, Physical Activity and Health process which already started back in March 2005.
To date the EU Platform involves 34 member EU organizations ranging from food industry to consumer protection NGOs.

Let me share with you some of the lessons we have learnt so far with this Platform.

We have more than 200+ on-going commitments representing an impressive number of initiatives. And Platform members from industry have indeed already tabled commitments in such key areas as **product reformulation, labeling and responsible advertising**. These commitments are all available publicly and I would recommend you to review them on the Commission's web-site.

But it is essential to ensure also the emergence of initiatives that can contribute to the **increase of the levels of physical activity** of citizens.

There is a need to **ensure relevance of the initiatives** against the shared global objectives. It is appropriate to create conditions that facilitate debates among the different stakeholders on individual initiatives. This also helps creating trust between the stakeholders.

I would like to give you some examples of the Platform commitments in relation to fruit consumption:

- **Freshfel Charter,** involving employers, Increase the availability of fruit and vegetables for employees and visitors at the workplace
- **Pro Greens,** Karolinska Institutet, Sweden, assess the level of consumption, develop and test effective strategies to promote fruit and vegetable consumption among 10-12 year-old school children
- **The Food Dude Healthy Eating Programme**, Bord Bia, increase children's fruit and vegetable consumption. Implemented in 313 schools in Ireland, reaching a total number of children of 42.000.
- **FERCO Healthy Eating Programme:** advises its members to implement its general nutrition recommendations which are aimed specifically at the food services

The European Commission coordinates initiatives to promote the health of target groups like children and young people, as well as the promotion of actions in key settings such as school and workplace.

The best examples of these initiatives are:

School Fruit Scheme:
- Providing young people with free fruit and vegetables at school
- Education and awareness-raising
- Commitment by 25 Member States (MS) for years 2010-2011
- Budget put aside by the Commission:€90 million

School milk scheme:
- 384059 tons of milk/milk products distributed in schools in 2008/2009
- 26 MS involved
- Community expenditures of €74,68 million

"Tasty bunch":
- 2009 Information campaign supporting the School Fruit and Milk Schemes
- On the spot events in 7 MS, reaching about 17.000 school children

Free Food for Europe's Poor:
- 19 MS involved
- set up in 1987, €307 million up to 2008 and €500 millions since 2009

The area of actions particularly underlined in the White Paper is better information for the consumers; its aim is to improve the information environment for consumers. It consists of Control of health claims and the revision of the nutrition labeling legislation (Commission's proposal for a Regulation of the European Parliament and of the Council on the provision of food information to consumers of 30 January 2008); mandatory front of pack nutrition labeling of energy and certain key nutrients., facilitating the identification of the most important nutritional elements to consumers.

I would like to sum up actions currently undertaken by the European Commission in the area of nutrition and physical activity. These are:

- **Better informed consumers**, including better labeling on food products
- **Making the healthy option available**, such as providing schools with fruits and vegetables
- Taking sufficient account of **individual, ethnic, cultural and social diversity**
- **Developing the evidence base to support policy making**, for example by carrying out research on behavior change in relation to food and nutrition

- **Developing monitoring systems**, such as by working with the WHO to identify effective local actions

The Commission is currently carrying out a review of the progress made. The progress report will be published in 2010 to review obesity status and to observe the extent to which its own policies have been brought in line with the objectives of the strategy and the extent to which actors across the EU are contributing to the achievement of its objectives.

We are moving forward. Are we moving in the right direction? We think that yes, but we have some question we may want to ask ourselves.

- Are we effectively reaching those at highest risk?
- Do we need to have an impact on more/different areas affecting consumers' choices?
- Are we recognizing the barriers leading to low fruit and vegetable consumption? We know that one of the main barriers is a economical one, but there are other. Is the availability is enough? Is not?

And maybe we need fresh ideas, new ideas on how to reach new generations. We have been working on that for 5 years, maybe it's time to change, that different actors come with different ideas, because maybe we are too focused on what we have been doing until now and we need that someone from the external world come to say us what we have to do.

Thank you very much.

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A. Troncoso (Representative of the European Presidency)

Ladies and gentlemen, it is a pleasure and an honour to welcome you to this conference as a representative of the Spanish Presidency. First, I would like to apologise for the absence of the Director of the Spanish agency for food safety and nutrition, who, at the last minute, had to deal with an unforeseen event which has kept him away today, despite his desire to be here.
The Spanish Presidency has coincided with the introduction of the Lisbon Treaty and the renewal of positions within the European institutions. Our work programme is very ambitious and has been developed with Belgium and Hungary - in accordance with the new trio system - on the basis of the principles of solidarity, responsibility and joint action.

This joint programme features a number of key words which are indicative of future EU strategies, such as: a scientific and innovative foundation for the creation of public health policies, sustainability as a form of competitiveness and the improvement in social determinants which are the source of inequalities. In Spain, social and health affairs are the remit of a single ministry: the Ministry for health and social policy. Within the Presidency programme, therefore, it was considered that the monitoring of social determinants of health and the reduction in inequalities had to be a strategic goal for the European Union. It was this goal to which the Informal Meeting of Health Ministers held in Madrid on 22 and 23 April was dedicated. The meeting focused on "Innovation in public health: monitoring social determinants of health and reduction of inequalities".
It is a pleasure for me to see in the conference programme that all of these issues are going to be covered as part of the search for a balanced diet.

Within the programme of the Spanish Presidency and of the Spain/Belgium/Hungary trio, the promotion of healthy lifestyles and, in particular, the promotion of healthy eating habits as a way of fighting against obesity and other chronic diseases, play an important role.
There is substantial scientific evidence of the effect of poor eating habits on human health, especially the impact on numerous so-called "non-infectious" or chronic diseases. There is also substantial scientific evidence of the protection provided by a high intake of Fruit and Vegetables (F&V) to a person's health. The World Health Organisation calculates that approximately 31% of coronary heart disease cases and 11% of strokes in the world are due to low F&V consumption.

All of this has led to the implementation of various actions. The EU created the Strategy for Europe on Nutrition, Overweight and Obesity related health issues, all of which were included in the Council's conclusions of 2007.
The aim of the strategy for Europe is to promote healthy lifestyles, including eating habits, through various Council and European Parliament resolutions. On a global level, at the next WHO general assembly, a resolution will be put forward which aims to encourage every country to take measures to prevent these non-infectious diseases through the implementation of a global strategy which includes research and concrete actions aimed more specifically at children.

In the Commission's White Paper on the Strategy for Europe on Nutrition, Overweight and Obesity related health issues, there is special emphasis on the potential role of the Common Agricultural Policy in Europe's diet and the fight against obesity and overweight. It especially highlights the need to establish joint actions in the whole of the EU and the importance of plans to encourage the consumption of fruit, particularly in schools.

I was very pleased to be invited to this conference as these requests put forward by the institutions, both European and international, are - fortunately for everyone - being translated into different policies and actions within the Member States.
In Spain in particular I would like to mention the Nutrition, physical exercise and obesity prevention strategy (**NAOS strategy**) coordinated by the Spanish agency for food safety and nutrition (AESAN). This strategy is the response of the Ministry for health and social policy to the rise in obesity in our country. According to the last National health survey in 2006, the mean prevalence of obesity among adults was 15.25% while no less than 37.43% of adults were overweight. This means that one in two adults is either obese or overweight. While the situation among adults is worrying, figures for children and teenagers are alarming: 9.13% of children are obese and 18.48% overweight. Adding the two figures together reveals that one in four Spanish children is overweight - a phenomenon which begins at an increasingly early age.
This high child obesity rate is especially important as it is a forecast of future obesity rates (an obese child will very probably become an obese adult), to which the negative impact that such a situation will have on our population's health should be added.

As well as current concerns about the nation’s health, preventing obesity is also important to avoid a future escalation of healthcare costs. In Spain, obesity-related costs are estimated at €2.5 bn per year, which represents approximately 7% of total healthcare spending. On a personal level, various studies show that the annual medical expenditure of an obese adult is 36% higher than that of a person of recommended weight while spending on pharmaceuticals is 77% higher.
Furthermore, overweight and obesity affect the lowest social classes, which contribute to the increase in health inequalities.

The main aim of the NAOS strategy is to make the population aware of the problems that obesity poses to a person's health and to bring together and encourage initiatives, both public and private, which help make citizens, especially children and youngsters, adopt healthy habits throughout their lives.
This comprehensive strategy has been in place since 2005 and has been recognised nationally and internationally, winning a WHO prize for its ability to involve Spanish society as a whole in the fight against obesity.

The NAOS Strategy's first achievement was to make the entire population aware of the public health problem posed by obesity and unite all of the players involved: public administrative bodies, scientific societies, food companies and citizen associations. Given that the adoption of healthy lifestyles begins at school and at home, the **PERSEO programme** was rolled out within NAOS. PERSEO is a pilot programme that takes place within schools and promotes healthy eating habits and physical exercise in six Autonomous Communities and two Autonomous Cities in primary healthcare facilities and with the participation of 63 schools, 14,000 children aged between six and ten, and their teachers and families. The educational stage is currently coming to an end and its results are being assessed. With regard to the work with the business community, the NAOS strategy's most innovative achievement has probably been the incorporation of measures aimed at changing the food on offer into the information campaigns and educational programmes.

The agreements reached with the associations of the various companies which make up the food chain and which promote the production, distribution and use of healthier products are noteworthy. Here I would like to highlight the work undertaken to reduce the amount of salt contained in bread with the cooperation of the Spanish bakers' confederation which managed to reduce what was previously 9.7 grams per person per day by 26.4%. With regard to this issue, Spain will present at the next Council of Health Ministers in June the approval of a Conclusion regarding "Actions to reduce the population's salt intake to improve people's health".

The NAOS strategy also wants to reduce the commercial pressure exerted on children. Through agreements with industry, a self-regulatory code on food advertising aimed at youngsters to prevent obesity and improve health (**PAOS**) has been put in place. The companies which have signed up to the code represents over 90% of the amount invested in advertising in the sector and regulate the advertising and marketing of food and drinks aimed at children under the age of 12.
It is still too early to ascertain the success of these measures. The European charter on counteracting obesity states that it will take years to achieve visible results. Nevertheless, the recognition and monitoring of measures at national and international levels are important. What is important about this strategy is its continuity over time and the new actions planned.

One of the nutritional aims within the NAOS strategy is to increase the daily consumption of F&V until a daily amount of 400 grams has been reached. In other words, five portions of this type of food per day - a quantity established by the WHO as the minimum amount to have a beneficial effect. Nevertheless, the consumption of this type of food in Spain, although above the European average, does not reach the recommended amounts. Among children, the figures are even more worrying. According to a study undertaken in 2005 in nine European countries, only 20% of Spanish children aged 11 met these recommendations.
The European Commission has contributed greatly to Member State initiatives to improve eating habits through the Plan for the consumption of F&V in schools. In Spain, this plan is being developed with the Autonomous Communities which have acted on their own initiative to participate in and jointly fund the measure with the European Union and the Spanish Ministry of the environment and rural and marine affairs. The plan is being implemented under the coordination of the Ministry for education.

One of the Plan's strong points is the recognition of the need to run an educational programme alongside the distribution of F&V in schools. Without parallel activities which teach children the characteristics, tastes, textures and health benefits of F&V, combining theory with the experience of touching and trying products, the aim of making children permanently adopt this type of food will not be fulfilled. Experience tells us that these measures are most effective in the six-to-ten age group.
Another noteworthy point is that none of the products included in the Plan may include salt, fat, sweeteners or added sugars - ingredients which when consumed excessively are responsible together with a lack of exercise for the obesity epidemic and the chronic diseases that we are currently suffering from. To fulfil our goal it is also vital that children recognise and handle fruit. For this reason, only fresh F&V and ready-to-eat products (packaged, pealed and/or chopped fruit) and 100% pure fruit juices may be distributed in schools. We thought it appropriate to ban concentrated juices, fruit nectars and other processed products.

To end, I would like to thank you once again for inviting the Spanish Presidency to this conference which, I am sure, will contribute significantly to the promotion and implementation of public policies to let European Union citizens enjoy healthier eating habits regardless of their social class and income.

The Europe that we envisage is an innovative and advanced Europe which is prepared to tackle future challenges and which cherishes as core value equality in well-being and in opportunities for all citizens.

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M.T. Sanchez-Schmid (Member of the European Parliament)
French Version p 199

Thank you Mr. Hoelgaard for this complete presentation.

I would like to begin my talk by saying that I am here today, among you at the sixth edition of EGEA in Brussels, in my capacity as a Member of the European Parliament, but I could just as well have attended the previous meeting as a mere local representative because the subject speaks to me so much.

For a long time I have been concerned by this topic as a citizen of Europe, and also both in my work as a teacher and as a politician as Deputy Mayor of Perpignan in charge of education, and especially school canteens, which is truly eminently affected. Within those different duties I have always been involved in the promotion of consumption of Fruits and Vegetables (F&V).

As we have been told, these actions have been developed in other states. You mentioned the programme called “Shake Up” that brought together a certain number of European countries and was involved in the fight against obesity in various ways mentioned earlier by Mrs. De La Mata, from DG Sanco. There were being promoted activities aiming to encourage physical exercises and good diets. The real proof of its relevance is that this process has been already supported by the European Union in various fields, and for many years. I would also like to mention the contribution of agriculture to the improvement of health through consumption of F&V. We know how important agriculture is within European policies and its weight on the European budget. The Common Agricultural Policy is one of the largest budgets.

I have noted that in the top-priority aims determined by the EGEA in 2007, the European Union, Member States and Scientific World will certainly all agree on the aims specified. Each obviously has a role to play, complementary roles that must be played to the fullest by each in their field of expertise. We all, I hope, have these vital targets in mind: youths and children because they are building their lives and especially because they are the citizens of tomorrow, as well as the most underprivileged people because it is not easy for them to get F&V for economic and practical reasons. To reach these populations, I think it is important to build a truly effective communications policy, but I would also add information oriented to the potential consumers that these populations are. As well, I insist, we also need information oriented to the agricultural world. I come from an important agricultural region in the South of France and I believe that the agricultural world must take part and play its role in everything we are trying to develop and truly understand that keeping the world as it is and maintaining their income requires the means of promotion that were are trying to implement in the field of F&V.

We all know that consumption of F&V is not something that can be decreed, and that it is not enough to simply provide easier access to make it part and parcel of the eating habits of our fellow citizens. Policies and politicians, whether it is persons or strategies, have, I believe - and I believe this strongly - the power to influence things and situations.

As a Member of the European Parliament, I would like to quickly mention, as has already been done, what the European Union is doing in the field that we are examining today. Mr. Hoelgaard, you talked about the “School F&V Scheme” programme, which I can talk about

because I have benefitted from it, not only in the city where I am an elected official in the South of France, but I spread the word to my local political colleagues, and the French government launched a fruit distribution programme in schools called “A Fruit at Recess”, a year before this “School F&V Scheme” programme appeared. It is true that European funding has helped us to develop, an extension that in my town impacts more than 8,000 children. We chose to start at the youngest possible age, in what we in France call *“écoles maternelles”* (“pre-school”) and especially to make this programme a true opportunity to educate and raise awareness, both in the area of taste and the discovery of fruits, as well as in the field of health. We know, and I know as a schoolteacher, that children are excellent at passing on information, especially to their parents, and it is important for families to develop new habits in this area. Earlier, in the Spanish programme, I heard that were not the only ones using this approach.

This programme is an addition to the incentive policies that already exist in a number of countries that have already been implemented in the area of school foodservice which, although it involves, in my country in any case, only four meals out of fourteen, can have an important impact. I read in your documents that the German presidency made a promise to increase consumption of F&V at institutional foodservice establishments by 30%.

Today, I think it is necessary to take the assessment further. It is being done in the field of science and it is done a bit less in our fields, which is important because I believe that the goal of everyone here is to shift towards autonomous consumption and we will have been able to fulfil our role, which is to provide incentive and not to sustain the policies that we implement.

This process, which is yours, concerns two divisions of the European Union, DG Agri and DG Sanco, but I believe that it needs to be carried onwards, horizontally, into other fields. I am a member of the Committee on Culture and Education and I think that we should feel eminently affected. Education can fully play its role and the media, I believe, also have a role to play because through television and through the press, they not only report on public policies, but I believe they can play a part because they have a great impact on consumers and on the way we consume. As well, this strategy goes even further because, I believe, we cannot neglect the environmental aspect, which we are discussing today, and in agriculture, which I mentioned earlier, the role that the promotion of F&V in agricultural production can play on regional development.

Furthermore, I am also a Member of the Regional Development Committee which deals with Cohesion Funds and Structural Funds, and I think that in certain programmes, Structural Funds can be requested for policies focusing on consumption of F&V.

Obviously, we were discussing the subject at lunch. We are going to have to defend the projects within the European budget. In the end, it is always a question of money, of budget, but I believe it is worth it. We have to get ourselves into a virtuous circle, I believe, a process that goes from seed to plate. We must build alongside European citizens a new way of seeing and consuming F&V for the benefit of their health, for the common good and, obviously, in the interest of each of us and our children, in this Europe that we want to keep building and that should affect all of us. A short time ago, during the European campaign, I saw how far away Europe seemed for many citizens. I think that promotion of F1V gives us a means to show that we can have a direct impact on their lives and on their future. This is, I believe, an important element. As you said, Mr. Hoelgaard, we have a mission, and I believe we need to take full possession of it and fulfil our responsibilities.

Thank you.

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J. Brug (Director EMGO Institute for Health and Care Research, University Medical Center, The Netherlands)

Evidence-based promotion of fruit and vegetable consumption: the importance of socio-economic determinants

Over the last 15-20 years, campaigns have been made to promote Fruit and Vegetables (F&V) in many countries in Europe and beyond, especially in school-aged children. Most of these campaigns have been school-based. The more recent campaigns combine educational activities with improving availability of F&V in schools by means of school fruit programs. Evidence suggests that such campaigns aiming to improve motivation and opportunities for increased F&V intakes among schoolchildren are effective. These campaigns remain very necessary particularly as recent trend analyses indicate that F&V intakes may be further declining among children from lower educated and lower income parents. The fact that prices of F&V have gone up much more than for the junk foods also does not help this situation.

Promotion of F&V especially among children with a focus on socioeconomic status as a potential important factor is the main subject of this article.
The following questions will be addressed:

1. What are the important personal and environmental correlates and determinants of F&V intakes? In other words: who eats too little F&V and why?
2. How can we target and tailor F&V promotion interventions to these potential determinants? In other words: how can we promote F&V intakes?

A special focus will be on school-aged childen.

Who eats too little F&V?

There are differences in F&V intake according to all kinds of socio-demographic variables, such as age, ethnicity, and gender. But the most consistent socio-demographic variable associated with F&V intakes is socioeconomic position. People from lower socioeconomic status (SES) groups eat fewer F&V. Socioeconomic position has been defined as an individual social and economic ranking within society, and it is based on access to resources, including income, educational status and also prestige. Most often the level of education is used as a proxy measure for SES.

SES is associated with a broad range of health disparities. In the Netherlands for instance, there is quite a big gap in life expectancy between the highest educated groups and the lowest educated groups. This gap is also apparent in different life style behaviors such as smoking, physical inactivity and different unhealthy nutrition behaviors including low F&V intakes. However, this SES gap in F&V intakes may not be apparent for all age groups in all regions of Europe.

Ritva Prättälä and colleagues (1), for example, showed for adults that there is a greater likelihood of daily use of vegetables for higher educated than people of lower education in the northern European countries. However, this was not true in the southern European countries like Italy or Spain. In France, an inverse relation was found as the lower educated people eat more F&V. Nevertheless, based on systematic reviews, SES comes out as maybe the most consistent correlate of F&V intakes, with lower SES people, and maybe even more consistently so among children, having lower F&V intakes (2-5).

Why do people from lower socioeconomic status eat fewer F&V?

There are three main categories of determinants of health behaviors: motivation, ability, and opportunity (6,7). Most health promotion campaigns have focused on improving motivation to live more healthily. However, such campaigns have had little success. In recent years more attention has been given to the environmental conditions for health behaviors, i.e. the environmental opportunities for adequate F&V intakes. This links to the WHO slogan 'making the healthy choice the easy choice'. If the opportunities, i.e. the availability and accessibility of F&V are improved, then adequate F&V intake will become easier. Recent research indicates that availability and accessibility of F&V are indeed important determinants of F&V intakes, at least among children (4,5).

The Pro Children Intervention Study, a cross-European project involving nine countries (8) tried to build an evidence-based intervention package on these insights. The intervention package was tested in three different countries in Norway, the Netherlands, and Spain. This intervention included activities to improve motivation by means of classroom activities including taste-testing sessions and computer-tailored (web-based) F&V education, homework assignments, as well as newsletters and computer-tailored feedback for the parents. But the intervention also included a school F&V provision scheme, making F&V better available and accessible in the schools. The results showed an increased knowledge among children, a higher availability, and a higher intake of F&V (9). Research conducted in Norway indicates that such F&V provisions should be for free and not by paid subscription in order to avoid having children from less affluent parents profit less from the activity (10).

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PREVENTING CHRONIC DISEASE
– THE ROLE OF F&V

SESSION 1: THE ROLE OF F&V IN HEALTHY DIETS

Friday, May 6, 2010

Session 1	SPEAKER	PAGE
Chairman	I. ELMADFA (AUT)	
A Healthy Diet: What is likely to be included and what is not?	I. ELMADFA (AU)	23
Attitudes of Consumers Towards F&V Consumption	M.D. VAZ DE ALMEIDA (PT)	27
Diversity of F&V to Achieve a Healthy Diet	V. NOWAK (AU)	33
Nutrition and the Low Income Population	M. VINTILA (RO)	37

I. Elmadfa (AU)

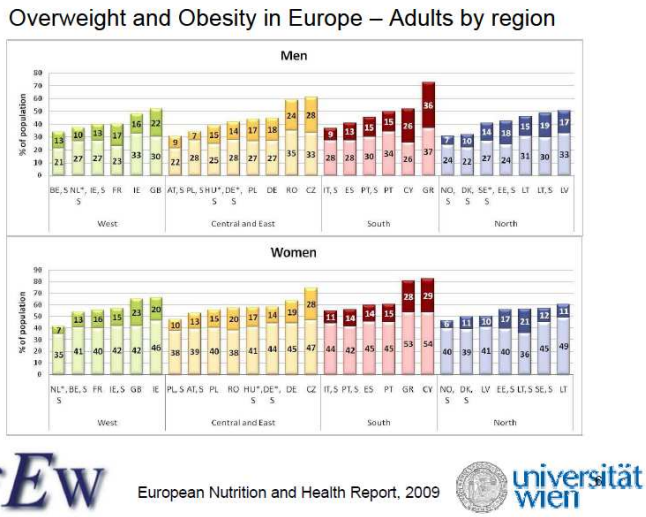
A Healthy Diet: What is likely to be included and what is not?

My presentation will deal with background information on:

The relevance of energy intake, energy expenditure, energy balance, the quality of diet and the means of health promotion, such as which role could the diet, and some diet components, play there? Specific functions of food in general and food ingredients will be emphasized and I'll conclude with some general recommendations towards health promotion and disease prevention.

Today we are facing major problems in form of chronic diseases related to nutrition. The WHO publications point to cardiovascular diseases, diabetes, cancer, and inflammation of the upper respiratory organs and their major causes and risk factors. These are tobacco use, physical inactivity, harmful use of alcohol and unhealthy diets. The latter must be seen with regard to their composition, showing that they are poor in certain nutrients and even biologically active secondary cell components.

Obesity is a worldwide problem. Data from the European Union published in the European Nutrition and Health Report 2009 show that there is an alarming obesity and overweight prevalence already in the early years of life (age: 4-6 and 7-9). In many countries overweight and obesity amount to 30-40%.



This is also a problem of the adults in all EU-regions. Differences also exist within the regions. In the West (in Belgium), overweight and obesity reached 34%; in the same region for the UK it amounts to 52%. Discrepancies can also be seen between the regions, as is the case between the North when compared with the South. The highest rate of overweight and obesity was found in Greece (men) and Cyprus (women).

Most probably obesity is a question of energy balance and the diet quality and not a matter of having too much fat-, carbohydrate- and sugar energy in the diet. If the energy expenditure is higher than energy intake, the balance is negative; no overweight and obesity can be expected. On the contrary, it might lead to unfavorable underweight. And if the energy balance is eminently positive, overweight is unavoidable.

Some positive aspects of moderate physical activity on body weight were recorded in Austria. For adults with a normal lifestyle without additional physical activity, 20% overweight and 6% obesity for women and 35% overweight, 6% obesity for men were reported. In a sub-sample of nearly 200 from 2,200 self-reporting adults performing moderate physical activity for 30 minutes, it was found that overweight

in men was reduced by one third and obesity by more than half. In women, there was no effect on overweight, but obesity prevalence was three times lower in physically active persons.

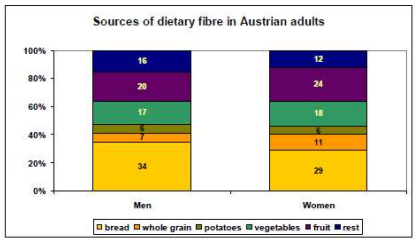
In addition to the impact of the energy-dense diet and low energy expenditure, the composition of the diet is also not optimal. The diet is rich in fat; the fat intake varies from around 25% to over 35% of total energy. A high proportion of the fat comes from foods of animal origin, like milk, milk products, meat, meat products, and sweets. The diet is also poor in fruit and vegetables, cereals, and products thereof. Individuals ingesting less than 30% fat energy with their diet have more of plant foods, fruits and vegetables, cereals, and their products.

In general, a diverse diet comprising all food groups is recommended and can be demonstrated in form of food-based dietary guidelines such as the food pyramid. But generally it is recommended that a mixed diet should comprise 20-30 biologically distinct, different types of food every day taken as the average of a week.

Another aspect of the background of efficient health promotion and a disease prevention concept is the diet quality. It has been reported that for more than 40 years now the proportion of food from plant origin is decreasing: from 72% in 1960 to around 70% in 2003.

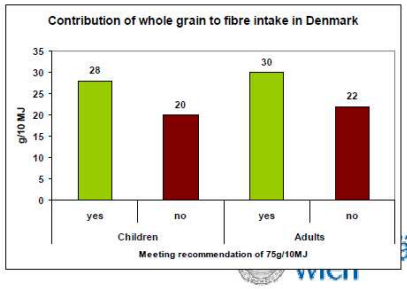
Plant foods in the diet are important because they are low in energy, but contain most of the nutrients and essential components of the diet we need. Some of these components have been isolated and used as supplements, but many epidemiological studies state very clearly that the effect of the whole fruits and vegetables remains superior to the isolated components.

These components are called biologically active secondary substances and include, among others, carotenoids, phytosterols, polyphenols, as well as different terpenes. They have been tested in vitro, in cell cultures, and were found to have anti-cancer, anti-microbial activity and a modulating effect on the immune system. Those positive effects were not always consistent in vivo, and nearly no controlled clinical study - especially with regard to preventing cancer - was reported.



In Denmark, 4 serv. of whole grain or 75g/10MJ per day are recommended.

National Food Institute, Technical University of Denmark. Wholegrain – Definition and scientific background for recommendations of wholegrain intake in Denmark. May 2008.



The role of dietary fibers. The best sources of dietary fibers are cereals, whole flour bread, potatoes, vegetables and fruits. In Austria, as in most European countries, we reach only 20 g/day (only 60%) of the recommended level for central European countries (30 g/day). In Denmark it was found the consumption of 4 servings, 75 g of whole grain in the total daily energy intake of 10 MJ, provide an adequate amount of dietary fibers both in adults and children.

In Austria, the bread consumption is with 114 g/day very low, only one fourth of this is from whole grain flour. If this proportion could be changed to half and half, dietary fiber intake would be significantly increased.

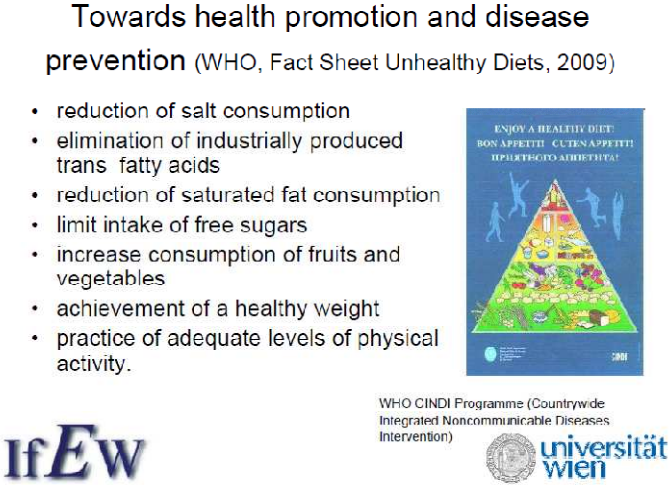
The role of nuts in the diet and the prevention of cardiovascular diseases. Positive results of large studies in this field are documented. The Nurses Health Study, the Adventist Health Study, and the Physicians Health Study all show that when nuts are consumed more frequently, there is a greater potential for the prevention of cardiovascular diseases and a positive impact

especially on blood lipids. It must be underlined that the amount of nuts ingested was high, 84 g/day for 4 weeks, as compared to the habitual average consumption of 20 to 30 g/day.

The role of the diet as a source of food folate. In Europe, the folate supply is inadequate; it meets half, or at maximum 60% of the recommendation. A comparison between the diet and folate supplements as a source for food folate shows that the folate response in plasma and a decrease of the homocystein level in the blood is possible with both, if the recommended folate amount of 400 µg/day is reached either via food folate or supplement.

The role of certain essential minerals. Milk and milk products are the most important source of calcium in the European diet. For iron, beef and beef products are still the best source. In the balanced mixed diet, meat in the recommended consumption level can add to diet diversification, enabling a better supply of trace elements, specially zinc and iron, and improving their bioavailability.

What should not be in the diet? Here two important components are trans fatty acids and sodium.
The biological relevance of trans fatty acids has been discussed intensely with regard to their negative influence on cardiovascular health. In Austria, the content of trans fatty acids was analyzed in different foods. The calculated level of exposure of trans fatty acids from the diet was found not to be high. On average, a trans fatty acid intake only at 95th percentile exceeds the recommended level of less than 1% total energy intake.
The other component which should not occur in the diet at high levels is sodium and table salt. All over Europe, adults and elderly of both sexes exceed the recommended levels of sodium and also salt intake. In Austria, the salt consumption is unfavorably high and the main sources of salt are bread, meat products/sausages, and cheeses.



What can we do for health promotion and disease prevention? In line with the recommendations given by the WHO:
- Reduced salt consumption; the diet should contain less salt.
- Eliminate the trans fatty acids, especially industrially produced.
- Reduce fat and saturated fatty acids.
- Increase the consumption of fruit and vegetables.
- Try to achieve a healthy body weight, move towards normal body weight, and practice adequate levels of physical activity to keep the energy balance in the proper situation.

QUESTIONS/ANSWERS

Public (Margherita Caroli, Italy): *I was impressed; thank you very much for your presentation, as usual it was very nice. But this is normal for you. I was very impressed by the iron content in red meat you showed, because for Italian foods, the reference tables are much lower. And in this light I could see that, for you, it is almost 4 times the content of chicken meat. This is strange to me, can you explain, is this a special cow from Austria, or what?*

I. Elmadfa: No, it is normal for red meat. Red meat comprises beef, pork, and others. But look at the age of the animals when they are slaughtered. Beef is slaughtered and used as source for meat at a more advanced age than pork (4 and 6). Animals are kept and fattened much longer and thus do accumulate in their body more iron coming from the fodder/feed. If you compare veal with older animals, you will also find different iron content, and this depends on the age and the feed used.

Public*: You have shown the prevalence of obesity in the countries Greece and Cyprus. How do you explain that when at the same time we are saying Mediterranean diet is very good for health?*

I. Elmadfa: That is a good question. We found already in the first European Nutrition Health Report released in 2004 that, in Greece, the fat energy in the diet in the EU amounted up to 45-44% of total energy and was the highest among the participating countries. In terms of energy equivalents it does not matter whether the consumed fat is olive oil or other lipids; with regards to cardiovascular health I agree olive oil is better than other lipids. 45% of total energy intake from fat had an impact on the diet composition and energy balance, also considering the low physical activity and accordingly low energy expenditure.
The rules of the Mediterranean diet were practiced until the 1960s. But Mediterranean countries are moving away from the Mediterranean diet and their lifestyle which was practiced 40 to 50 years ago. Therefore, overweight and obesity are prevalent in the Mediterranean countries with highest levels in Cyprus and in Greece. For more information on this issue, reference is made to the European Nutrition and Health Report which is also available online.

Public (Maya Jonbert): *Do you think there is a real deficiency in iron in European population that we need to eat so much meat?*

I. Elmadfa: Yes, iron deficiency with some emphasis on the age and gender. In the adolescent, especially young women have low intake of iron compared to their needs. Also, in this age group and in women in child-bearing age the prevalence of iron deficiency and iron deficiency anemia is higher than in men of the same age. This problem is evident and also reported in the European Nutrition Health Report.

Chairman : I. Elmadfa

May I ask my colleague, Maria Daniel de Almeida to take over and have her presentation?

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M.D. Vaz de Almeida (PT)

Attitudes of Consumers Towards F&V Consumption

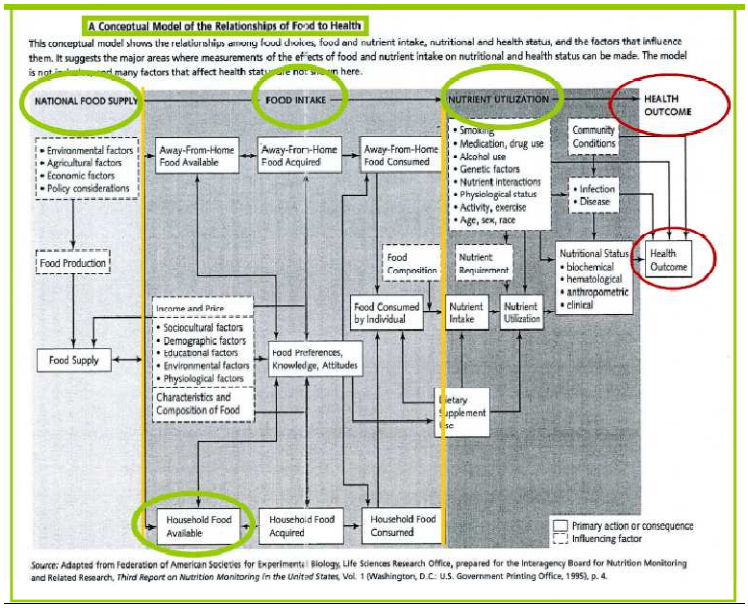
Good morning. First of all I would like to thank the Organization and Professor Elmadfa for inviting me to give a lecture.on Attitudes of Consumers Towards F&V Consumption at this Conference.

F&V are part of human diet since the dawn of times and this can be seen for example in fine arts. For instance, Arcimboldo, very well-known for his paintings using foods, as for example the Roman God of Seasons made of plants.

We know that F&V are in the minds of people, as we found in the Pan European study on Food, Nutrition and Health carried out around 10 years ago. In this research, we asked Europeans to give their definition of healthy eating, in an open-ended question. When people expressed in their own words what healthy eating meant to them, to eat "More F&V" was one of the most common concepts in the the EU-15. In some countries, like Portugal and Spain, F&V came in 1st place but in Sweden, it was also very high. So the notion that we need to have a lot of F&V in our diet is very common to the normal people in the street.

Interestingly enough when Europeans were asked to identify what their counterparts should do in relation to food habits, most people identified the need to consume more F&V. In a country like Portugal, 91% of the interviewed stated that in general the Portuguese population should have more F&V in their diets.

What we eat [and the F&V that we eat] depends a lot on what is available for consumption. Here again, you see two different situations and two very different countries although not too far away from each other. In one there is an abundance of fruits and vegetables, and not only the quantity is very large, but also the variety is quite good. Whereas in the other country what is being sold at the market is quite limited, not only in quantity, but also in variety.



In this conceptual model, starting from what is available for consumption to food consumption and nutrient utilization, you can have different perspectives, look at the subject from different ways, using different instruments and tools. So, we can start from the national food supply, which means the foods available for consumption at the national level, in a certain period of time (usually one year). These are important sources of information, worldwide; enable to obtain time trends, comparisons amongst countries and look at disparities.

I will present data from the European countries from which individual consumption data from the Pro Children Project is also available. Looking at data from "Food balance sheets", you can observe that there are very large differences between countries in relation to what is available for consumption in relation to fruits, but also vegetables. It can be seen that the highest figure in availability for consumption is the national average from the Netherlands. Compared to Belgium, which has the lowest, there are 250 grams of difference. When you look at vegetables, the situation is quite similar. We have a very different pattern for what is available for consumption. Comparing Iceland to Portugal, the difference is similar.

When we look at fruits and vegetables together, an issue very frequently discussed, is why do we have F&V together? We will see that the determinants for consumption differ, the determinants for consumption of F&V differ, as well as our acceptance and liking or disliking of F&V. Botanically, some of the vegetables that we call "vegetables" are, indeed, fruits. So, maybe we need to have into account that cultural norms, religious norms, and also other aspects of culture have to be considered when we discuss F&V and how we should increase and promote their consumption.

So far we looked at food available at the national level, but a lot of food is lost between availability at the national level until it reaches our dish. So at the 2nd stage of the conceptual model, one can look at the availability at the household level, which is closer to consumption. Household budget surveys are a very rich source of information for food and nutrition purposes. Unfortunately, not all countries provide or have this data. When these surveys are carried out large differences amongst countries are clearly observed.

Availability at Household Level

Fruit

Country	g/p/day	
Austria	192	(1999)
Belgium	123	(1999)
Denmark	—	—
Iceland	—	—
Netherlands	—	—
Norway	135	(1996-98)
Portugal	198	(2000)
Spain	195	(1998-99)
Sweden	122	(1996)

Vegetables

Country	g/p/day	
Austria	142	(1999)
Belgium	168	(1999)
Denmark	—	—
Iceland	—	—
Netherlands	—	—
Norway	109	(1996-98)
Portugal	137	(2000)
Spain	121	(1998-99)
Sweden	128	(1996)

Household Budget Surveys. Dafnesoft

This means, for example, that Portugal had the highest figure for fruit available for consumption at the household level, regardless of the composition of the families. A similar situation was found for vegetables. You can notice that from availability at the national level to the household level, it seems that the disparities between countries are not so large. Still, it can be seen that some of the southern countries like Portugal and Spain but also Austria have the highest availability for consumption at the household level.

There are disparities in relation to where you live, and this influences not only what is available for consumption, but also the capacity to access the food. When you look at F&V separately, for the urban population, taking Portugal as example, it can be seen that actually fruits are more available at urban households compared to rural ones. This probably wouldn't be expected, but for vegetables, the situation was the opposite. There is a time trend and it can be seen that vegetable availability for

Disparities in the availability of fruit and vegetables at household level

	Area of residence		Education level		
	Rural	Urban	Illiterate	Higher	
Fruit	174	244	202	258	1990
Vegs	178	142	152	144	
Fruit	158	208	193	238	2000
Vegs	139	143	137	135	

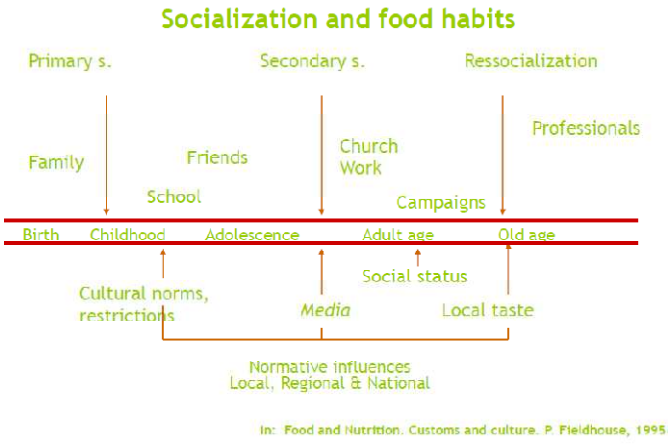
Household Budget Surveys. Dafnesoft - Portugal

consumption at household level has decreased a lot in rural areas whereas, in urban areas, it's more or less the same. But the difference in fruit between rural and urban populations is quite marked.

Other factors are relevant to consumption of fruit and vegetables. Looking at people who are illiterate or those educated at higher level, there are also differences, and those are more marked in relation to fruit. Either in 1990's or even more recently, this was the case for Portugal but similar situations occur in other countries. It also seems that vegetables tend to be less available, but the differences amongst sociodemographic groups are not so large.

Going back to the conceptual model, we can also look further, to the food intake, referring to what we actually consume of fruits and vegetables. In the Pro Children Project, the intake of fruits and vegetables in children and their mothers in various European countries was assessed, as well as the determinants of consumption. There are marked differences in relation to the amount of fruit that children and their mothers eat. In Austria, for example, this was the highest consumption for children, whereas in Iceland, the figures are quite low both for children and their mothers. And when you look at vegetables, the consumption is usually lower, and this is the case, again, for Iceland. Portugal showed the highest consumption, both by children and their mothers. So when you look at F&V together, still the differences are kept.

Our food habits are shaped since we are born. Some people also say that even when women are pregnant, the baby's food habits are already been shaped through the foods the mother eats, and the flavors that are passing to the baby. Also, if the mother is breastfeeding, flavors go through the breast milk and expose the child to tastes and different flavors.



This simple flow chart shows that throughout our life, social aspects influence our food habits. The socialization process is very important for F&V consumption. We need to be exposed to different tastes, flavors and textures, to become familiar with foods and to accept them. Exposure and the socialization process differ from country to country, and from culture to culture. There are cultures in which children are exposed to vegetables or to fruits at very early ages, whereas, in others it will occur later. This will have an impact on the acceptance of those foods by the children.

This is the reason why I presented this flow chart. For example, in Portugal, most of the vegetables that the children eat come in their soup. It is completely different from what happens in Austria, Belgium or in other countries. We have to look at the consumption from this cultural perspective and see, for example, that raw vegetables or salads as mixed raw vegetables are not so popular. Soup is really an important item of the diet, which is usually eaten within the family and it is a good way of having vegetables.

We also use food in different ways. Sometimes when the mothers want their children to eat vegetables, they say "if you don't eat your vegetables, you won't have dessert", isn't it? So, it can be a reward or a punishment but food may also express security and affection. Food has really different meanings and usages. If you transmit the message that eating vegetable is something like an obligation, this may be negative.

Talking about exposure, this is a very important issue. Usually, we like what we know and what is familiar to us. But we also know what we like, so it's very important to expose children

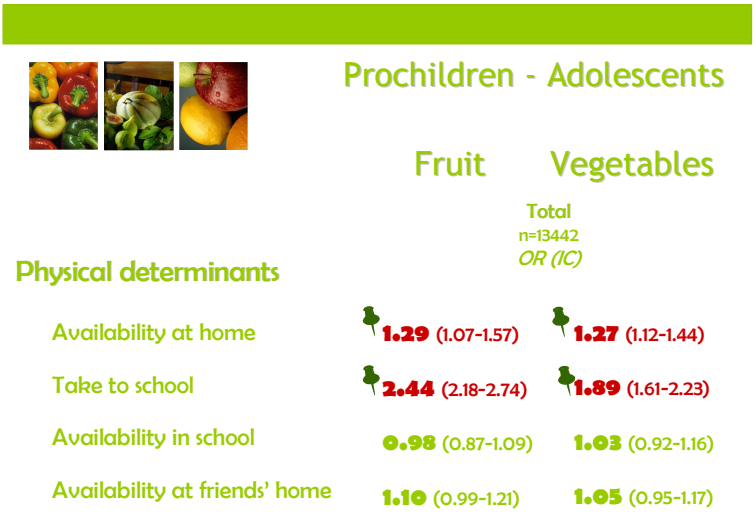
from very early ages to different tastes and textures. And probably you are not surprised to know that, in general, children, are not neophilic [they do not like to try new foods] but at the same time they are eager to taste new foods. If you have the opportunity to expose them to different flavors, you can see that the consumption may increase. Of course, the exposure probably needs to be repeated several times (5, 6, 7, 8 times), until the new food is accepted.

A poster with results of taste sessions by children from the PRO GREENS Project is presented in this Conference. It compares several aspects of the foods, like smell or taste, according to if the food is consumed or not included in the diet. It was found that the rating for smell is much higher in foods which are usually included in the children's diet. Take the example of celery, which is hardly eaten by these children, it can be seen that the rating for smell it's not very high. If you assess taste there is a similar situation. So in general, apart from pineapple which seems to be a favorite fruit, it can be seen that the ratings for smell, for taste, and also in relation to mouth feel are higher for those foods that are usually present in the children's diet.

In the Pro Children Project, we identified several determinants of consumption, socialization, the norms and the model that parents present, make a great difference towards F&V consumption.

From physical determinants that have an impact on children consumption, availability at home (as at the national level) is always very important. If fruit is there, it will be more likely consumed. It's very important also to take fruit to school. Social determinants also play an important part: if the father or the mother eats fruits and vegetables, this is the model at home. Family obligation - this was quite interesting even considering that they were 11-, 12-year old children; obligation was an important factor in determining fruit consumption, but also facilitation. If fruit is there and there is a facilitator which is, in general, the mother or the father. But also personal determinants. It was interesting to see that children who knew recommendations, that they should eat more fruits and vegetables, had the higher consumption of fruit. Also self-efficacy influenced consumption, as well as preferences, if they liked the foods, these were more important factors in fruit consumption.

In relation to vegetables, a similar situation in relation to physical determinants was found, so availability at home and to take to school, are factors which determine more consumption. Also the model, the norms, family encouragement, obligation, permission to eat, these social determinants. And in relation to the individual ones, the knowledge, to like it, self-efficacy, and preferences were also identified as factors with a positive impact in F&V consumption.



Prochildren - Adolesce

Fruit Vegetab

Total n=13442 OR (IC)

Social Determinants

Model/Norms	**2.08** (1.85-2.33)	**1.56** (1.40-1
Family encouragement	0.96 (0.85-1.07)	**1.24** (1.11-1.3
F. obligation	**1.84** (1.65-2.06)	**1.70** (1.52-1
F. permission	0.81 (0.69-0.95)	**1.19** (1.04-1.
F. facilitation	**1.41** (1.26-1.58)	1.03 (1.92-1.1

Prochildren - Adolescents

Fruit Vegetables

Total n=13442 OR (IC)

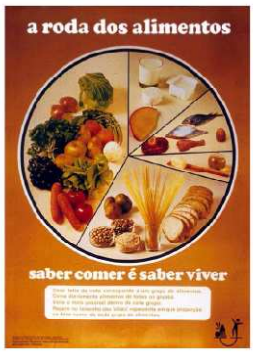
Personal determinants

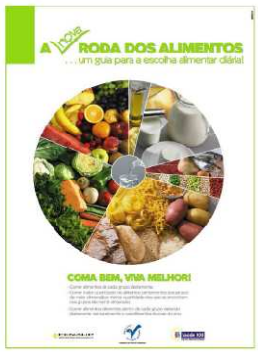
Knowledge	**2.28 (2.06-2.52)**	**1.42** (1.27-1.59)
Attitudes	**1.32 (1.11-1.57)**	**1.05** (0.94-1.18)
Like	**1.92 (1.49-2.46)**	**1.58** (1.40-1.78)
Self-efficacy	**2.04 (1.76-2.16)**	**1.49** (1.33-1.66)
Preferences	**2.65 (1.61-4.39)**	**1.90** (1.72-2.10)
Identified barriers	0.88 (0.65-1.20)	**0.73** (0.60-0.89)

To summarize, there was a very large diversity of consumption of F&V amongst European children. In general, vegetables are less consumed than fruit. Boys consume less than girls. In relation to diets, F&V intakes were higher in Austria and Portugal, than were in Iceland and Spain, and note that data was from the north of Spain not from other areas [the Basque country]. Having fruit at home was really important. On the other hand, being available at school and at leisure time the difference was low.

It's interesting that parental facilitation is an important factor in eating F&V, in relation to these factors. For fruit, a real north-south gradient can be seen not for consumption, but in relation to the factors influencing consumption. It's very positive to see, in general, they are eager to eat and there is a positive attitude to fruits and vegetables. It is a fact that fruit is easier to eat, not only more convenient, but also because it's sweeter. For vegetables, the situation is more difficult. And girls have more positive attitudes than boys. Knowledge is quite important. In summary, it was interesting to note that Spanish children scored lower in knowledge scores and they really showed very lower consumption.

We could say that parental facilitation, availability of F&V at schools, now considering F&V schemes in Europe, and that leisure time facilities will certainly improve or help to increase the consumption of fruits and vegetables in children. The idea is that we really need to increase consumption and that we are below, not only for children, but also for adults and the elderly. F&V consumption is present in several food-based recommendations, and for example, in Portugal, 30 years after, there was a separation between F&V groups. Previously, F&V constituted one common category (food circle on the left). Recently this was divided into two groups to emphasize the need to have fruits and vegetables (food circle on the right). And also to have the idea that you should have more. Most countries have their own recommendations, which are slightly different from country to country





Finally, I have to say that we should look at fruits and vegetables in relation to our food habits; food choice and food ways as part of our culture. The promotion of F&V needs to be integrated in our habits, but also within our beliefs in relation to food; and within this complex picture of eating and choosing foods, in general, and fruits and vegetables, in particular. Thank you.

QUESTIONS/ANSWERS

Chairman (I. Elmadfa): *Thank you. Time is, not only little, it is over. But short questions, so one or 2 questions, and short answers will be still possible. Yes, please.*

Public (from Denmark): *The Icelanders are those living longest in the world, they are eating the least F&V. So I think this suggested we should be very careful to interpret these things at the middle level.*

MD de Almeida: Well, I'm not sure they are with the longest life expectancy, but [...] [...]. ///

Public (from Denmark): Okay, but we have to take into account that food habits have an integrated part, and they integrate it, so it's not just looking at them separately.

MD de Almeida: I think so longevity is not a [...] issue and process, so F&V consumption is one factor, but not everything. Should look at the whole context.

Public (Gormley from Dublin): *I was interested in your slide on the vegetables from soup. But if you do a survey, I think you will find many soups are also very, very high in salt. If it's prepared in the home, I think there is a choice, but soups you get in canteens and in restaurants, I think they are very high in salt. I think soup is a bit like bread. And bread is often surprisingly high in salt, and I think you will find soups are also surprisingly high.*

MD de Almeida: Yes, that's something that we actually take into account, and certainly in Portugal, bread and soup contributes a lot to sodium intake, so we have to work at the levels at the same time.

Public (Gormley from Dublin): *But I think the food industry is aware of this problem, and I know from many reformulation activities of recipes, also for soups to replace salt by spices and to reduce the salt content, especially in the soup. It is an evident problem. Yes?*

MD de Almeida: I think the food industry is alert, but I think chefs are not. When you look at these TV programs at night where the chef is making lovely meals and he says, put in a little bit of butter, and he puts in a piece the size of your fist, put in a bit of salt, and he puts in about 5 grams, so I think chefs need more education. I think the food industry is becoming more aware.
But just about soup, we are talking about homemade soups, and you have to think that if chefs, if anyone pays attention to chefs when cooking everyday meals.

Public (Jackie [...] from [Sirad]): *In one of your slide, you mention that, for instance, in Belgium we are excluding fruit juice. In your survey in Portugal, at household level, did you integrate processed fruit and the fruit juice, or only fresh fruits and vegetable?*

MD de Almeida: If you are talking about household budget surveys you will have data on fruit in different kinds, like fresh fruit, fruit juice, processed fruit. When analysing the data you can distinguish amongst the different categories or obtain the total available for consumption. So the table where recommendations are shown, in some countries it is specified if fruit juice is included in recommendations to make the total amount of the recommended intake.

Chairman (I. Elmadfa): *Thank you very much.*

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Chairman: I. Elmadfa

We have a presentation on diversity and we are talking not only about the amount of fruit and vegetables (F&V), but also here the diversity is [...]. Before she starts: about consumption and supply and availability - those are 3 different values of food intake. Supply can be sometimes double as high as the real consumption, the real intake from surveys. That should also be taken into account when we talk about consumption and intake of F&V. Verena.

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V. Nowak (AU)

Diversity of F&V to Achieve a Healthy Diet

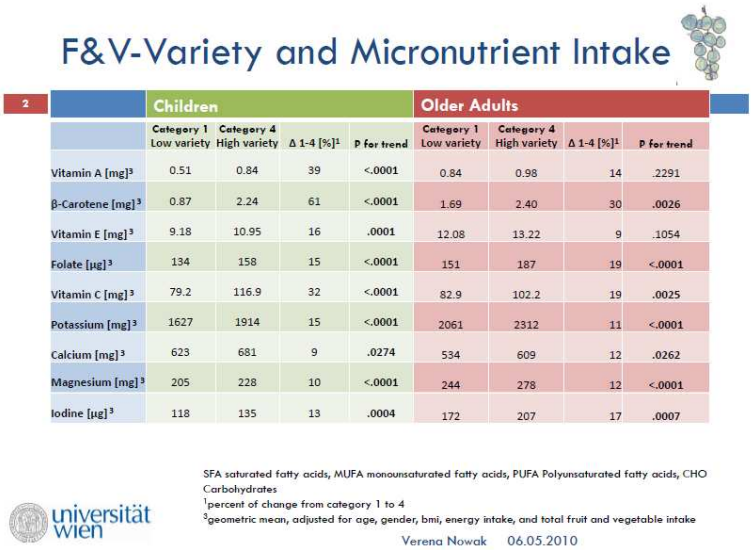
Good morning, everybody. My talk will be about diversity of fruits and vegetables (F&V) to achieve a healthy diet. I will start with a short introduction on, and difference between, dietary diversity and food variety. I will go on with the association between nutrient adequacy and F&V variety. Then I will present the results of the Austrian Study on Nutritional Status, especially for school children and older adults.

Starting with dietary variety. In many food-based dietary guidelines all over the world, variety is a very important guideline. For example, in the healthy eating guidelines for Austrians, the first sentence, the first guideline, is “Eat and enjoy a variety of foods.” And also from the Germany Nutrition Society, it’s “versatile eating habits”. In the U.S., too, variety plays a very important part. There it is, “Eat a nutritious diet, based in a variety of foods originating mainly from plant rather than animals.”

But how could a varied diet be healthier than a diet that includes only just a few foods? On the one hand, it increases the probability of adequate intake of nutrients and phytochemicals that are concentrated in just a few foods, such as iron and calcium. On the other hand, it lowers the probability of consuming high amounts of toxic substances that are also concentrated in single foods or food groups. Those are some of the positive aspects of a varied diet.

On the other hand, it has been shown that dietary variety is positively associated with energy intake and therefore might lead to overweight and obesity. Remember Professor Elmadfa's talk - or rather the slide with the very different foods. If you go into a supermarket and see the variety that exists now compared to 50 years ago, well, you can select very healthy foods, a lot of very healthy foods, but even more non-healthy foods. Consequently, it should be our goal to promote a variety of healthy foods rather than total dietary variety, which might confuse the consumers.

Variety can be measured at three different levels. First of all, "Between Group Variety". Imagine this as a food-based dietary guideline where each sector is one food group. "Between Group Variety" is measured by counting the different food groups from which someone consumed. The "Within Group Variety", on the other hand, is the variety within one of those sectors, within one of those food groups. For example, the F&V variety which I will talk about later. The third level or “Total Variety” is the sum of all those "Within Group" varieties.



F&V-Variety and Micronutrient Intake

2

	Children				Older Adults			
	Category 1 Low variety	Category 4 High variety	Δ 1-4 [%][1]	P for trend	Category 1 Low variety	Category 4 High variety	Δ 1-4 [%][1]	P for trend
Vitamin A [mg][3]	0.51	0.84	39	<.0001	0.84	0.98	14	.2291
β-Carotene [mg][3]	0.87	2.24	61	<.0001	1.69	2.40	30	.0026
Vitamin E [mg][3]	9.18	10.95	16	.0001	12.08	13.22	9	.1054
Folate [µg][3]	134	158	15	<.0001	151	187	19	<.0001
Vitamin C [mg][3]	79.2	116.9	32	<.0001	82.9	102.2	19	.0025
Potassium [mg][3]	1627	1914	15	<.0001	2061	2312	11	<.0001
Calcium [mg][3]	623	681	9	.0274	534	609	12	.0262
Magnesium [mg][3]	205	228	10	<.0001	244	278	12	<.0001
Iodine [µg][3]	118	135	13	.0004	172	207	17	.0007

SFA saturated fatty acids, MUFA monounsaturated fatty acids, PUFA Polyunsaturated fatty acids, CHO Carbohydrates
[1]percent of change from category 1 to 4
[2]geometric mean, adjusted for age, gender, bmi, energy intake, and total fruit and vegetable intake

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F&V variety has been shown to be associated with lower cancer risk. There is also a poster on this topic with emphasis on the lowered risk of bladder cancer; it is poster #52. F&V is also inversely associated with body fatness. What I will focus on is the association with nutrient adequacy of, for example, vitamin C, vitamin A, potassium in in elderly and Vitamin C and vitamin Ain school-age children.

The study I will focus on is the Austrian Study on Nutritional Status 2007, more specifically the population groups of children and older adults. We used a 3-day food record, and F&V variety was determined by counting the number of different F&V that were consumed during 3 days. We found a minimum of 20 grams per day, so fruit or vegetables was only counted to variety if it was consumed in an amount of 20 grams per day or more. For children it looked like this: we had zero to 12 different fruit or vegetables per person per 3 days. The F&V that were consumed the most within the highest amounts were apple, orange, tomato, banana, then mixed fruits and cucumber. 20 children did not eat any fruit or vegetables during the 3 days, or at least no F&V in an amount of more than 20 grams per day.

In the older adults, it looked pretty much the same, meaning zero to 12 different F&V. During the 3 days all the preferred F&V were the same: apple, orange, tomato, banana. In addition we have onion and cucumber. F&V were also counted when they were ingredients of dishes. Also, regarding the apple and orange, we included 100% fruit juices.

The following are results of repression models that were adjusted for age, gender, BMI, and total F&V intake. Energy intake increased from Category 1, which is low variety, to Category 4, which is high variety. It increased by 8% and this increase was statistically significant. Also the intake of unsaturated fatty acids in energy percent increased significantly by 9%. With all other fats, saturated fatty acids, monounsaturated fatty acids, carbohydrates and protein, there was no significant change. For the elderly it looked a bit different. There was also a significant increase in energy intake, as well as in fats, saturated fatty acids, and mono-unsaturated fatty acids. No significant increase for poly-unsaturated fatty acids, and a significant decrease by 9% for the carbohydrates.

The data about micronutrients is again taken from regression models, but also adjusted for total energy and F&V intake. The selected micronutrients, for example beta-carotene, increased by 61%, going from Category 1 to Category 4. Another example would be folate intake, Category 1 to Category 4, which increased significantly by 15%. For minerals, potassium increased by 15% from low to high variety. In older adults, the picture is similar. The increases were not in the same, not as high compared to the children.

In summary, it was 34 regression models, 33 nutrients tested, and energy. In children, of the 33 nutrients, 23 nutrients changed significantly from Category 1 to Category 4. For the elderly it was pretty much the same, but it was 25 nutrients that changed. As we saw before, in elderly and in older adults the major change was less micronutrients that changed from Category 1 to 4, but it was more the micronutrients that were increased, for example, fat intake.

F&V-Variety versus Between-group Variety

3

	F&V-Variety				Between-group Variety (10 major food groups)			
	Category 1 Low variety	Category 4 High variety	Δ 1-4 [%][1]	P for trend	Category 1 Low variety	Category 4 High variety	Δ 1-4 [%][1]	P for trend
Energy [MJ][2]	6.61	7.18	8	.0058	5.95	6.92	14	<.0001
Fat [%E][3]	34.5	35.4	3	.1630	32.7	37.1	12	<.0001
SFA [%E][3]	14.3	14.8	3	.1385	13.8	15.6	11	.0001
MUFA [%E][3]	12.1	12	-1	.9953	11.5	12.4	7	.0078
PUFA[%E][2]	5.8	6.4	9	.0324	5.2	6.9	24	<.0001
CHO [E%][3]	50.6	49.8	-2	.3496	53.1	47.2	-13	<.0001
Protein [%E][2]	14.5	14.6	1	.9324	13.8	15.6	11	<.0001

SFA saturated fatty acids, MUFA monounsaturated fatty acids, PUFA Polyunsaturated fatty acids, CHO Carbohydrates
[1]percent of change from category 1 to 4
[2]geometric mean, adjusted for age, gender, bmi, and total fruit and vegetable intake/total food intake
[3]arithmetic mean, adjusted for age, gender, bmi, and total fruit and vegetable intake/total food intake

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Another question is whether F&V variety is better than a total varied diet? In order to find out, I recalculated everything, including the Between Group Variety and that counts the different food groups that were consumed per person, per a certain time period, which is 3 days in our case.

Here are energy and macronutrients. The F&V variety in picture shows the only significant increase in energy and in polyunsaturated fatty acids, but if you look to the Between Group Variety, energy increased to a higher amount, about 14%, and also fat intake increased, saturated fatty acids, monounsaturated fatty acids, poly as well. Carbohydrates decreased significantly, which is not the best result we would like to have.

Conclusions. The associations of F&V variety and nutrient intake were similar, not the same, but similar for Austrian children and older adults. So a diet including a variety of F&V is positively associated with micronutrient adequacy, independent from the amount of total F&V and total energy intake. In terms of nutrient adequacy, F&V variety can be used as an indicator for diet quality. Energy intake increased significantly from low to high F&V variety. The increase, however, is lower for F&V variety than for Between Group variety. So more specific recommendations than just, "eat a variety of foods," would be preferable.

Regarding energy and micronutrient intake, F&V variety seems to be more favorable than Between Group Variety. As folate and calcium, for example, are considered to be critical nutrients in the Austrian population (not only in Austria, specifically, but this study was in the Austrian population), a diet diverse in F&V may be useful for diet recommendations.

So that was my talk, I thank all the participants, all the master students who had a lot of work with it, and my colleagues from the Institute of Nutritional Sciences at the University of Vienna. Thank you.

F&V-Variety and Macronutrient Intake

1

	Children				Older Adults			
	Category 1 Low variety	Category 4 High variety	Δ 1-4 [%][1]	P for trend	Category 1 Low variety	Category 4 High variety	Δ 1-4 [%][1]	P for trend
Energy [MJ][2]	6.61	7.18	8	.0058	7.35	8.32	12	.0044
Fat [%E][3]	34.5	35.4	3	.1630	36.5	38.4	6	.0225
SFA [%E][3]	14.3	14.8	3	.1385	14.9	16.5	9	.0020
MUFA [%E][3]	12.1	12	-1	.9953	12.1	12.8	6	.0443
PUFA[%E][2,5]	5.8	6.4	9	.0324	7.1	7.1	0	.7177
CHO [E%][3]	50.6	49.8	-2	.3496	43.8	40.3	9	.0012
Protein [%E][2]	14.5	14.6	1	.9324	14.4	14.7	2	.8049

SFA saturated fatty acids, MUFA monounsaturated fatty acids, PUFA Polyunsaturated fatty acids, CHO Carbohydrates
[1]percent of change from category 1 to 4
[2]geometric mean, adjusted for age, gender, bmi, and total fruit and vegetable intake
[3]arithmetic mean, adjusted for age, gender, bmi, and total fruit and vegetable intake

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QUESTIONS/ANSWERS

Chairman (I. Elmadfa): *Open to discussions, or any interventions, comments? Yes?*

Public: *Did you take into consideration the season in your variety? Because you don't have the same variety in F&V according to the seasons.*

V. Nowak: Yes. The study was conducted from the June 2007 to June 2008, and, yes, all seasons were included. I did not put this into my regression models as an independent variable, but the distribution over the year was quite good.

Public (Nicole Darmon from France): *I would like to know how did you count different F&V when you had the similar item, for example, when you had vegetable, the same food and cooked. How did you--?*

V. Nowak: That's a very important question. We assigned, for example, raw apples and cooked apples to the same commodity. So it was only apples.

Public (Elio Riboli): *I'm just curious about the very strong statement you had at the end, that the benefits of variety are independent of the total amount. I wonder whether this went a little bit too far, because we can always imagine that there is a kind of a multidimensional model that when you are down to consuming 50 grams of vegetables and fruit per day, if you have 10 portions of 10 different 5 grams, probably you don't get the right amount. So there may be some kind of range of intake within which you have an advantage of the variety, but below which the variety becomes irrelevant.*

V. Nowak: Yes, it is indeed a strong comment. What I meant with this is that if you consume 400 grams of F&V, you should vary it, as well, not only focus on the amount, but also on the variety.

Public (Elio Riboli): *But the question was whether the variety in all levels, so the items, how many items make the variety? I put in my presentation, 20-30 over the day on average. What range is recommendable here? Your categories, so 1 to 4, how many were in 1, and how many were in 3? Perhaps 3 and 2 are enough.*

V. Nowak: In Category 1 for children it was 1 to 2. Different F&V for the older adults it was 1 to 3. And in Category 4 it was 6 to 12 for the children and 7-12 different F&V for the older adults. But you have to bear in mind also that it is assigned at ingredients level, so.

Public: *Could you tell me [...] [...] and how were they [...] on the children?*

V. Nowak: It was estimated food records provided the children as photo books, picture books, to have a better estimate of the portion size.

Chairman (I. Elmadfa): *But the most important information I take from this work is that the variety, in fact, does increase the energy intake, but it is not, in the case of* F&V, *as high as of the total diet. We should take this into consideration and perhaps accept it as a 2nd, not intended, result. We will intend to have the variety to improve the potential of the diet, health-promoting potential. But there is an increase of the energy intake up to 6%, 8%. Thank you, Verena, thank you very much.*

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Chairman: I. Elmadfa

Our last presentation is on problems of nutrition in a low-income population. We considered that we should ask for such a presentation from Mona Vintila from Romania. She has some experience in this area. We are working on another similar project and we thought of her as someone who could make a presentation to us on this topic.

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M. Vintila (RO)

Nutrition and the Low Income Population

Good morning to everyone. First of all I would like to thank Professor Elmadfa and Mrs. Barnat for offering me the opportunity to talk to you today about a subject that I think is very complex, as seen from its title, "Nutrition and the Low Income Population". Our study is concerned with Romania, which, as you will already know from a 2009 Brussels-published EU report, offers its citizens very limited information concerning health, even poorer than that provided by other Eastern European countries. So this is our starting point.

The national health system in Romania is, I think, significantly different from that of your countries, so I need to tell to you a little about it. Healthcare is generally poor by European standards and access to it is limited, especially in rural areas, as I presume you know. Every employee contributes to a public health fund which ensures them emergency healthcare, primary care, hospitalisation costs and part of the cost of medication. But this health insurance system has only been functioning in Romania since 1997.

We also have a new private health sector, but this is very limited at present; There are very few private hospitals and just a few private practices; these offer a better standard of health care, but are only now becoming established.

This is the reason why one of the major problems that we are confronted with is that currently 45% of the doctors and nurses in Romania would like to emigrate for work. Over a single period of 10 months, for example, the number of Romanian doctors working in France rose by 320%. To give another example, in 2008 7,000 health professionals asked the Romanian Ministry of Health for the means to obtain recognition of their degree abroad, indicating that they wanted to emigrate.

People interested in health information have found that at the national level 87% of people between 15 and 60 years of age express an interest in health information. This information may be sought via the Internet, TV, magazines, and so on. Well-educated women aged between 45 and 60 in top jobs are those most interested in obtaining health information.

The most significant national campaign concerned with health education is the one carried out via Romanian TV channels. It consists of TV spots such as: "The excessive consumption of salt, sugar, and fat is bad for health", "For a healthy life, eat Fruit and Vegetables (F&V) daily" and "For a healthy life, drink at least 2 litres of liquid daily".

We previously discussed life expectancy in other countries. As you can see, there is a huge difference in comparison with Romania, where life expectancy is 61 for men and 65 for

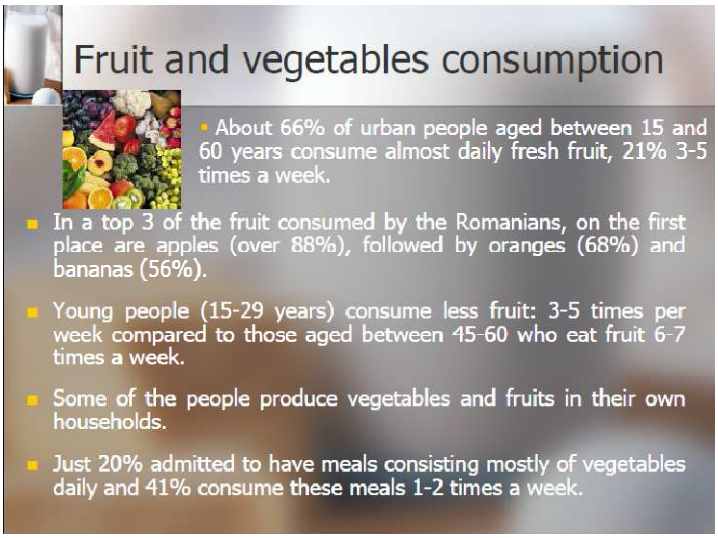
women. The probability of dying under the age of 5, per 1000 live births, is 16. And the total expenditure on health per capita is $610 a year (2006 figures).

In July 2007, a free nationwide annual medical examination program was launched. This represented a very important milestone for our health system because it allowed about 12 million people to have a free blood test. And this showed that 3,600,000 people in Romania are at risk of diabetes. Over 850,000 Romanians face a cardiovascular disease risk. Other diseases with a high incidence of risk were found to be stroke and colorectal cancer.

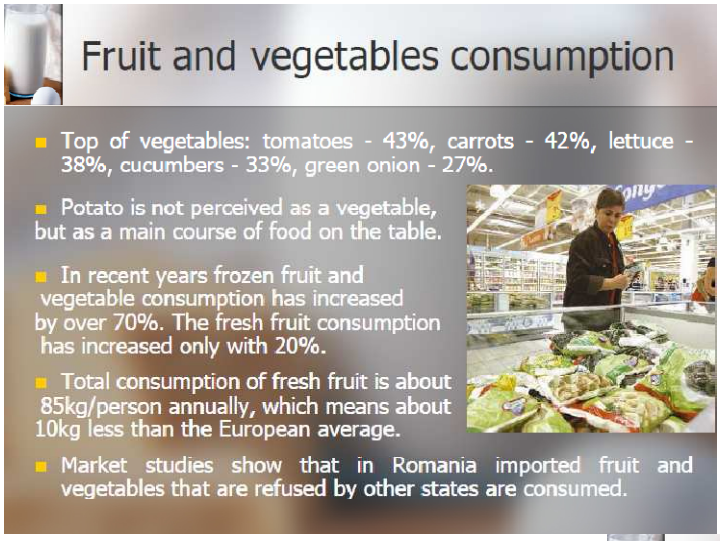
Much of this is due to Romanian eating habits. An average family, for instance, spends about 100 euros per month on food, which represents about 30% of the total family budget. A third of Romanians eat their main meal in the evening when they come home tired after a day at work, so they are very hungry and compensate by eating a lot. A tenth of Romanians eat cold food on the run between meetings at work. Few are used to eating fast food. Pre-cooked food is not that greatly in demand. Almost 45% of Romanians cook daily, and 55% cook several times a week. Romanians like to eat, and they are usually very proud of what they eat. And what they eat is above all pork.

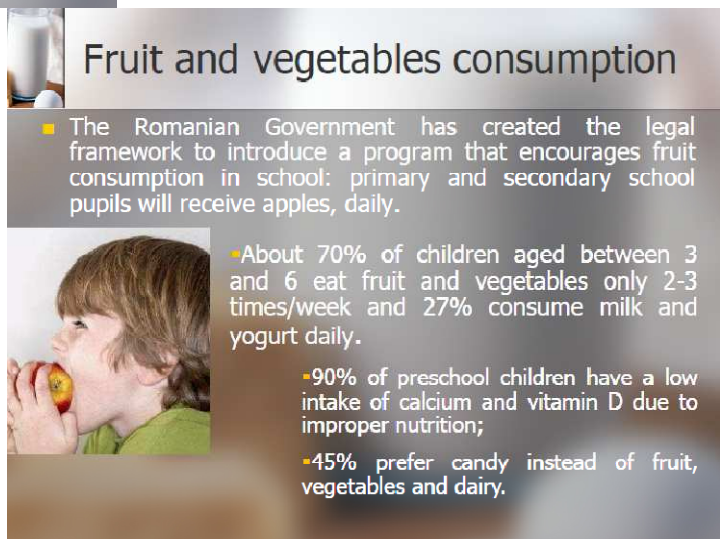
Eating habits in Romania. Almost 62% of the people questioned have never been to a restaurant. Almost 40% of the people questioned have replaced plain water with carbonated drinks. Eating habits are associated with special situations. 75% agree that healthy foods are recommended by doctors for people with various illnesses, so they consider that you have to eat healthily if you are sick. And 68% believe that those who eat healthily must be wanting to lose weight. Again, 62% of Romanians claimed to eat “healthily” or “very healthily”, but the food that they eat consists, all too often, of chips, crisps, meat cutlets, crackers, carbonated drinks and so on. More than 40% of Romanians living in cities do not follow the recommended three meals a day pattern but eat a proper meal only twice a day. And 58% never practice sport.

Related fruit and vegetable consumption. About 66% of urban people aged between 15 and 60 years consume fresh fruit almost daily, while a further 21% report consuming it 3-5 times a week, with the top three fruits consumed being apples, oranges and bananas. Young people aged between 15 and 29 consumed less fruit, 3 to 5 times per week, compared to those aged between 45 and 60, who eat fruit 6 to 7 times a week. Some people produce their own F&V. Just 20% claimed to eat meals consisting mostly of vegetables daily, and 41% consumed such meals 1-2 times a week.



Types of vegetables consumed. These were tomatoes, carrots, lettuce, cucumber and spring onions. It was interesting to see that potato is not perceived as a vegetable but is considered to be a main course food, and Romanian potato consumption is very high. In recent years frozen F&V consumption has increased by over 70%. Fresh fruit consumption has increased by only 20%. Total consumption of fresh fruit is about 85 kilos per person annually, which is about 10 kilos less than the European average. Market studies have also shown that F&V rejected by other states are quite often imported by Romania.





The Romanian government has created the legal framework to introduce a program that encourages fruit consumption in schools. In primary and secondary schools pupils will receive apples every day, starting from this school year, 2010-11. About 70% of children aged between 3 and 6 eat F&V only 2-3 times a week. 27% consume milk and yoghurt daily. 90% of preschool children have a low intake of calcium and vitamin D due to incorrect nutrition. And 45% prefer sweets to F&V.

Taking into account the variety of approaches observable in other European countries, the idea has arisen of starting a national project to develop new solutions to the problems of implementing healthy lifestyles in the local communities of different countries. This is why we have taken part in a five country European project together with Germany, Great Britain, Sweden and Latvia. This project was sponsored by the European Union and took place in the period 2007 to 2009. The starting point of this project was the idea that the local community to which a person belongs is able to influence his knowledge regarding a healthy lifestyle and its implementation in everyday life. The research was carried out in each country. In Romania, it consisted in the investigation of 200 households which were investigated quantitatively, with 20 of them being also investigated qualitatively through more in-depth interviews.

The results show the following: The answers regarding perception of health information showed that over 50% of the studied group considered that they were well-informed about past behaviours related to diet, physical activity, mental and social well-being. Despite this the reality is that most of them have poor or wrong information about health. Almost 80% of them do not know what the phrase “5 per day” means. Some of them prefer unconventional quack treatments. They receive their health information mainly from doctors and from TV spots, but also from family members. These were important facts for us to know, as they provide a starting point when talking to people about new and correct health information.

The majority of respondents claimed that it is not easy to implement health information in their daily lives. Almost 40% think that a healthy life involves spending more money on healthy

food. So they think that buying healthy food would be much more expensive than the traditional food they eat. Most of them stated that they obtain health information, especially from medical specialists. But at the same time they do not trust their family doctors, to whom they seldom go because the family doctor never has the time to give them proper information. TV shows, magazine articles and the Internet were other sources of information.

More than 50% of the studied group eat white bread several times daily. Rice and cake both appear on the tables of about 40% of the questioned people several times per week. 50% of the sample eat potatoes as frequently as rice. More than 50% of the people questioned eat margarine daily. Coffee and cigarettes figure as part of their intake. Seldom or never do they eat wholegrain bread, cereals, oil, butter, organic produce or mineral and vitamin supplements. In addition, about 20% of our group seldom or never consume milk products. When it comes to F&V, the people questioned said that they eat F&V almost daily. But this can be related to the fact, as previously mentioned, that the quantitative research was carried out during summer, when respondents have F&V in their gardens.

Physical activity is considered to be important for a healthy life, and people questioned claimed that they participate in such activities as walking and cycling a few hours a week. But they do not do this for specific reasons of sport or health, but simply as part of their daily activity.

It was interesting to observe that high blood pressure is so common that nobody even mentioned it as a disease. Unless we asked specifically about it, they did not even consider it as being a problem. Health is, theoretically, very, very important for them, but they do not act in accordance with this. There is a general idea that health is important, but most of them say that they cannot afford a healthy lifestyle. Health is also related, in their thinking, to youth. So you cannot expect to be healthy after the age of 50. It is pointless for the elderly to go to the doctor because doctors cannot give them back their health. And habits are stronger than health advice. So here we see some of their beliefs, their culture, their mentality, and the lack of education that we are confronted with.

So in conclusion, I would say that we will have to work very hard in order to improve and to make changes and encourage personal involvement and personal development of people's education related to their healthcare. Thank you very much.

QUESTIONS/ANSWERS

Chairman (I. Elmadfa): *Thank you, Mona. We still have a few minutes for comments. There was a lot of information and it was very presented quickly, but I hope you were all able to follow. Yes, please?*

Public*: As a medical doctor, I wonder if I would be at all useful in Romania because, you know, they don't trust doctors! Do you have any information on why people don't like, don't trust, medical doctors?*

M. Vintila: I mean they don't trust their general doctors. So they have to go to a general practitioner, whom they don't trust, for a referral. There are around 2,000 people for one practitioner, and the practitioner usually doesn't have the time to speak with them, to explain to them. And so they go to the general practitioner just in order to get a referral because they trust the specialist, so they would like to go directly to a specialist.

Public: *Whom they pay*.

M. Vintila: Yes, usually they pay, of course.

Public: *Thank you for your presentation. I have a question about it; I'm assuming when you mentioned that the Romanian government is engaged in a project to provide fruit to children at school, you are referring to the EU School Fruit scheme?*

M. Vintila: Yes.

Public: *Okay, so thank you for that. My question is, why apples every single day? I mean, we just heard how important it is to focus on variety, and that program provides the funding to offer variety. So I'm very curious about why just apples, and if there's work from all of you at the university level to impact that policy at the government level so that the kids get a wider variety of F&V in the School Fruit scheme.*

M. Vintila: Yes, so I want to mention a few things here. I didn't have the time to speak about everything that I had prepared. We have done some intervention programs after this project that I have been speaking about. And what we have achieved is, for instance, to change the meals in schools and in kindergartens where we have been working. For instance, in Romania, they don't provide a lunch for children; that's not compulsory. The only thing they had before was a cup of milk and a bagel. So now it is something new to add a piece of fruit. And it seems that for a beginning it would be easier to provide an apple. We can find apples in Romania in every season and in large quantities, so it's more affordable. Maybe this will change in time, but for the first step, this is what they are planning.

Yes, it's availability and affordability.

Public: I figured that out, it was probably because it was available and perhaps a surplus and all that. But still, I guess I would ask those of you from the university and health professionals in the country to try to work with the policymakers to expand the School Fruit scheme to include other F&V because that's really important.

M. Vintila: *Of course, this is the idea. But I think it will take some time.*
So the recommendation we put to our colleagues implementing programs and intervention programs is to go for variety. But this case was selected because of the circumstances, low income, region, and I think the availability of the fruit, apples, and the affordability of them was the main reason here.

Chairman (I. Elmadfa): *Any other comments? Otherwise, I would like to thank you.*

PREVENTING CHRONIC DISEASE
– THE ROLE OF F&V

SESSION 2: INCREASING CONSUMPTION OF F&V IN PREVENTING CHRONIC DISEASES

Friday, May 6, 2010

Session 2	SPEAKER	PAGE
Chairman	E. RIBOLI (UK)	43
Diet and obesity: focus on F&V	T.I.A SORENSEN (DK)	44
Dietary pattern and cancer	T. NORAT (UK)	49
Dietary habits and risk of cardiovascular diseases	S. PANICO (IT)	54
Diet and cognitive function in older adults	P.BARBERGER--GATEAU (FR)	59
Conclusions		65

Chairman: E. Riboli

It's a great pleasure for me to see the 6th of EGEA moving on so nicely and swiftly, and I'm very pleased that Professor Elmadfa has taken over very effectively and very energetically, the role of chairing the Conference. We have an interesting session now on the Consumption of Fruit and Vegetables and Chronic Diseases.

Just one word of personal comment on a debate which has been going on over the past month, and is whether we know enough on the benefits of fruit and vegetables and we should not waste any further time in research and focus on public health, or whether there is still a point in doing research.

Now, I think that the controversies that we keep hearing and coming up, both from a scientific press and just the media, emphasizes how much doubts there are on important issues. Important issues such as which type of fruit and vegetables is really good, is it the total amount as we heard, or is it the variety? And is it fruits or is it vegetables? What is the benefit we can expect for different type of diseases? What is the effect we can expect on aging?

So in reality so far, we are relieved that the total research has not identified that fruit and vegetables can be bad. The actual quantification of the benefit is still something that is difficult to state with any certainty. And because fruit and vegetables, if consumed in larger amounts, will naturally have to replace other foods, the issue of what is the right amount, of what is the recommended amount? And what fruit and vegetables should be replaced for? It is a very delicate issue which has both health and economic implications.

I think that one that we can confidently say that consumption of fruit and vegetables is good for health; I think we are still a long way from having a complete understanding of the relationship between fruit and vegetables on specific diseases.

And this is what we are going to address in this session. The first speaker is Professor Sorensen, a distinguished researcher, particularly in the area of obesity and metabolic diseases, and diabetes in diet. Particularly, Thorkild Sorensen is doing major work on the interaction between genetic predisposition in diet and chronic diseases. Thorkild, you have the floor.

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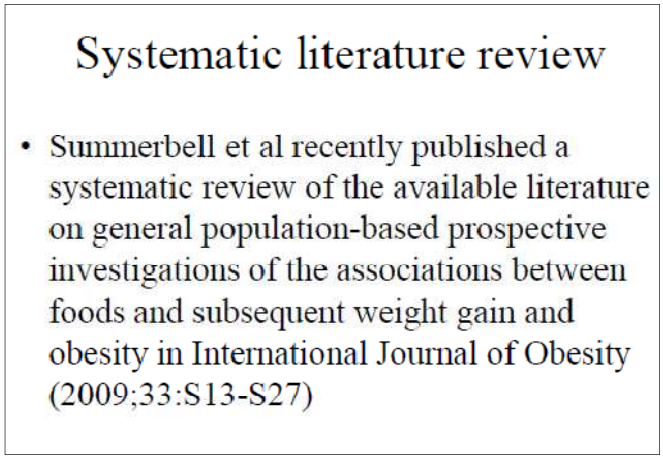
T.I.A. Sørensen (DK)

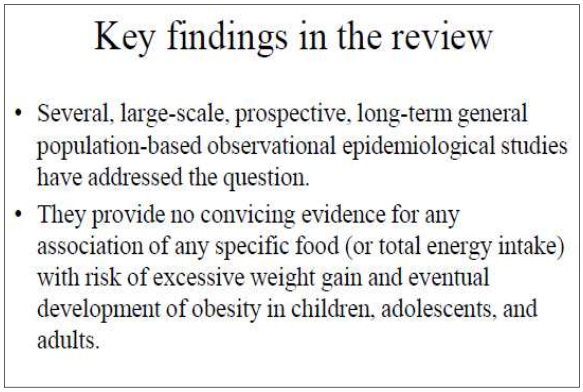
Diet and obesity: focus on F&V

Thank you to the organizers of this meeting for inviting me and for giving me an opportunity to share with you some of the results of our research and some of the ideas we have regarding obesity and diet.

I think we can state that the prevailing belief is that fruit and vegetables (F&V) are presumed to prevent weight gain and eventual development of obesity by proving food that has no, or little, fat content, relatively high water content, and hence, a low energy density, and high satiating effect. Moreover F&V is rich in fiber, which may influence body weight regulation in various ways. These are the hypotheses.

However, Summerbell and co-workers recently published a systematic review of all the retrievable literature on general population-based prospective investigations that included assessment of the relation between food and subsequent weight gain and obesity. I think this is a very important study. It is, as I see it, a good basis for taking the next step in researching and understanding of what diet means to obesity. They carefully subdivided all the studies according to which elements of the diet that were investigated. They had chapters on cereals from whole grain and refined, cereal products, starches, roots, tubers, plantains, fruits, and un-starchy vegetables, combined and separate, legumes, nuts, and seeds.





Here are the key findings in the review. Several large-scale prospective, long-term, general population-based, observational epidemiological studies have addressed the question. They provide no convincing evidence for any association of any specific food, or even total energy intake, with risk of excessive weight gain and eventual development of obesity, neither in children and adolescents, nor in adults. So it indeed pushed us back to kind of ground zero.

Is this really the truth? Could there still be important effects of F&V on weight gain and risk of obesity that these studies have been unable to unravel? Could the well-known methodological problems of this sort of epidemiology, and specifically in nutritional epidemiology, have hidden the true associations?

Before the review was published, I was involved together with many other colleagues in a big European FP6 project coordinated from Maastricht University by Professor Wim H.M. Saris,

"Diet, Obesity and Genes," called DiOGenes Project, which was running from 2005 through 2009. It may contribute to this debate about the role of F&V. Primarily, it focused on the role of protein and glycaemic index in prevention of weight gain in the general population, and regain after weight loss among obese individuals. It included, however, additional foods as a context of the two key features, for example, the F&V.

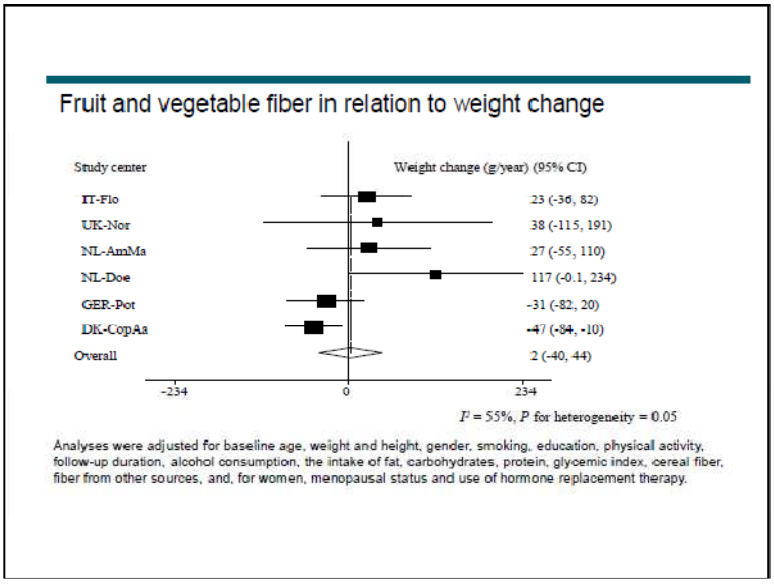
Briefly, the Diogenes Project consists of five research lines, with a 6th that is the central data hub function:
- The 1st research line was a dietary intervention trial, a very big one, not assessing weight loss, but dietary influence on weight maintenance after weight loss has been achieved.
- The 2nd research line was integrated in the trial and addressed quite broad aspects of genetics, and genomics, and biology.
- The 3rd research line was the population studies, the epidemiological ones, which I was in charge of.
- The 4th research line included a lot of psychological and psychosocial aspects assumed to be predictors of abilities to maintain weight.
- The 5th research line was about implication for food technology.

A very important opportunity to set up this project came from collaboration with EPIC, the European Prospective Investigation of Cancer. It turned out that at the time we were planning DiOGenes, there were actually quite a large series of cohorts within EPIC that were suitable for integration into the Diogenes Project; one cohort from Florence, one from Norfolk outside Cambridge, three cohorts (usually counted as two) from Doetinchem, Maastricht and Amsterdam in the Netherlands, one cohort from Potsdam, Germany, one cohort from Denmark, which is actually constituted of two, one from Aarhus and one from Copenhagen.

Totally, these cohorts encompassed about 140,000 people, and we could use almost 90,000 of them to investigate prospectively the relationship between diet and weight gain. They were middle-aged, but with a big range, 20-78 years. The mean follow-up time during which we were investigating the weight gain was 6.5 years, but again, with a considerable variation, which of course, had to be taken into account in the analyses.

One of the papers that came out of this activity was this study of F&V intake and subsequent changes in body weight in European populations, published in the American Journal of Clinical Nutrition in 2009 The key drivers of this part of the study was Brian Buijsse, post-doc at DIFE, the German Institute of Human Nutrition in Potsdam, with Professor Heiner Boeing, the leader of the department of epidemiology of that Institute, as the senior author.

The conclusion from that study, which now is one of the biggest one, bigger than several of the other ones included in the systematic review, was that F&V intake relates significantly, albeit weakly inversely, to weight change. The association was particularly strong among people who stopped smoking during follow-up, so high F&V intake may be recommended to reduce the risk of weight gain when stopping smoking.



Two regression models of weight gain in gram per year on F&V measured in gram per day were made, a simpler

model and an advanced model, accounting for all different kinds of conceivable and available confounders; they both showed that there is an inverse relationship, and controlling all the additional variables did not change the association much. There was the same association in nonsmokers, whereas in stable smokers F&V did not really influence weight gain. However, in those who stopped smoking during the follow-up, there was a considerable reinforcement of the inverse relationship. The effect in those who started smoking was not clear. The big numbers, of course, implies that almost any small difference, whatever importance it has, will be significant.

The graphical representation of the same overall relationship, depicted as the relative difference in annual weight change in gram per year in relation to F&V intake, showed that it is clearly an inverse, almost linear relationship, also when taken in a spline context.

Another group of DiOGenes, the one in Maastricht in the Netherlands, with PhD student Du Huaidong in the leading role, did several investigations, which eventually went into her PhD thesis on glycaemic index, energy density and fiber, and part of her work is relevant for the discussion about the role of F&V.

The definition of energy density used was the amount of energy per unit weight of food. As background of the hypothesis, the presumed mechanism is that people tend to eat constant volume of food to reach satiation and satiety, so high energy-dense food could cause passive overeating in terms of total energy. The outcome of the study was that despite the size of the study the energy density was not significantly associated with weight gain.

The study on dietary fiber dealt with the part of plant foods that are resistant to digestion and absorption in the human small intestine, but with complete or partial fermentation in the large intestine. Evidence supports the beneficial role of dietary fiber and weight regulation. Only few studies have compared the effect of fiber from different sources on preventing weight gain.

Here is the dietary variable from the EPIC studies. Combinations of the specific food frequency questionnaires at baseline with specific food composition tables were used to derive the information on total fiber, cereal fiber, fiber from cereal and cereal products, vegetable fibers, all vegetables excluding potatoes, and fruit fiber, fresh fruits and mixed fruits and olives. The crucial question is what can be combined under the assumption of having common effects?

The outcome of the analysis was an inverse relationship between fiber intake and weight change, which can possibly be interpreted as coming from eating more F&V. For cereal fiber it was a very clear picture of an inverse relationship; the more cereal fiber, the less gain in weight. However, for F&V fiber, there was actually no relationship. The point estimate is exactly zero. So, type of fiber seems to matter in terms of body weight regulation.

Obviously, this sort of evidence implies huge challenges. There are measurement errors with profound implications for the estimation process. Both the assessment of the dietary factors and, in most people, the weight gain were based on self-reports. Confounding of the associations caused by other factors is a major issue. Assumptions about time relationship, history, weight gain history that might actually change the dietary pattern, and reverse sequence of effects during the ongoing time, lag time problems, cumulative effects, and persistence of effects, are not well addressed. We actually need to do take all this into account to conduct really good epidemiological studies.

The dietary replacement problem is very important here. If we increase one food, we need to think about would we would like to suggest it to be replaced with. Some of the studies are actually addressing this point, but not in the systematic way we need. We may also have

inadequate definitions and specifications of dietary factors and outcomes. This questions about what is it in F&V, which type of fruit, which type of vegetable, how much of them, may matter. For obesity, it is not just body weight, but we need to be more specific in terms of body shape as well.

This latter aspect is illustrated by the outcome of Du Huaidong's work in Diogenes. What you see here is energy density in relation to waist change. Here it came out very nicely; so, the more energy-dense the food, the greater the waist gain. Since there was no clear relationship with BMI as such, we need to make distinctions in the way we measure obesity.

The Summerbell review also put the question about which F&V have not been studied. They found no studies on non-starchy root vegetables and tubers, cruciferous vegetables were assessed in one small study.

In conclusion, F&V may have some modest protective effect on risk of weight gain and eventual development of obesity, but there remains doubts that push us to do more research. F&V may interact with other lifestyle factors in making this effect. For example, F&V seem to counteract smoking cessation-induced weight gain. Contrary to expectations, F&V may not work on overall weight gain by reducing dietary energy density or by increasing fiber content according to the results we have achieved so far. Much more work is needed to confirm and specify the association of F&V with obesity, including interactions with other factors, also genetic factors influencing weight gain and risk of obesity.

I would like to thank you for your attention and thank you to all my collaborators, not least in DiOGenes, and especially to postdoc Anne-Louise Hasselbalch who is here, who helped me throughout the 5 years coordinating the part of the part of the DiOGenes project that I was in charge of.

QUESTIONS/ANSWERS

Chairman (E. Riboli): *Thank you very much, Thorkild, for this very challenging presentation. Is there any question? Yes.*

Public (Yves Desjardin from Laval University, Canada): *I have one question. Have you tried to distinguish with all the data you have used, the effect of fibers from maybe the effect of phytochemicals and polyphenols, in particular, on obesity? And do you think you are able, with the data you have, to make this distinction?*

T.I.A. Sorensen: ...We don't have results yet on weight changes. Clearly, this stimulates interesting thinking about whether the main effect on weight changes by F&V is true energy density. Based on basic law of thermodynamic, one would tend to believe that as a solid ground. And the other one is whether there are particular phytochemicals that either regulate the diet or regulate metabolic processes, which are much more difficult to demonstrate in observational studies, and may need to be tested in experimental studies, perhaps both nonhuman and human models. So it's very challenging. On the top of this there is the untouched issue of genetic predisposition to eating some F&V, eating other foods, and gaining weight.

Public (Margherita Caroli, Italy): *Thank you very much for your presentation. This data is very, very interesting for us. But I see a risk. How to communicate this data, this information to the public and to the food industry? Because there is already a very, very important and strong trend to force on genetic factors, that's it. So you are what you are, no hope to change. And there are also people that are selling little genetic kits to know if you are predisposed to*

arteriosclerosis, or cancer, or whatever. Which I'm Italian, I wouldn't like to do because I don't want to waste and destroy my life since the early age to know how I will go to die. But anyway, there is, of course, people that like to do that. And then, is the question of prevention of diseases and promotion of health. So I really would be very, very, very careful. I don't know how, but I would be very careful in disseminating this information, that F&V is a very little impact. Can you imagine how food industry now related with F&V can use this information?

T.I.A. Sorensen: This question about genetics, I don't think we have the time for, but it is very important. I completely agree that the translation of knowledge from the genetic field to public health is a great challenge. We don't have easy answers to that. There are a lot of misunderstandings in that area. Now, the reason I mentioned genetics here is very specific. In DiOGenes, we actually tried to see if we could identify, using the classical candidate gene approach, to see if we could identify interactions that would actually allow us to be more specific in identifying the specific food that might prevent weight gain. You can consider the genetic variation in the underlying population as noise. So, we use this information as in an experimental study where settings are controlled to make the comparisons more stringent.

I have just received a grant in Denmark to continue this idea. The argument is not to aim at individualized genetics based prevention in this setting. We will use the genetic information to refine the setting in which we hope we can identify which of the foods are the good ones. Thereby, we could get back to the people, as you request, and tell which foods are good. It may be good for a particular subset of the population, and it may not affect the other subsets. Of course, I hope there is no adverse effect in these other subsets, because then we have a new challenge; if you have one set of genes, well, another set of genes, bad. Then we need a balance.

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Chairman: E. Riboli

We move to the next presentation from Teresa Norat from Imperial College. Teresa is a cancer epidemiologist who has worked particularly on the issue of nutrition in cancer, both in the EPIC Study and as a leader of the WCRF, World Cancer Research Fund Project on the continuous updating of diet and cancer evidence. Teresa

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T. Norat (UK)

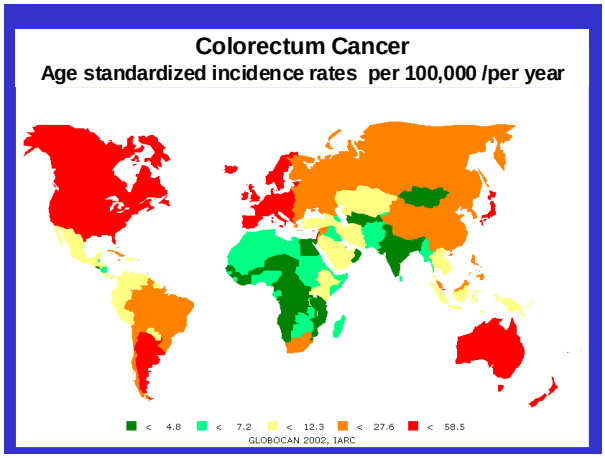
Dietary pattern and cancer

Thank you very much. I have participated in previous EGEA and it's a pleasure to see that the enthusiasm of both the organizers and the participants is growing.

I was asked to talk about dietary patterns and cancer. However, cancers have different etiologies. For that reason, instead of talking about cancers in general, I will focus my presentation in two examples of studies on colorectal cancer. One is the American Association of Retired Persons, which is an American cohort study of about half a million individuals. After five years of follow-up more than 3,000 incident cases of colorectal cancer have been identified. The second study, coordinated by Elio Riboli, the chari of this session, study in which I have the opportunity to work, is the European Perspective Investigation into Cancer and Nutrition (EPIC). EPIC is also a cohort of about half a million individuals. So far we have identified almost 3,000 cases of colorectal cancer during follow up. The participants of this cohort study are individuals from 10 European countries.

Why do we think that cancer is related to diet? I am doing this brief introduction because not all the participants are specialists in cancer.

One of the objective indications that colorectal cancer etiology is linked to diet, or with lifestyle in general, is the geographic variation in incidence of colorectal cancer. As you can see in the map, those countries in which western diet is the predominant pattern are indicated in red color (Fig1). The population in these countries is at high risk of colorectal cancer. The countries are United States, Australia, European countries and Argentina.



The second indication that diet and lifestyle is related to colorectal cancer is the changes in cancer incidence observed over time. A particular example is Japan, a country in which dietary habits have radically changed over time. In Japan, the incidence of both breast and colorectal cancer have increased significantly in parallel with the change in consumption of animal fat, meat, and milk.

The third indication that cancer is related to lifestyle and diet, which is like a natural experiment in humans, are the results of migration studies. As we can see in the slide, the incidence of colorectal cancer by age in populations migrating from Shanghai to United States

approaches the incidence of the host population, the American population. We don't know what will happen if we reverse the situation, if the Americans move to Shanghai. But this is a demonstration that when people change lifestyle, they the risk of cancer of the host population. And these are real data.

In the year '81 Richard Dole and Richard Peter investigated the risk of mortality from cancer in relation with different factors in the United States. They estimated at that time that about 35% of the risk of cancer was explained by diet. After this report, we have seen several reports evaluating the evidence from the experimental, clinical, and epidemiological studies on the relation of diet and cancer. The most recent report is the WCRF/AICR report, "Food, Nutrition, Physical Activity and the Prevention of Cancer." Ten recommendations for cancer prevention are included in this report. The recommendations refer to physical activity, body weight, consumption of energy-dense food, consumption of plant foods, including cereal, fruit, and vegetables. There is a recommendation of limiting the consumption of red meat and avoiding the consumption of processed meat, limiting the consumption of alcohol, salt. Finally, it is concluded that there are no evidences that dietary supplements prevent cancer

An important point is that these recommendations should be considered all together and not one by one. It's a pattern of dietary habits which is recommended. The panel of expert that evaluated the evidence for this report concluded that cancer can be reduced by increasing adherence to all the recommendations. For this report, by the first time the evidence was summarized in a quantitatively way by doing meta-analyses of published study. Now, at Imperial College London, I am coordinating a project which is the continuous evaluation of the epidemiologic evidence on the link of food, nutrition and cancer. Probably next year we will start publishing new evaluations of the existing evidence. The project –The continuous update- is funded by WCRF and the AICR.

Although the WCRF/AICR are on foods and nutrients, they are supported also by what is known on dietary patterns. The advantage of dietary patterns is that a group of foods can be considered simultaneously.

How to assess the dietary pattern in a population? The dietary pattern can be assessed in different ways and I will not go into details of the statistical methods used to identify dietary patterns in a population. I will jump directly to the dietary patterns that have been investigated in these cohorts.
In the American Association of Retired Persons, the researchers have used predefined index scores for specific dietary patterns. The scores were created using different dietary recommendations. By using this method the participants receive scores depending on the characteristics of the diet their diet. One example is the Mediterranean score, which maybe familiar to some participants in the conference.

The research questions in these studies were: how did the individuals are distributed according to dietary patterns? And how the dietary pattern scores are related to cancer?

The second method to derive dietary pattern in this cohort was by using a statistical technique called "cluster analysis" that allows to create clusters or conglomerates of individuals according to dietary patterns. Individuals in each cluster have dietary patterns that are similar compared to individuals in other clusters. Another statistical used in this study to derive dietary patterns was "factor analysis," in which what are correlated are the foods, not the individuals. Each individual receives a score based on its consumption of foods present in each factor.

The results of these studies in the NIH AARP have been published in different articles. The work has been coordinated by Arthur Schatzkin.

What were the results when dietary clusters were investigated? The authors identified a cluster of people that they called “Many Foods,” because as a group these individuals had a heterogeneous diet. They identified another cluster of individuals that were characterized by a high consumption of Fruit and Vegetables (F&V). They also identified a group of individuals whose diets were characterized by high consumption of fatty meats. The other cluster identified people whose diet was characterized by high consumption of fat-reduced food, fish, lean chicken, skim milk.

If we look at the characteristics of the macronutrient intakes in each of these clusters, interestingly we will observe that the individuals characterized by a high consumption of F&V have, on average, lower total caloric intake.

A second observation is that the individuals characterized by a high consumption of F&V have an average higher consumption of fiber, higher consumption of calcium, higher consumption of folate, and higher consumption of vitamin C compared to the other individuals in this study.

Regarding other lifestyle habits such as smoking, the proportion of never smokers is higher in the group of individuals who consume more F&V compared to individuals with other dietary patterns. That means that dietary and lifestyle factors are clustered. This poses methodological challenges to avoid confounding in epidemiologic studies, which is usually controlled by adjustment and stratification.

With respect to the distribution by body mass index, the proportion of obese individual (body mass index equal or higher than 30) is lower in the group characterized by high intake of F&V, both in men and in women.

In order to analyze the relationship of dietary patterns with colorectal cancer incidence, the authors compared the cancer risk of individuals in each cluster with that of the individuals in the “heterogeneous diet” cluster. The men characterized by a high consumption of F&V compared to other individuals have approximately 15% reduced risk of colorectal cancer in this cohort. This finding was statistically significant. In women, the risk reduction was about 10%, but not statistically significant.

What were the results when dietary patterns were analyzed by factor analysis? What factor analysis does is to give a score to each individual based on the consumption of the factors identified, which were a factor for F&V, a fat-reduced and diet foods factor, and a meat and potatoes factor. The first observation is that the factors identified depend of the technique used to derive them.

What was the relationship of the factors with colorectal cancer? Individuals with a higher score of the F&V pattern (those tended to consume more F&V) have a lower risk of colorectal cancer compared with individuals that consumed less F&V.

With respect to the 2nd factor, the individuals characterized by a consumption of fat-reduced and diet foods were also at lower risk of colorectal cancer. The individuals that consumed more meat and potatoes were at higher risk of colorectal cancer compared to individuals who consumed less meat and potatoes. The results were similar in men and women.

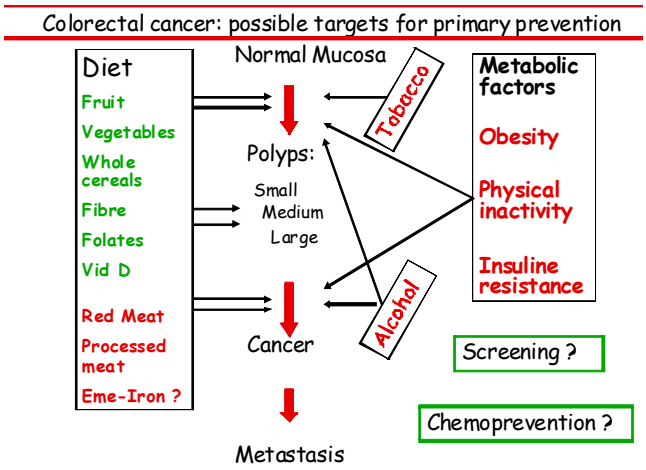
What were the results of this study when the investigators used scores based on dietary recommendations like the healthy eating index, the alternate healthy eating index, the Mediterranean diet score, and the recommended food score? The recommendations include high intake of vegetables, fruits, and decreased consumption of meat and foods rich in fats.

In general, all the "healthy" patterns with high consumption of F&V and plant foods, were related to a decreased risk of colorectal cancer in men. In women, many of the results were not statistically significant.

What is the average conclusion of the analysis of dietary patterns? Well, in men, F&V in cluster and factor analysis is a protective factor against colorectal cancer. Meat and potatoes diet is related to increased risk of colorectal cancer. No significant association was found with the fatty meat cluster. In women, the only consistent results is that the meat and potatoes factor was related to an increased risk, and the healthy eating index to a decreased the risk but no significant results were found.

We move to the second example. EPIC is a consortium of cohort studies from 10 European countries. There are different dietary patterns in the EPIC populations. For example, the Greek cohort is characterized by high consumption of vegetable oils and legumes compared to other European populations. The German population is characterized by high intake of butter, fruit, and juices.

In EPIC, analyzing individual foods, we have observed a protective effect of dietary fiber, and the level of protection is about 25% in this analysis. We have observed a very modest protective effect of F&V with a significant trend combining fruit and vegetables. The risk reduction is about 14% in individuals with a higher intake, more than 600 grams per day, compared to individuals with a lower intake. And the association is more important for colon cancer in which the risk reduction is about 24%.



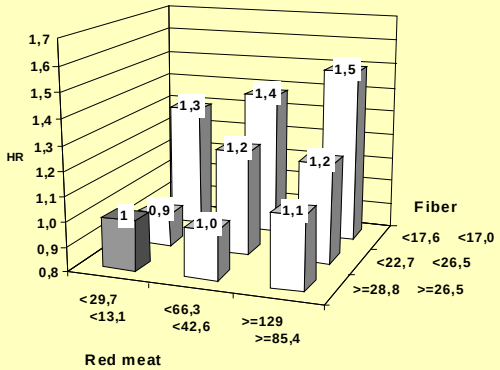
In our study on fish, red and processed meat, we observed an increased risk of colorectal cancer associated to consumption of processed meat and red meat, and a protection of fish. We also observed that the risk is higher in individuals who have a low consumption of fiber and a high consumption of red meat, compared to individuals with low consumption of red meat and low consumption of fiber. So the combination of foods is important (Fig 2) . And we did the same for fish, so the risk is much higher in individuals with a low consumption of fish, and low consumption of fiber compared to the individual with high consumption of fish and fiber. So dietary pattern is important.

And I am presenting here the framework for colorectal cancer which has been elaborated by Dr. Elio Riboli, who is sharing this Committee (Fig 3) showing all the foods for which we find some evidence of association with colorectal cancer, but we also have the effect of tobacco, alcohol, and other metabolic characteristics.

Preventability estimates for cancer of the colon and rectum published in the WCRF/AICR report were that 45% of colon and rectum cancer in the American population could be prevented through changes of all these factors.

EPIC: colorectal cancer

Combined effect of consumption of red meat and fibre



Norat T. et al. (JNCI, 2005)

When each food is analyzed separately, the preventability is relatively low. But when we all are taken together about 45% of colorectal cancer could be prevented through changes in lifestyle. Thank you.

QUESTIONS/ANSWERS

Chairman (E. Riboli): *Thank you, Teresa; I'm sure there are questions, as this brings a multidimensional component to the relationship between diet and cancer. Thorkild?*

Public (T. Sorensen): *Theresa, thank you very much. I'm wondering how much is a true associations beneath the surface here? Because obviously, the measurement error problem will dilute the associations, so I think we are kind of hoping that there is a stronger, true effect. If you were able to really estimate that with precise assessment of diet, and also do this continuously over time, have you any idea about what might be the true effect?*

T. Norat: Well, it's very difficult to know what the true effect is, because this analysis was not calibrated in the American Association of cohort people. In our cohort it has been partially calibrated using a 2nd measurement. There is some evidence in the American study on how measurement error is influencing their results. And this evidence comes from the lack of significance of results in women compared to men. When they analyzed more in detail the characteristics of the women included in the study, they detected that many of the women that were consuming high amounts of F&V were women dieting. So there is a problem here of probably reverse causality that attenuated the association. On the other hand, we know from detailed studies in the Open Study, but also from the EPIC Study, that women, in general, tend to misreport the diet more than men. And also obese individuals tend to misreport the diet.

So we have several methodological problems in these studies that we need to solve. And that is why, as Thorkild is saying, we need to be cautious. Something that is very important in the case of F&V is that we have never found an increased risk of cancer related to the intake of F&V. So this is very reassuring. So we have seen either no association, or a protection.

Chairman (E. Riboli): *Thank you, Teresa.*

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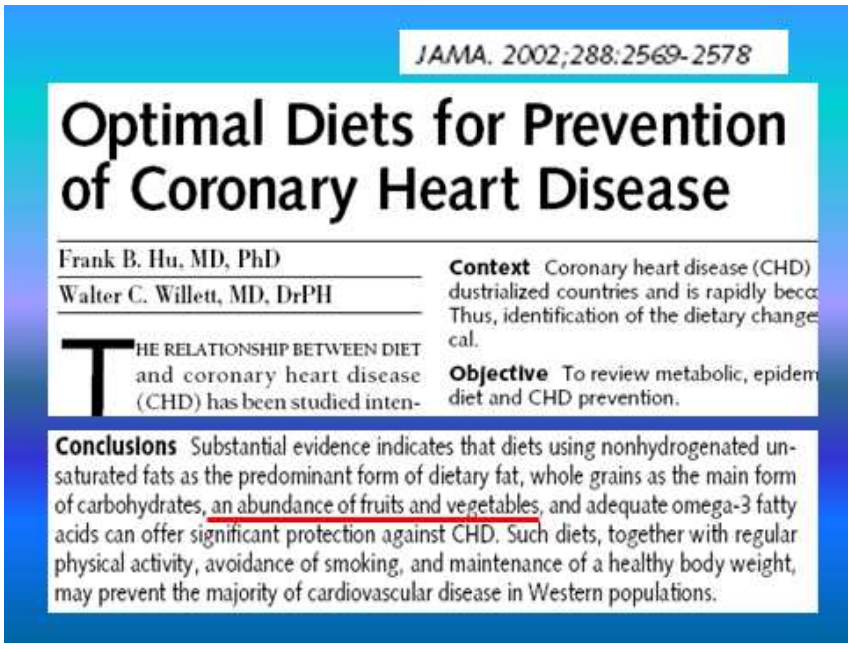
S. Panico (IT)

Dietary habits and risk of cardiovascular diseases

Thank you, Elio. I also want to thank the organizing and scientific committee to inviting me to this meeting. This is my 3rd EGEA Conference. I was at the first conference in Crete, and then in Rome. And now I have the pleasure to join again this nice community.

My topic is in cardiovascular disease and I will try to focus on Fruit and Vegetable (F&V) intake. Starting with the picture of Ancel Keys and his wife when Keys celebrated his 100-years birthday, eating a plate of pasta with vegetables. This man influenced very much knowledge and research in epidemiology of cardiovascular disease and was the person who, in fact, "invented" the diet-heart hypothesis, i.e. fatty diets cause coronary heart disease, with Mediterranean diet as the "ideal" way of eating to prevent it. If you look at the history, you see that he was very much focused on the fat hypothesis, and this was the reason why, for many years, the attention was given mostly to fat, especially animal fat, as risky diet component, instead of F&V as potential protective component when studying cardiovascular disease.

However, if you look at the book written by Ancel Keyes and his wife ("Eat well and stay well", an evergreen best seller), you see that the Mediterranean way they intended is full of recipes with vegetables. So the first message is that we know that in real life, if you want to have a Mediterranean way of dieting, you need to rely mostly on plant food.


JAMA. 2002;288:2569-2578

Optimal Diets for Prevention of Coronary Heart Disease

Frank B. Hu, MD, PhD

Walter C. Willett, MD, DrPH

THE RELATIONSHIP BETWEEN DIET and coronary heart disease (CHD) has been studied inten-

Context Coronary heart disease (CHD) dustrialized countries and is rapidly becc Thus, identification of the dietary change cal.

Objective To review metabolic, epidem diet and CHD prevention.

Conclusions Substantial evidence indicates that diets using nonhydrogenated unsaturated fats as the predominant form of dietary fat, whole grains as the main form of carbohydrates, an abundance of fruits and vegetables, and adequate omega-3 fatty acids can offer significant protection against CHD. Such diets, together with regular physical activity, avoidance of smoking, and maintenance of a healthy body weight, may prevent the majority of cardiovascular disease in Western populations.

Already 8 years ago, the sentence that an abundance of F&V is part of an optimal diet for prevention of coronary disease has been made. The evidence on the effect of F&V influence on the known cardiovascular risk factors is very large: we know that fiber may influence lipid and glucose metabolism; antioxidant components reduce lipoprotein oxidation; potassium may influence blood pressure; dietary folate may influence homocysteine pathway; regular consumption of vegetables has an important effect on insulin sensitivity. And all this knowledge is very well set in the literature.

However, as mentioned by other speakers before me, there are a number of methodological issues implying that finding associations between F&V and cardiovascular risk or disease is quite complicated in populations study. I'll try to summarize here some of these issues. If we have long-term observation in prospective studies, a baseline measurement of diet is not able to record that culture has changed over time; therefore using baseline measurements is not sufficient to give the real long-term diet of the persons observed. There is also a limitation due to the use of a single measurement of diet; we've seen the difference between one measurements of two measurements. This is a typical issue of most observational studies.

Teresa Norat, in the previous talk, has presented the case for fibers and colon cancer in the EPIC Study, where integrated measurement revealed the dimension of the problem. Moreover in intervention studies, as a part of experimental dietary research, there is an issue for interpretation of results since we usually do not have studies that experiment just only the use of F&V. The interpretation of literature results may be really complex.

I have tried to summarize the vast literature using the graphs of the latest systematic reviews and meta-analysis. In one of the latest on the F&V consumption and incidence of coronary heart disease a protective effect in consuming more F&V is detected, with no difference found when fruit and vegetables are analyzed alone. The size of the effects is not so big, but as Teresa Norat pointed out, it should be seen within the context of the presumably protective dietary pattern.

Among the results of the latest meta-analyses it is interesting the report of more protection according to higher F&V consumption (5 or more servings compared to 3 to 5 servings). The publication bias seems not to be a problem in the interpretation of the results of this meta-analysis: the analysis of the funnel plot (a way of entangling the publication bias issue) is quite reassuring. This finding strongly supports the recommendation to consume "Five or More Than 5 Servings Size Per Day".

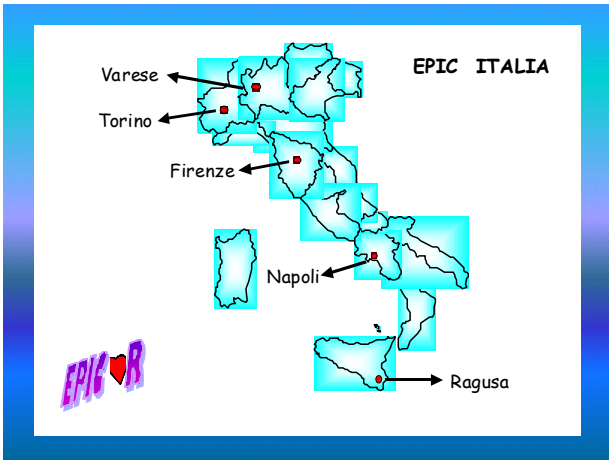
When looking at the meta-analyses dealing with F&V intake and stroke, clearly an effect is detectable. A negative association between F&V consumption and risk of stroke can be detected, that means the more F&V you consume the lower the risk of stroke.

The findings of the INTERHEART study are also very relevant. INTERHEART is a case-control study on coronary heart disease which has been carried out in a large number of individuals across several cultures, in different continents. The very interesting finding is that F&V intakes remain always among the protective factors, even when the authors take into account those important risk factors like diabetes, hypertension, and blood lipids. And in this study, seems to be no specific difference between the type of F&V in protecting from myocardial infarction.

Now I want to spend this part of my talk on the so-called the dietary patterns, a way to look at the evidence for the association between the way of eating and chronic disease. Of course, my focus is on cardiovascular diseases. It is interesting to look at the composition of the "protective" dietary patterns presented in the literature.
The dietary pattern composed by the North American colleagues, in order to define a "prudent" diet supposed to be protective for cardiovascular disease, includes vegetable, fruits, and legumes. The protective effect on coronary heart disease is quite clear, in the sense that the people eating in such a way to be in the highest rank of consumption of "prudent" diets have half of the risk of people seen on the opposite side of consumption of "prudent" diet. When looking at the composition of the "prudent" diet an important part is represented by the consumption of F&V. It is interesting to remember that some of these indexes ("prudent" dietary pattern is among them) have been used both in experimental and in observational studies, with consistent results. Another well know index is the DASH index, used to experiment the dietary approach to hypertension. In the main experiment it has been demonstrated that this kind of diet lowers effectively blood pressure and reduces the risk of cardiovascular disease. The composition of this index relies very much on the consumption of F&V. This part seems to be the "core" of the protective role, together with the reduction of dietary salt.

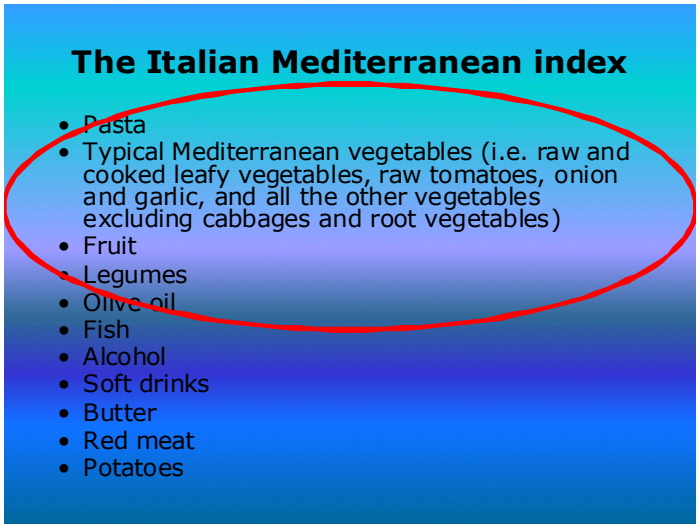
Also the already mentioned Greek/Mediterranean index includes F&V, again, as the "positive" part of the pattern. The Greek/Mediterranean index has been used mostly in observational studies. A meta-analysis on observational studies on cardiovascular mortality has been

published, clearly demonstrating that there is a protection on cardiovascular mortality when there is an increase in the adherence to the Mediterranean dieting as it is defined in the Greek/Mediterranean index. The protection is also detectable for total mortality or cancer mortality.
In the EPIC study this score was used to look at the effect of dietary patterns on the longevity in elderly people: The results of the analysis indicate that the adherence to the Mediterranean dieting increases longevity in the EPIC cohorts.



EPIC has been mentioned by Teresa Norat as far as cancer etiology is concerned. The natural development of this very large observation studies has been the interest in looking at the dietary etiology of other chronic diseases including cardiovascular. In fact, a new companion project named EPIC-HEART is going on the large European cohort. In the meanwhile, most of the different cohorts in Europe already worked on the cardiovascular section. And also in Italy, we have carried out some observations on cardiovascular disease in a study named EPICOR. Just looking at the data on our 50,000 people, most of which are women. The cardiovascular major events have been detected in an active follow-up for about 10 years, evaluating the clinical notes related to these events, in line with the standardized criteria for diagnosis of coronary and cerebrovascular acute events, and re-analyzing also the relevant death certificates.

One of the objective of our first analyses was the composition of a dietary pattern index closer to the actual Italian Mediterranean diet, which is some different from the Greek Mediterranean index both for historical and cultural-geographical reasons. The hypothesis is that a regional cultural index for Mediterranean diet is more useful to detect the specific, if any, Mediterranean advantage for chronic disease (especially cardiovascular). Nevertheless as for the Greek/Mediterranean index also the Italian/Mediterranean index relies very much on the consumption of vegetables as the protective part of the pattern.

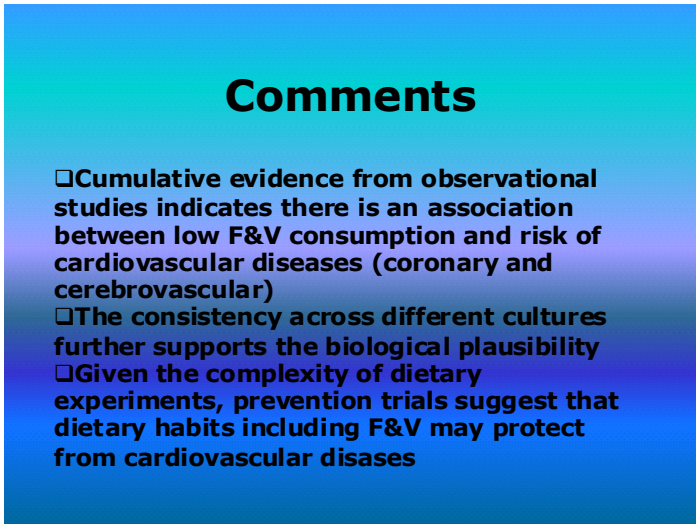


Looking at this Italian Mediterranean index in our data, recently presented at the EPIC Conference in Spain, we have seen a number of quite interesting findings. We have tried a comparative observational analysis using different index, including our index on the incidence of stroke and coronary heart disease in our cohorts. Our index clearly better identifies Italian people who are protected by stroke much more than the others, even much more than DASH diet index, which is an index that influences very heavily blood pressure levels, the major risk factor for stroke. And this detected effect is mainly confined to the ischemic stroke, which is quite interesting because ischemic stroke is the atherosclerotic disease stroke. So it's quite in line with the protection we have observed also in women for coronary heart disease, when data on myocardial infarction and major coronary events have been analyzed. The finding is more evident in women where probably information on diet is much more accurate; women use to buy and prepare food, so they much better remember what they've eaten.

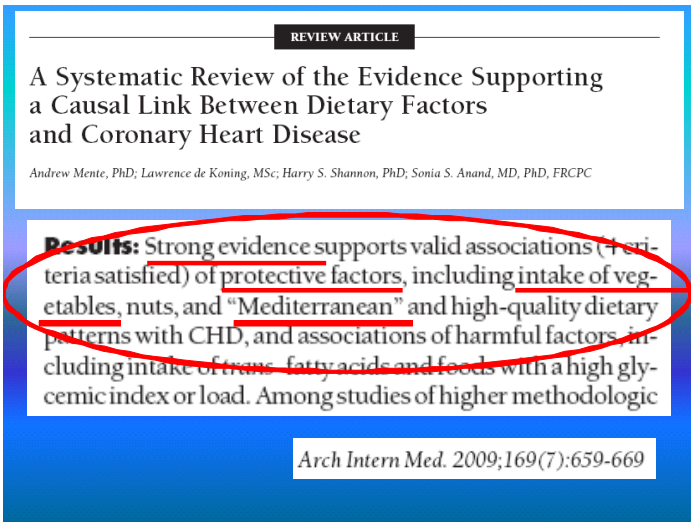
We have also seen directly the role of F&V: there is a reduction of risk using leafy vegetables, and when you adjust it for red meat consumption, the risk reduction is more evident. We recently published our first paper on Italian cohorts on dietary glycemic load and coronary disease risk in women; we have seen there is an inverse association between the consumption of high glycemic load food and coronary heart disease. Just to complete the information, we have also look at the antioxidant capacity of the food; also in this case we have found a protection for ischemic stroke. It seems useless to say that food items with low glycemic load and high content of antioxidant capacity are found among plant food.

The evidence I have proposed to you comes mainly from both single large observational studies and big meta-analysis, which highlights the importance of dietary pattern based on plant food in the protection from cardiovascular disease. As for the experimental studies, the evidence is not so overwhelming, however in some cases directly, in other indirectly, F&V appear to be part of the protection conferred by the diet on cardiovascular diseases. As a final point of confirming evidence I want to start from the personal note of Ancel Keyes, when he proposed the well known Keys' Equation, which allows determining the change in plasma cholesterol using different diets. So changing the relation between polyunsaturated and saturated fat in the diet, you can predict modification of cholesterol, and deductively cardiovascular risk.

According to this knowledge, if you look at the meta-analyses on the effect of substitution of saturated fat with polyunsaturated fat, you see that from all these trials which have addressed the end point of coronary disease events, a protection can be found when there is a dietary change from animal to plant food. So it's my opinion that it is reasonable to say that overall experimental studies can give support to the evidence that F&V protect from cardiovascular disease. And in fact, a recent systematic review strongly supports these findings: intake of fruit and vegetables and Mediterranean patterns are protective.



Some final comments for this presentation (slide 5) . The first comment is that, even if there are problems of methodological issues for the interpretation of observational studies on diet, implying that you cannot get the real effect of the F&V on cardiovascular disease and that the issue can only partially be addressed with sophisticated analysis, the cumulative evidence I have presented is substantially very much in favor of an important protective effect of both for coronary and cerebrovascular disease due to F&V intake.


REVIEW ARTICLE

A Systematic Review of the Evidence Supporting a Causal Link Between Dietary Factors and Coronary Heart Disease

Andrew Mente, PhD; Lawrence de Koning, MSc; Harry S. Shannon, PhD; Sonia S. Anand, MD, PhD, FRCPC

Results: Strong evidence supports valid associations (4 criteria satisfied) of protective factors, including intake of vegetables, nuts, and "Mediterranean" and high-quality dietary patterns with CHD, and associations of harmful factors, including intake of trans fatty acids and foods with a high glycemic index or load. Among studies of higher methodologic

Arch Intern Med. 2009;169(7):659-669

I would say that the consistencies across many different cultures are an important support, also to the biological plausibility. And also that, given the complexity with the interpretation of

experiments, the prevention trials overall suggest that dietary habits that include F&V may protect for cardiovascular disease. Thank you very much.

QUESTIONS/ANSWERS

Chairman (E. Riboli): *Thank you very much for this presentation. Is there any question? What you presented shows a quite strong consistency of results. And just I'd like make a comment that in the long lasting scientific debates between what I would call the European view and the Harvard view on the diet and cancer, and diet and cardiovascular diseases. One of the strong points on which we have always agreed is that the evidence of a protective effect of F&V for myocardial infarction and stroke, came out very, very strongly, already 10-15 years ago, a decade ago, while was still strongly debated for cancer. And this was an argument expressed repeated and, I would say, consistently.*

Public: *And the question to you, as an epidemiologist and involved both in cardiovascular disease and cancer is, do you have an explanation why the effect is so much more consistently seen, the protective effect for cardiovascular diseases? ///*

S. Panico: My explanation is the effect that we know on risk factors. All the components of diets which include F&V implies a number of metabolic, hormonal and vascular actions going into the direction to reduce all risk factors: you can have low LDL cholesterol, low blood pressure, which are strong components of the cardiovascular risk. You can influence the homocysteine pathway, you can influence the glucose metabolism, so it's a sort of, you know, siege against cardiovascular atherosclerotic disease. Thank you.

Chairman (E. Riboli): *Any question for Dr. Panico? Yes, Teresa.*

Public (Teresa Norat): *Thank you, probably you already mentioned that, my question, in your presentation. But you observed a stronger association with the Italian Mediterranean score compared to the Greek, and I suppose it is because the Italian explains higher, better, heterogeneity of dietary intake of the Italian population. But my question is, and probably you said that, what were the differences between the Greek and the Italian?*

S. Panico: The first main difference is pasta.

Public (Teresa Norat): So add an element to the index? Or you take out some element of the Greek--?

S. Panico: We take out potatoes, and we put inside, pasta.

Public (Teresa Norat): So that explains better probability for the diet.

S. Panico: Well, this better describes the Italian way of eating in the Mediterranean area. We consider potatoes a German vegetable.

Public (Teresa Norat): Or Belgium, Belgium. *But anyway, we see the point, but was that based simply on use, or was also based on what was known about glycemic index and the glycemic load?*

S. Panico: No, the rationale was an idea to put together knowledge in science and knowledge in culture. That's it.

Chairman (E. Riboli): *Thank you very much.*

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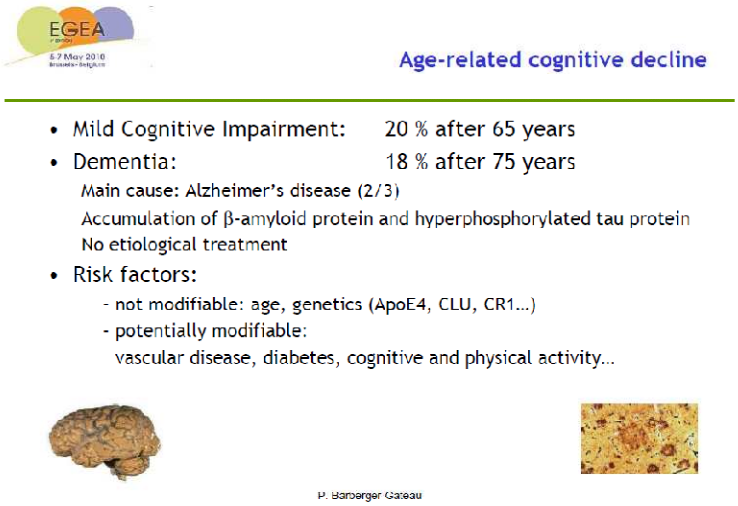
P. Barberger-Gateau (FR)

Diet and cognitive function in older adults

French Version p 202

Why consider the aging brain when you think about Fruits and Vegetables (F&V)?

First of all, because pathological brain aging is common, and mild cognitive impairment, defined as performance on neuropsychological tests lower than that expected for the age and education, affects 1 elderly person out of 5 after the age of 65; the most serious form, dementia, having an effect on autonomy in everyday activities, affects about 1 out of 5 after age 75 and its incidence increases exponentially with age.

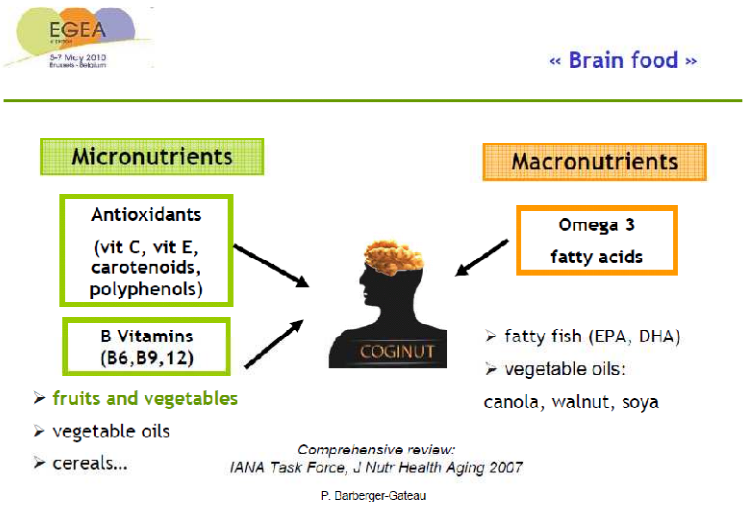


The main cause of dementia is Alzheimer's disease, accounting for about two thirds of all cases, followed by vascular dementia. Alzheimer's disease is due to an accumulation of amyloid beta protein in neuritic plaques and a hyperphosphorylation of the tau protein, causing neurofibrillary tangles, and these lesions cause cerebral atrophy and neuronal death. Unfortunately, at this time, there is no etiological treatment for these two major forms of Alzheimer's dementia / vascular dementia, and so risk factors are very important. Unfortunately, most well identified risk factors, such as age and genetics, do not allow for preventive measures. For instance, regarding Alzheimer's, we know that having the epsilon 4 allele of apolipoprotein E gene multiplies the risk by 15 in homozygotes, but we have also recently identified other polymorphisms such as CLU or CR1.

So we are trying to identify the risk factors that can be acted on, and in particular vascular risk factors, which we hope can be influenced by diet, as we have just seen extensively. Increasingly, we can consider that the clinical expression of Alzheimer's in elderly subjects results from an interaction between genes and the environment; on the left side here, you have the classic amyloid cascade as it has been described in early-onset familial Alzheimer's, which is due to mutations, of the APP gene and presenilins 1 and 2. This amyloid cascade thus gradually forms this build-up of amyloid beta protein, accompanied by inflammatory phenomena and oxidative stress.

Besides this, a multi-factorial disease is increasingly being described in elderly subjects. In addition to this hereditary predisposition, there are environmental factors including diet which may matter, because they can influence metabolic disorders and inflammation that accelerate the course of Alzheimer's disease. Diet in relation to the cognitive functions has been studied thoroughly in early childhood, but much less so in the elderly; this is more of a recent interest.

Two areas of focus can be considered. First of all, excessive energy intake, which causes obesity, diabetes and metabolic syndrome: it has been demonstrated that these are associated with an increased risk of vascular disease and also an increased risk of dementia. However, today, I would like to focus on the identification of protective nutrients in the diet, and current research is targeting two categories of nutrients; first of all, omega-3 fatty acids (which are not really found in F&V, so I won't talk to you about them very much except a little bit at the end), and also micronutrients, which are found in F&V, such as antioxidants and group B vitamins and folate in particular. A few epidemiological studies have looked at the relationship between eating F&V and the risk of pathological brain aging.



In the study of American nurses, the consumption of vegetables and especially of cruciferous and leafy green vegetables was associated with less cognitive decline in women aged 70 and up. In the Kame that was on Japanese people living in the US, and thus a very specific population, daily consumption of F&V juice, at least three times a week, was associated with a lower risk of Alzheimer's, but they did not really find an association with the consumption of F&V.

In the Chicago study, as well, there was a lower risk of cognitive decline with the quantity of vegetables consumed and, once again, it was more with leafy green vegetables. Finally, the recent meta-analysis by Luc Dauchet that was just cited clearly demonstrated that the consumption of F&V is associated with a lower risk of stroke, and stroke is an important risk factor for vascular dementia.

In the French study of the "Trois cités", we analyzed the eating habits of over 8,000 elderly persons aged 65 years and up who lived in their homes in Dijon, Bordeaux and Montpellier, and we monitored them for several years. We were able to demonstrate that the daily consumption of raw and cooked F&V (and this is one of the limits of our questionnaire), meaning at lest 2 servings F&V a day, was associated with a significant 30% reduction of the risk of developing dementia in the following four years. When we try to analyse the data a bit more closely, it would seem that it is more associated with the consumption of vegetables; and this raises the question: which nutrients are responsible for these potentially protective effects in the consumption of F&V? There are two main candidates: group B vitamins, and antioxidants.

Regarding group B vitamins, these are important because we know that a low consumption of folate and vitamin B12 is associated with *hyperhomocysteinemia,* which has been shown to be a risk factor for dementia and Alzheimer's.

Several observational studies have analyzed the relationship between the consumption of these vitamins and the risk of dementia; they show a protective effect of consumption, but with a few discordant findings. However, paradoxically, all the intervention studies that supplemented with B6, B12 or folate alone or combinations thereof were strictly negative, even if they managed to lower *homocysteinemia.* A single study was positive in a very specific population because it comprised men aged 50 to 70 who had a high *homocysteinemia*, while having a

normal vitamin B12 status and who were supplemented with 800 micrograms of folic acid a day for three years. However, these doses are very difficult to reach in the diet, even when you eat lots of F&V. Thus a single intervention study was positive for group B vitamins; however, you know that F&V are also very important sources of antioxidants, vitamin E, which we know can be pro-oxidant at high doses, but not at the doses found in food and especially in vegetable oils and seeds and then other antioxidants that contribute to regenerating vitamin E in the body, such as vitamin C, carotenoids and polyphenols, and F&V can also provide certain enzyme cofactors from antioxidant enzymes and in particular, selenium.

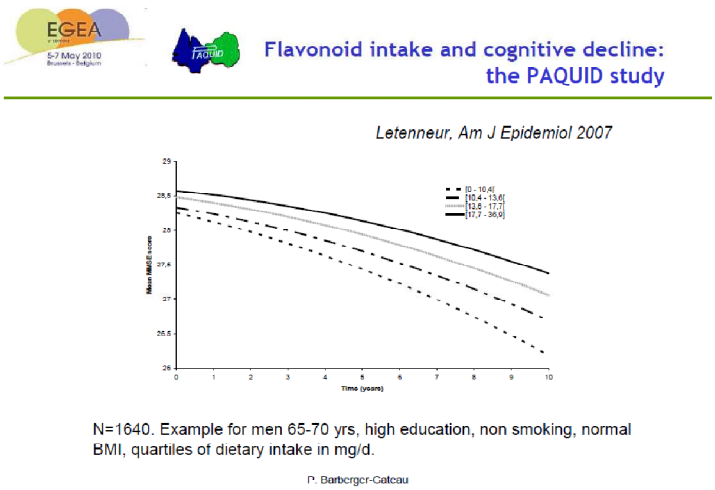
If we look at antioxidant consumption, the relationship between total consumption and the risk of cognitive decline or dementia, in observational studies, we have highly discordant findings, because most of these studies are American and have very high proportions of supplement users, and in particular, of vitamin E, so they are totally difficult to interpret.

If we look at intervention studies which controlled antioxidant intake, first you will find that they were done with extremely high doses, either of vitamins alone, or of several combinations of antioxidants, but doses much higher than the recommended nutritional intakes, and they were all strictly negative, except for one of the two components of the study of American doctors, where in the segment that was monitored for a longer time with beta-carotene supplementation, it would seem that there was somewhat less cognitive decline. But I remain somewhat sceptical about this study, because there are large methodological biases, with in particular, a very high mortality rate in this segment, maybe related to beta-carotene intake as meta-analyses have shown that it could be associated with higher mortality rates. Thus, an impact on cognitive decline is, in my opinion, very far from being demonstrated.

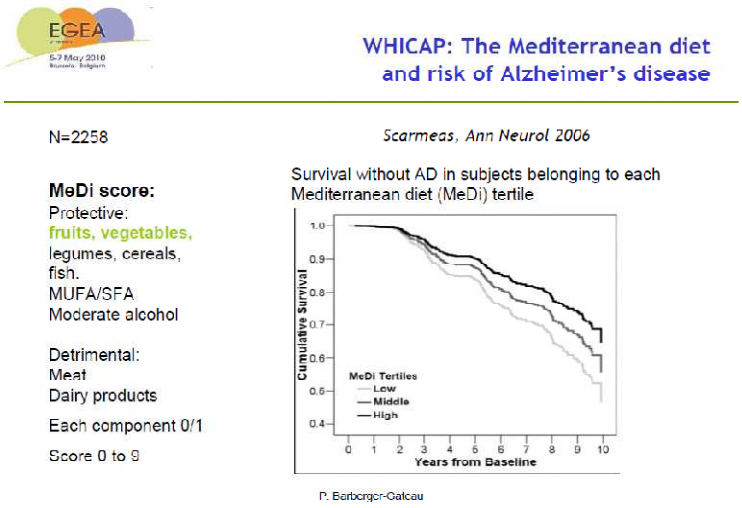
Carotenoids are an extremely promising option, but there are very few data on them regarding their influence on aging. There are two types of cross-sectional studies: an imaging study using MRI, which found less periventricular white matter lesions in subjects that had the highest levels of carotenoids in their serum, and then several biological cross-sectional studies, this time on plasma carotenoid concentrations, associated with lower risk of mild cognitive impairments or Alzheimer's disease and vascular dementia. However, in this type of study, we do not know if we are looking at the cause or the consequence of the disease.

So there is a shortage of longitudinal studies, but three have been published; one which is negative and two which are positive that I included here; both monitored cognitive decline for seven years, both of them found either a higher consumption of carotene, or a higher beta-carotene plasma status associated with less cognitive decline, but in the study based on plasma, this protective status was only observed in subjects who had the epsilon 4 allele of apolipoprotein E gene. Thus, we go back to this problem of interaction between genes and the environment that Elio Riboli raised in his introduction.

Finally, polyphenols; we tried to reconstitute the consumption of polyphenols, and in particular, of flavonoids in the Paquid study, which was a cohort study conducted in Gironde and Dordogne. We have data for 1,600 participants, i.e. a little less than half the sample of Paquid, and we were able to demonstrate through the very fine work of Luc Letenneur that the higher the consumption of flavonoids (here you have the representation in quartiles, in milligrams per day), the slower the



cognitive decline and there is a magnificent gradient, adjusted for a set of potential factors of confusion that are listed here.



Obviously, F&V are one of the important components of the Mediterranean diet, as we heard extensively this morning. An American study « WHICAP » reconstituted the Trichopoulou Mediterranean diet score by giving a point to F&V and other foods that are assumed to be protective, the consumption of which was higher than the median and a point when the consumption of harmful foods was lower than the median. Scarmeas was thus able to show, once again, a very fine gradient as a function of the score of adherence to the Mediterranean diet: the higher the adherence, the slower the cognitive decline over a 10-year period of monitoring and the lower the risk of incident dementia.

We recalculated exactly the same score in our cohort of the "Trois cites" in Bordeaux for which we had these data and, once more, we were able to show that high adherence to the Mediterranean score between 6 and 9 in our cohort was associated with a significantly slower cognitive decline over a five-year monitoring period; in our cohort, we did not find any protective association with Alzheimer's, but it is important to remember how the Trichopoulou score is calculated, in relationship to the medians observed in the samples. Therefore, the consumption of an individual who, in our cohort, was classified below the median for certain foods, for example, F&V, was in fact higher than that of the Americans, so we had a population that already ate fairly well, so in which it is difficult to show protective associations with the consumption of F&V.

So, in conclusion, all of this research suggests the combined protective effect from cognitive decline and the risk of Alzheimer's and dementia in general of antioxidants, group B vitamins, in particular folate, and omega-3 fatty acids. I have not talked much about omega-3 fatty acids, but fish is a component of the Mediterranean diet, as are other components that we are starting to know about, such as carotenoids and polyphenols.

Intervention studies are often extremely disappointing; they are not at all at nutritional doses and so, in conclusion, this all suggests that F&V totally have their place in a varied diet that could contribute to slowing down the cognitive decline of elderly subjects, and so have a huge potential impact in terms of public health.

In conclusion, I would like to thank my team in Bordeaux, and thank you for your attention.

QUESTIONS/ANSWERS

Public (Mr. Maouche – Algeria): *I was impressed with your presentation, maybe because I was able to read the text itself and as I understand French better than English, I was better able to understand what was going on; thank you for this talk, which I found extremely high-level and rigorous. I was making the connection between what we call - what some people call - type 3 diabetes, which is Alzheimer's, so I was making the connection between the indication*

of endothelial proteins, such as lysine, etc., which we find in diabetes and protein glycation at the level of the T0 protein that we find in the brain, so it is true that you tried to show that F&V protect from Alzheimer's, it is hard for me to understand the meaning of the word protection because, does this mean that it causes the disease? Does it not cause the disease? Does it protect us from the disease? I am trying to make this distinction in my head: I didn't understand very well.

P. Barberger: I totally agree with you; I must have used the word "protect" in a rather unclear way. Let's say "slow down the clinical expression" because with Alzheimer's, you have this genetic predisposition that does not exist in everyone, 20% of the population has an Epsilon 4 allele, so on the one hand, there are people who are going to get Alzheimer's (or in any case, what clinically resembles it without having this allele), and on the other hand, people who have the allele and who will never have the disease in their lifetime, maybe they would have had it, but at age 120.
So in my opinion, it is not a question of protection, but of slowing the decline. There are several targets on which we can act, in fact, the amyloid cascade, but we do not have many arguments to say that food directly influences the amyloid cascade and in my opinion, it would be more the omega-3 fatty acids, and specifically DHA, which has been shown to be associated with a reduction of plaques in mice that were spontaneously suffering from Alzheimer's.
Concerning F&V, in my opinion, but this has not yet been demonstrated, we need to look more closely at the brain; they would seem to have an overall neuroprotective effect through a whole set of mechanisms, including, indeed, protein glycation, but there are a lot of mechanisms, I focused on those that are perhaps the most specific, the most frequently referred to concerning brain aging, i.e. oxidative stress, inflammation, but there is also everything surrounding type 2 diabetes, which, itself, is an important risk factor for Alzheimer's, high blood pressure, I could have talked about potassium, which is in F&V and helps lower high blood pressure. So in my opinion, there are lots of nutrients involved and interactions between nutrients and I was very interested in the research on dietary profiles because this is, indeed, the area in which we are working right now, we really do see this Mediterranean diet, it is a combination of foods, when we take the foods one by one, we have less protection than when we consider the interaction between the nutrients. I also didn't show you our research in which we were looking at profiles that associated the consumption of fish or oils rich in omega-3 fatty acids, such as colza oil and walnut oil, with the consumption of F&V, and that we also get the most protection because we have antioxidants that protect the long chain fatty acids against lipid peroxidation which protects the neuronal membranes. I have the impression that we are looking at a convergence of mechanisms.

***Public**: You said that this is going to slow down the process, the onset of the process and no other markers, other intermediate markers perhaps, could be examined in order to determine the existence of this component.*

P. Barberger: This is a major difficulty of the research on Alzheimer's, because we do not have any peripheral markers, specific and easily accessible. Indeed, there are markers in imaging, such as MRI which show atrophy of the hippocampus, in particular, but this requires doing imaging on a large series of subjects, which is what we are in the process of analyzing. There are also markers in the cerebrospinal fluid and in epidemiological studies, there is absolutely no way that we can do lumbar punctures to get samples of cerebrospinal fluid. It is clearly a whole array of basic research having easily peripherally accessible pathognomonic markers for Alzheimer's; for now we don't have them, we have the imaging, I also could have talked about hypometabolism via SPECT imaging, but this is even less feasible than MRI imaging and we have CSF markers, but that's all.

***Public**: In the literature we can find some information regarding the phospholipids as precursors and examine the structure of CSF functions - is this still valid or not?*

P. Barberger: In observational studies, omega 3 fatty acids are almost always constantly associated with a lower risk of Alzheimer's; in observational studies, we talk about the consumption of fish, of plasma fatty acids, fatty acids in the membranes of red blood cells sometimes with interactions with Epsilon 4. Having said this, there have been a few intervention studies and the very latest one "Opal" has just been published; they are negative, so we are still in the expectant stage - perhaps we have not targeted the right quantities of omega-3 fatty acids. In general, we administer much higher doses than the Recommended Dietary Allowances, we have not targeted the right individuals, we probably intervene too late for periods that are too short, and therein lies the difficulty of having the ideal prevention window that lasts decades. Indeed, the formation of neuropathological lesions in the brain takes decades before people express the symptoms, so it is very difficult to prove the impact of nutrients through intervention studies; nevertheless, the hypotheses remain valid.

Public: *Thank you, Pascale, for your excellent presentation; I have two questions, the first is on carotenoids: do we see differences between provitamin A carotenoids and non-provitamin A carotenoids, because we know that there are effects of transretinoic acid that are neuroprotective effects? My second question is: has this been studied with the inflammatory status*?

P. Barberger: To the best of my knowledge concerning carotenoids, the only studies that have looked at several classes of carotenoids are cross-sectional, and in cross-sectional studies, they wanted to focus on xanthophyll carotenoids, so not provitamin A carotenoids; on the other hand, in longitudinal research, both studies that I have presented focused on beta-carotene, and thus on provitamin A. For now, the findings are a bit discordant, but we really lack longitudinal data: we are in the process of analyzing them.
I hope to be able to present them soon.
Next, the inflammatory hypothesis: yes, it is extremely interesting in Alzheimer's, this is clear; we have the impression that there is low-grade neuroinflammation in the aging brain which is exacerbated in case, in particular, of systemic acute peripheral inflammation, and we can raise the question of the anti-inflammatory role of, for instance, long-chain omega-3 fatty acids and EPA in particular. Furthermore, it is true that we observe associations between EPA plasma status (which is a precursor for anti-inflammatory eicosanoids) and milder cognitive decline and a lower risk of Alzheimer's, but to date, there have been no intervention studies that included large doses of PH; they have focused more on DHA and have been unsuccessful.

Conclusions

Chairman (E. Riboli): Now we have to come to a conclusion. I will just ask you maybe to just to stay a few more minutes. Our translators said they accepted to stay a few more minutes for us. I'd just like to ask the Panel and all the participants, whether there are some 'final conclusions,' or final remarks. And I know that Thorkild has one.

T. Sorensen: Yes, thank you, Elio. I would like to question whether we can just assess the effect of F&V on the final clinical endpoint, and trust that this is the truth. Because all the current diseases, they have multiple stages, and there might actually be a reversed effect. For obesity, for example, it's not becoming clear that obesity is promoting the development of cardiovascular disease, but when you have cardiovascular disease, it seems to reduce mortality following cardiovascular disease. So the logic here, the question is not about obesity, but generally, chronic disease, that you have these stages. And maybe you have opposite effects during the different types of stages. It may apply to cancer, it may apply to cardiovascular disease. For cancer you have the distinction between initiation and progressive. For cardiovascular, the distinction between atheromic formation and atheromic rupture. It may be the same for the process in the brain. So I think we have a challenge to understand in which of the stages of the development of disease we may benefit most from the fruit and vegetables.

Chairman (E. Riboli): Clear, this is very important, but also a difficult question to address, because depending on the disease, the time from the initiation of the pathogenetic process, pathogenesis, and the time of clinical diagnosis, can be in the order of decades.
And then, in a way, for the serious diseases like cancer, there is a dichotomous cut-off. Either you get it or you don't get it, from a point of view of clinical diagnosis. And we, in the oncology area often--making a bit of a light joke--we say our target is to make everybody get cancer by age 120. Because in a way, to stop cancer at initiation, or to stop cancer one week before it becomes clinically evident, for the person, is almost the same, provided you don't get cancer in the first 100 years of your life.
So this is maybe a little bit different than other diseases, like cardiovascular diseases, where there are so many pre-myocardial infarction conditions that brings up health problems, like hypertension and so on, and so on, which have multiple consequence, or obesity, which we don't know whether to call it a disease or a risk factor. Because there are risk factor for obesity, and obesity is a risk factor for other diseases.
So prospective studies are clearly important, but also prospective studies have limitations. For example, all existing prospective studies are [...] with one exception, people older than age 30, there has been a Nurses' Daughter Study that included young girls. So our period of observation started basically middle-age.
So these are our major limitations. Any comment on this?

T. Norat: I think an important point that has been raised in several presentations is that we still need to improve the methodology of our studies. And this refers to how to measure intake, dietary intake, from the point of view of developing new methods, including developing also biomarkers.
And the 2nd, for the particular case of cancer in which the latency of the disease is very long, probably we will need to develop intermediate markers before we can do clinical trials, for example; because we cannot wait 40 years to see the development. And something that is also practically completely missing in our studies is diet at early age and disease later on in life. We are missing that information, so there are many, many things that we still need to do. And our studies have several methodological limitations, but well, it's what we have now.

Chairman (E. Riboli): Thank you, Teresa. Just to make 3 quick points, which in my opinion, we can at this moment put down in conclusions so far:

- One, we are certainly very happy to see that very large studies with open-ended, very open-ended endpoints, like EPIC and the American course, have not observed any evidence of any adverse effect of a diet rich in F&V. We are not aware of any chronic disease for which there has been a consistent, believable report of an increased risk. So, so far, so good, because we have to eat something to be alive. So it's better, you know, that we know that there are at least some type of foods that should not be too bad, provided they are not eaten in excessive amount and don't cause obesity.
- Second, there is a consistent evidence that is more likely to be a global consumption of multiple, single fruits, and multiple single vegetables and, I would add, foods with a high content of cereal fiber, that is related to a reduction of risk of cardiovascular diseases, cancer, and the decidedly decline of cognitive disorders, age-related decline.
- So this is very challenging because any reduction is the approach that says, I want to go down to that particular molecule, becomes very difficult in observational study, and can only be addressed in specific intervention with [...] and so on. And that opens the debate of whether the track record of such [...] mass clinical trial is good enough to keep on investing 100's of millions of dollars in studies that have shown absolutely nothing. Close to nothing.

We are a peg in, you know, a square, in a circle, to F&V, after having gone through the peers. And this is something, obviously, very challenging for our researchers who like to have simple, and molecules that explain everything. Probably this is not the case from what we know so far. So I would say that, probably, we need certainly more research, while at the same time we should not be shy in going to Public Health and make recommendations. And have a good lunch.

Thank you very much.

TRANSLATING EVIDENCE TO POLICY

SESSION 3: Policy in Action-the European "School F&V Scheme; SFVS"

Friday, May 6, 2010

Session 3	SPEAKER	PAGE
Chairman	L. HOELGAARD (EL-DG-AGRI)	68
A fruit for snack at school. How to stimulate new practices and overcome old views?	L. SOULIAC (FR)	69
The Norwegian School Fruit Program: From parental subscription to national legislative action	K.I. KLEPP (NO)	74
School Fruit Scheme in Slovenia	M.G. BLENKUS (SL)	81
The U.S. Fresh F&V program. Benefits to students, schools and Public Health	L. DISOGRA (USA)	88
Conclusions		94

Chairman: L. Hoelgaard

You have been in the good hands of Mr. Elmadfa and Mr. Riboli this morning. And now you will be in the tough hands of me. And in that session here, what we're going to talk about is my pet subject, Lorelei, which is the School Fruit Scheme. The School Fruit Scheme, as I said yesterday, up till now has had quite a success, in terms of take-up, in 25 out of 27 Member States. Heavily inspired, I would say, by the national programs. Heavily inspired by the Norwegian program, and that's good that we have Mr. Klepp here to speak about that. And not least, heavily inspired, would you imagine? by the Americans. So they can also do some good from time to time.

We have Klepp with us from Norway and I can disclose to the audience that whilst we were studying the aspect of an EU School Fruit Scheme in the Commission, we had to draw up an impact assessment. And the impact assessment was very heavily inspired or based, if I would say so, on the basis of the Norwegian program and the scientific studies in relation to School Fruit and the practical implementation in Norway. So we have here one of the pioneers and one of those who have been really inspiring us in the EU, so even though Norway is outside, you can still do some benefits for the inside. So Mr. Klepp, you have the floor.

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L. Souliac (FR)

A fruit for snack at school. How to stimulate new practices and overcome old views?

French Version p 209

Thank you Mr. Hoelgaard, and hello to all.

As Mr. Hoelgaard said, I am going to present the fruit distribution programme that is being implemented in France, and I am going to try to explain the difficulties that we have encountered, how we have tried to overcome these problems. I am going to show you the results of an evaluation we carried out in 2008/2009 that also enabled us to fine-tune our national strategy.

This programme was set up in collaboration with the fresh and transformed Fruit and Vegetable (F&V) sector and with public authorities, such as the National Education Ministry, the Health Ministry and the Federation of Parent Teacher Associations, the federations in charge of school food service and finally the representatives of elected officials. In 2008/2009, the programme was in an experimental phase, implemented for 92,000 children, 3 to 11 years old, i.e. from preschool to primary school, covering about one hundred cities. The specifications called for 1 piece of fruit to be distributed per week, throughout the whole school year, and the cities volunteered to participate in the programme.

The first problem that came up was promoting the programme and motivating elected officials to participate in it, as they were the ones who were paying for the fruit. As Mr. Hoelgaard said, our Minister at the time, Mr. Barnier, was very involved in the project; he held many press conferences and wrote to the representatives of elected officials. We set up a website and a phone line to answer questions and we published articles in F&V trade journals, because in France in rural areas many elected officials are also farmers; and also in journals targeting teachers. As in 2009/2010 with the European programme, we tried to continue along the same lines; the Minister sent a letter to every elected official in France (there are 36,000 of them); we also sent a letter to all the cities that were signed up in the social programme for the distribution of milk at school, to make a connection between the two European programmes. We did more promotion, and then we found an ambassador to promote the project - Estelle Denis, whom you see on the photo - this is a TV reporter who is quite popular.

We are now reaching 350,000 children, so we have multiplied the impact by 4. Our target for next year is to reach 1 million kids; we are going to open the project to all French secondary schools.

The second problem that came up was the budget; as the cities are volunteers, they have to pay, even though there is EU funding, they still have to pay half the cost of the fruit. We have observed big cities respond less well to our proposals than rural towns, eventually. Obviously, this programme represents a large expenditure for a big city. A mayor in the south of France who often repeats, with the aim of motivating other elected officials, that buying 1 piece of fruit per week for schoolchildren costs the equivalent of a fireworks show on Bastille Day. We have reminded the elected officials that private funding was allowed, but in fact, the cities do not use it. We have tried to be more flexible; we opened membership for just one or two quarters. We figured that if we opened for one quarter, it would be cheaper, and cities would go for it more easily and if it worked well, they would be tempted, upon the parents' and children's urging, to do more.

The third problem that came up was the fear of obesity. Our French Food Safety Agency has issued a recommendation for no morning snacks at school, because it spoils children's appetites at lunchtime. As our programme is called "A Fruit for Recess", we sensed reticence from few people, so we decided to have much stricter guidelines saying that the fruit could be given when the children arrive at school in the morning, so there would be a lot of time between the moment when we give the fruit and lunchtime, or else in the afternoon, ideally at snack time.

The National Nutrition Health Programme in France do not considered as F&V dried fruits such as dried prunes, figs, apricots and nuts, they do not fall under the scope of the recommendation to eat 5 F&V a day. Dried prune producers or walnut producers in Grenoble would like their fruit to be discovered by children so we went back to the French Food Safety Agency to see if we could introduce these fruits to children and under what conditions.

The fourth problem that came up was regarding appearances in connection with government tendering regulations, I'd say for purchasing local produce. Indeed, consumers need to be reassured; there have been various food crises, such as melanin in products from China, and consumers prefer to eat local product - they have more confidence in it - there is real demand from parents for cities to buy locally. However, government tendering regulations stipulate that mayors cannot say they are only buying produce from such and such a region, because it would be anti-competitive. So our idea is to find the right balance between supply and demand, in terms of farmers - they have to send mayors the list of regional products in short guidebooks indicating which varieties are grown, which quantities are available and in which seasons. And mayors need to split their public orders up into several batches precising the quantity and need to request seasonal, ripe, freshly harvested fruits; anyway, this is good for the quality of the products and I think that, little by little, this way we can try to respond to the demands of parents and cities.

Furthermore, we decided to conduct an evaluation because, in our specifications, we wanted to be sure that we were not going to cause side effects, unwanted consequences that we hadn't foreseen. We wanted to measure the satisfaction of the children and the parents and we wanted to know if our strategy was going to meet the objectives we had set. So we asked the International Centre for Higher Agronomic Studies in Montpellier (CIHEAM) to conduct this evaluation, and they took a rather conventional approach, with a focus group with open-ended questions. Next, they drafted closed questionnaires, and so there were series of questionnaires to which 2,500 children and 2,200 parents responded before the fruit distribution. Then five

months later, we questioned the parents and children again. A few less people accepted to respond at that time, but it was enough to make this evaluation. The evaluation focused on various points, but especially on satisfaction, of course, as I already mentioned, but also in terms of the knowledge of the children, the level of knowledge of the parents and then we wanted to see if there had been any change in dietary behaviour or habits in terms of purchasing etc.

Concerning the children, the results of this evaluation show that, in general, the children were very happy to be given fruit at school and especially that we insisted on taking a funny approach - we do not force children to eat fruit. Our idea is to help them to discover fruit and the work of producers, fruit's origins, etc. 62% of the children said that they would really like to eat more.

Concerning the children's level of knowledge: in the T0, we saw that the children considered fruit as anything that contained fruit but sometimes things that only seemed to contain fruit, for example, tea flavoured with orange, yoghurt flavoured with strawberry, etc. What is really encouraging is that through our educational actions, we saw that children learned a lot about seasonality - 39% knew a little bit about fruit seasons and, after the programme, practically 50% knew something, and I think that if we continue along these lines, we will have well-informed consumers.

So we asked the children a bit about their taste as well, what kind of fruit they liked, etc., and they answered that they hated kiwis, first they found them too sour. The fruit quality is a very important point in the specifications, it is important not to cut corners on quality, because the children will reject the fruit if you do.

So another finding is when you give fruit at recess, children don't eat biscuits at the same time, which is a good thing, but when they go home they maintain their eating habits, so we can see there is more work to be done with the children, but also with the parents on nutrition education and on what goes into snacks.

Concerning the parents, 90% of parents said they were satisfied, 94% of teachers too, which was positive, because in the beginning, we were told, they perceived of the fruit distribution programme as a worry that would disorganise the school - who would deal with the waste, who would slice the fruit - but in the end, once people get started, they get organised, and there is no problem.

A positive point is when the children were in the programme, the parents went to the market more often - the parents wanted to find natural products, they wanted to buy more fruit, and we clearly saw that before the programme 31% of the parents bought their fruit at the market, and afterwards, 41%, so this is positive.

Furthermore, still, we see that it is important to inform the parents about the programme, to insert messages in the school correspondence book in order to improve habits, so that parents will be more attentive to the children's snacks when they come home.
Teachers have told us that they had a hard time downloading our educational materials because from the web site. In fact, we wanted the educational materials to be free and accessible to everyone, whether they were in the programme or not, and we worked on them in high definition so that even photocopies would be appealing and pleasant. But in fact, this is not

sufficient, because the schools are not well equipped enough, so we are going to make educational toolboxes with a copy of each document in colour to really encourage the teachers to use them.

So you can see that we tried to listen to as many requests as possible. I would like to thank the Commission in particular because it authorised us to modify our strategy every year and even during the year if necessary, and that has really been something that has made things easier for us.

Thank you for your attention.

QUESTIONS/ANSWERS

Public : *We talk about programmes, we distribute fruit and we say that the doctor said to eat F&V and we tend to offer them at the beginning of the meal, but if we offered fruit at the end of the meal, it would replace snacks or biscuits, it might also replace the snack at home: can you comment?*

L Souliac: Concerning mealtimes, in any case, the fruit is given outside of lunchtime and the recommendations of the French Food Safety Agency are that enough time has to be left, i.e. three or four hours between each meal, so the fruit distribution cannot take place too close to lunchtime.

Public (from the European Association for Fresh F&V): *Thank you for your presentation, which I found very interesting, I am happy to hear that France has made progress on this programme. I have three questions: first, you say that large cities are generally more reticent about participating in the programme than rural areas. This surprises me - do you know why? We would tend to think that large cities would have better distribution networks.*
Another short comment about buying local produce: it is a good thing, but we can also talk about variety, this is also provided for in the programme, we need to have children taste local produce, everything that might interest them, furthermore, I would like to congratulate you on the evaluation: it is good that you also insisted on the fact that something had to be set up before the beginning of the programme so that the programme's results could really be evaluated.
And you mentioned that children do not know exactly what a fruit is, in fact, they think that a yoghurt with fruit is fruit as such; this shows to what extent F&V are not well known by children and that they think that there is fruit in a product that does not even contain any.

L. Souliac: To the question, why are big cities more reticent? I think this is a budgetary issue, because when you are in a big city, there are a lot of schools and a lot of children and the cost is very high, so it is a real political decision and you really have to work with the mayor face-to-face. Concerning Paris, we are lucky because it is split up into districts, so we have a few districts that have joined the programme.

Public: *Regarding government tendering regulations, they do not allow local authorities to favour the promotion of local or seasonal produce for the distribution of fruit in schools; this is not what the industry in France alleges, as these recommendations are supported by your Agency, the contracts are placed through weekly purchase orders with pre-selected suppliers in a framework agreement: is the industry expertise deficient in this respect or do new procurement logistics need to be put in place*?

L. Souliac: Concerning government tendering regulations, the problem is that cities are not necessarily familiar with all the options that are opened to them through the government tendering regulations, but in our specifications, we indicated the recommendations made by CCC Interfel. The idea is not necessarily to require new logistics; the difficulty of the government tendering regulations is that no geographic criteria or distances can be listed in the choices. This is the problem, especially when it comes to buying local products: you can't say "I want products from such and such a region" or "I want products from less than 20 kilometres away" - this is not allowed.

Public: *I would like to know, in schools, who is involved in the implementation of this programme? Is it the headmaster or is it certain members of the personnel who are involved and give the recommendations in terms of which fruits to buy?*

L. Souliac: In France, cities are responsible for school food services, so the mayor is in charge, and there is a city food service manager who places the orders. Next, the distribution itself is organised in each school by the headmaster with the help of the teachers.

Public: *The only problem is that we are going to insist as part of this programme that it will be the time for accompanying measures to discuss seasonal aspects, farming aspects, health aspects, all these elements that must be connected to the distribution of the fruit or vegetables and so, if we give it at the beginning or the end, when are there associated measures, that is the question.*

L. Souliac: The accompanying measures can be conducted by the teacher, for example, by working on a poem about fruit or during a history or geography lesson about fruit or with a farm visit. What we think is that the most appropriate time for this distribution is during extracurricular time. We have an extensive child-minding system and this really is the best time, because there are ladies who cut the fruit, which makes things easier, and the children can play games based on fruit.

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K.I. Klepp (NO)

The Norwegian School Fruit Program: From parental subscription to national legislative action

Thank you very much! I will be presenting where we are today with the Norwegian School Fruit Program, what we are struggling with, and also provide some updated data that we have on our evaluation.

The Program started almost 15 years ago back in 1996. It was set about the time when we launched a "5 A Day" recommendations in Norway. It's called the "School Fruit Program", but it also includes vegetables even though it is clear that most often the students are given a fruit and not vegetables.

Some of the background is that in Norway, the traditional consumption of both Fruits and Vegetables (F&V) is quite low. This is data from the Pro Children Study that was mentioned earlier this morning. And where you can see that when it comes to vegetable consumption, the Norwegian students go quite low, and lower than our neighboring countries in Scandinavia, such as Sweden and Denmark. And the same picture holds true then for fruit consumption.

So this subscription program was launched as a pilot program back in 1996, and there were a number of studies in advance with focus group discussions with parents and teachers, and also discussing with students how this could be done in the best possible way. And it was a subscription then where the parents subscribed 6 months at the time, and the cost for them is 2.50 krone per day, or about 30 euro cents per day. You can see what kind of produce is mostly provided: apple, pear, orange, banana, carrot, kiwifruit and peach. But that depends then, on the season and availability.

I said it started out as a pilot in one county only, and over the next few years then, it was rolled out, and by 2003 it had reached all the counties in Norway, so it had become a national program that was being offered to all public schools, elementary and junior high schools. And there was a large increase in the number of students enrolled, but what we saw was that, even though it was offered to all schools in all countries, there were a quite high number of schools that opted not to participate. And within the schools that did participate, quite a few parents opted not to participate. So at this point, we were only reaching about 10% of the eligible student population. And we heard that one of the reasons why both schools and parents were opting out of the program was because of the cost. So that was an issue at that time.

And then we started our research looking at students participating in the program, and those not participating, and it became very clear then that the students that were subscribers had a much higher consumption of F&V to start with, compared to those that were not in the program. They had better eating patterns overall, and a more stable meal pattern. So they clearly were a different group than the nonsubscribers.

Then when we looked at parents, we saw that the parents of students enrolled in the program had higher income, they had higher F&V consumption, they watched less TV, and they were less likely to smoke. So higher socioeconomic groups, more health-conscious parents, were the one enrolling the students or children into this program.

And for that reason, it became a strong impetus to see what would happen if this program was offered for free to all students. And in 2001 we were able to secure funding to do a study to see the effect of a program to children without any parental payment. It started in the school year 2001-2002, and here are the 2 groups, the one that received fruit for free, and those who were the comparison group. And when we evaluated at the end of the school year, we saw that there were a large difference between the 2 groups, and that we had been able to reach all the students in the participating schools.

And we were able then, to do a follow-up survey 3 years later. And we saw that this effect actually was maintained 3 years after the Free School Fruit stopped. Because School Fruit was only provided for free this one school year, 2001 to 2002. But one of the reasons why the effect was maintained was that there were more students in this group who continued to subscribe then, afterwards.

Last year, Dr. Elling Bere and his team went back and surveyed the same students who were now at the end of high school, and so in 2009 he just reported to me that the preliminary results show that there still is a significant difference between students, who received the program for free 7 years earlier, compared to comparison group. And that holds up, either we use the 24-hour recall format to assess F&V consumption, or frequency questions. So I think that's quite encouraging when the effect can be maintained for that many years after just one year of free fruit.

We also saw that the Program had another positive effect that hadn't been planned for. And there was an interaction then, with socioeconomic status in that the children from parents with less education actually reduced the consumption of unhealthy snack as a result of being part of this program. And according to Dr. Bere, the preliminary resultsfrom 2009 show that also this effect has maintained over time.

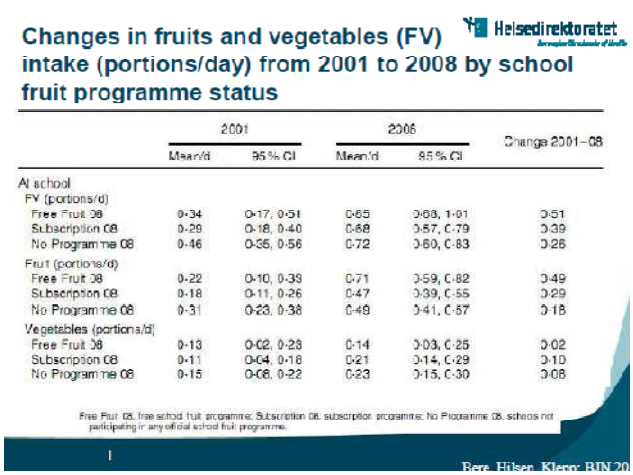
We also did at the time some cost-effectiveness analysis showing what would this mean for the Norwegian society if fruit was provided for all the students. And based on the data that was available then back in 2004-2005, it was estimated that only 10% of the students needed to maintain an increase consumption of a lifetime with about 25 grams per day for this to be cost-effective. Or only 2.5 gram per day per person, which just shows that it could be a very cost-effective program. In light of the discussion in the previous sessions, some of these estimates might have changed a little bit, but I don't think they have changed so much that it would undermine the cost-effectiveness of a program like this.

In 2007, the government presented to new documents. This was the Norwegian action plan on nutrition, "Recipe for a Healthier Diet" and a white paper to the Parliament on "A National Strategy to Reduce Social Inequality in Health." The potential of having a Free Fruit Program to children was presented as policy options in both of these documents. And in the revised budget for 2007 presented in June 2007, a free program was introduced for the following school year 2007-2008, including all students in lower secondary

school, and also all students in combined elementary and lower junior high schools, but not in the elementary schools grade 1-7.

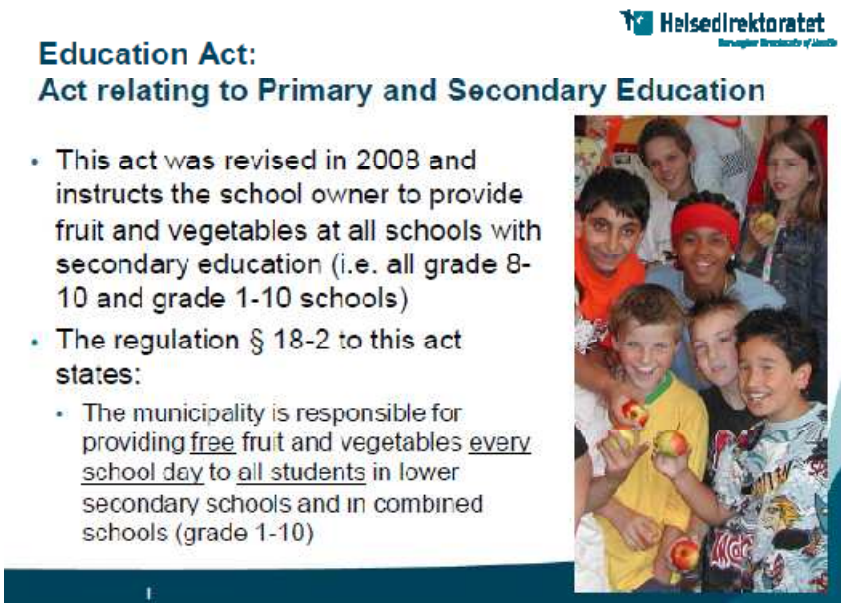
And the subsequent year in 2008, the Educational Act in Norway was revised or amended, and there was regulation added to it stating that the municipality is responsible for providing free F&V every school day to all children in the lower secondary schools and the combined schools grade 1-10. So this is now a part of the legislation.

As part of the study where we looked at the effect of the Free Program, Dr. Bere and his group has also conducted a long-term follow-up study looking, not at the same students, but doing repeated cross-sectional surveys. So comparing at the school level, situation 2001, with the one in 2008 and here is presented the average proportions reported eating daily at the school level. And we saw that there was about a doubling in this period from 2001 to 2008. We then divided the schools into schools that were enrolled in the Free Fruit Program in 2008, comparing them to schools that in 2008 were enrolled in a subscription program, and schools that still had no program in place in 2008. As you can see, there is a clear gradient in the mean consumption in 2008. And it is particularly for fruit that we saw the increase. What we see is that for vegetable consumption there has hardly been any change from 2001 to 2008. But a strong increase in fruit consumption, and we think that can be ascribed to the Free School Fruit Program.

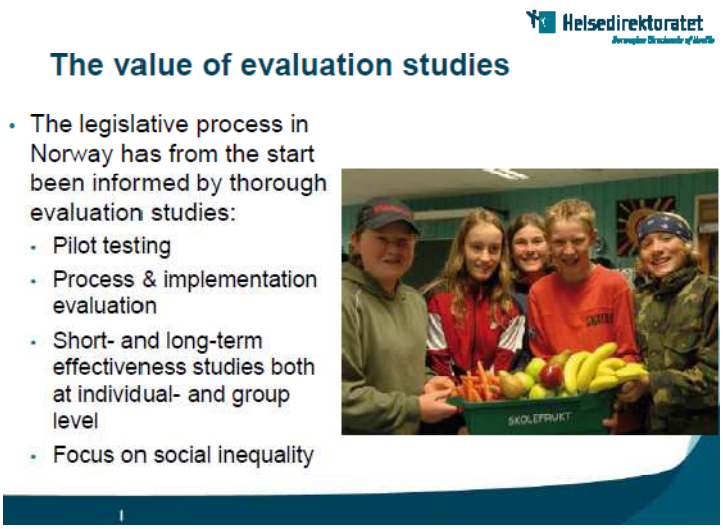


We also had looked at consumption overall, not only at school, because there had been some worry that you might replace what is being eaten outside school. But we saw that the increase overall was even larger, and it clearly didn't replace what was eaten outside school.

This is another way of looking at it where we look at the proportion of students reporting to eat F&V at school regularly, or at least 4-5 days per week. So basically, every school day. And overall, there was a two-fold increase from about 30% at baseline to 60% in 2008. And again, you see that there was a very strong gradient from those who participate in the Free Fruit Program, 81% of the boys and 88% of the girls, compared to a little less than more than 60% in the subscription, and about 35-47% in the no program schools.



And we also looked at it according to parental education, and we see that there is a slight gradient in all the groups. But if you look at those with parents of less education, 80% of those in the Free Fruit report regularly consumption, compared to 66% of those of parents of higher education in the subscription group, showing that we are able to boost among those groups that traditionally eat less F&V.



Now, the Program has been under some pressure, particularly from the municipalities, the school owners who struggle to balance their budgets, and so there have been mayors and principals —stating that while "F&V can be bought in the local stores, I can't buy teachers in the local store, I have to prioritize hiring teachers". And there have been a very strong emphasis on strengthening basic skills related to language and math in the Norwegian school system during this very time period. And this is a story from a local newspaper in the county of Telemark where we did this study I just presented results from, showing that the city of Skien had decided to close down their program because they claimed they didn't have the funds. And then there was a complaint to the County Governor of Telemark, which is the central government's representative on the county level, and the County Governor then instructed the city that they immediately had to put this Program back in place.

I think it is very important that we have this mechanism then, that it's possible to complain, and that the County Governor take on this role and point to the importance of follow-up on this legislation. And there was a very useful tool here for people, in that on that page for the School Fruit Program, it is actually listed exactly how much funding is set aside, is earmarked, for each municipality for any given year. So this was the city of Skien that dropped the Program, and here you can read that they had received 2.3 million Norwegian krone for that year for this very purpose. And that they were breaking the law by not using the money in this way.

I also want to point to the fact that it has been very useful in this legislative process, that we have followed the Program with thorough evaluation from the very beginning, that it has been thorough pilot-testing process and implementation evaluation, and that we also have this short- and long-term evaluation. And that it has been possible to demonstrate the effect of these programs, in terms of different effects on different socioeconomic group, which has been a concern of our current government. And the fact that we have provided this data has also given tooth to various groups to be able to lobby for legislation in this area.

So to conclude then, I think it is clear that the subscription program is effective for those children enrolled. But the subscription, the payment, prevented a large number of the majority of students from benefiting from this Program. And in contrast, the Free Program, without parental payment, is effective in increasing fruit consumption across different social groups. And that we see the thorough evaluation and documentation has been critical for introducing the legislative action that we have seen in this area.

Finally, there is a challenge then, of expanding the Program to include all primary schools. The financial crisis is also affecting Norway, and the government is looking at ways to cut spending, not to find ways of increasing the spending. So it is an uphill struggle to have it expand to all. But it clearly is an equal rights perspective here, it's hard to argue in the long run why children attending 5th grade at neighboring schools should be treated differently in this way. And we also see that we have a challenge in increasing the vegetable consumption which might, in fact, be now a larger challenge than to increase the fruit consumption. So thank you very much for your attention.

QUESTIONS/ANSWERS

Chairman (L. Hoelgaard): *Thank you, Mr. Klepp for this very thorough and very interesting presentation. And in particular, the conclusions you come at. And I can tell that when we proposed the School Fruit Scheme, from the Commission side we were arguing exactly on that basis, that we wanted to make it free to the children without any parental participation. Not to exclude any voluntary, perhaps, parental participation in terms of financing, but certainly no obligation. Unfortunately, my compatriots and a couple of other mean Member States insisted on the parental contribution, and my Commissioner at the time gave in to that pressure. So we have it as part of the possibilities for our Member States to impose a parental contribution.*
But I think, in terms of the evaluation and the report we have to do in 2012, this is going to be one of the key elements we'll have to look at; and in particular, the kind of scientific studies that you can provide us with, in terms of, perhaps, reconsidering that mistake, as I see it. Of course, I can't say that publicly, but nonetheless; let me say it then, privately over the microphone.
Now, having said that, I would like to see if we have any comments, observations, questions from the audience. One right here.

Public: *Once again, this meeting is so interesting and so fascinating. I would like to know, because you, Scandinavian people, are so active, even too much sometimes, it makes me feel very, very ashamed to be from southern Italy. But I would like to know if during the full year of the intervention group in the intervention school, are you sure that there has not been any other state intervention with the other kind of preventive measure that could reinforce the Fruit School Scheme?*

KI. Klepp: We did at the same time as we started evaluating the effect of the Free Fruit Program, we also introduced quite extensive education program, kind of along the lines of the education programs in the Pro Children Project. And we were able to control for the effect of the educational component, and it turned out that for this specific study, it was the subscription and not the education component that explained the increase in consumption.
Then I think, overall, in Norway there has been other activities, and I think that's why we see some increase also among students in the no-program schools. But since we are able to control for that, we see that there is a much, much larger increase among those who are participating in a Free Program. So I feel pretty sure that that is what caused this effect.

Chairman (L. Hoelgaard): *Thank you, I got Robert Peterson from the back of the room.*

Public (Robert Peterson, European Public Health and Agriculture Consortium): *I'd just like to start by saying thanks for the excellent presentation, and also the impressive results. What I wanted to ask is, one of the things we see as interventions when we target F&V consumption in children, it's often the intensity, the duration, and the frequency that create the positive*

changes. And I think your Program, the F&V are given every day. And we know in some of the programs in the new EU School Fruit Scheme, it's given once a week. So I'd just like to hear your reflection on that in terms of the effectiveness of the program.
And the other thing I'd like to just comment is it seems like the success of the Norwegian School Fruit Scheme is that it's free of charge universally offered to all school children. Thank you.

KI. Klepp: Thank you. I agree, I think it is important that we have been able to provide it every day so that it really becomes a part of the daily routine. And I think that is critical when you look at the long-term impact that it's having. Offering it once a week, I would expect it would have less of an impact, but I think it still is important if there is a variety of new produce being introduced to the children, that it could also be a positive thing. But I think anything at the level of exposure is important.

Chairman (L. Hoelgaard): *One last question, yes?*

Public (Ingrid Keller from the Executive Agency For Health in Consumers): *Thank you very much, also. It has been great to be able to actually follow this development in Norway over the years, and now being national and being as a law. This is really a great achievement, congratulations.*
I was just wondering, you said this comes along with an education program. Could you share with us of maybe some insight on the knowledge of the students about F&V? We just heard some of the knowledge gained in France about localization or about seasonality. Do you also have some information on that?

KI. Klepp: Yes, back in 2001 we did implement an educational program, and we had various groups receiving either only education, or both education and free fruit, or only free fruit. But now as the national program is being rolled out, there isn't an educational component linked to it. We have a subject taught in school called, Food and Health. But it is not particularly linked to the Free School Fruit Program.
In terms of knowledge levels, I'm not quite sure if we have good updated data on that. So the knowledge levels that we saw back in 2003-2004 with the Pro Children Study was that it was quite shallow knowledge levels, that there clearly was room for improvement. And I would suspect that still is the case.

Chairman (L. Hoelgaard): *Of course, there is, just thinking about it, 2 ways of promoting F&V in schools. One is to do as we have done in the EU, in terms of providing a budget and for the Member States to take it up in the different manners according to principle of subsidiary and eventually to have a national contribution financed by one way or the other. The alternative, of course, is the more drastic way that Norway has gone, which is simply to impose it and have it as a law.*
And I can tell you a little bit of an anecdote, I like to refer to my girls, and have here an opportunity to do so. We have here in Belgium a petit [journe], which is the Wednesday, it's a short day, it goes until, for the matinelle in the kindergarten, goes to around something like 11:20. And those days, the children are not allowed to take along a snack which is not either a fruit or a vegetable. If they do so, it's confiscated. So that is also a mandatory, obligatory feeding of a fruit or a vegetable.
And I hear here that in Norway you've gone, in fact, a bit that way. I don't think that model could do gown well in the EU in 27 Member States, unfortunately. I don't think we could have the kind of moral authority. So for the moment, we take note of this quite effective way of imposing School Fruit, but up till now I think we'll have to go on the more sort of voluntary

take-up basis as we have it right now. So thank you very much, Mr. Klepp for this excellent presentation.

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Chairman: L. Hoelgaard

And now we go to Mrs. Blenkus from Slovenia who is a doctor and who will give us an insight on the School Fruit Scheme in Slovenia, which I understand is pretty mono-based on apples, as we have heard it previously when we had the Stakeholder meeting in relation to Hungary, which was also a mono-based type of product. But maybe I misunderstood something, so Mrs. Blenkus, the floor is yours.

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M.G. Blenkus – (SL)

School Fruit Scheme in Slovenia

Thank you very much Mr. Hoelgaard, and the dear audience. Thanks also to organizers to give me the opportunity to speak here. I would like to share with you not just the experience of implementing the present School Fruit Scheme, but also the story how we came to, maybe let us say, successful implementation of everything.

So I would like to talk about the individual characteristics of individual behaviors in the beginning, and the characteristics of the structure influences in Slovenia. And then tell you, in short, how we piloted the Apple Project, and then at the end, what is now with the implementation of the Common Agriculture Policy School Fruit Scheme.

Starting with the individual behaviors, what we know about that in Slovenia, what is the baseline, these are the HBSC data from 2006. And as you could see, the children eat more than once a day, or once a day Fruit and Vegetable (F&V), just in one quarter of them when they are 11 years old. And these percentages are even decreasing with the older ages, so it's important to keep this quite good habit if we can, and develop better ones. And from the data we also observed that the children from higher socioeconomic status groups eat more F&V, that is also quite common finding. And we also have problems with obesity, rising trends of obesity in Slovenia.

From the Pro Greens Project, we see the preliminary results, and if we compare how much F&V children consume comparing with the WHO recommendation, we can see that with fruits, we are not that bad. But with vegetables, we are very, very low.

But we also ask children, as target population, how do they select their everyday foods? And they usually answer in the focus groups, "as I feel", to "how I feel", "it has to be nice", and that "it tastes good". And what are the challenges? They told us, "I feel restricted when they say that I should eat F&V 5 times a day, I don't want to live with these rules, there is no pleasure in food, then, anymore". Or, "I'll care for health when I'm old, when I have my potbelly". Or, "you live your own life and create your own destiny for the future; they can't force me to now to eat cooked cauliflower if I don't like it." And there are ones saying, "I have the pyramid on my desk at home and I look at it sometimes, it's hard to stick to it. I do it differently my whole life; I can't change it at once."

They also don't know exactly what to do. So one girl said, "I don't know exactly what they mean when they say 2 liters of water. It is only water, water as such, or does it include also

other foods, for example, fruit or vegetables or soups? I'm already a lot on the toilet, and if I would drink or eat as much water, I would be there permanently", so what to do now? Actually, "there is no healthy food", they say. "Vegetables, fruits, everything is chemically treated; the air is already polluted to such extents. If you take care, you may gain one year of life to give something up for 60 years, so you can live for one more year?" That's also a question if it's worthwhile. And they also are not happy with us, that "we are changing our recommendations".

But there are also kids which are quite well aware of their economic situation. "There is less and less money", said one girl. "There are more and more families in which parents don't get their salaries and they work. I think that vegetable and such is expensive. One kilogram of salad costs in winter approximately as much as one kilogram of sausages. And if we ask what is more filling, one kilogram of salad or one kilogram of sausages, those of us who have less money, we always look first at the price." So, that's something what we also have to respond to.

What does the structural environment or the influences look like in Slovenia? We are starting from the point that most of the determinants of positive health are not under the control of health sector. In health sector we can't do a lot. Health, as the [Ottawa...] [charter...] says, it's created and lived by people within the settings of their everyday life, where they learn, work, play, and love. That means there where they also produce, buy, cook, eat, and enjoy food, including F&V. That's something what we have to deal with, it's the baseline of our activities.

What we also learned, specifically during this Finish presidency - publication, and a lot of activities going on about the [Health in all...] policies. That means [in non-health...] policies, how to place health on the agendas of policymakers. Two options were described. That is one to get other sectors to contribute to improving health, where the health is kept as the main objective. And the other approach is to achieve mutual gains or outcomes for all sectors. That means to somehow create win-win strategies.

Okay, we can't speak about a 2nd option if we are dealing with illegal drugs or something like that, but speaking about F&V, the 2nd option is something what is more promising. And from here now, I would like to tell you the story how we were learning that, and how we created such win-win strategy.
In 2003, Slovenia was still the accessing country to EU, and at that time we had to adopt CAP. And we were to some extent, from public health, concerned about adopting CAP, as such, because of the health goals which were not covered as we wished to. So we did the health impact assessment on food and agriculture policies in Slovenia, and I will present here just a short insert of that connected with F&V. We saw that on public health sector agenda, we found that Slovenes only eat 75% of recommended F&V intake. And if we would increase the intakes at the recommended level, then we could decrease the cardiovascular diseases by 10%, then cerebrovascular disease by 6% some cancers also by 6%. And F&V production sector agenda was that Slovenia produces about less than 60% of F&V which we consume. So the market capacity for increased supply was existing.

And the recommendations of this exercise were produced, too, and the recommendation for the School Fruit Scheme to be implemented in Slovenia was included, too. We were also quite lucky that we were able to make the evaluation of the effectiveness of the health impact assessment we did - how effectively we used this potential. And I would like to highlight something what came out from the evaluation of the process. That means what was the

perception of the HIA food and agriculture policies by different stakeholders which were involved in this work? The medical expert in the discussion, as the key informant, said that "the broader socioeconomic determinants of health were included in this work". But the agriculture expert felt that "assessment was based on the relatively narrow medical concept". And he also said that "one should be well-versed and technically competent when dealing with inter-sector communication and work. Expert multidisciplinary [...] competency is the key, and we do not have enough of it. The fixation on medicine is very disturbing", that was his feeling. "Medical experts think that everything derives from it. This disrupts normal work, but the agriculture experts on other side believed that they were untouchable because of the large portion of the budget and the money they possess."

So I think it's quite good description what was the relationship at the time in 2003-2004. So our conclusion was that lack of multidisciplinary [...] competence is here, we have to deal with that and more cooperation and discussion is needed.

So out of these recommendations, we prepared our food and nutrition action plan 2005-2010. Which also set up the call for the action to implement activities to promote healthy nutrition in children and adolescents, also Fruit School Schemes, if it's available. And in 2007, the Commission white paper on Nutrition, Overweight, and Obesity, was adopted, which was helpful because it supported the activity by saying that CAP plays an important role, and Commission is committed to promoting public health goals, and the Fruit School Scheme is co-financed by European Union, would be a big step in the right direction. And that supported national activity quite a lot.

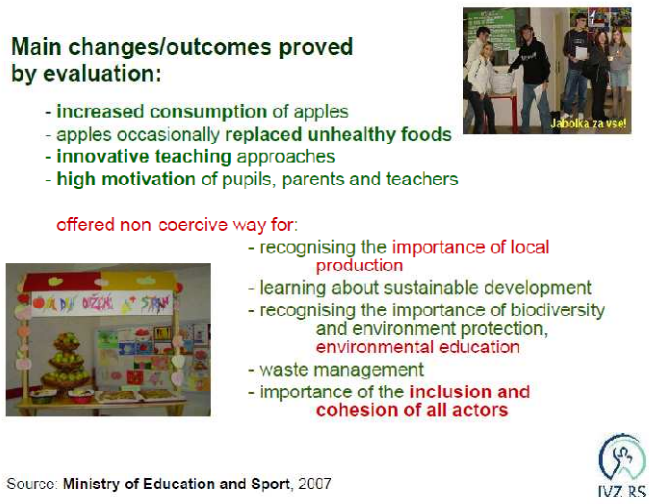
What I would also like to describe is that in Slovenia, we have National School Nutrition Program for almost 60 years now. And all primary schools offer at least 2 meals a day. Schools have their own kitchens, and they have to follow national guidelines in which since 2005, every meal has to have also F&V included. And the lower socioeconomic groups are specifically treated because approximately one third of kids get meals for free. But Fruit Scheme here is anyway helpful as an additional tool in efforts to increase F&V consumption. And we were also happy that European structural funds could be used, or are used at the moment in Slovenia, as we are working with education sector in developing cross-curricular model for health. That means we are developing the knowledge base for the children, to how to include, why to include, F&V in their daily menus.

This is the last slide here in this structural environment part of the story which I couldn't resist to put in. Health inequalities were quite nicely highlighted by WHO social determinants on health report from 2008 and SFS is something what is also helping us [to lower inequalities in health ...]. We could see form the report how important it is to provide free F&V to people, to redistribute resources to institutionalized measures, and also to evaluate what we are doing.

We were happy in Slovenia, too, or we are happy to be involved in quite a lot of international work together with, for instance, Euro Healthnet or WHO Venice office, in learning, capacity-building how to deal with social inequalities. But also we are very happy that we could work with WHO Euro office in Copenhagen in the sense of nutrition, because they are supportive to Member States in knowledge in capacity of all kind.

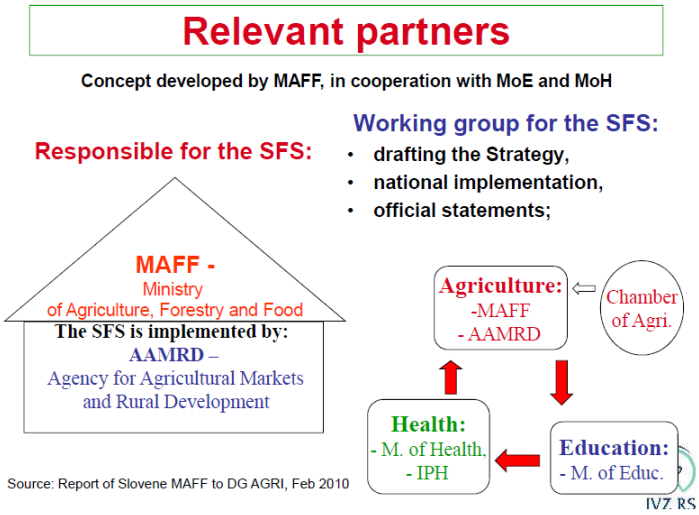
So, what we did. In 2006 and 2008 we piloted the Apple Project. Why apples? I understand Romanian colleague, because it's simple, it's something what you can start with. Specifically, if you have low budget and if you have high availability. So we started for 2 years with apples.

50 schools were involved; the Scheme was financed by Ministry of Education as a free scheme. And obligations of each school were that they have to make a contract with the selected provider from local environment, and they had to plan activities. That means they had to set goals, they had to define indicators, they had to provide adequate supply and offer, they had also to plan additional activities and set cooperation between students, between parents, and between local producers, and somehow combine it with local community.



So what were the main outcomes what we found? Increased consumption of apples was found, children replaced unhealthy with healthy foods. Some innovative teaching approaches were found, and high motivation was recognized at the schools. But also some side effects were found, that children learned about importance of local production. They used the Scheme for the environmental education, and also it was acknowledged that inclusion and cohesion of all actors is highly important.

So what we are doing right now with the present School Fruit Scheme of the common agriculture policy in Slovenia? The baseline for us was when we started in the way we wanted to: with the intersectoral collaboration; recognized needs for multidisciplinary sectoral competency was there; SFS should be based on the needs of the target population - that was also the case. And education shall be the part of the programs. Flexibility and sustainability are very important, and they are provided to some extent, but SFS could be even simpler - the simplicity was important. It is essential to involve local community, local producers, parents, and it's also possibility that this Scheme would increase health.



Only few highlights from the implementation. This is the slide which was produced by Ministry of Agriculture. They really recognized themselves as the responsible partner for the whole Scheme. And I would just like to highlight that here they see us, agriculture, education at the health sector being very closely connected within the working group, dealing with the whole Scheme, meeting once a month at least.

In year 2009-2010, we were able to enlarge the target group and increase the number of participating schools. We extended the Scheme to the students in all classes in primary schools, from 6 to 15 years, not just 6 to 10. And 73% of all Slovene schools got involved in the Scheme, they decided to join. So we really had to increase the total budget which is now approximately for one third higher than it was proposed in the beginning for Slovenia.

From the school plans we see that they have different frequencies of distribution, they have different delivery times, they have all similar objects and aims, but what is important, they also introduce visit to farms and local producers as is recommended in the Scheme. And the strategy 2010-2011 is based on this information. We will also try to make the evaluation so that we will be able to assess what is the effect of the Scheme in different socioeconomic groups in the next school year.

It was also important that agriculture sector took the lead in connecting food producers with schools. That means that in the Chamber of Agriculture and Forestry of Slovenia, on their website, they announced the list of suppliers and also the list of schools, and they promoted the Scheme and promoted the contact between schools and farmers.

So what we could conclude from all this story? That productive partnership was built amongst 3 sectors while we were implementing School Fruit Scheme, at the national and at the regional level. And it was based on the interests of each of the sectors. For agriculture, the interest was sustainable F&V market as the opportunity for farmers. For education sector, the driver was getting new opportunities for school work. And for health sector, the interest was in increasing F&V consumption because of health.

We think that institutionalized and regularly refinanced measure could give promising results. And here is the last picture , putting [together.] all things which are going on or are happening in Slovenia in connection with the School Fruit Scheme. Thank you.

QUESTIONS/ANSWERS

Chairman (L. Hoelgaard): *Thank you Mrs. Blenkus. Well, in fact you were supposed to be given 20 minutes, and you did shorter than that, and I think you were already a bit nervous whether you could keep your time, so you did more than that. You were doing an excellent job. And I think here what you gave us an example of was the perfect need for integration between*

the health, the education, and the agricultural side of the School Fruit Scheme. In fact, sometimes it's an advantage to being a small country, because then things, perhaps, work a little bit easier. There are not such big institutions with long stories and hierarchies and whatever. And so it perhaps facilitates a bit that debate across the disciplinary sector. So in that sense, that could be a model, perhaps, for others. And it's one of the difficulties in setting up an effective School Fruit Scheme. That is this idea of trying to make people responsible people work together in the most efficient manner, and to draw on the same helm.
So we have now time for some questions here.

Public ([Mikinsen] from Alba University): *Thanks for your presentation; I think your point on the necessity, the importance of the curricula activities is absolutely essential. And my question is, and I think it's very important or interesting that you managed to get funds for developing these tools. My question is, what kind of tools did you develop, are we speaking about more theoretical approaches to teaching, or are we talking about sort of hands-on activities like school gardens, like going to a farm, or is it teaching or is it food-related hands-on activities?*

MG. Blenkus: You know, we have quite a long time experience with the Slovene Healthy School Network. And that why we were asked by the Ministry of Education to develop a model how to incorporate health topics within the curricula, because they are changing the health topics of the curricula as such. And they also granted us with those structural funds. And we simply used the possibility to link both activities, so we are preparing the themes as mental health, tobacco, alcohol, physical activity, nutrition. And in the nutrition part we used that to support School Fruit Scheme. And there mainly, if you speak about the cross-curricula activities, you can cover everything. But during the development of the model, we tried to work with teachers in the classes. We just start from the theory, from the health sector we studied what is important, then we checked together with the teachers what they already have in their curricula, what could be highlighted, what could be added, what's missing, how to connect different subjects.
And then, not just these inter-subject links, but also how they could visit local farms, how they could improve their events in schools. Different activities were developed, but mainly coming from the experience of the teachers. You know, what they already are doing, and in brainstorming, developing different other activities. And what we are specifically thankful for is that the Ministry of Education will use this model where we really try to show what's working and what's not working.
We really did a lot of focus groups with teachers, focus groups with children, also some with parents, what they expect, what would be good for them, you know? And we are expected to write something like a strategic document, the baseline document, for Ministry of Health, how to approach. And then the teachers will have open hands, I would say, very flexible approach, to use it as they think it will be the most appropriate for their classroom. So it's something what is combined with the wish of the Ministry of Education and our need to support the School Fruit Scheme.

Chairman (L. Hoelgaard): *Thank you. Who else? Right here.*

Public (from Norway): *And you said you started your program with apples, like in Romania. Do you have any plans for more variation afterwards?*

MG. Blenkus: Yeah. I had limited time so I couldn't describe to you all the present implementation. Now we have the list of 18 fruits and I think 9 or 10 vegetables. And there are also dried fruits and nuts on the list; so approximately 30 products are available to schools. So now the variety is quite wide, but still I would make answer to the concern of the lady there,

which was previously asking for the variety: the answer is yes, if you can provide it from the local environment. In Slovenia, bananas are on the list, too, and I think the mandarin is also, they are on the list. So some fruits are from the external environment, but mostly they are coming from the local production. Thank you.

Public (Nigel [...] from France): *I was very much interested in your presentation because in France, actually, we are working in the same direction; associating in the French National Council for Food, people from the health sector, from the agriculture sector, from the food industries, and also from the consumer. And I think this is very important in terms of delivering the right message which can be accepted by everybody. And it works as long as each sector has health, agriculture, food industries, and consumers respect each other and there is no hierarchy in between the different sectors.*

MG. Blenkus: Yeah, yeah. Anyway, we are going for a public health agenda. We know what public health goal is, because as I said previously in School Fruit Scheme there is no problem. If we would speak about illegal drugs, then the position is different. But School Fruit Scheme and F&V, there is no problem. We are more supportive to other sectors than having the leading role.

Chairman (L. Hoelgaard): *Thank you, Mrs. Blenkus for all the questions and answers, and just one last round of applause for this excellent presentation.*

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Chairman: L. Hoelgaard

And now I'd like to give the podium to Lorelei DiSogra, who is a permanent teacher, if I could say that, here in Brussels, who enjoys traveling from the U.S., from Washington D.C. to the EU. The reason is simple. If somebody would like to describe me as the Mr. EU School Fruit Scheme, then Lorelei is Mrs. U.S. School Fruit, and other fruits schemes, by the way. So she has a pretty big responsibility on her shoulders, she's extremely committed, engaged, energetic, and has managed by way of these last years to put in place, together with the Congress, an impressive program in the U.S. In fact, this was, again, one of the elements which we could refer to in our impact assessment and our justification for setting up an EU School Fruit Scheme that the Americans were ahead of us, and that they had a good program running. So we were inspired from 3 countries, Norway and the U.S., and now the floor is for Lorelei.

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L. DiSogra (USA)

The U.S. Fresh F&V program. Benefits to students, schools and Public Health

Thanks so much, Lars. Thank you to the organizing committee for the invitation to be here, I'm really honored, this is my 5th EGEA. To follow what Lars just said about inspiration, the U.S. Fresh Fruit and Vegetable Snack Program, was inspirited by Norway's program and Knut-Inge's work. There were so many times when I would take Knut-Inge's first research papers and results to policymakers in the United States to say, look what Norway is doing, and look at these results. So this is a perfect example of how we can all inspire each other to move towards this very important action of increasing Fruit and Vegetable (F&V) consumption.

And when I think back to the other countries that inspired our work, I think about Denmark and Holland. My colleagues in the Netherlands started their program almost 15 years ago. When England started their School Fruit Scheme with funding from the Public Health Ministry for every child between the ages of 4 and 6, believe me, I told every policymaker in the U.S. about England. Over the years, we all leveraged among each other to keep building our programs. So thank you very much. Today, I'll provide an overview of the U.S. Fresh F&V Snack program, highlighting the benefits to students, their families, schools, and public health.

I think all of us would agree, that policy and environmental changes are required to increase F&V consumption in our respective countries. Therefore, many countries have focused on policy and environmental changes in schools to benefit children. We are all implementing these environmental change programs in slightly different ways, but we're all focused on improving children's F&V consumption. And, many of us have expanded to other nutrition policy changes, which you'll hear about in the next panel.

In the U.S., children eat less than half of the F&V recommended for good health. Less than half! And our children from low income families are in the worst situation, as we're already heard from other countries here.

In the U.S., the goal of the Fresh F&V Snack Program is to increase children's consumption of F&V by providing a fresh F&V snack every day at school for free. We believe the frequency

of the intervention, every day, is critically important in terms of changing children's behavior.

As I said, the U.S. program started in 2002, and if you will remember some of Knut-Inge's slides, Norway was already showing significant increases in consumption by May of 2002. The U.S. Congress made the decision to fund the Fresh Fruit and Vegetable Snack Program as a $6 million pilot in May of 2002. The pilot included 25 schools in 4 states. With good results from the evaluation of the pilot program, Congress increased the funding to 5 states in 2003, to 8 states in 2004, to 14 states in 2006, and then finally to all 50 states in the 2008 Farm Bill. The funding for the first year of the national program was $49 million and the public health reach was about 1 million students. For the 2009-2010 school year the funding is $72.5 million; reaching about 1.5 million children. The funding for the 2010-2011 school year is $110 million, and we expect to reach over 2 million students. In school year 2011-2012 the funding will be $150 million, reaching over 3 million students. The funding for the Fresh F&V Snack Program increases each year to reach more students. And, I'll take Knut-Inge's new research back to the U.S. and see if we can't leverage that into more funding. In total, the 2008 Farm Bill, which is similar to the CAP here in the EU, provided $1.2 billion over the next 10 years.

The U.S. Congress authorizes and appropriates the funding for the Fresh F&V program. The U. S. Department of Agriculture allocates that funding to each of the 50 states based on their population. Individual schools apply for the funding; each school receives between $20,000-30,000 a year to implement the Fresh F&V Snack program.

In the U.S. the priority is to fund elementary schools, with students in kindergarten thru 6th grade, and schools that have a high proportion of low income students. Since schools must apply for the funding we don't ever have a situation where schools do not want to implement the Program. Schools compete for the funding and every state has a long waiting list of schools that want the Fresh F&V Snack program. Since states receive more funding each year, schools that don't receive funding one year can apply the next year. Because of the benefits of the program, word spreads among schools and every state has a waiting list.

And, the waiting lists in each state are used politically to build support. We show the waiting lists to policy makers and say..." These are the schools in your state that are funded and these are the schools in your state that wish they were funded, Mr. Politician." Lars is smiling. We use the waiting lists to leverage additional funding and demonstrate that there is huge demand for this Program in every state. We encourage politicians to visit schools and see how children are enjoying their fresh fruit and vegetable snacks. Frequently I take politicians to visit Fresh F&V snack schools all over the country. Once politicians see the benefits themselves, they believe it and become supporters forever.

Schools are expected to provide the students with a wide variety of fresh F&V every week, every month, throughout the school year. This morning we talked about the importance of exposure - exposure to a wide variety of F&V. The schools receive adequate resources to be able to serve a wide variety of fresh fruits and vegetables to their students. In the U.S. only

"fresh" F&V are allowed. Yes, it is a political battleground. Because our goal is to increase children's consumption of fruits and vegetables and expose them to a wide variety of new fruits and vegetables, we believe it's important to keep the program focused on fresh F&V.

Each school receives between $50-75 per student per year. Schools have incredible ownership for the Program - they decide what F&V to serve, they decide who they're going to buy the F&V from, and they can buy from local farmers and different suppliers throughout the school year. Schools have flexibility to implement the Program the way that they see fit, as long as they provide the F&V snack every day and provide a wide variety. Every school operates the program in a slightly different way. School principals and superintendents are very proud they have this funding to provide a fresh F&V snack to their students for free each day.

These slides illustrate the types of fresh fruits and vegetables that are typically served in the Fresh F&V Snack Program. As long as it's a fresh F&V, they can serve whatever they want. Yes, we see that schools generally serve more fresh fruits. Through technical assistance and education, schools can be encouraged to serve more fresh vegetables.

The most important benefit to students is that they eat more F&V, almost immediately. Our colleagues in Denmark were the first to say that school fruit and vegetable snack programs result in… "almost immediate behavior change." Students now like a wide variety of F&V and they go home and influence their families to buy and serve more fruits and vegetables. Additionally, students spend less money in school vending machines buying junk food, soda, candy, and chips. I will never forget in the winter of 2003, in our pilot year, when a principal came up to me and said, you know, we're seeing a dramatic decrease in sales in our school vending machines of soda, chips, and candy. And the salespeople from the soda, chip, and candy companies are complaining because their sales have gone down. And we said, "Yeah, great!" We were beginning to see qualitatively the same result as Norway had reported. It was amazing to realize that what had happened in Norway --- reduced sales of soda, chips and candy ---was also happening in Iowa.

And now we are beginning to see the impact the Fresh F&V Snack program is having on school lunch. Now that kids are exposed to a wide variety of F&V and start to like more F&V, they are eating more F&V at lunch too. You can consider this a double public health benefit. Why a double benefit? Most kids in the United States eat lunch at school, but before the F&V were going in the garbage can, now they're going in their mouths. School cafeteria managers are also starting to serve more fresh F&V at lunch because they see that their students like fresh fruits and vegetables and will eat more if they are served. In total, big improvements for kids.

The program also benefits families because the students go home and tell their parents what F&V they tried at school and ask their parent to buy them to serve at home. When I visit schools, I always meet with parents. This quote at the bottom of the slide is very typical of what I hear, mothers will come up to me and say, "My son would never touch anything green, now he loves broccoli and wants to eat it every night." So again, the parents are well aware of the Program and the benefits, and it's beginning to impact the families' eating habits.

The benefits to the schools, as I've said, it creates a healthier school food environment, it's changing school lunch, and it's really been a catalyst for many other wellness activities, not just nutrition, but also physical activity. So the Fresh F&V snack becomes a catalyst for many other wellness and health-promotion activities in schools. Because of these benefits, once a school has the Fresh F&V Snack Program they want to maintain their funding every year.

School principals will frequently say to me, that the F&V Snack Program has changed the very spirit of their school. And that's incredible! The primary benefits to public health are increased F&V consumption, kids eating less junk food, and developing healthier eating habits.

USDA conducted an evaluation of the Fresh F&V Snack Pilot during the 2002-03 school year and there have been several small evaluations over the last 5 years. The 2008 Farm Bill provided $3 million specifically set aside for a national evaluation of the Fresh F&V program. USDA has awarded the evaluation contract to Abt Associates. The evaluation is designed to start in the coming months, with final results in time for the next Farm Bill in 2012. The evaluation includes both process and outcome measures, and surveys of students, parents, teachers, and the school principal. The results will be shared with you at a future EGEA conference.

This huge poster saying "Thank You for our Fresh Fruit and Vegetable Snack Program" was made by children in a Los Angeles, California, school. They really appreciated having Fresh F&V snacks each day at school. Our experience indicates that the program is transforming the lives of our children in the U.S.

The next chance to increase funding for the program will be the 2012 Farm Bill, and then, Lars, I'm inviting you to come to Washington to testify in our Congress, to tell them all about what you're doing in the EU to help us build support for increased funding in the U.S. We're going to need your help.

Ideally, our goal would be to increase the funding in the next Farm Bill by $50 million/year thru 2017. Increased funding will enable several million more children to benefit each year, thereby improving public health. The economy and national deficits are very serious everywhere. It will be challenging to secure additional funding. But, it's goal worth fighting for.

We're also working on policies to improve school lunch. This year Congress will reauthorize our nation's Child Nutrition Act. We are advocating to increase the amount of F&V in school breakfast and lunch and also to increase the funding so schools can serve more fruits and vegetables. And yes, we are thrilled with our First Lady, Michelle Obama, who talks about the need for children to eat more F&V in almost all of her media appearances. She is really helping spread the word and she's also helping build support for the policy changes that are needed to improve the healthfulness of school meals.

Recently, Mrs. Obama launched a campaign, called "Let's Move!" to reduce childhood obesity in a generation. Her signature campaign has 4 pillars, and this will resonate with all of you

based on everything we've talked about today. One of the pillars is to improve school meals, another pillar is to get rid of food deserts in both rural and urban areas, the 3rd pillar is to increase physical activity, and the 4th pillar is to provide better education for parents and for families so they can make wiser food choices. We're hoping that with Mrs. Obama in the White House, and the President committed to these goals, progress will be made in these major policy areas to improve child nutrition and increase F&V consumption. Thank you, very much.

QUESTIONS/ANSWERS

Chairman (L. Hoelgaard): *Well, as I indicated, we got a very energetic and inspiring presentation from Lorelei, and if I'm not mistaken, she's probably a Democrat.*

L. DiSogra: Yes, yes, yes, a Democrat.

Chairman (L. Hoelgaard): *But that's an official secret. What I did was, whilst you were talking, I just made a quick calculation, and as you know in the EU we have a budget of 90 million euros, and we have an add-up at the national level which amounts to something like, in total, 150 million euros. Now, of course, the value of the euro is dropping for the moment, but it's still somewhat higher than the dollar. So if we take a calculation of a value of one euro equals $1.3 U.S. and take your budget for 2010-2011, that amounts to something like 115 million euros. However, there are about 300 million people in the U.S., and 500 in the EU, so we have to correct for that factor, as well. So if we do that, I come to a figure of 141 million euros, converted into euros. So you're still below us, in terms of 2010-2011.*

However, if I then go to 2011-12 with your 150 million dollars, I suddenly come to a different result, because then, even with the correction of the exchange rate, I come to a figure of 191 million euros. So in that sense, we will be behind you when we come to next year. And maybe we could use this, as you were so politely saying, as leverage in both directions. So you use us, and we use you, and we sort of jack up the car. That's basically the idea.

L. DiSogra: It's a partnership.

Chairman (L. Hoelgaard): *In a way it is, it's very corrupt, isn't it? But it's for a good cause, so let's not be having too bad a conscience about it. I should give the floor, also, to the audience to see if we have some questions or comments to Lorelei's presentation. Seems that she's been overwhelming people, as she tends to, so I don't know if people are still daring to ask questions to her. If not, then I think I can--yes, one over here.*

Public: *My question, being in French. Your target population in the Program for the F&V, the target group is primary schools, children from the age of 4-12, if I've understood correctly. Was there any particular reason for that group being chosen? And would you get the same response if you got older children from secondary school, teenagers? They, of course, would not so much be something that would maybe carry a message to their family, but on the other hand, they could also be a useful target in terms of how they deal with the marketing of fruit and veg, as a different target audience.*

L. DiSogra: […]

Public (Gormley from the Institute of Food and Health in Dublin): *A quick question, in the various programs, what is the amount of wastage? In other words, a certain amount of F&V is*

given to the children. How much is uneaten? Has this been quantified? Because with something like an apple, there are many ways to eat an apple. Even an adult, some adults leave a large core, some adults pare it right down almost to the very end. So I think in something like apples, it would be important to quantify.
And secondly, in these programs have cut fruit, cut apple slices, being compared with whole apple slices. Now I know the latter are logistically much more difficult, and are more expensive, but they may be more acceptable, slices, especially to smaller children.

L. DiSogra: Thank you for the 2 questions. Why young children? Obviously, that's when eating habits are established, so we want to start with the young children to help them establish healthy eating habits. It's one of the priorities for all of us in nutrition. And also, this was a big priority for our political champion in the United States, Senator Tom Harken from Iowa. There wasn't enough funding to cover all children in the U.S. at this time, so we had to be very strategic about where to target the first resources. It seems like a lot of money, but it's really not that much, we're a large country. So we wanted to be very strategic about where we targeted the resources, and to target them to young children so that they could develop healthy eating habits. And also part of that targeting was to the schools with the highest proportion of low income children. That was a very clear decision, because these children have less access to F&V at home. I think many of us worry about what's going to happen when these children leave primary school after having F&V snacks at school for 5 or 6 years. At some point, we'd like to have enough funding to reach all children, so that all children can benefit.

Waste has not been a problem, as we find very, little waste. The school janitors would report there's nothing in the garbage. Our experience is that the children tend to consume what they're given. Now, how much of the apple core they eat, I can't tell you that. But they tend to eat whatever it is they're offered. So we don't really have an issue of waste.

Your question on value-added F&V, they're very, very popular with children. They're frequently used in the Fresh F&V Snack Program, especially fresh-cut sliced apples, baby carrots, fresh pineapple spears, etc. These value-added items are more expensive, so the schools can't use them every day, but they do frequently use them throughout any month, and they're very, very popular with the kids. Thank you for the question.

Chairman (L. Hoelgaard): *Yes? The last question.*

Public (Jean Barella from WHO): *Just a small question. How did you engage with the health authorities in your country, since the funding is coming through USDA, did you engage with health authorities? And how?*

L. DiSogra: At the national level, we didn't so much engage with the official health authorities. But all of the public health associations support the Fresh F&V program and advocate for expansion. But at the national level the Department of Health and Human Services has not been involved. However, at the state level, the Department of Education, which has authority for all school nutrition programs, partners with their Departments of Agriculture and Health. So at the state level, we see partnership and collaboration between health, education and agriculture, all engaged in successful implementation at in schools.

Chairman (L. Hoelgaard): *Thank you for that.*

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Chairman - Lars Hoelgaard

Conclusions

And now let me see if I can try to do just a bit of a summary of the discussion we've had this afternoon. I think we can certainly see that many of the main elements behind the School Fruit Scheme have been confirmed by the practical implementation and the science that we've heard about, in the sense that the need for trying to connect with agriculture, the seasonality, the local produce.
- The idea that we have to integrate education, health, and agriculture.
- The fact that a subscription model is effective, but less effective than a free model.
- The fact that we have models which, on some cases, are simple models, apple-based, but the diversity of the variety element, the attractiveness element, needs to overweigh the simplicity, and thereby, to increase the effectiveness of a program.

And what we've heard about, in terms of the need to do evaluation, to do follow-up, to have criteria for this evaluation which is probably the most important element:
- In order to be able to justify a continued effort.
- In order to be able to justify an increase effort.
- In order to be able to correct programs.
- In order to learn from each other, in terms of best practices so that we can get the most value for money, basically that's what it's about.
- And certainly, also, prevent what I talked about yesterday, this escalating public health mountain of expenditure which we're confronted with.

So I think the discussion this afternoon has been a very good example of the diversity of the programs, but also the commonalities of the problems that we're confronted with. And thanks very much to our third country representatives here which continue to be an inspiration for us. And thank you very much to Mrs. Blenkus and Mrs. Souliac for the presentation from the EU side. And with that we will now have recess.

TRANSLATING EVIDENCE TO POLICY

SESSION 4: Addressing inequalities in health and diet – policies and programmes that target F&V consumption in low socioeconomic groups

Friday, May 6, 2010

Session 4	SPEAKER	PAGE
Chairmen	I. DE LA MATA (DG SANCO) I. ELMADFA (AU)	96
Policies Promoting F&V Consumption in Europe	L. SERRA-MAJEM A. BACH-FAIG (SP)	97
USA: Impact of providing F&V in WIC Program	D.A. GREENAWAY (USA)	102
Effect of vouchers to increase F&V consumption in a deprived population: a randomized trial.	H. BIHAN (FR)	111
UK: Effectiveness of the Healthy Start Program	R. FRASER (UK)	116
Conclusions and discussion		120

Chairman – I. Elmadfa

Welcome again, and I hope you could [...] and recreate a little during the break. In the name of my co-chair, Isabella de la Mata, she is replacing her colleague, so Michael [Hubel], and I am replacing Lucera, who is not coming. He is represented by one of his colleagues.

But at the beginning of this session, I would like to say something, so during the lunch break, young colleagues, participants, asked me what is EGEA, what are these 4 letters for? And I have no answer, I was helpless. I asked Saida, the spirit of the Program, and she said, "just a name."

So I think it is now time to focus on something started now a few years ago. She is calling this the 6th Edition. So EGEA, I am proposing now a name for this. And this is something started in Europe, Great Excellent Achievement. So EGEA, from now, for you, if you do not know what these 4 letters standing for, it is European and a Great, Excellent Achievement on promotion of fruits and vegetables consumption in the European Union. If that acceptable for you, use it. But EGEA is EGEA. *[laughs]* Okay? Thank you very much.

Another point for this session, Louis Sera is not coming. He is represented by Anna Bach. And I think among the speakers of this session, a doctor who is caring for the health of mothers-to-be and pregnant ladies, and Anna is such a lady. And she's trying to catch the flight back home, so she will start this session, and not Robert. So with your permission, Robert, so Anna is the first speaker, and then the Program will continue as it is. Thank you.

L. Serra-Majem and A. Bach-Faig (SP)

Policies Promoting F&V Consumption in Europe

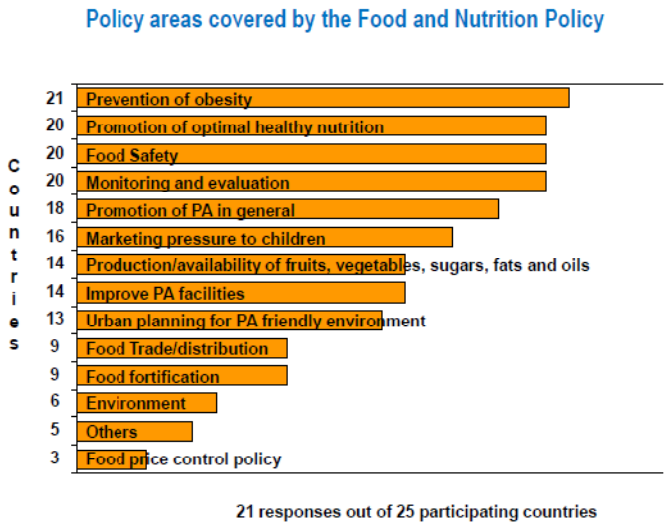
Good afternoon. Unfortunately, Lluís Serra-Majem won't be here. I will try to do my best on food policies regarding Fruit and Vegetables (F&V). First of all, thanks to the organization for the wonderful and high quality context. So we will start.

The objective, the **aim of this presentation would be to describe the actions of food and nutrition policies that are currently carried out in countries participating in the European Nutrition and Health Report**, with special attention on the initiatives addressing F&V promotion on food-based dietary guidelines.

Which are the methods to collect information? By a questionnaire developed with the collaboration of external experts. Those countries give us the information of food policies, fortification, and the guidelines. And this information is complemented with the initiatives from the European community and the WHO/Euro document, which is gathered in the document "Comparative analysis of food and nutrition policies in the WHO European region" (http//www.euro.who.int). Because the European Nutrition and Health Report is a European-funded project that gathers the information, food consumption, and health indicators, as well as food policies across all over Europe, and provides us with recommendations on the different methods, trying to harmonize the different methods of data collection; and as well, the monitoring of health indicators. Amongst the 25 countries that initially participated in the report, only 21 completed questionnaires. And we have, unfortunately, no data from Belgium, Cyprus, Luxembourg, and the U.K.

So who is the responsible, the leader, of the food and nutrition policies in the different countries? The Ministry of Health, in most cases. In one case, the National Institute for Food and Nutrition Science. Other institutions that are also very important in the development of the policies are, apart from the ministries, health, and in some cases, the agriculture ministries, the scientific societies, the consumer organization, the NGOs, and the food industry. The coordination of the policies is responsible for, in most of the cases, for the Ministry of Health. But as well, food industry took part in a lot of coordinating mechanisms.

Which are the policy areas which are covered by the nutrition and food policy? In most of the countries participating in the prevention of obesity, the promotion of optimal healthy nutrition, as well, food safety, monitoring and evaluation, promotion of physical activity, in general. In less participants, the marketing pressure to children, and, interestingly, the production and availability of F&V, sugars, fats, and oils. In that case, all the countries except Germany, Estonia, Poland, Romania, Spain, and Sweden had that policy areas covered by the policy. As well, some partners have policy areas on improving physical activity facilities and urban planning for physical activity. Food trade distribution, as well, food fortification, treating the environment, food price and control.



Regarding the policies that really include actions related to agriculture policy, food fisheries, and livestock production, in some few partners, include incentives and subsidies for production. We will see some of them. Some include incentives and subsidies for promotion, and some the collaboration of all those parties that take place for food production, manufacturing, sales, and control and legislation. Which are those incentives and subsidies for production? In Austria, the meat, sugar, and organic products are being subsidized and given incentives. As well in Finland, the rape seed oil and rye. In Italy, organic food and Italian products. In Lithuania, ecological and sustainable vegetables.

Incentives/Subsidies for promotion

- Fruit at schools (DK). Fruit breaks at schools (DK, PG, IT)
- Fruit and Vegetable at population level (GR, PD)
- Local foods (SLOV)
- Fruit and vegetable, fish, milk (PD)
- Protected Designation of origin products (SP)
- Ecological and sustainable vegetables (LIT)

What about the incentives and subsidies for promotion? Fruit in Schools in Denmark, fruit breaks at schools in Demark, Portugal, and Italy. F&V at all the population level in Greece and in Poland. Local foods in Slovenia. And F&V, fish, and milk in Poland. Protected designation of origin products in Spain. And finally, ecological and sustainable vegetables in Lithuania.

And in lot of countries there exist other not identified ways to promote F&V. In Spain, for instance, we have big campaigns run by the Ministry of Agriculture. Some of them are also with the collaboration of the Mediterranean Diet Foundation, which I'm the representative. And it's interesting to see how children, when they are taking part of the activity, and really participating and making a piece of art. For instance, in our case, it was a recipe. They were really interest and really excited to try the fruit, and it really helped for the increasing of consumption. We have other types of campaigns in Spain, some as well, funded by the European Union.

Which are the challenges that are faced, addressed, by the policies? First of all, the chronic diseases and non-communicable diseases in all the partners implicated, as well the prevention of obesity and overweight. And less frequently addressed the micronutrient deficiencies, the food-born diseases, and the maternal and child health. It's interesting, although it's not put very into practice, to address some specific population groups, such as disadvantaged, elderly, ethnic, and hospital populations.

We can check the level of compliance of the different countries' policies with the WHO Second Action Plan. And it's in this document reference here. The adherence to the WHO First Action area supporting a Healthy Start, in most of the participant and partners covered the nutritional education in schools, the advice on diet and food safety to pregnant women, to promote breast-feeding, the physical education in schools, the guidelines for healthy school meals, the training for teachers, baby-friendly hospitals, specific actions to low socioeconomic

groups such as pregnant women, as well, in 10 of the participants, compulsory supplementation to pregnant women, and healthy options for distribution points.

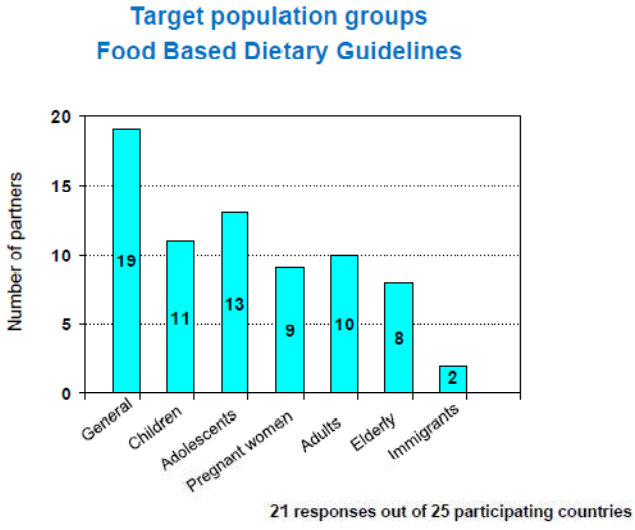
For the adherence to the WHO 2nd action area, which is ensured safety, healthy and sustainable food supply, if we check the compliance, the action that the participants mostly have been done is establishing efficient food safety control. High audience to promoting nutritional quality of food supply in public institutions. Reformulation of food products to increase the availability of healthy products, and the affordability and availability of F&V. This happens in all countries except Finland, Germany, Greece, Ireland, Norway, Romania, Spain, and Sweden. And as well, in some cases, to promote the micronutrient fortification, programs to protect the low socioeconomic groups, commercial provision of foods in accordance with the guidelines, and in fewer cases, to apply taxes and subsidies to influence the affordability of foods and beverages according to the guidelines. In very few cases, a few participants did mandatory food fortification, and only in the case of using vitamin A and D in margarines, and other vitamins and minerals, mainly in babies' food and formulas.

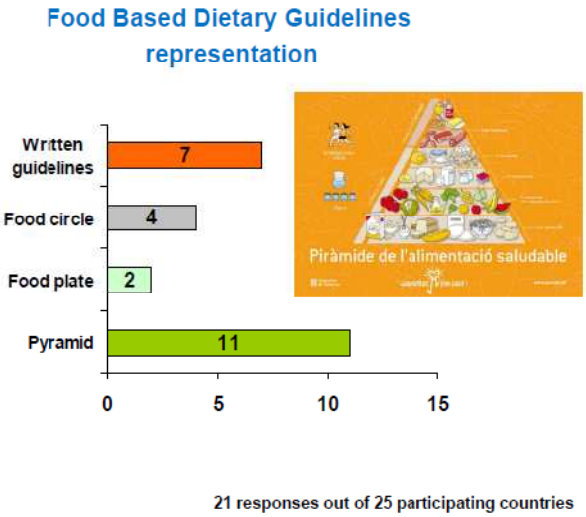
The **food-based dietary guidelines are** the information, **the communication tool, to disseminate the food policies**. And it's really in the case of all the participants, except Slovenia, that they really give the information and the content of the policies. **So who is responsible for developing the food-based dietary guidelines?** Mainly the Ministries of Health and the nutrition societies, and with the help, in some cases, of the Ministry of Education, the Ministry of Agriculture, and universities.

Which are the channels used to disseminate the food-based guidelines for **implementation?** The education tools for schools, primary care, mass media campaigns, and information at the point of purchase. ***In the case of F&V, education campaigns where the strategy is most commonly been done to promote the benefits of F&V.***

Which are the sectors involved in implementing the guidelines? Mainly health professionals and nutritionists. But it's interesting that other professionals also are being involved. So just school teachers, the industry, consumers organizations, and others.

The target population of the guidelines generally are the general population, but in some cases in some participants, they address as well, children, adolescents, pregnant women, adults, elderly, and immigrants. Is curious that only 2 of the participating countries of Austria and Spain include all target population groups in the guidelines.





The graphic representation that is most used amongst the countries is the pyramid. And in some cases, written guidelines, the food cycle, and the food plate model.

Since the policies should comprehend issues involving the 3 areas which are the 3 pillars, which are nutrition and health, food safety, and food production, it makes sense that other recommendation included in the guidelines are food safety and, of course, as well, physical activity for the importance in prevention of chronic diseases.

And as conclusions, regarding the actions addressing the healthy lifestyles. Governments have realized that adopting the responsibility for adopting healthy habits, health nutrition, and adopting physical activity in their lives, does not only rest on individuals, but it's important to address the environment. So specific initiatives for improving the environment to enhance population-based efforts to adopt healthy lifestyles were adopted in most of the countries.

And the WHO's comparative analysis also raised the issue on improving the healthy lifestyles, especially disadvantaged populations. But in fact, few countries included specific actions for these segments of the population so as to assure that everyone has the same possibilities for adopting adequate lifestyles.

To assure a success of the policy. According to the WHO recommendations, intersectorial collaborations among the institutions that have been involved in the development, in the coordination, and as well the implementation of the policies, should be realized. And in fact, the network of collaboration should include the private sector, including the agriculture and food manufacturing sector, the marketing and distribution sectors, as well as the health sector, the educational sector, and NGOs. But in fact, not all the participants' countries did involve sectors assuring adequate F&V availability. And another limitation was that others did not really have a coordinating system that really checks the implementation of the policy.

The monitoring system to evaluate the adequate implementation and application of the policies did exist in all the countries. However, still there is lot of discussion, lot of agreements to be done on the indicators that should be used to monitor the food and nutrition policy so that it reflects other adequate implementation and application of the policy in the 3 areas, which are nutrition and health, food safety, and food production.

In view of the trends on F&V consumption in Europe, and as well as we can see in this map where from the FAO's food-balance sheets, there is observed a decrease of adherence on the Mediterranean diet in the recent decades, it's necessary more than ever to unite efforts to assure the proper F&V availability to improve dietary habits of the population, especially covering all groups and especially the most vulnerable to nutritional risks.

In this picture we can see Mediterranean Diet foundation's team. And thank you so much.

QUESTIONS/ANSWERS

Chairman (I. Elmadfa): *Thank you, Anna, for this presentation. The data presented here, information, was generated within the EU-funded project, the European Nutrition and Health Report, I showed you this in the morning. I will do it once again tomorrow. This is the one part of the project where we generated information, all other parts we're compiling available information. But you have seen, so that good step has been set in this direction. Perhaps, in the next Congress there will be more about monitoring and evaluation of food and nutrition policy in Europe, in the EU. Thank you.*
May I ask for interventions, so comments, questions. Who wants?

Public: *I just want to say that in southern France we have also a study showing the adherence to Mediterranean diet, which is not in your map.*

Chairman (I. Elmadfa): *Okay, thank you. Please, who else? Well, thank you, Anna. And thanks also, in the absence of Luis. And I wish you safe trip back home.*

A. Bach: Thank you so much. Bye-bye.

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Chairwoman: I. De La Mata

I would like to introduce Douglas Greenaway who will make a presentation about the Impact of Providing Fruits and Vegetables (F&V) in the WIC Program, the Women, Infant, and Children Program. Douglas Greenaway has served as an advocate and government affairs specialist and is President & CEO of the National Women, Infants, and Children Association for 17 years. He's responsible for directing the Association whose members include the 50 geographic states, 38 Indian and Native American Nations, Commonwealth and Trust Territories, 2100 local agencies, and 10,000 clinics who operate the special supplemental nutrition program for women, infant, and children – known as WIC. Douglas represents the Program participants and service provider agencies before Congress, the USDA, and the White House. So please, Douglas.

* * *

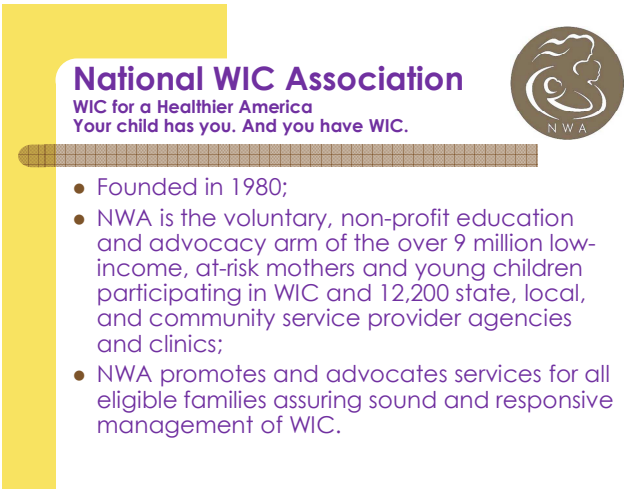
D.A. Greenaway (USA)

USA: Impact of providing F&V in WIC Program

Thank you very much, Dr. de la Mata. And Dr. Elmadfa, thank you also. It's a privilege for me to be here, and you'll forgive me, I'm just here from Washington via Milwaukee via Chicago, and I was sitting over there trying desperately to stay awake! Not because the presentations were boring, but my time zones are all out of whack. So forgive me. *[applause]* Thank you!

We are very proud of the program that I have the great privilege of advocating for. The WIC Program, and our slogan is, "Your **child has you, and you have WIC. Feed them well. Love them lots.**" And it means that when a mother has a child, the child has the mother. The mother is everything to the child. And the WIC Program tries to be almost everything in a very holistic sense to the mother, as well.

The National WIC Association is a non-governmental organization. We were founded in 1980 by state WIC directors. The WIC Program is run by the various state agencies around the country. It is a federal grant program to the state agencies. And in 2000 we became the National WIC Association and embraced all of the local provider agencies, as well as the state provider agencies. We are a voluntary nonprofit. We are the education and advocacy arm of the service providers – the 12,200 state and local agencies and clinics around the United States and the over 9 million mothers and young children who participate in WIC. We promote and advocate for services for all women, infants, and children. And assure the sound and responsive management of the WIC Program.



The Program provides a safe, confidential, and nurturing environment where mothers and their families obtain nutritious foods, nutrition and breast-feeding education, as well as pre-natal, pediatric, and social services referrals. And we are very proud of our track record in improving immunization screening assessment and referrals, and overall immunization rates across the country. For many families, the WIC Program is a principal point of access to healthcare in the United States. Unfortunately, we don't have the kind of quality, affordable national healthcare that you have in Europe. But we've just passed legislation that may take us in that direction. When President Obama promised change, I want to assure you that he is really working on it.

The WIC Program was started in 1972 as a pilot program, and we have now been in existence--we went nationally in 1974, so we are over 35 years of preventing child health problems, and improving long-term health growth and development. There are many well-documented scientific studies that demonstrate the effectiveness of the WIC Program. And we have enabled low income pregnant women, nursing mothers, infants, and children who are considered high risk, to receive nutrition, healthcare and social services benefits.

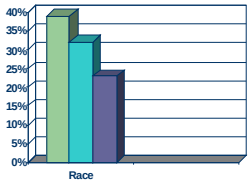
Just to give you a sense, when the Program went national in 1974, we were funded at $20.6 million. In fiscal year 2009, we were funded at $7.52 billion. So as you can see, the Program has grown exponentially. And particularly, as the economy has deteriorated, many families turn to the WIC Program for services.

Currently we are serving just over 9 million women, infants, and children. And roughly, one out of every 2 infants in the country is participating in the Program. One out of 4 pregnant women is participating in WIC. And at certification, 25% of the pregnant women who turn to the Program have 3 or more nutrition risks factors.

Who is eligible? You have to have an income level that's 185% of poverty level, for a family of 4 that's roughly $40,793 in annual income. And if you are participating in Medicaid – a national healthcare program for low-income populations, then you are adjunctively eligible for the Program, as well. Medicaid incomes, however, vary around the country, because state governments set their Medicaid levels at different income levels. So in some states they may be lower than the WIC qualifying income level, and some states they may be somewhat higher than this level. Second, you must have a documented nutrition risk. So, for example, a pregnant woman, by virtue of her pregnancy, is considered to be at nutrition risk.

Who are WIC Program Participants?

- Women
  - pregnant, postpartum, breastfeeding
- Children to age 5
- Race:
  - 36% are white
  - 38% are Hispanic
  - 20% are African-American
  - 5% are Asian and First Peoples
- Income:
  - Average income is $14,550
  - Two-thirds of participants live at or below the poverty line
- Education:
  - On average, women have 12 years of education
- Average enrollment period:
  - 13 months



Our participants. The demographics of our Program participants are roughly 36% white, 38% Hispanic, 20% African American, and 5% other. Two thirds of our participants are at or below the poverty line of $22,000. The average education of our women participating in the Program is 12 years of education, and the average enrollment period is 13 months. WIC is not a dependency program. And unlike some of the other programs in the United States that are considered public assistance or welfare, we are considered Public Health Nutrition. Moreover, there is a universal acceptance of the Program. We conducted a public opinion poll a number of years ago, and we ranked among the top 4 programs in the United States: Social Security, Medicare, School lunch, and the WIC Program all ranked very high. And in terms of customer service for our participants, we rank up there with Mercedes and Nordstrom's, which is a premier department store retailer. Not that any of our participants could shop with either of those corporations.

Before 2009, our WIC food packages included iron, fortified infant formula, infant cereal, milk, eggs, cheese, peanut better, dried beans and peas, 100% vitamin C-rich juices, iron fortified cereals, tuna fish, and carrots. And those packages were established when the Program was founded in 1974. The foods that were in those packages were selected because they provided key nutrients found lacking in the diets of low income populations at that time.

New WIC Food Package Fruit & Vegetable CVV

Cash Value Vouchers (CVV)

- $10.00 per month for women for a total annual value of $120.00.
- $6.00 per month for children for a total annual value of $72.00 or $352,765,224. annually at 87% redemption rate.
- Advocating for $8.00 per month for children or $470,353,632.

The new WIC packages were designed to be consistent with the current dietary guidelines and were first recommended in 2005. They include Fruits and Vegetables (F&V) for participants 6 months of age and older, only whole grain cereals, and additional whole grain products; brown rice, oatmeal, corn tortillas, soy beverage and toful, and milk and cheese with reduced fat content and in reduced quantities. Before the food package was revised, it included a lot of whole milk, and now we offer 2%, 1%, and nonfat or skim milk. The new food packages also included foods that have increased cultural acceptability, and increased intakes of inadequate nutrients.

Now, the Institute of Medicine (IOM) did a comprehensive review of the families that were being served, as well as the foods that were needed to meet the nutrient intakes of those families for low income populations, and came up with a different array of nutrients that were necessary, and were not found in the old food packages in part to respond to the culturally diverse populations we are now serving. That is why the IOM recommended redesign of the new food packages to include calcium-rich food sources such as low fat yogurt, calcium-rich tofu, and fortified soy beverages. The packages do not yet have the low fat yogurt and it is one

of those 'advocacy points' that we're working on to encourage the Department of Agriculture and Congress to fund; but they do include different forms of canned or dried beans and peas.

We follow the feeding practices consistent with the recommendations of the American Academy of Pediatrics for infants, toddlers, and young children, including reduced fat dairy products, as well as reduced juice intake. Previously, we were providing an inordinate amount of infant juice, with a consequence of that being an increased incidence of overweight and obesity, obviously, among other problems, and the delay of introduction of complementary foods to infants normally starting at 6 months. We are confident that the changes to the food packages in this area will have a positive effect on the growth and development of our young children.

The food packages are also designed to promote and support breast-feeding. Exclusively, breast-feeding mothers and infant pairs receive greater quantities of foods, and wider varieties of foods. For the first time we are providing baby foods to breast-feeding mothers and infants. And formula is not provided to exclusively breast-feeding infants. We have sadly been known over the years as the Infant Formula Program, and we are trying to turn that unfortunate impression around and be known as the Breast-Feeding Program, because we are very cognizant of the improved health outcomes that a fully breastfed infant receives and the consequences that infant formula has on increased obesity and overweight, as well.

The new food packages were fully implemented in October 1, 2009, and they have the added advantage of reinforcing the nutrition education counseling provided by WIC staff. For 30 years WIC staffs were saying, eat fruits and vegetables. But fruits and vegetables were not in the WIC food package. And so now, for the first time, we have the tools to really reinforce what our public health nutritionists have been saying in WIC clinics all these years. The new food packages, now more than ever, help participants to establish dietary patterns that promote lifelong, good nutritional health and eating habits, and supply a relative source of supplemental nutritious foods.

I want to talk about a few F&V pilot projects that helped to reinforce the importance of including F&V in the WIC food packages, and allowed us to advocate and promote for them very actively with Congress and the Department of Agriculture, and to solidify the recommendation of the Institute of Medicine for the cash-value vouchers for F&V. There were two studies done in California, one in south central Los Angeles and one in Calaveras County in a north central part of the state – a long-standing project that was independently funded by a grant in 2001, and ran through the date of the new food package implementation. The study in southern California was from 2001-2003. There is a shortened version of the map of California where you can see that Calaveras County is a rural central California county while the project in Los Angeles is in a much more urban metropolitan area.

The south central project was developed to find innovative ways to address the current obesity epidemic and to evaluate the impact of providing economic incentives to increase the access to F&V. Weekly $10 vouchers were provided to participants for a total of $240 per family. The intervention was carried out over 6 months, and vouchers were given to 200 families. The researcher accomplished quantitative 24-hour dietary recalls at recruitment, 2 months, and at the completion of the intervention.

Postpartum WIC participants within 2 months of delivery were eligible. Mothers had to be at least 18 years of age, and they were both English- or Spanish-speaking. A local retail grocery chain's stores already partnered with the WIC Program partnered for the study. As an aside, all

retail vendors are authorized by the each WIC state agency, and WIC vouchers are redeemed in those locations. In this case, the study's retail grocery stores saw the potential benefit for their produce departments and they created the vouchers in partnership with the Program. The most interesting outcome was that 88% of the vouchers were redeemed, and a wide variety of fruits were purchased from bananas to papayas, and a wide variety of vegetables from carrots to cauliflower, onions, spinach, and zucchini.

The Calaveras County had a similar goal, but its voucher value was only $5 per month for fresh F&V. I had the privilege of speaking with some of the participants participating in this study. They were very excited, even about that $5 per month voucher. The study was funded by a separate grant and you can see here the small population that participated in this particular program. Demographically, the participant population is largely white. There was a broader array of retail vendors that participated in this study, not only large or small grocery stores, much like you would find here, but small mom and pop corner stores, as well. And again, as with the Los Angeles study, a variety of fruits were purchased by the participants, as well as a variety of vegetables. As you can well imagine, that really pleased and excited the evaluators of the Project.

The final project was in New York State. This was a statewide program that in many ways served as a test case for implementing F&V vouchers in the broader WIC Program. In this study, the state attempted to promote the consumption of F&V in a wide range, including fresh, canned and frozen. As you can see they had almost 500,000 participants when this study was conducted in fiscal year 2006. The State funded the Project completely, for the period January through June of 2006, and then they held the same test in a subsequent period. There were 4500 authorized stores in the State of New York, so a broad diversity of retail partners. Again, the study found an 88% redemption rate for the vouchers. The average redemption rate was at $4.65, with a $5 voucher value. And, despite the availability of other options, most participants purchased fresh, which was a great revelation to folks.

All 3 of the projects were highly successful despite the different locations and demographics. Participant choice was a great economic incentive to participate and a significant part of the success and the Program's strength, was due to the active partnerships with the retail community. An important outcome – these pilots increased the availability of fresh F&V in all of the retail settings that participated.

With the new F&V cash-value vouchers in the Program, $10 per month are provided for women for a total annual value of $120, roughly $220 million in expenditures in one fiscal year and $6 per month for children for a total of $72, or roughly $353 million in a fiscal year at an 80% redemption rate. The National WIC Association is advocating bumping up the children's cash-value voucher from $6 to $8, and we hope to achieve that in this year's fiscal appropriation or in a future appropriation for the Program, which will amount to just over $470 million in current terms for the cash-value vouchers.

One of the things that we are looking forward to achieving over the course of the next 10 years is moving the Program entirely from a voucher system to an electronic benefit transfer card system. It's a little more complicated than our SNAP Program or food stamps, which utilizes a simple debit card. Our card has to have the individual food prescription embedded in that card. But in the long run we think this will make it much easier for the WIC consumer to shop, much easier for the retail grocer, regardless of the size of the vendor, to redeem those benefits, and it will certainly make it easier for the states, and USDA, and the locales to collect the data on the redemptions.

We have 2 evaluations that are currently underway on the redemption of the F&V cash-value vouchers, as well as the other new foods in the WIC food packages. They are being administered in partnership between the National WIC Association and Texas A&M University and the National WIC Association and a nonprofit research foundation called, Altarum. The USDA is a partner in each of these evaluations. We hope to have the results of those evaluations in the coming year.

And with that, I'm happy to take any questions.

QUESTIONS/ANSWERS

Chairwoman (I. de La Mata): *Thank you very much, very interesting, indeed. Do you have any questions? Please.*

Public: *First of all, thank you very much, not for your presentation which is, of course, so very nice, but of all the work you are doing, which really make my heart to feel very much warmer. And I have one question. You rightly tried to validate and to control your intervention. Is any risk that when you make a 24-hour recall, there is a risk of having a biased answer in order to not lose the voucher, because you give the positive answer that you want to hear? How can you manage it?*

D. Greenaway: That's a very good question, and the 24-hour recall was done specifically with those 2 pilot projects, the one in southern California and the one in northern California. We have done dietary recalls traditionally as we certify women and children in the Program. We've now changed to a very different methodology of determining or trying to understand what the families are consuming in their food products. And it's not really a 24-hour recall, it's discussing the family situation, what eating habits are like, that kind of thing – it is participant centered nutrition information gathering and education. From this we get a much bigger picture, a much broader picture, of what the real situation is in the family. And that's a sea-change in the way we are evaluating their nutrition intake.

Public: *Can I say that it's so smart that I love it?*

D. Greenaway: Thank you, thank you. I wish I could take personal credit for having made that change. But it's our public health nutritionists that did that.

Chairwoman (I. de La Mata): *Any other question? Yeah?*

Public: *Thank you very much. I would have a question. You said that the women usually stay some 13 months in the Program. But I think I also read on one slide that the child can be between 0 and 4-years of age, so are they opting out of the Program and could they stay longer? And then related to that, obviously, what will happen to their F&V intake when they opt out and don't get the food vouchers anymore?*

D. Greenaway: Thank you for the question. Women stay on the Program while they are pregnant and postpartum, or they are breast-feeding. Mothers that choose to and continue to breast-feed, they can stay on the Program for the period that they are breastfeeding. Postpartum mothers can stay on the Program for a period of 6 months. Infants and children stay on the Program up to age 5, so through their 4th year. I really appreciate your point, but because we

are a supplemental nutrition program, and not intended to provide a full complement of foods, that is why the period of Program participation is limited.

Our hope is that by availing these families the access to fresh F&V, that we will see a sea-change in their diets. And we're already beginning to see that. We were struck that within the first month of the availability of cash-value vouchers, we were seeing huge redemptions, again 88-87% redemption rates. So the interest is there, and we hope that that will continue once families leave the Program.

Some of the short duration, candidly, is because mothers choose not to breast-feed, but to formula-feed, and the cost of infant formula is very high. So at the end of 13 months when they are not using formula anymore, some of them choose to leave the Program. Our hope is to continue to encourage mothers to choose breast-feeding, to keep them on the Program, and then they will continue to get F&V. And we're having *some* success, limited success, but some success.

Public: *Sorry, just one other question to understand. But if as you said they can stay on the Program if they breast-feed 6 months, but after 6 months of age of the baby, you can continue to breast-feed. So can they then stay on the Program, even if they breast-feed the child until its 3 years old?*

D. Greenaway: It's 6 months when they are not breast-feeding. They can stay on for the length of the time that they continue to breast-feed.

Chairwoman (I. de La Mata): *Another question?*

Public: *Thank you. This is my question in French, just to vary things a bit. Thank you very much, indeed, for your presentation. Thank you very much, indeed. And thank you for what you're doing for all the Americans who you're taking responsibility for. But I do think that your Program is so interesting and so useful, that I don't see why the U.S. government doesn't take it up, and why don't they make it more widespread to all of the U.S., including the people who don't speak English or Spanish? Thank you very much.*

D. Greenaway: Thank you for your question. [...] [...]

Public: *I'll just repeat my question. I was just saying that I'd like to thank you for your presentation, and I'd like to thank you for what you do for the American people. I think the Program is so interesting that we, ourselves, would like to take it up in our own countries. But even in America, I don't see--well, I'm wondering why the U.S. government doesn't make your Program widespread, doesn't make you boss of a program which would cover the whole country, including those who don't speak English or Spanish. That was all I wanted to say. Thank you very much.*

D. Greenaway: Okay, thank you for the question. Actually, the Program does cover the entire nation. And it is available in English, Spanish, and many other languages. We have a very multi-cultural population, and the information that's made available is made available in, depending on the state, as many as 45-50 languages. So it is broadly available to all populations all across the country. Does that help?

Chairwoman (I. de La Mata): *Thank you very much. One last question because we are very late.*

Public: *Well, you said that the program was just for women who spoke English or Spanish, that's what I understood, anyway. But, I mean, is the Program I'm speaking about, it is for everyone? And why doesn't the U.S. government take it up and make you in charge of a national program, which will be for, well, all Americans. That's my question.*

D. Greenaway: Thank you again. The pilot project in Southern California was for English- and Spanish-speaking populations because that was the demographic of the community that was being served. But the Program is national, and it serves a broad array of populations, culturally diverse populations in multiple languages. And I'm happy to have the responsibility for advocating for that Program nationally. Thank you.

Chairwoman (I. de La Mata): *So the last question, I think that is Tim Lang.*

Public (Tim Lang, an academic in London): *Thank you very much, again, for coming and being brain damaged by time travel, that's much appreciated. I have 2 questions. One is quick and one is very long. Well, the answer will be long. The quick question is, famously WIC and got success in Congress, incented, and has influenced many of us elsewhere in the world, it was partly what led to the 2nd paper before yours, the new Healthy Start in my country. It was partly influenced by WIC. And that was partly because you had fantastically good data on cost evaluation. Every dollar spent at WIC saves $9 in healthcare later. Those sort of clever appeals. Are you doing this on the F&V, particularly? That's my quick question.*
The long question I'll say quicker. You borrowed your entire welfare system is based on the English Poor Law of 1604. It is punitive, it basically chose between a choice approach and a control approach. In the mode of your delivery, F&V, the cash vouchers, your smart card, are you having a debate within WIC about where you sit? Is this controlling and pushing people, or is it consumerist in the American way?

D. Greenaway: You're quite right, that the success of the Program was--and its success in Congress with both Republicans and Democrats, was because we had solid, scientific evaluations substantiating the value and the importance of the Program. For every dollar spent in WIC, we saved up to $4.21 in healthcare costs. But that is an old study.

What we found was, for a period of time, some fiscal conservatives in Congress wanted to defund the evaluation component of the Program. And it's become a problem for us. With President Obama, we now have money in the budget to go back and evaluate the Program again. WIC has been given $15 million, not a huge amount of money, but so we're going to be able to once again, and demonstrate the efficacy and effectiveness of the Program.

There will be an evaluation of the F&V component, but it will be more around, perhaps, what F&V were purchased, the redemption rates of coupons, that kind of thing. The consequent impact of consumption of F&V is a much longer-term evaluation, and that we will have to wait and see whether that will be funded.
In terms of choice versus driving someone to do something, there is no requirement that the WIC consumer, or the WIC participant, redeem any of the vouchers they receive. In fact, there are some families who do not redeem all of their vouchers because, for example, they may not want all of the milk, or they not want another food item. But keeping statistics is a little more challenging with the cash value vouchers, so that's why we're enthusiastically, and hopefully, aggressively moving towards the EBT card nationally by 2020. This will allow us to keep better track of the consumer choices, and how frequent the redemptions are, that kind of thing. This will also help us to look at redemptions from a consumer's perspective.

Thank you for your questions. Thank you so much. Thank you for the great privilege of allowing me to be here and to share this important Program – WIC – with you.

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H. Bihan (FR)

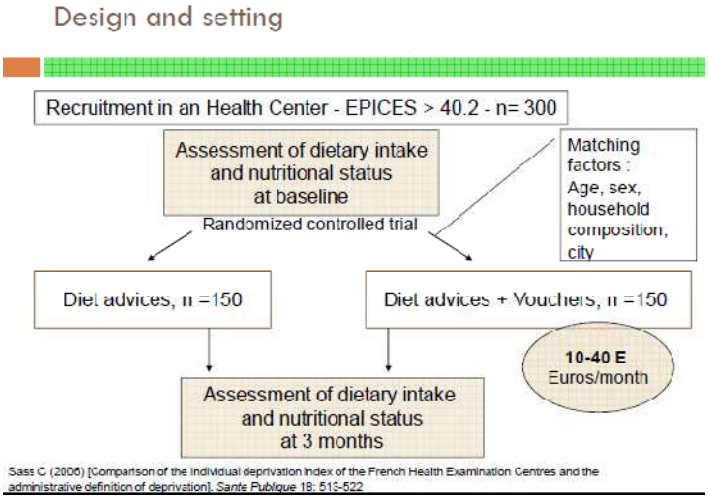
Effect of vouchers to increase F&V consumption in a deprived population: a randomized trial.

French Version p 214

As we have seen over the last few days, Fruit and Vegetable (F&V) consumption is very low among people of low socio-economic status. This considerable difference prompts public health and media campaigns and subsequently -as Mr. Greenaway just demonstrated- programs (in the United States in particular) whereby vouchers can be obtained and exchanged for F&V.

In France, the PNNS (National Nutritional Health Plan), which began in 2001; aims to reduce the number of small consumers, that is to say those defined as eating less than 3.5% F&V per day, and these people represent 35% of the general population. Now, if we look at a study of the poverty stricken portion of the population i.e. those who eat only thanks to charitable associations, we see that 95% of them eat very little F&V.

The aim of our study was to evaluate the effectiveness of providing the financially unstable population with a financial supplement for the purchase of F&V. We had two evaluation criteria: the first was how feasible and acceptable these vouchers would be for a population that is unused to receiving them, and the second was the effectiveness of these vouchers in terms of F&V consumption.



So how did we structure this study? We asked volunteers to attend a health centre -*you'll see later on the map*. They were recruited according to a French measure of social instability known as the EPICE Score (Evaluation of the Precariousness and Inequalities in Health), which has been approved in France, and is used in health centres. We recruited 300 people who were randomized between a group receiving nutritional advice and a group receiving advice and vouchers. This advice was given by a trained nutritionist before the lots were drawn, without knowing if the person was going to receive the vouchers or not. The advice mainly concerned F&V intake. We also gave our volunteers a copy of the PNNS' nutrition guide, which summarizes the nutritional advice given, as well as an APRIFEL guide detailing how to eat under difficult socio-economic conditions: how to get cheaper F&V, for example. In the group that received the vouchers, the amount they received depended on the composition of the family; the amount began at 10 Euro for a single person, per month and climbed to 40 Euro for a couple with two or three children. So, the volunteers were assessed for their nutritional status and their F&V intake at the beginning of the program and then again three months later; we also looked at the distribution across the two groups in terms of age, sex, domestic situation and cities.

As before, here is an example of the voucher that was given to our volunteers. The bar code on the right of the voucher meant it could be used in major supermarkets. Also you can see an information sheet about the study, shown to the volunteers before they accepted to participate.

We also gave them a voluntary questionnaire to collect data on socio-economics, nutritional instability, and on the purchase of F&V in local stores; a 24 hour diary, a clinical examination taking anthropometric measurements: blood pressure, weight, size and also -what seemed to be the most important to us in this study- F&V intake markers with vitamin levels: vitamin C, Beta Carotene and other doses.

We looked at F&V intake and I will speak to you about these, purely declaratory results -and not about the results of the 24 hours diary-. We looked at our population and compared those who consumed very little fruit and few vegetables, (because we had some participants who ate less than one piece of fruit or vegetable every day) and we compared them to others who, despite the precariousness of their situation, managed to eat F&V more than once a day. Therefore we looked at the inclusion of determining factors, extremely low F&V intake, and then we looked at the evolution after three months of this intake and the evolution of the vitamin plasmatic rates.

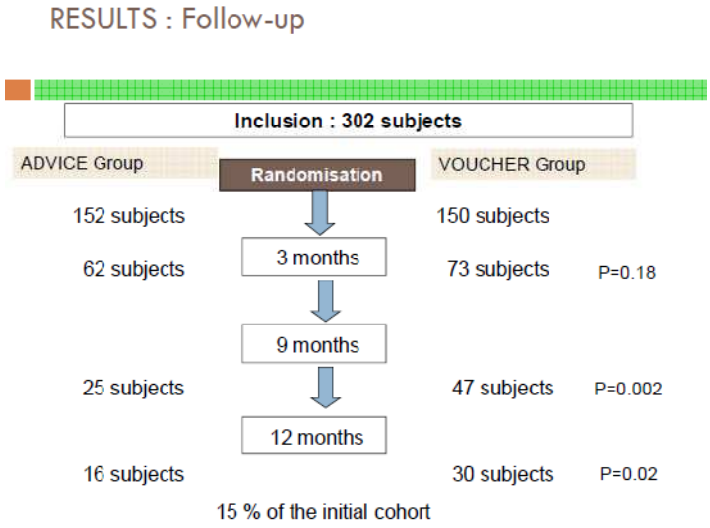
So the first part of these results addresses the feasibility; you can see on a map of France the district of Seine-Saint Denis, which is located in the north-east of the Parisian region, just here, in the middle, is our health clinic with the four surrounding towns. We had over 50 shops (mostly supermarkets) across the district. Mr. Henry, who is here with us today, approached 22 of them and advised product managers about the vouchers. They were not accepted in every shop, but certainly they were in the ones that had been contacted and those near to the health clinic. We had a few problems in towns that were located too far out, but mainly for staff reasons i.e. the checkout assistants refused to make the effort. However, in all we can say that we had no problem with our participant stores, which were very glad to benefit from these vouchers and therefore welcomed them.

Now as far as, the socio-economic data of this population is concerned, the average age is 44 years old, there were 162 women and 133 men, 46% do not work full time, 42% are not highly educated, 44% live alone (with children for the most part), 65% were obese or overweight and 42% did not have access to a car. Knowing the area, this makes shopping quite difficult and so this really is a very financially unstable population and this can been seen in F&V consumption. The average intake of F&V including the 300 participants is 1.19 pieces of fruit per day, 0.94 vegetables per day and a total F&V intake of 2.13; which means that when we look at the population, we can see that almost 30% of the population does not eat F&V on a daily basis. ..and here are a few more details, 67% do not eat fruit everyday, 76% do not eat vegetables every day.

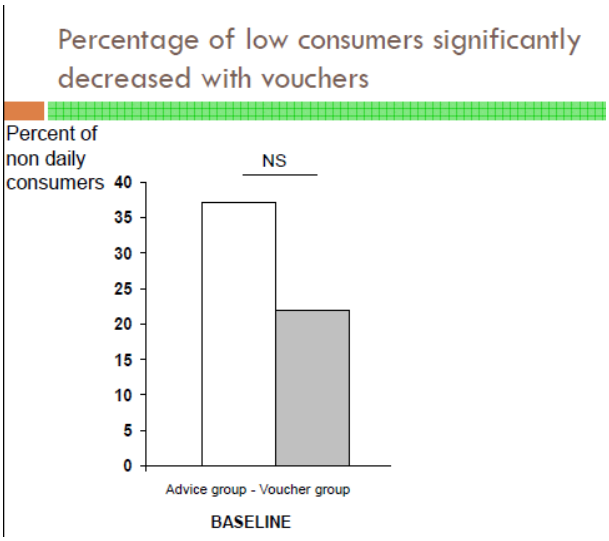
We looked at the 30% of the volunteers who don’t eat F&V every day, at the determining factors and in fact, this data corroborated other studies and it is worth adding: youth seemed to be a factor in low F&V intake, a secondary, versus a university education, was also a factor as well as low income. So three factors stood out in this analysis, and especially when we looked at the financial stability score, the financial situation, the questionnaires on nutrition and the anxiety of not having enough to eat.

Other data concerning determining factors; we asked them about their perception the price of food: "*do you think that F&V are affordable?"* And you can see those who think that F&V are not affordable are very likely to be infrequent consumers i.e. not every day, as with those who replied that a lack of money prevents them from eating healthily, therefore we see a lot of factors that are correlated with this low intake.

Now, the most interesting results concern the effectiveness and follow up of the trial. The first set of data is probably important: it concerns the difficulty of following up the trial. You will see here, that we had 302 people set to participate over three months -and let me remind you that the participants had been contacted in a health clinic so that they could be tested and their health evaluated-, the research team in place assessed their nutritional health and subsequently they were offered advice or vouchers.

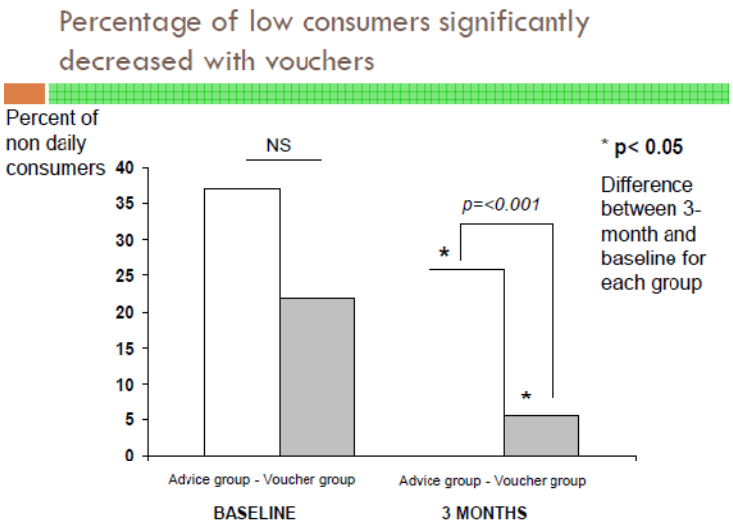


After three months, we had lost half of the participants: 62 participants came back in the advice group and 73 in the vouchers group; **so, how did these participants come back?** We contacted them by latter and three telephone calls to set meetings with them and despite this, we lost a great number of them and so we invited those who came back after three months, thanks to an additional financial incentive, to continue the study and to come back after nine and twelve months, we had still lost a lot of participants, which meant that in all, at twelve months, we were still losing participants, so that in all after twelve months we only had 15% of the original group. The most immediate observation I could make here, is that this often occurs studies performed with financially unstable participants, that is to say that they cannot afford to lose another day's work -especially when work is difficult to find- simply to come back for another health test, for a vision of the future, which is likely to seem pointless to them. However, we can observe that after nine months, more participants from the group receiving vouchers came back; this is an important element concerning the participants' acceptance and enthusiasm for the vouchers.



Now, concerning the intake, in the mixed group we saw, on average, an intake of 2.5 pieces of F&V per day, a little less in the advice group and a little more in the voucher group, but with no difference and at three months, we saw an increase in both groups, a significant increase within both groups, however, this is really all that can be shown, because we have not shown the difference between the effects of the cheques as well as the advice, but it was really minimal.

However, when we look now at our small consumers and it is really this population that we were interested in studying; with the mixed group, between 25 and 35% of consumers did not eat F&V every day, with no difference between the two groups and after three months, the number of small consumers has decreased and dramatically among the people who received the vouchers and in the voucher group, 5% of people, who after these three months are still small consumers of F&V and therefore 95 % of the people who received the vouchers stated that after three months, they ate F&V daily and that, that is probably one of the most important results of this study.



The other result concerns the vitamin status, so I'll present it more quickly as far as the voucher group, the advice group and the mixed group; when you look, there is no difference between the two groups, nor with the mixed group, and after three months, but neither is there any evolution of the vitamin status, which remains the same, with the same percentage of deficiencies…Almost a third of the population suffered from deficiency, either moderately so or considerably so in terms of vitamin C and the rest after three months, and as far as the beta Carotene rate was concerned and there was a difference between the two groups, however, this is surely explained by a bias, probably due to the number of missing participants.

What we can highlight is that this is a study of an extremely financially unstable population, with a very low F&V intake, - even lower than in American F&V voucher programs- it is important that we underline the considerable barriers, and the financial barriers in particular, to gaining access to F&V, whereas we haven't really underlined, the data that I am not presenting here, problems of accessibility i.e. most people found that F&V were stocked in local shops and equally, they were all, 91% said they were motivated to eat F&V and it was really the financial problem that seemed to be the main issue.

What we can conclude about the vouchers is that they are effective in reducing the number of small consumers and in other studies which found (the WIC studies) that evaluated the effectiveness of the vouchers, we can also see a great difference in the two right-hand columns, between the control groups where the average F&V intake is decreasing, where as in the groups receiving the vouchers there is a greater increase in F&V intake.

To conclude, this is the first French study showing the effect of this kind of approach, with both advice and vouchers, within a given socially unstable population, which fails to decrease the number of small consumers. Nevertheless, we do not find an improvement in terms of vitamin status. However, one of the explanations, it is true that the increase achieved in the advice and the vouchers groups is still lower than that which may be seen in studies where the vitamin status is improved where often there is a dramatic increase in the intake of vitamin-rich fruits - it is true that in three months, the increase in consumption is not sufficient to impact the vitamin status. So it might be good to start by targeting these consumers more, targeting a low financial stability demographic that need it, or to use the other option: to use the vouchers as an incentive to modify their eating habits and, it is true that there was an evaluation by the WIC

that showed the article by Doctor Herman, and that after such an educational experiment like that one, with the voucher system, the effects last at least six months.

Thank you very much.

QUESTIONS/ANSWERS:

***Public**: First of all, thank you, and congratulations for this wonderful work, which perfectly illustrates the difficulties encountered when rigorously evaluating public health initiatives, and let's be honest, all of the potential weaknesses. I would like to ask about the methodology. Perhaps I didn't listen correctly, but usually when you have randomized individuals, it means they've signed a consent forms, but how can they really consent, when they are suffering from such financial instability? Also, when you say "we don't know if we're going to give you the vouchers or not" when they're obviously worth money in order to buy things, don't you think that there is bound to be a bias towards belonging to the group receiving the vouchers?*

H. Bihan: To answer your question, I completely agree with the difficulty of evaluating these studies. The discussion we had when we invited them to participate in this study, was to say to them: "As you may have seen on the information sheet, we suspect that you may find it difficult to eat 5 F&V every day. Come and talk to us and we will perform a nutritional survey and we can give you advice"… Then, in the beginning, when we included the participants, during the first part of the interview with the dietician and filling in the questionnaires -which they filled in themselves- we didn't really talk about the vouchers at that point, to avoid people faking their testimonials. To begin with, with the first set of participants, we had also mentioned randomization and, in the department where I work, we have a population of Muslim origin where the term 'drawing lots', was also ill perceived, and also, what you said about being financially unstable, that was ill perceived too, very quickly. So, we don't speak about failure, when we invite people to participate in a study, we sell it by saying: "we are going to perform a nutritional survey and you will receive some nutritional advice" and it was simply at the end of the fifteen minute interview with the nutritionist, when they drew the lots, that they would say to the participant, you are going to receive vouchers also or simply, we'll see you in three months without necessarily mentioning the vouchers.

Public: *In your experience, did these people lose weight?*

H. Bihan: This is our data and the answer is no. There was no change in weight, however, their blood pressure decreased a little.

Public: *Thank you very much for this presentation, one question: new evidence shows that when we subsidize F&V, well, the savings are often used by the families to buy snacks and sugary treats, is it really worth it then? Do you have anything to say about that?*

H. Bihan: Well, we did want to obtain the receipts, but that is something very difficult to put in place and so we were not able to do so. The participants did not return with their receipts so we have not been able to evaluate this, so, I don't have the answer.

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Chairwoman: I de La Mata

Dr. Robert Fraser is the next speaker in this session. The title of this session, as you see, for the previous one and for this, Translating Evidence to Policy, and this 2nd session is dealing with Addressing Inequalities in Health and Diet - Policies and Managements That Target F&V Consumption in Low Socioeconomic Groups. And Dr. Fraser's presentation is from the U.K. on Effectiveness of the Healthy Start Program.

Dr. Fraser is a gynecologist, an obstetric doctor in Sheffield. He has experience in this area, and he is in charge of this program, or at least, he will represent it to us. Robert, the floor is yours.

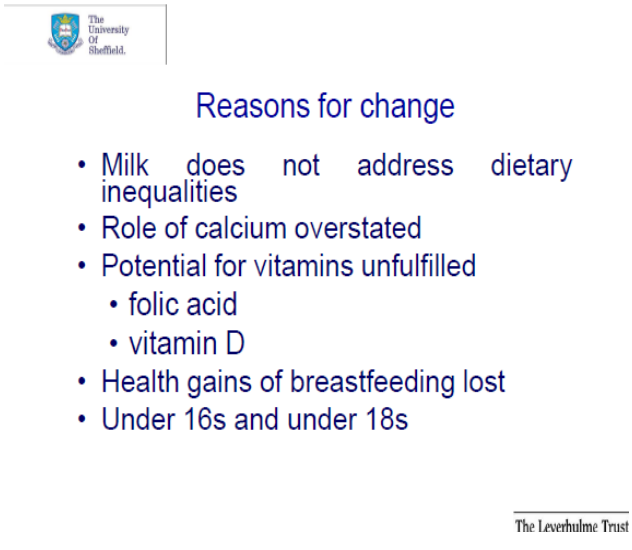
* * *

R. Fraser (UK)

UK: Effectiveness of the Healthy Start Program

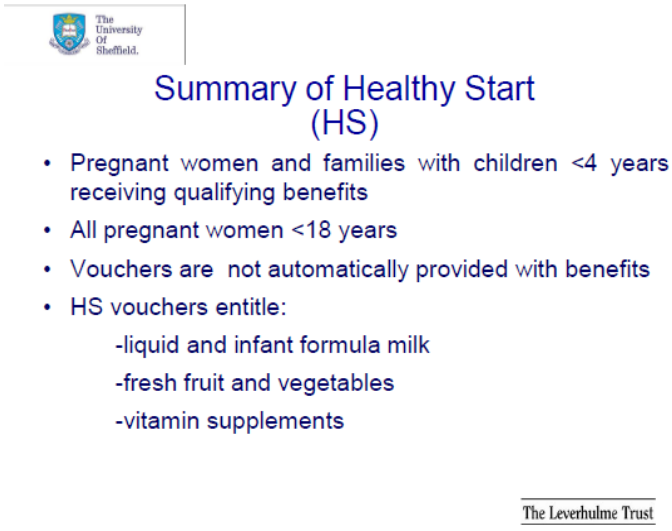
My talk today is a report on the effectiveness of the Healthy Start programme introduced by the UK government in 2006. Our research group have made an independent evaluation of the Healthy Start programme which was funded by a grant from the Leverhulme Trust as part of their major programme grant "Changing Families Changing Food" for which the Principal Investigator was my colleague Professor Peter Jackson in the University of Sheffield. My co-workers on the evaluation were Fiona Ford, who is a research dietitian with extensive experience in Public Health nutrition, Sarah Wademan who is a Public Health Nutritionist who spends a large part of her time working in the community in Sheffield in the North of England offering nutritional advice and "cook and eat" sessions to low income women who are pregnant or who have small children. The other member of our team was Theodora Mouratidou who is a PhD in Public Health Nutrition and who has recently been successful in obtaining a prestigious post with the GENUD group in the University of Zaragoza in Spain.

Background



Since the 1940s in the United Kingdom there has operated the Welfare Food Scheme which in summary provided benefits to women on low income, their infants and children. They received vouchers which could be exchanged for vitamin supplements, commonly in the form of cod liver oil or orange juice concentrate, and tokens for liquid and infant formula milk. The Welfare Food Scheme was reviewed in 2006 and the Healthy Start Scheme was introduced by the UK Department of Health to replace it. The reasons for the change are shown in Figure 1, they include the fact that milk alone did not address dietary inequalities that current recommendations for folic acid and vitamin D in the form of supplements were not being taken up, and the use of tokens for formula milk resulted in a loss of the health gains of breast feeding.

It was also felt that a focus on pregnant teenagers could be introduced along with targeted nutrition advice for women in low income families. The Healthy Start Scheme introduced in November 2006 was offered to pregnant women and families with children under 4 years who were receiving qualifying benefits which identified them as low income. The scheme was extended to all pregnant women under 18 years of age irrespective of income. The vouchers were not provided automatically along with cash benefits but were subject to an application countersigned by a midwife. Vouchers were provided which could be exchanged at participating retail outlets for liquid and infant formula milk and fresh fruit and vegetables. The scheme was intended to also supply free vitamin supplements containing Vitamins C, D and folic acid, but in the early years there were logistic problems with the distribution of these vitamin supplements. The vouchers had a cash value of €3.50 per week during pregnancy; double vouchers were issued during the first year of the child's life and then reverted to a single voucher in years 2, 3 and 4 of the child's life.



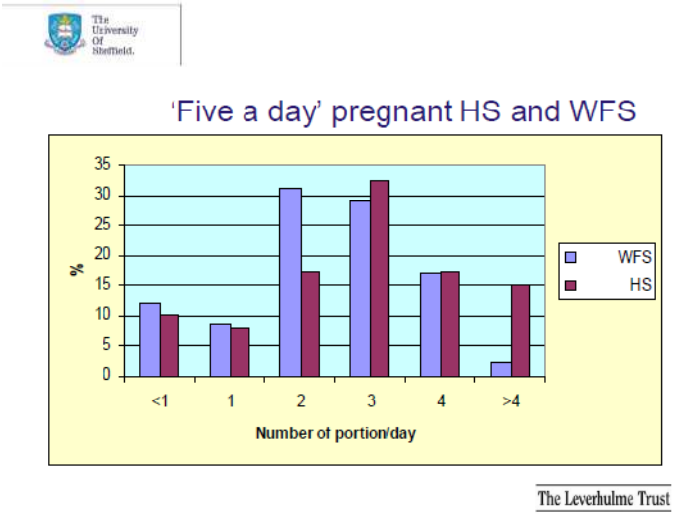
The evaluation which we performed was published in the British Journal of Nutrition, (2009; 101; p 1828-1836) which was titled The Effect of the Introduction of 'Healthy Start' on Dietary Behavior During and After Pregnancy: Early Results from the 'Before and After' Sheffield Study. The remainder of my presentation highlights the important findings from this piece of research.

We first performed an evaluation of women who were eligible for the Welfare Food Scheme before the introduction of Healthy Start and then repeated the study 6 months after the

introduction of Healthy Start when it had become established. Women in the sample were Caucasian English speaking pregnant and postnatal women and their infants who were recipients of or eligible for food support benefits. Information obtained was a dietary assessment based on a food frequency questionnaire (FFQ) which was repeated at several time points initially in pregnancy and then during the first 2 years of the child's life. Anthropometric, socio demographic, and behavioral characteristics were also recorded. Phase 1 of the study ran from November 2005 to November 2006 and Phase 2 from April 2007 to November 2007, although we continue to maintain contact with these cohorts and collect information as time goes by. The 'before and after' samples were closely matched for age, mean body mass index, education attainment and self reported smoking status.

Uptake of benefits amongst those considered eligible was 57% Welfare Food Scheme; 56% Healthy Start amongst pregnant women and 71% versus 84% respectively amongst delivered women. Comparing the two schemes we showed significant increases in mean daily calcium intakes both in pregnant and post natal women on Healthy Start, and similarly significant increases in daily iron, folate and vitamin C intakes.

For the audience for this talk I am sure you are most interested in our evaluation of the '5 a day' fruit and vegetable intake target and this is summarized in Figure 3. The number of fruit and vegetable portions per day during pregnancy is shown in blue for women on the WFS Scheme and in red for women on the HS Scheme. In pregnancy this is a mean shift from 2.5 portions per day to 3.3 portions per day which was highly significant statistically. The number of women achieving 5 a day was only 2% in the WFS sample but 15% in the HS sample. In the postnatal study the shift is similar but only goes up one half of a unit per day but more women in the postnatal samples achieved 5 a day, 12% in WFS and 19% in HS. Again this difference is highly significant.



From a personal point of view I was also interested in the average energy intakes in relation to the introduction of the HS Scheme because one concern had been that providing more money for food might result in an increased energy intake leading to risk of long term obesity. In fact we discovered that a large number of these low income women, particularly the teenagers, were not meeting the UK estimated average energy requirement (EAR) and that this apparent deficiency was addressed by the introduction of Health Start (numbers not meeting estimated average energy requirements (WFS 56%, HS 21%). Similar improvements were detected in delivered women whether lactating or not.

Summary

Nutrient Intakes

Healthy Start was associated with generally improved intakes in pregnancy and the postnatal period in milk, fruit and vegetables and total nutrient intakes.

Energy
More Healthy Start pregnant and postnatal women reached the recommended EAR for energy.

Vitamin Supplements
Healthy Start vitamin supplements were not available at the time of this study.

A further publication from our group looking at the sustainability of the Healthy Start was published in Maternal and Child Nutrition as an epublication in 2009 (Are the benefits of the Healthy Start food support scheme sustained at 3 months post partum. Results of the Sheffield before and after study. Mouratidou T et al).

Conclusions and Discussion

Overall the scheme seems to work as intended, but at the time of the survey only 55% of the potential HS beneficiaries in pregnancy were enrolled.

The quality of dietary advice offered by health professionals has not been evaluated.

Longer term studies and further audit should be initiated to assess the benefits of the Healthy Start scheme including the impact of the HS vitamin supplement.

Thank you for your attention, I will now be prepared to deal with any questions arising from this presentation.

Chairwoman (I. de La Mata): *Thank you very much.*

TRANSLATING EVIDENCE TO POLICY

SESSION 5: Promoting healthy diets in the European Union – EU projects

Saturday, May 7, 2010

Session 5	SPEAKER	PAGE
Chairwoman	I. KELLER (EC)	122
Dearth in Abundance - Characteristics of the current European diets – ENHR	I. ELMADFA (AU)	123
Socioeconomic status, dietary behavior and F&V consumption in European children from the IDEFICS Project	W. AHRENS (DE)	128
PERISCOPE how to help young children to improve their eating habits	M. CAROLI (IT)	134
EU action on inequalities in health	C. PRICE (EC-DG SANCO)	137

Chairwoman: I. Keller (Executive Agency for Health and Consumers)

Good morning to the 3rd day of the EGEA Conference. We are starting this morning session where we look at some of the projects which are co-funded by the European Commission which promote Fruits and Vegetables (F&V) in the population. Allow me one sentence, to explain to you that I am coming from the Executive Agency for Health and Consumers, which is the agency of the Commission implementing the Health Programme, and that means that we are co-funding several health projects in Europe, but we also co-fund conferences, we give operating grants to NGOs, and also have a host of calls for tenders which we publish every year.

So, the first presentation this morning is by Professor Elmadfa, and he is presenting some of the results which gives you an overview of the characteristics of the current European diet that stem from one of our co-funded projects, which is European Nutrition and Health Report, and that's the 2nd report from 2009, after the first one in 2004.

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I. Elmadfa

Dearth in Abundance - Characteristics of the current European diets – ENHR

Introduction

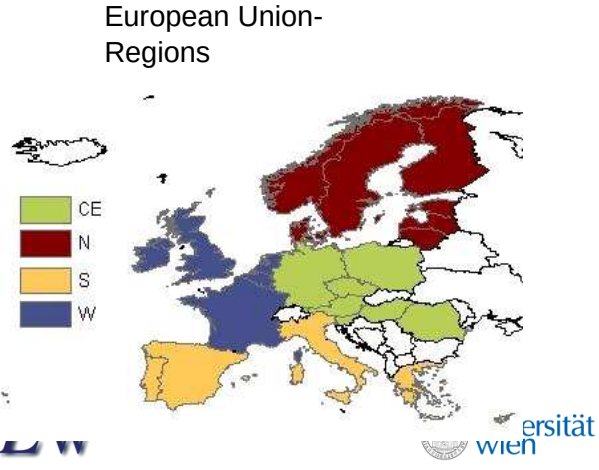
In this presentation I will summarize results published last year in the 2nd European Nutrition and Health Report 2009 and inform about the design of this EC cofounded project which covers 25 countries. I will deal with the background of nutrition and health reports, the need for monitoring the health and nutrition status, explain the main goal and give some information on specific objectives with focus on food supply, energy and nutrient intake in children, adolescents, and the elderly. I will also provide information about the physical activity in Europe and the health impact of the current diet. We put the title for this presentation, "Dearth in Abundance," because we have quantitatively enough, but in terms of quality, there are some insufficiencies.

With the report on nutrition and health status, we want to describe, analyze, and comment on the nutrition and health situation trying to include socioeconomic, cultural and also environmental aspects. A selection of results will be presented. The function of this report is to provide a source of information and tool for health and nutrition policymaking process.

In the first European Nutrition and Health Report 2004 there was a compilation on the nutrition and health situation of 15 EU Member States. Today, we're privileged to look at the nutrition and health situation of 27 countries.

We divided the participating 25 countries in four groups. The **South** comprises Spain, Portugal, Italy, Greece, Cyprus and the **North** the Scandinavian and Baltic countries. **Central and Eastern** Europe includes Germany, Austria, Poland, Romania, Hungary, the Czech Republic, and Slovenia and the **West** with the U.K., France, the Netherlands, Belgium, and Luxembourg.

Therefore, this project should contribute to the identification of major nutrition and health problems, not only in single countries, but in the EU regions.
Another specific objective was to inform about food and nutrition policy in the European Union (results were already presented).



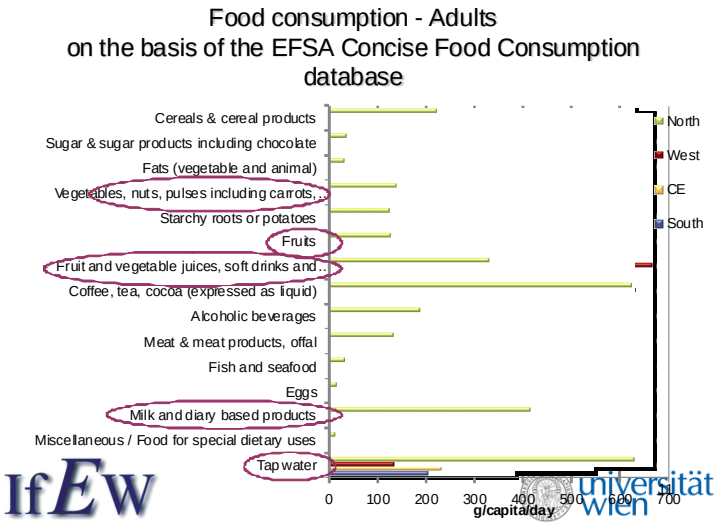
Let me start with information about aspects of the diet quality with focus on the trend in the supply with plant foods and foods of animal origin as source of dietary energy in 1960 and 5 decades later. In the north 35 – 40% of total energy intake came from animal foods and 60 - 65% from plant foods, but it changed with the time to around 30% and 70% respectively. In turn, in the south more energy came from plant foods, and the animal foods provided only 15-16% of total energy. 40 years later the situation changed in the southern region where the animal products now provide around 30% of energy, which is nearly twice as much on the cost of the foods from plant origin. For the other regions, this figure was between 28-32% of

total energy intake.

When using the food supply data, based on the food balance sheets of the Food and Agriculture Organization of the United Nations a very interesting trend over 45 years can be observed. The supply of some foods, not the consumption, increased as for pork meat by nearly 50%, for poultry around 78%. Fruits and Vegetables supply increased also. But on the other hand the supply of some other foods decreased. The average supply of the 25 countries dropped for pulses by 40%, for potatoes by 23% and for wine by 19%.

If we calculate from the food supply the distribution of the macronutrient supply, it was in the 1960's at a level we still consider as positive: Carbohydrate energy close to 60% of total energy intake, fat around 28% and protein 12%. In the old Member States of the EU calculated carbohydrate supply was between 40 and 50% of total energy. With the enlargement of the EU this level went up a little bit higher. Fat supply increased to 23% (the real intake is higher and reached > 35%).

The assessment of the food consumption data from national surveys, an action started by European Food Safety Authority (EFSA) as the EFSA Concise Food Consumption Database. It relies more on real intake using data from individual nutrition surveys. The comparison between the regions revealed in the north a lower consumption of vegetables including carrots, nuts and pulses than in the south and the west regions. The same was observed for fruits and fruit juices, for which highest consumption was seen in the west regions. The consumption of milk and dairy products was highest in the north, where the consumption of milk was more pronounced, while in the south milk products, primely cheese and not the milk itself were consumed. Tap water was consumed in the north region at higher level than in all other regions.



The energy intake of 7-9 year-old children showed higher intakes for males and females in the south region than in the other regions. Dietary fiber intake was very low in all the regions, but lowest in the west. Saturated fatty acid intake was high in central Europe, and that of monounsaturated fatty acids highest in the south region. The intake of polyunsaturated fatty acids was rather low in the south, but it was in all other regions within the recommended level to meet the physiological needs, albeit not reaching the recommended intake level for the prevention of cardiovascular diseases. The nutrient intake of the children showed that folate and vitamin D, calcium and iodine were also critical micronutrients in all regions; all the other micronutrients were within the recommended range.

The picture for the adults was quite similar. Dietary fiber intake in adults in all regions was not satisfying, except for men in Germany and Poland (central and east) and Norway (north) that reached the recommended level. The micronutrients and cholesterol intake assessment revealed that vitamin D, folate were critical nutrients. In the sense of over-consumption, sodium in form of salt is critical too.

In the central European countries especially women did not reach the recommended level of calcium intake. Iodine intake of men in all regions was better than in women, the latter did not reach the recommended level. Iron intake in men, but not women in the north, the central and east as well as the south regions met the physiological needs. Folate and vitamin D as were considered critical also for children.

Nutrient Intake in European Adults (19-64 y), Min-Max

Nutrient	Average daily intake		Nutrient	Average daily intake	
	Men	Women		Men	Women
Cholesterol, mg	211-800	176-680	Potassium, mg	2.7-4.4	2.3-3.6
Vitamin D, µg	1.6-10.9	1.2-10.1	Calcium, mg	687-1 171	508-1 047
Folate, µg	152-494	131-392	Magnesium, mg	256-465	192-372
β-carotene	1.4-5.3	1.4-5.6	Iron, mg	10.6-26.9	8.2-22.2
Sodium, mg	2.6-7.4	1.7-5.6	Iodine, µg	67-264	48-200
Potassium, mg	2.7-4.4	2.3-3.6			

In summary the diet is characterized by high intake of fat, saturated fatty acid and also cholesterol; high energy intake, and a positive energy balance. The diet is also high in sodium/salt. Intake of many micronutrients (folate, vitamin D, iodine) carbohydrates, especially complex carbohydrates, is less than recommended.

Health indicators:
Data on physical activity (self-reporting) showed that the proportion of adults never exercising varies immensely. The group of individuals never exercising is very small in Finland, but much higher in other countries. You see here 66% in Portugal never exercise compared to just 4% in Finland, a wide range of discrepancy over the 25 countries and the regions can be observed. This is also the case with adolescents. Up to 30% of the males in some regions reported more than 1 hour a day of moderate or vigorous physical activity, but only 10-14% did not meet the recommended level. On the other hand, the young ladies (rather lazy) were not as active as the male adolescents considering the frequency of exercising or moving in the average of one week. This low level of physical activity must be seen in relation to body weight, where we observed a high percentage of overweight and obesity in adolescent girls and boys (and all other age groups) over the regions.

The lipid profile is important when the risk for cardiovascular diseases is to be discussed. Total cholesterol was within the normal range except in the region west, where in some countries the reported data were above the reference value. Total cholesterol/HDL cholesterol ratio was within the proposed range of 3-5, but in some regions, especially in the west reported values were close to or above the upper limit of the normal range.

The prevalence of diabetes II in EU regions was in average about 6%, but in some countries, namely Cyprus, also showing the highest obesity rate, it was 8.6%.

To summarize: Consumption of fruits and vegetables was lower and that of meat and meat products was higher than recommended. The intake of fat, saturated fatty acids, and sugar was high, while complex carbohydrates were unfavorably low. Vitamin D and folate appeared as critical nutrients, as well as calcium, iodine, and iron, the latter especially in women of childbearing age. There is an alarmingly high prevalence of overweight and obesity already in children, also high was the prevalence in diabetes II and cardiovascular diseases in all regions.

QUESTIONS/RESPONSES

Chairwoman (I. Keller): *Thank you very much, Professor Elmadfa. Any questions about the Report? No questions? Then, if I could ask a question? Since we have 2 more minutes, maybe you could take this time to explain a bit more of the conclusions. I mean, you conclude on the findings, but what are your recommendations now based on that?*

I. Elmadfa: We should look at the problems of food and nutrient intake, and the specific problems of the prevalence of nutrition-related diseases between and within the regions. In this way we could try to identify problem fields and achieve the target groups for potential intervention.
Another recommendation is of methodological nature, that is to try to use the same methods for the assessment of nutritional status, and uniform cut off points for the anthropometric measurements. Data on obesity and overweight were in some countries measured, in others self-reported. The measured data are more accurate and are 5-10% or more higher than the self-reported ones.
A further recommendation is not to rely on food supply and the food balance sheets alone to describe food and nutrient intake as the calculated data of food supply are much higher compared with the real intake data from nutrition surveys.

Chairwoman (I. Keller): *Thank you very much for this explanation, and thank you again for your talk. There is one question. Tim.*

Public (Tim Lang from London): *This is great stuff, and it's very good that the Commission is funding the 2nd one. I hope this carries on; we need this sort of information. Because what it does is put pressure--let me say it if you can't say it--but puts pressure on the common agriculture policy, on the policies within the Union about production. If ever there was devastating indictment of what the agriculture system is doing in Europe, you have just given it. That there is a distortion between supply and demand is showing up in ill health. At the time when the pressure on the Commission of its public health budget is--every country's nutrition world and profession should be known the results of this, and championing it. Because we have to take this sort of information up into the policy processes. We can't fantasize about evidence-based policy while there is evidence like this, and policy then carries on remaining the same. So it's just a point. I don't expect you to comment.*

I. Elmadfa: Thank you very much, I couldn't have said it any better than you.

Chairwoman (I. Keller): *One last question.*

Public: *I am very pleased to hear this comment. Because what you say at European level I think, but we can say that at world level.*

Public: *And when you look at the plan of FAO, etc., the [...] etc., now on mostly after the food crisis, we are speaking more and more of calories of supply in rice, cereal, etc., on the fruits, vegetable, on the chronic diseases, are completely forgotten. So I think that it's very, very important to stress the importance of F&V as source of micronutrients to address chronic diseases which is exploding in all over the world, including the developing countries.*

I. Elmadfa: Yes. Thank you very much, the FAO still use only the calculated energy value of the available amounts or the possible supply, to describe the nutritional situation in the world,

and that is not enough. We should focus more on the diet quality and the micronutrients, and their sources like plant foods, whole grains, F&V, and so on.

Public: *I think that's right. Can I come back, Ingrid, very quickly? The FAO, I agree completely. The FAO is obsessed about calories; it's a developing-world model of public health nutrition going into supply, which is out of date.*

I. Elmadfa: Yes. I agree.

Public: *And we have to start saying that. It's absolutely essential to be saying it. And it's not being championed enough at the global--but my point was, we have that same problem here in Europe. And your evidence there was giving it.*

Chairwoman (I. Keller): *Thank you for those contributions, and thank you, again, Professor Elmadfa.*

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Chairwoman: I. Keller

With that, I'd like to introduce our 2nd speaker, Professor Wolfgang Ahrens, he is the Deputy Director of the Bremen Institute for Prevention Research and Social Medicine, and he is also the coordinator of the IDEFICS-Study, which is the largest Europe-wide intervention study on overweight, obesity, and further health effects on children induced by diet, lifestyle, and social factors. And IDEFICS is also one of the projects co-funded by the DG research. Professor Ahrens, please.

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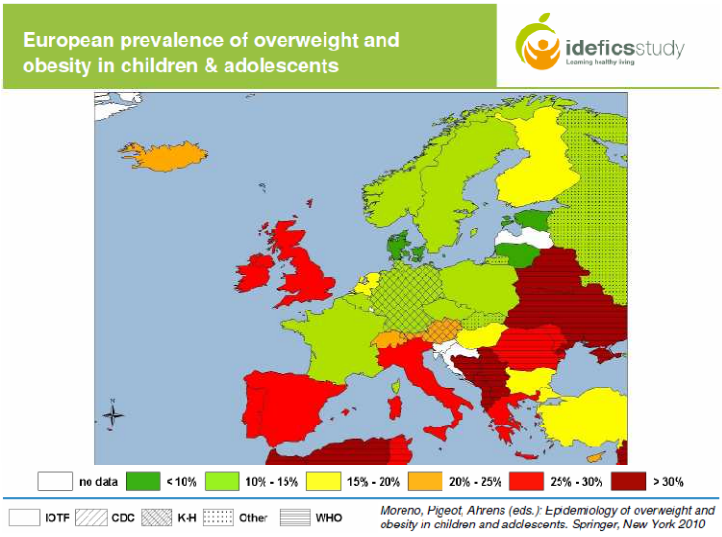
W. Ahrens (DE)

Socioeconomic status, dietary behavior and F&V consumption in European children from the IDEFICS Project

Thank you and thanks to the organizers that we are invited to present our study here. My presentation will be divided into 2 parts. First I will introduce this project to you, and the methods. And in the 2nd part I will give you a glimpse of some of the results regarded to fruit and vegetable (F&V) consumption, and some other food items.



But let me start with an obesity map from our new book, the obesity map of children in Europe where you can see red areas, which are areas with a high prevalence of obesity and overweight in children; and green and yellow areas which are areas with a low prevalence of overweight and obesity in Europe. These are data from various sources compiled together. And well, you get an overall picture, but you may also see that there is this hatching here, which indicates that there is different classification systems used which hinders comparability of the data. Also the samples and the measurement methods that were used in the various countries differ, so there is some limitation to really compare these data which makes clear that there is need for an obtaining comparable data. Not only across Europe, both on risk factors and on overweight and obesity, but also to identify the determinants and their complex interplay in order to identify targets for primary prevention, which should then end up in evidence-based prevention programs.

And these are the aims that we are pursuing with our project, with the **IDEFICS-Study**. It's an integrated project in the 6th EU Framework Program. It has 2 major objectives: The first objective is to enhance our knowledge about the effects of the changing diet and the changing social environment on the development of obesity and associated disorders. And the 2nd aim is to develop and implement specific intervention approaches, which will be evaluated in that study. It is our final aim to reduce the prevalence and incidence of these disorders.

Our target was to recruit about 16,000 children across Europe who were approached through schools and kindergartens. Here you see the countries participating in that study. Children were recruited, 8 countries, from the north, Sweden, down to the south, Cyprus. And from Spain in the west up to Estonia in the east, with 2 regions each. One for control and one for intervention. There were also other countries involved with specific research aims, like investigating the ethical implications of what we are doing, or the assessment of the role of consumer behavior.

The study has a 5-year timeline. I am reporting today about T_0, the baseline survey that was conducted in year 2 of the Project. In that survey we recruited 16,224 children overall, about 2,000 children in each country. Following this baseline survey, we implemented the intervention program which is still ongoing, and currently we are conducting a follow-up survey, the T_1. There is still one and a half year to go for the Project.

We will have longitudinal comparison of how children develop. And we will evaluate the intervention by comparing control and intervention areas. I will report on the data we have collected during the baseline survey, i.e. on cross-sectional data.

But first to the methods: as children were too small to be interviewed we deployed a number of questionnaires for the parents. We interviewed parents about dietary patterns, about the medical history, physical activity and consumer behavior. The dietary information that I will present to you comes from a Food Frequency Questionnaire that we used. In addition, we applied a 24-hour dietary recall at least once, and we used accelerometers to measure physical activity in more than half of the children. They had to carry them for at least 3 days. We did, of course, the standard physical examinations like blood pressure and anthropometry including skin folds. We measured the bone stiffness of the calcaneus, the heel bone. In addition we assessed the school environment (built environment) for opportunities for physical activity and opportunities for buying foods. We collected biological materials, both for DNA and for metabolic markers. And we had some special examinations. In a sub-sample we conducted food-tasting experiments to measure the thresholds are for tastes like sweet and salty. We measured the aerobic fitness, and we made experiments on the effect of food adverts and brand names on children's preferences.

You see that the majority of the children was between 4 and 8 years old. A similar age distribution was achieved across all the countries.

The first result is something that you know from the literature very well, and we can show this

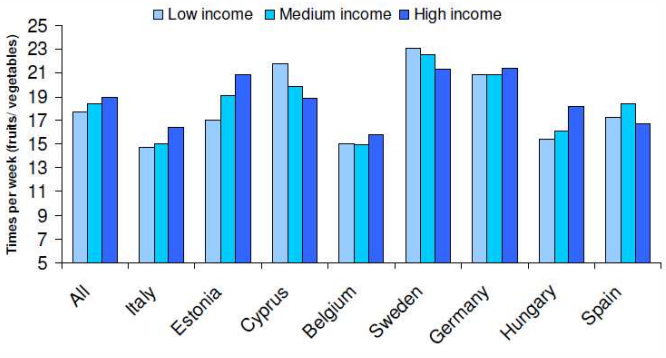
with our data, too. There is a clear association of the prevalence of overweight and obesity with socioeconomic position, here measured by income. We classified the families into 3 income groups: high, average, and low income. These are the young preschool girls, and you see how the prevalence of overweight and obesity increases over the income groups from high to low income. The same pattern is seen in preschool boys. On a higher level, the same association which is quite strong is seen in school-aged children. Social position is one of the strongest risk factors for overweight and obesity. And we see this throughout all the countries.

Country-specific data for a consumption of fresh fruits by weight categories using IOTF cut-offs (thin children, normal weight children, overweight children, obese children): The prevalence of children having fruits at least once a day displays not much of an association with overweight. This result fits well with what we heard yesterday already. If we look at this across countries we see some heterogeneity, but there is only one country where we see an association, which is Sweden. And here it seems that the fruit consumption is highest in the obese.

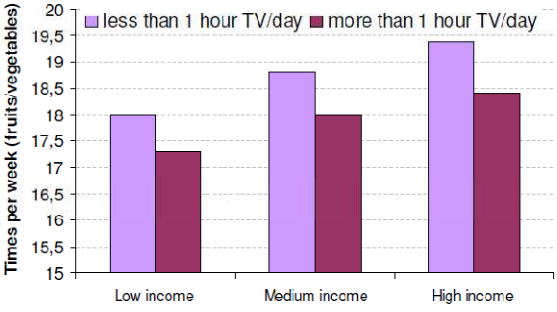
The prevalence of vegetable consumption: Here you can see an overall tendency or a trend towards lower frequency in the obese children. But when you look at the country-specific findings you can see much heterogeneity and no convincing effect within countries. Surprisingly, some countries in southern Europe have a low prevalence of vegetable, like Italy and Spain. These are the countries who are among the highest according to the prevalence of obesity in the children. This indicates an ecological correlation, but it is not a convincing correlation on a country level. We may discuss whether this observation is due to a social desirability bias. Please keep in mind that cross-sectional data are vulnerable to such kind of bias.

Now we consider, F&V by both, the weight categories and the income categories. At least there seems to be a tendency that the frequency of F&V consumption increases with income. If we look at this by country we observe a very weak association, a tendency with some heterogeneity. There are some countries like Cyprus where the gradient seems to be reversed. The majority of the countries show the same direction of the association, but not very strong.

Fruits and vegetables by income and country



Fruits and vegetables and TV by income



We found an association, as others before, with TV consumption: There is a positive association between the duration of sitting in front of the TV and the prevalence of obesity and overweight. In addition we observed an association of TV consumption with the consumption of F&V indicating that in all social groups, in all 3 income groups, there seems to be an

inverse relationship. Children watching more than an hour TV per day have a lower prevalence of frequent fruit consumption. And it's the same across all these 3 income categories, the same tendency.

When we talk about TV and eating behavior, we are also interested in other foods like snacks. So let's have a look at junk food. Junk food means chocolate, candy bars, candies, sweetened drinks, and chocolate- or nuts-based spreads. What you see is that there seems to be a higher consumption in the thin children and the normal weight-children, as compared to the overweight and obese children. This is for the low income group. The same is true for the medium and the high income groups. Nevertheless, the consumption goes down by social position. So as the social position increases, the consumption of junk food decreases. But no positive association with the weight category, which is in accordance with what is seen in the HBSC data.

Now, look at the same figure by country. Here you see this inverse relationship with SES, and this is more or less coherently seen in all the countries. Less so in Sweden and Belgium, but you see the same trend in all the countries. This association is seen over all 3 income groups, i.e. children watching more TV tend to eat more of these junk foods.

One sub-category within the so-called junk foods is sweetened beverages, which is a concern for us. Again, there is no clear association, and if any, there seems to be a tendency for a higher consumption in thin children. But again, the consumption of the sweetened beverages is lower in the high income groups. So it's the same tendency that you've seen before for junk foods combined.

Looking at this by country reveals a clear gradient which is much stronger than for junk foods combined. You can see this coherently in all the countries. However, there is a huge variation across Europe regarding this type of behavior. Now, look at the association with TV: again this is a strong association, a higher consumption among children who watch an hour TV per day or longer. It's not as strong in the high income group, but it's particularly strong in the low income groups.

Now, these findings are preliminary. This is a rather narrow descriptive view of the overall picture that we want to obtain with our study. And of course, the limitations that I already mentioned, possible social desirability bias, may be overcome by the longitudinal perspective. Currently we are still collecting these data. At the end of the day, we hope to provide comparable estimates of both, the outcomes, obesity and associated disorders and about the risk factors, and to describe better the causal pathways and the interplay of the various factors and how they interact. Just correlating one factor with obesity, or one factor with SES, is probably too simplistic.

We will investigate more closely what are the triggers for the food choice, think of the food preference tests, and we are currently evaluating what we have implemented in terms of interventions in the field. In the end, we hope to provide, or to amend, existing guidelines on what may show effects, real effects, on dietary behavior and the outcomes.

If you want to hear more about this, you are cordially invited to our Symposium in November this November in Zaragoza, Spain. You can still submit abstracts to that, and you may also visit the IDEFICS webpage or our BIPS homepage for further details. Thank you.

QUESTIONS/ANSWERS

Chairwoman (I. Keller): *Thank you very much, Professor Ahrens. Any questions from the floor? Yes, Johannes?*

Public (Johannes Brug, from the VU University Medical Center in the Netherlands): *Congratulations on a fantastically rich study. You already made us aware of the restrictions or the limitations of the preliminary analysis that you conducted. And indeed, the richness of the data set may also lead to confusion, with all these variables that you have included. Are you planning to do the multivariate analyses on the cross-sectional data set, or will you wait until you have the longitudinal data, maybe also to avoid further confusion in the evidence of this compile? That's my first question.*
And the 2nd one is a little bit more restricted. You showed us the association with sugar-sweetened beverages. Were fruit juices included in that, or not?

W. Ahrens: No, they are not. We are considering soda drinks here which were sweetened. That was the question. Regarding the analysis of the cross-sectional data, yes, we want to use multivariate models to assess associations. For example, you see that some of the associations disappear completely when stratified by country. And I think we have to show that. And many people are waiting for the first results from that study, so we can't wait for the longitudinal data to appear. And they have a value in themselves, of course, but we have to be careful in interpreting these data in terms of causal relationships.

Public: *Mr. Ahrens, this age group, so 4 to 6, is more or less totally dependent on the caregivers, parents. Have you looked at the behavior of the parents of these children?*

W. Ahrens: Well, that is included, yes. And this is mainly the part of the consumer research we are integrating in our study. We assess with a set of questions, the value system and the consumer behavior of the parents, and how this impacts on the food choice and the dietary behavior. For example, what we see is that parents, who are less critical about food advertisements in TV, tend to give the children more junk food. The prevalence of junk food consumption in children of those parents is elevated.

Public (from the National Institute of Public Health in Denmark): *Thank you for a very interesting presentation. I was wondering about this counter-intuitive association between junk food and BMI. Have you also measured junk food by 24-hour recall questionnaires? I was thinking if maybe the obese children were eating bigger portion sizes, and here it looked like it was only food frequency.*

W. Ahrens: That's exactly the purpose of the 24-hour dietary recall. We had a limitation in resources, that's why we only, on most children, did a one-day recall, which will not capture the habitual dietary behavior. But we hope to assess portion sizes from these data, and we have a very nice instrument, it's a computer-based instrument that was originally developed in the HELENA Study for adolescents, and we amended it and adopted it for the use in parents. It displays portion size on the screen so that a parent can choose how much the plate was filled. And we have adopted this with the various foods in the various countries with photographs that are country-specific. It was a huge work to develop this tool, and we hope to get more insight from that, yes. Thanks.
I may add that we went to the schools and kindergartens in case the children got their meals there, and recorded meals and portion sizes, because the parents could not report on that. This information was added to the 24 hour dietary recall. This was also a huge effort because we

needed a lot of personnel to go to the schools and to measure what children have eaten there.

Public: *Physical activity with the accelerometer was measured by everyone?*

W. Ahrens: Well, about 50-60%, depending on the country complied with it, so we have these measurements in more than half of the children.

Chairwoman (I. Keller): *With this, I think we need to go on to the next presentation. Thank you very much, again, Professor Ahrens.*

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M. Caroli (IT)

PERISCOPE how to help young children to improve their eating habits

Childhood obesity has reached epidemic levels in most of the European countries, especially in low SES families. Nowadays, as obesity develops in earlier ages and shows higher severity, effective preventive actions in early ages are strongly required.

PERISCOPE is a pilot study conducted in Denmark, Italy, and Poland aimed to assess early obesity determinants and to test new methods to prevent obesity development in preschool children.
This age has been chosen as between 2 and 6 years eating habits and food preference develop; in addition this age children spend several hours a day in kindergartens, which thus can be considered a very convenient setting where performing activities to establish positive live styles at very low cost and addressed to a large subgroup of population.

PERISCOPE, as pilot study, has used a convenient sample of around 400 children per country attending public kindergartens in low socio-economic areas in Poland, Italy and Denmark. In each country then the whole group has been divided in an intervention group and in a control one, to assess the intervention impact.

At the first survey the 3 countries showed a significant different rate of overweight and obesity Italy having the highest value (21.2%), Poland the medium (17.1%) and Denmark the lowest one (14.6%). These data can not be national representative, but are quite similar to other larger surveys in the same countries.
These 3 different rates can be considered as the top of an iceberg of different behaviours.

To get information regarding the determinants driving to obesity and assess the result of the preventive intervention and assess the result of the preventive intervention the children's parents answered at the beginning and at the end of the study the same questionnaire on several aspects of their habits, beliefs and attitudes regarding their children's eating habits, and physical activity

The baseline survey showed in general that preschool children do not use to eat fruit and vegetables according the WHO and international recommendations, and this unhealthy habit can favour obesity development. The unhealthy behaviour was more frequently showed by the Italian children as compared with the Polish and with the Danish ones. The Danish children, instead, were those who generally showed the healthiest behaviour.

This age children choose food to eat only if they like it, and they like what they are used to see and eat. This "eating habits grammar rule" stimulated us to develop innovative strategies answered to a specific question: what really do young children need to know about food in order to improve their eating habits? Children need to know the food life-story, and just like they love to know their own and their family story to be reassured about love they feel and they receive by parents. They need to know the food love story to increase their preference for those specific foods.

What really young children do not need to know about food is the science. They don't care and they do not use these information to choose foods they eat.
Thus, in the intervention phase of the project, to improve children's eating habits in the 3 countries, we have developed specific playful and funny strategies for this specific age, with small changes due to the different needs of each country, have been used.

1 A specific and new "taste shop's" protocol based on a very friendly, joyful methodology was developed to encounter young children's cognitive and language abilities, which has been used in Italy and Poland, while in Denmark has been used the "Sapere" methodology. In Italy and Poland, as the Sapere protocol was not financially sustainable, we develop a cheaper product for very young children which we calle "Tasteshop". We sent an invitation card to each child to participate to the tasteshop. During the tasteshop children had to taste and describe what they were eating, by eyes, by touching, and by smelling, and then by tasting. At the end of the tasteshop they got an honorary degree in gourmet. Tasteshops have been organized for fruit, legumes, and different types of bread

2 The aesthetic of kindergarten meals and all the elements having to do with the "pleasure" aspects of eating, in terms of food taste and presentation (mixing different color foods, adding decorations, etc.) have been improved, as psychological and sensorial aspects of food are important aspects of food acceptance in children and, thus, of positive eating patterns and habit development.

3 The most often disliked foods (vegetables, legumes, fruit, etc.) have been introduced to children through short tales book in which foods and/or nutrients, actors of short stories, are positive agents to reach good health or other positive aims. Some of the tales titles are The Bread's family. The little strawberry followed in love, Bent, the sleepy fish, etc. In the same book a different chapter on nutrient content, adequate serving size, and other simple food health related information has been dedicated to parents and kindergarten teachers. A special chapter is dedicated to explain the right nutritional education techniques to parents and teachers.
The book follows the same model of food advertising communication used by food industries: only taste and positive social-emotional information on foods to children, and specific nutritional and technical information to adults. The

whole approach aimed to empowering children and parents in their personal actions to get good health through active choice.

The intervention efficacy has been evaluated by comparing initial and final data for each country and each kindergarten unit; as well as through cross-analysis among the 3 countries, so as to assess not only the effectiveness of the intervention itself, but also its impact in countries with different traditions and lifestyles.
The acceptance of kindergarten meals, and in particular of the healthy food such as vegetables, whole cereals, and fruit, has been evaluated through the amount of these specific foods left over and the percentage of children eating/not eating them, while the impact of the intervention on family meals through a questionnaire filled by the parents.

The analysis has shown a significant improvement of fruit, vegetables and legumes intake in Italian and Polish children attending the intervention kindergartens, while children attending kindergartens which served as control groups, did not show any improvement. Danish children's eating habits, already very healthy since the first survey, did not show any further improvement.
PERISCOPE project shows that it s necessary to start obesity prevention in very early age and that preventive activities, adequate to the children's age, can give positive results.

PERISCOPE protocol has already been applied in Greece, Russia, and Portugal, but for the future, we would like really to get legislative bills and financial support to go from a project to a program. Because it's a program what we need if we really want to combat obesity in childhood.

With the participation of: MIKKELSEN Bent E[2], and MALECKA-TENDERA Ewa[3].
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Chairwoman: I. Keller

Now I have the pleasure to invite our last speaker, Charles Price, he comes from the European Commission, Director General for Health and Consumers. He works as a policy officer in the area of social determinants and health, and health inequalities in the unit of Health Determinant. Charles, thank you for being here.

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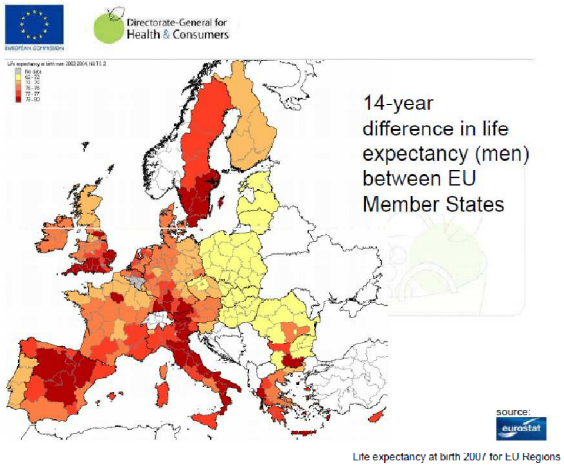
Charles Price (EC-DG Sanco)

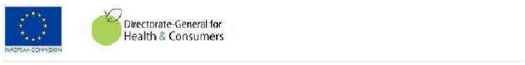
EU action on inequalities in health

A short change of tempo, I think, after those fascinating insights from the previous 3 speakers. I'm now going to talk briefly about the EU Policy Paper on Health Inequalities, just to bring you up to the break. I'm delighted that the organizers have chosen to concentrate on the theme of health inequalities, and to invite me here this morning just to mention these few things.



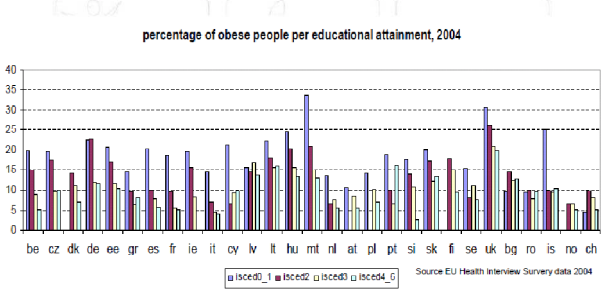
Of course, it's not a new story for the EU that there are health inequalities. But really, it's only in the last few years that it's really come to the top of the political agenda. One of the reasons for that, of course, is the enlargement of the Union in the last few years. The gap in life expectancy, for example, has actually grown since the enlargement. Life expectancy for men has now reached 14 years between Member States; and between regions of the EU, which are outlined on this map here; between the yellow regions and the darkest red the extreme is up to 18 years.

Similar gaps are also present between social groups. Not every country can measure them, but here are some data from the recent report from Michael Marmot's group for England, showing the gap in life expectancy, this time for women, by social class, and you can see, there is a substantial difference between the top and the bottom social class which has, if anything, widened over the last 20-30 years.

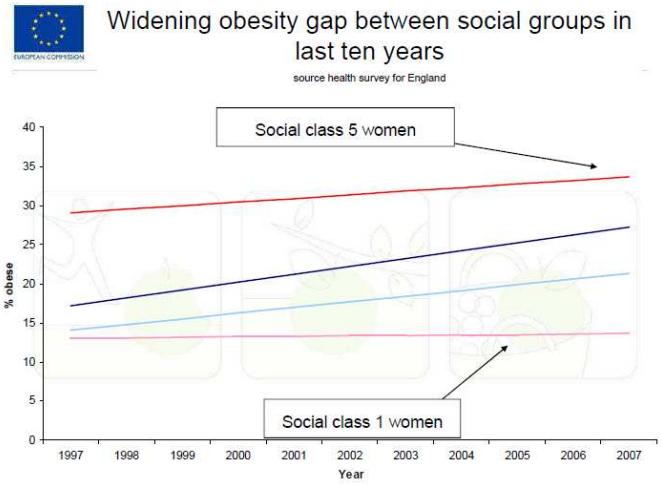


Up to 4 times more obesity in people with lowest education

It's not just, of course, death, it is also morbidity and lifestyle which shows these patterns. I just want to bring this one to the attention of this meeting on obesity, by country and by educational level. Data is from the 2004 health interview surveys, so it's self-reported. But you can see here that not only is there enormous variation in the level of obesity by region



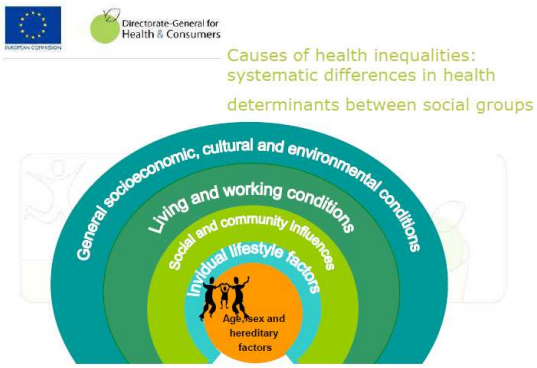
or by country, but also within each country there's quite a difference in the gradient of obesity by social group. The excess risk of obesity, for example, for the lowest educational group ranges from about 30% in some countries, up to 400% in the extreme end of the spectrum.



In those countries which are able to measure it consistently, there's been a suggestion that these trends, which have persisted for many years may in fact be widening. I Indeed, the well-reported increase in the overall population prevalence of obesity, the contribution of lower social groups are disproportionately contributing to that.

Now, as I said, the EU's come rather late to this table. WHO and European, Member States agreed, I think back in 1983 that equity in health was the principal objective of the health-for-all policy, and undertook to develop policies to tackle health inequalities. Of course, there have been some astoundingly good examples from around the continent since.

Furthermore, the scientific work which you've been contributing to and talking about today, has shown the complexity of the relationship between our lives and health inequalities, which is illustrated on this famous slide from Whitehead and Dahlgren. Within which, as you can see, the individual lifestyle factors and nutrition are there. People may argue about the relative importance of these versus for example, material factors and the biomedical, and we're aware, in the Commission, of the lively scientific debates on this. But in terms of framing the policies, we've been influenced, by the work of the WHO Commission on Social Determinants of Health and others, that really, the overarching explanation, or the most powerful factors on these health inequalities are material factors, living and working conditions, followed by psychosocial and behavior factors, and then biomedical. Of course, this suggests the type of policies that need to be changed in order to try and reduce this problem.



The EU is responsible for about 1% of all expenditure, and also has influences in varying amounts on overall policies. So I think that it's important to realize that although it sees itself as wishing to contribute to solving the problem, that realistically, the bulk of the action needs to take place in Member States and at the local level, as you've been talking about earlier.

The Commission has produced this policy paper, Solidarity in Health, Reducing Health Inequalities in the EU, which was published in October. And I'll just briefly, if you'll bear with me, go through some of the actions before finishing with some observations about what this could mean for nutrition policy in the future.

Firstly, this is the first time the Commission, itself, has really made a very strong statement that the existence of these health inequalities is actually a problem for the EU. A problem because it

regards the size as a challenge to the EU's fundamental values of socioeconomic cohesion, human rights and equality of opportunity. To tackle all the various factors which contribute to this problem it has chosen to try and have an integrated approach, starting with a very bold statement on trying to achieve a more equitable distribution of health, as part of overall social and economic developments. Of course, this is easy to say, but it is much harder to actually operationalize.

Part of that operationalization, is the development of further knowledge and data. So there is a commitment to further develop health inequalities indicators to fund additional research, and there will be a call coming out in July, for those who are interested, which will have opportunities for further work on health inequalities. It will also orientate work by the EU agencies.

A key part is supporting Member States regions and other stakeholders to develop policies, but also to do what the EU can do to address the needs of particular vulnerable groups. And in this respect, to take particular note of the reports that come from some ethnic groups, from some migrant groups, and from some regions of Europe, about lack of access to basic care; as well as lack of access, sometimes, to key determinants of health, such as housing, water, education, and jobs.

Not forgetting, of course, the contribution that can be made by the major funding instruments. So there is a commitment to try and assist Member States to use the opportunities which are available through regional policy, and through agriculture policy, to address health inequalities. I'll mention the agriculture policy again in a minute. And of course, to use the other instruments of which the Health Program and Progress are probably familiar to you.

The Communication on health inequalities was published 6-7 months ago now. And already there has been some progress to report. Spain chose it as priority for their presidency, and there will be Council Conclusions on health inequalities coming up in June. The Europe 2020 Strategy which sets out the framework for what the economic and social policy will do over the next 10 years has mentioned the need for work on health inequalities as part of achieving inclusive growth. And the Health Program is going to be funding, we hope, subject to approval by the Member States, work together with Member States on policy audits, on regional support and a knowledge development.

I know that you've talked about the role of agriculture policy, we touched on it during this meeting, and it was touched on earlier this morning. I think it's important just to mention that there are opportunities under the CAP, which could be used, we believe, further to address this problem. Rural development policy, for example, can support actions to improve the quality of the social environments, and the economy in rural areas, many of which are disadvantaged in health terms. And the market policies, although you may quibble about whether school milk is a factor that can be used in addressing health inequalities, those market policies on milk and fruit, and on food for the most deprived, add up to a considerable sum, which can be used, or are there to be used, by Member States to use and to target further.

In terms of next steps, I mentioned the Council Conclusions, and the FP7 call, there is also an intention for the Commission to do a lot more on health inequalities as part of its global health agenda. It will be reporting back on progress in 2012.

Nutrition policy is important for addressing the overall health inequalities agenda. This a comment from the U.K. Foresight report in relation to the importance of obesity. And possibly-

-and these are my own personal reflections--we need to think about how we move from the kind of work that you've shown, which leads to understanding of the distribution of the determinants of obesity and of good nutrition in social groups and in countries, through to tools that can be used. As Margherita said in her last presentation, how do you move from projects, through to policy and programs?

Here are a few of my own personal observations: that we really need to be moving towards nutrition policies where there's a plan from the outset to have most benefit for those most in need; that we use the understanding that you've been discussing here about market segmentation and impact on different groups, to really make it work for health; that we combine both a population wide approach with a focus on most vulnerable groups; and that it is very important that we continue to audit and assess the impact of our policies, so that we can refine our policies in future. Thank you very much.

QUESTIONS/ANSWERS

Chairwoman (I. Keller): *Thank you very much, Charles. Any comments? Yes, Robert?*

Public (Robert Pederson): *Just a comment and a question. Thank you, Charles, for a really good presentation on what the EU is doing. And I'm really pleased that you highlighted the fact that, in terms of reducing inequalities in health, we need to look at the other policies, like the common agriculture policy, trade policy, and competition policy. And one of the roles I see as DG SANCO's, is being an advocate for health and all policies at EU level. And one of the things I think needs to be strengthened is the impact assessment, and that the health impact assessment need to be given more strength in that process. So I'd like for you to comment on that.*
And I just have another comment. You mentioned the Most Deprived Persons Scheme, which is a food aid scheme to the most deprived persons. But currently, it doesn't have any sort of nutritional criteria; it doesn't match the nutritional needs that we're facing right now. And do you see DG SANCO having a role in developing nutritional criteria for that Most Deprived Persons Scheme? Thank you.

Ch. Price: Thank you very much for your comments and observations. And just to say that I fully share your, I think, suggestion that DG SANCO should, be involved closely with agriculture policy in developing future policy, not only food for the Most Deprived Persons, but also the policy as a whole. Indeed, we already are through the white paper that we published 2-3 years ago now, on the Strategy for Nutrition and Obesity. We're already working through that, but there is a lot more that could be done. And the first part of your question, in relation to audit, impact assessment, understanding of policies, is crucial to enable us to have the policy advice, the evidence, to allow us to do that better. I'm very pleased that the U.K. and 14 other Member States have come together to put forward a proposal for a joint action, it's a jointly funded action on health inequalities which is currently being considered by the Executive Agency for Health and Consumers, and we will hear, in a while, whether it will be funded. But a major component of that are the development of tools and the sharing of good practice on exactly this question of health inequality policy, or the evaluation assessment impact, whatever you want to call it.

Chairwoman (I. Keller): *Thank you. Any other comments? Coffee is waiting outside, so maybe the need for coffee is stronger, but I believe Charles, he will be around at least for the coffee break, so if you need to talk to him, he'll be there. Thank you very much.*

SESSION 6: Making the healthy choice the easy choice: the role of environmental change

Friday, May 7, 2010

Session 6	SPEAKER	PAGE
Chairman	J. BRUG (NLD)	142
Making the healthy choice the easy choice: the role of environmental change F&V consumption of food insecure people in France.	N. DARMON (FR)	143
How important is the neighborhood food environment in influencing F&V intakes: An Australian perspective	D. CRAWFORD (AU)	148
Food advertising to children - who wants tougher regulation?	A. AIKENHEAD (UK)	155
Vegetable consumption: What makes the difference, education or geography?	R. PRATTALA (FI)	161

Chairman: J. Brug

Thank you very much for being here, a couple of others will drop in, in the next 5 minutes or so, hopefully bringing in a cup of coffee or tea. But if they're not here, they're missing, I think, the first part of a very interesting session. We're going to focus on environmental influences, "Making the Healthy Choice the Easy Choice." And if you had read the abstracts, you may have noticed that the whole broad range of environmental issues will be covered by our 4 eminent presenters.

Nicole Darmon will start focusing on the more financial environment.
David Crawford, who came all the way from Australia will talk about physical environmental properties related to healthy eating.
Andrea Aikenhead, from IOTF in London, will focus more, I think, on the political and communicative environment.
And last, but not least, Ritva Prattala, will talk about the larger physical and cultural environmental influences.

And I think this session may also be the widest, geographically spread session. Yeah, we have somebody from France, somebody from the U.K., but from International Obesity Task Force, and believe me; they are all over the whole world. And David came all the way from Australia, and then we have Finland, and our Finnish presenter will present very nice cross-European data. So the whole range of environment across a whole range of countries. So let's get going.

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N. Darmon (FR)

Making the healthy choice the easy choice: the role of environmental change F&V consumption of food insecure people in France.

French Version p 220

In fact, above all else, the work focuses on the notion of food insecurity in France, and on what this notion encompasses, as it is the first time in French surveys that we have raised these questions about food insecurity and analysed the findings in light of this dimension.

This work was performed in collaboration with Florent Vieux and Aurélie Bocquier (Florent is here in the room; he is presenting a poster) and based on data from the national eating habits survey conducted by the French Food Safety Agency (AFSSA), coordinated by Lionel Lafay.

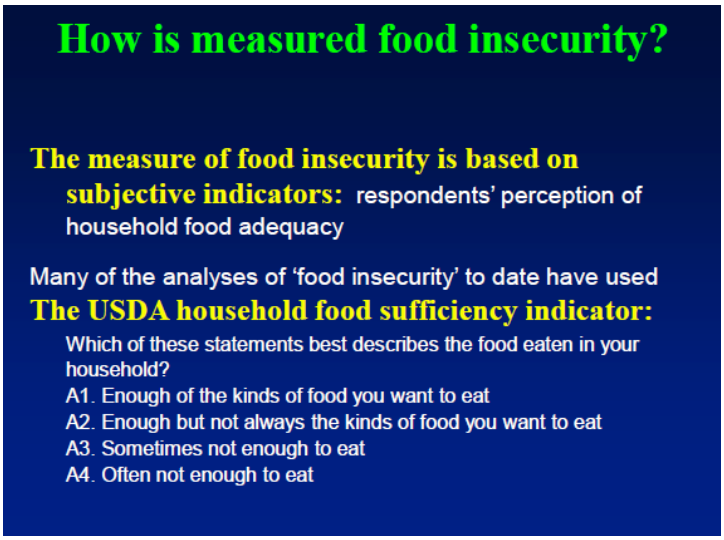
What is food insecurity? In fact, food insecurity is defined negatively, i.e. it is the absence of food security. The real definition is the definition of food security, and there is an official one, which was devised in 1996 at the World Food Summit in Rome. Here it is:

"Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life"; you can sense the ambition of this definition, which is extremely broad and encompasses different dimensions of food.

As food insecurity is defined as the absence of food security, it indicates insufficient access in terms of quality or quantity to healthy food acceptable both to the individual and to society.

In the North American studies, food insecurity has been associated, of course, with low income and, more generally speaking, with an unbalanced diet, nutritional deficiencies and general poor health, and in particular, obesity, high blood pressure and depression; there are many studies that demonstrate an extremely strong correlation with these pathologies.

It has also been shown that food-insecure people are often those who have a higher degree of acculturation and they are often single; so, these are North American studies that show this, based on what? In fact, based on a questionnaire that subjectively evaluates the individual's perception regarding the food situation of his or her household. It really is an indicator of subjective perception; so in many studies, there are several indicators and many studies use the USDA Food Efficiency Indicators, which is a single question to which four answers may be given. So what is this question? You ask the people among the four following situations: which one corresponds the most closely to your household?



First of all: you can eat all the food you want, either you have enough to eat but not always the food you would like to have or sometimes you do not have enough to eat or you often do not have

enough to eat; there have been other indicators since, but in France, this is the one we chose as it was relatively simple and we were introducing a new question, we chose this indicator as a single item with four possibilities.

As I told you, food insecurity is regularly reassessed in the US, it is also assessed in Canada, New Zealand, Australia and in a few "developing countries" - I don't remember if you can still say that now - but I don't think it has been assessed in Europe, maybe someone here will contradict me, and I will be happy to learn, but in any case, in France, it was the first time that these questions were introduced in our French surveys. It just so happens that in France, we are very well equipped, because we have three national surveys on food, so we can make comparisons and when we announce the figures, we are pretty sure of what we say.

What are these surveys? There is the INCA survey, which is performed by the French Food Safety Agency (AFSSA), we are up to the second INCA survey; the last one was conducted in 2006-2007.

The National Nutrition Health Survey, which is conducted by the "*Institut de Veille Sanitaire*" is different from the other ones because it also includes health information and biological samples, which is different from the INCA survey, which only examines eating habits.

And finally, we have a survey that is conducted by our Health Prevention and Education Institute (INPES). This survey is the barometer for nutrition and health, at the same time; these questions were introduced into the last three surveys.

I am going to present the findings that we obtained from the INCA2 survey

First finding: this is the one we were focusing on the most; what is the prevalence of food insecurity in France? With the questions that I asked and other similar questions that deal with individuals' food vulnerability.

So, based on the adults of this representative population of French adults, 7.3% of people who responded said they were worried about not having enough food, from time to time or more often; 3.6% of the sample also said they did not have the financial means to eat meat, fish or chicken once every other day.

And now we come to the specific questions that we introduced for the first time, for the response: "I have enough to eat, but not always the food I would like to have", "In our household, we have enough to eat, but not always the food we would like", we have 16% of people who answered this question this way.

For more quantitative insecurity, fortunately, the figures are much lower, because we have only 0.9% of people who said they often or sometimes do not have enough to eat in their household.
So the 16% is a rather huge number, and in fact, this number goes down when we apply a filter, that is, an alternative question; not alternative, but that comes after the first question on food insecurity. So when we ask, if you answered yes to such or such a question, why did you answer yes? Was it for financial reasons? Or are you on

What is the prevalence of food insecurity in France?

Data from adults participating in the INCA2 cross-sectional representative survey conducted by the AFSSA *(Lafay, 2007)*

n= 2 624 adults, 18-79 y	%
Worry about lack of food (Often, Sometimes or Occasionally)	7.3 %
Can't afford to eat Meat/Fish/Poultry every 2 days	3.6 %
Enough but not always the kinds of food you want to eat (A2 of the USDA FI indicator)	16.0 %
Sometimes or often not enough to eat (A3 and A4 of the USDA FI indicator)	0.9 %
Food insecurity = A2+A3+A4 of the USDA FI indicator, *for financial reasons*	12.2%

a diet, for instance; we can easily imagine that someone on a diet will answer that he does not always have the food he would like to have. When we apply this filter and add up all the responses that indicate a problem, either in terms of quality or quantity, we reach 12.2% of people we consider as living in a food-insecure household in France.

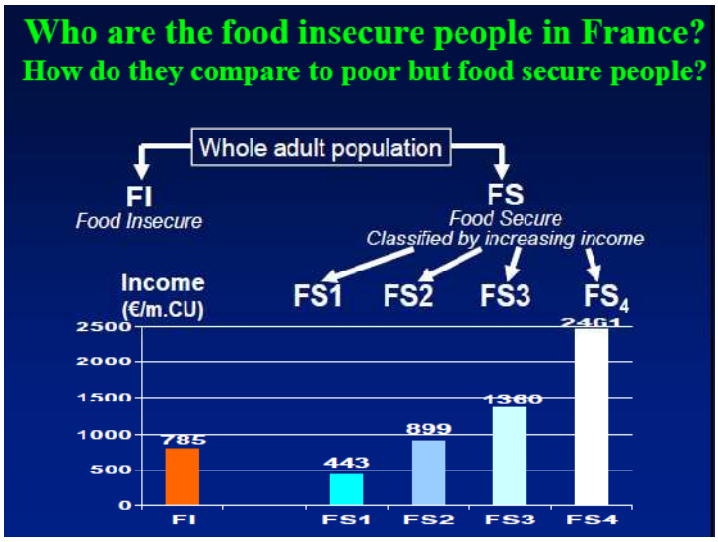
As this was a new notion for us, the majority of what I am going to present to you is based on descriptive results, and what interests us in fact is the connection with poverty, because up until now, we mainly considered conventional indicators such as income, educational level and socio-professional status to look at inequalities in terms of food in France.

What is this connection? Here you can see that if we look at our sample, amongst the people whose income is below the poverty level - so amongst poor people - we find 21% of people in a situation of food insecurity. If, however, we look at non-poor people, there is 7.8% and we also have a large proportion of people who do not declare their income and do not want to declare their income, and when we look at these people, we have just about the same percentage amongst them who are not poor, and as I was saying earlier, in the entire sample 12.2%.

So, first of all, the first piece of information is that food insecurity is, certainly, three times more prevalent amongst poor people than amongst non-poor people, but we also see it at non-negligible levels in some households in which the income is higher, not much higher, but still higher than the monetary poverty line; so to go further, to know who these people are, what we did in the end was to consider the population as a whole and divide it up into five categories.

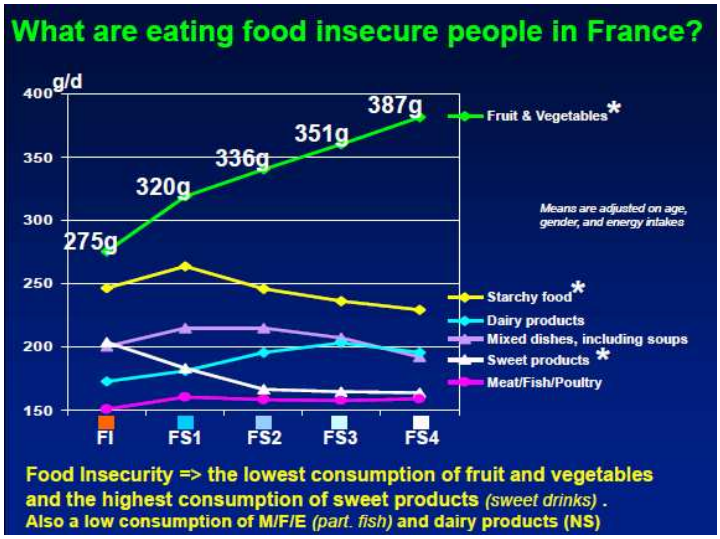
The first category is the 12.2% of people who are food-insecure. Next, we divided the rest of the people into quartiles according to their income, here we have food-insecure people and then the rest of the sample with an increasing income, and here, I present the income per month and per unit of consumption. A single person is one unit of consumption, you see that the income of food-insecure people, after all, is in between the first quartile and the second quartile of the income of non-poor people, that is to say above the poverty line, so we have people who would not have been identified if we had only looked at income, as their income is slightly higher than the poverty line.

In terms of socio-demographics, who are these people? By certain criteria, they closely resemble those in the first income quartile, and in particular, we see here that these are more often women than men. However, there is a difference with non-poor people, they are still more often single people or single parents, so situations of single parenting are very well represented in this category. You will not be surprised to see, furthermore, an unfavourable socio-professional status - much more unfavourable, what's more, than all the other categories - but their educational level is not the lowest, as these are probably young people, this probably enters into the equation as well.



In terms of living conditions, we have a lot less people who are homeowners, less people who have a car, few of them have access to a garden, and you see a very clear difference in the proportion of people who smoke: twice as many smokers in this population as in the rest of the sample.
We see unfavourable living conditions as well when we look, for example, at the level of equipment of the household and the level of equipment in the kitchen, which is also lower, and they spend more time in front of the television. These are extremely clear things that are not very surprising, because these questions directly target financial difficulties, anxiety about not having enough food, problems with getting access to care. These people indicate, for example, that they frequently forego care for financial reasons, and you see here that they are extremely different from the rest of our sample, which is not food-insecure.

In terms of eating habits, what do they eat in comparison with the others? Here, I have shown consumption in grams per day of the major food groups and you see that what is extremely noticeable is that, on the one hand, the level of consumption of fruits and vegetables depends on the income, which we knew already, but you see that these food-insecure people, even if they do not have the lowest income, are the ones who eat the least fruits and vegetables - this is really very clear - there is a break here.



For the other food groups, there are no very big differences, other than for meat products, we see a very low consumption of fish and a high consumption of sugary foods which are practically interchangeable with the consumption of starches, so maybe I could go over this. But in general, what we see when income decreases is an increase in refined starches, and you can see here that for these food-insecure people they are not going to get their calories in starches, but rather and even more than the poor people here in sugary foods. And in particular, sugary drinks when we look after in this category, sugary drinks are what really make a difference. Here I show in grams, you see the big differences in grams of fruits and vegetables. And if we look now in terms of nutritional quality, well, there is no difference in calorie intake, there is no difference in macronutrient intake, even in saturated fatty acids, but where there is a difference - we were not very surprised, but we quantified it; this is what is the most important, very large differences in terms of nutritional quality, in micronutrient content. You see the "Mean Adequacy Ratio" here, which measures the mean adequacy for 22 nutritional recommendations, which is much lower here in this category and on the contrary, the energy density, which is especially high in this category. When we adjust for the quantity of fruits and vegetables consumed, it is not enough to compensate; there is still a difference in terms of nutrient adequacy; however, there is no more difference in terms of energy density. So, it really is the consumption of fruits and vegetables that makes a difference in terms of energy density between all these categories.

We still have 12% of people who are in a situation of food insecurity in France. They are in difficult financial situations. Even if all of them do not have low incomes, they are probably confronted with tough constraints: housing costs, probably also the cost of smoking, as we have a lot of smokers in this population. I think that it is important to draw a parallel between this 12.2% of the population and the number of people who are helped by food aid programmes

in France. We estimate that approximately 2.3 million people use the food aid systems, so this means barely 3 or 4 times less than the 12.2% of people, whom we see are very vulnerable in terms of food, so if we conduct actions that only target the food aid programmes, we will not reach them; it will not be enough.

That was the most important message I wanted to convey. Thank you.

QUESTIONS/ANSWERS:

***Public**: I have a question concerning the difference that may exist between poor people in rural areas and poor people in urban areas, because in the connection with food insecurity, it seems to me that being poor in rural areas must be less prejudicial than being poor in urban areas, and as the urban population is tending to grow, it seems to me that this is a point that deserves to be examined.*

N. Darmon: Indeed, it would be very interesting. Thank you for bringing it up. We are going to try to do it; compare the two, but I do not quite agree with you; I would not wager that people in rural areas have a better situation. See, there are a lot of characteristics - these are isolated people who do not necessarily have access to a car - so in rural areas, it is still much more difficult to live, and we do have a few qualitative studies, more qualitative than quantitative, on the differences between food vulnerability in cities and in the countryside, and it is more unfavourable in the countryside.

***Public:** Do we have data on the ethnic origins of the people who participate in these surveys?*

N. Darmon: We do not have data on that, because in France we are not allowed to collect data on ethnicity, so we do not have this kind of data at all.

***Public:** A small detail - you will see that most people have the means to buy food, but [not necessarily] what they would like to buy; what would they like to buy - healthy food or the kind of food they don't really need?*

N. Darmon: That is a very interesting question, it has not been raised before, it is just one little question in a very long questionnaire, this is the first time it has been asked - I can see the difficulties already, because it would be an open question - but it would be very interesting to explore. Thank you.

* * *

Chairman: J. Brug
Let's move on to our 2nd speaker. All the way from Deakin University in Melbourne, Australia, my dear colleague, David Crawford.

* * *

D. Crawford (AU)

How important is the neighborhood food environment in influencing F&V intakes: An Australian perspective

Thank you, Hans, thank you very much to the organizers for inviting me across. While I made the 24-hour trip almost jet-lag free, unfortunately my slides have not, and so the format of them have been somewhat affected. So apologies for the quality of these, but thank you to Claire during the break for getting them corrected.

I'm going to be talking very much about neighborhood food environment and its relationship to Fruit and Vegetable (F&V) intakes. I want to acknowledge that this work is really led by people like Kylie Ball, Anna Timperio, and Luka Thornton, and I'm mostly presenting on their behalf. This is an area we've been working in now for 5-6 years. We've been wrestling with it; it is a complex area, and a tricky area. We're starting to make some headway, and want to share some of our findings with you, and try and talk about the issues about understanding the importance of local food environments.

This slide simply highlights that the issues that you've been talking about here, in terms of F&V consumption, are issues that we are wrestling with also in Australia. This is data for children; it comes from the most recent national study in 2007. And what it highlights is that for different age groups, so we have young children here, and older children here. Intakes are less than optimal, and it depends how you look at it. If you include fruit juice, you can consider children are doing reasonably well into the teenage years. If you exclude it, then they are not doing so well, particularly in the teenage years. And vegetables, the situation is also fairly grim. Low levels of intake. If you include potatoes, high levels of intake, but still not fantastic--sorry, if you exclude them, high levels if you include them. We would often exclude them because potatoes, at least in our country, are generally deep fried, included with fat, and come in the form of French fries. So we have the same issues. The situation for adults is similar, and as we've been discussing, it is clearly socioeconomically patterned such that low socioeconomic groups tend to do more poorly, in terms of consumption levels.

In terms of what we understand about the influences on intakes, I think it would be true to say that most of what we know, most of the research that's been done today, focuses very much on sort of interpersonal level factors, or cognitive level factors, and somewhat on social level factors. And so if you look at the diagram here, if we think about F&V intake, we've done, us and others internationally, a lot of work looking at this middle level of influence. Some work on this next level. But really, very little work at this environmental or policy level. It is an emerging area. We all recognized that the environment is potentially source of influence on health behavior, generally, and on eating patterns in particular. But at this stage, the literature that we have, the empirical evidence, is not as strong as we would like.

And I'm going to focus on the kind of work we've been doing in this area. Most of our work, and indeed, most of the work internationally focuses on issues related to access. Some of these other issues I'll talk about later have really not been addressed very well at all.

I'm going to talk about 3 of our studies. We've done a number of studies, more than this. And there are other studies in the international literature, and I'll allude to those later. But I want to use these simply as examples of the kind of issues that we face in trying to understand the importance of the environment, and the kind of findings that we're getting, that we're seeing. And the findings that we're getting from our studies are broadly consistent with what we're seeing in the international literature. So these findings, I would say, are not significantly different from other countries, perhaps except for the U.S. And I'll talk about that briefly towards the end.

I have one study here which focuses specifically on children, we call that the HEAPS Study. About 800 children, they come from socioeconomically diverse neighborhoods from Melbourne. The children and their parents completed very detailed survey questionnaires about their intakes, but also about a range of personal and social level determinants. And as well as that, in this study we have objectively assessed the local neighborhood environment using geospatial technology. And that's a feature of all of the work here. It's important to highlight that what we're doing here is linking features of an individual's own local neighborhood environment with their own behavior. So this is individual-level data, not ecological-level data, and that does differentiate our work from a lot of the work that's in the field. It's a stronger design, but a more challenging design, because of the need to gather the data in this way.

So for example, if Professor Brug was one of our participants, we would know exactly where he lives, we'd have detailed information about what he eats, we'd understand his personal circumstance, we'd know a lot about his attitudes, beliefs, his knowledge, social supports, whether he was being sabotaged in terms of trying to eat healthily. But for him, we would map all food outlets probably within kilometers of where he lived. And if we were looking at someone else who lived a few 2 kilometers away, we would have the same information, except we would map their environment. So each environment is unique to the individual.

We have another study that I'll talk briefly about, the READI Study. This focuses on people living in disadvantaged neighborhoods, 80 disadvantaged neighborhoods both rural and urban, about 4,000 odd women. Again, detailed survey information and objective assessment of the environment. And also the SESAW Study which is women from 45 socioeconomically diverse neighborhoods, about 1500 women, GIS survey data. But in this study we had other data and I'll talk about this briefly, some information about the availability and price of F&V within stores. So audited data, objective data. So I'm going to talk briefly about the findings in relation to these 3 studies.

This is the data from the HEAPS Study. That's the study of children. And what we've done here is look at exposure to supermarkets, convenience stores, as we would call them, or very small supermarkets, corner stores, and also fast food outlets. And the likelihood of children consuming 2 or more serves of fruit each day, or 3 or more serves of vegetables. And what you can see here, where the Xs represent no relationship at all. For fruit, children were less likely to consume 2 serves of fruit if there were convenience stores near their homes, or if there were fast food outlets. So a negative impact on consumption.

In terms of vegetable consumption over here, they were more likely to consume 3 or more serves of vegetables if they lived further away from a supermarket, which is an interesting

finding. Perhaps counter intuitive, perhaps not. And if they lived further away from a fast food outlet. And they were less likely to consume vegetables 3 or more times a day if they lived near to a convenience store. So interesting findings, not exactly what we may have expected at the outset.

If we turn to the study of disadvantaged women, again, we looked at intakes, both F&V. And we've looked here at the association between accesses, in terms of major supermarkets, convenience stores, and in this case, green grocers or F&V specialty stores that sell F&V. And as you can see, really very little going on at all. Almost no relations. The only one we see is a negative relationship by living further away from a greengrocer means you have a lower intake of fruit. So as we might expect.

So what we're starting to see with this data, and any data that other people have published, is the kind of relations we might expect to exist based on what we believe about the environment, are just not being bourne out in the objective data.

This is the SESAW Study, again a study of women. And these come from socioeconomically quite diverse neighborhoods. And in this particular study, what we were trying to do is answer the question of, what is it that mediates or explains the relationship between socioeconomic status and intake? So which factors seem to be important in explaining that difference in intake for both F&V? And as you can see, I've presented the data here for all of the things that we looked at, personal level factors, nutrition knowledge where the people considered health when they were shopping, issues around social support, family support, and friend support. And then aspects of the local neighborhood environment. So in this case, the density of supermarkets within your neighborhood, and the density of F&V stores. And again, as you can see, a range of personal- and social-level factors coming out as important in explaining the socioeconomic differences in intake for both F&V. At least our measures of local neighborhood environment, no relationship at all.

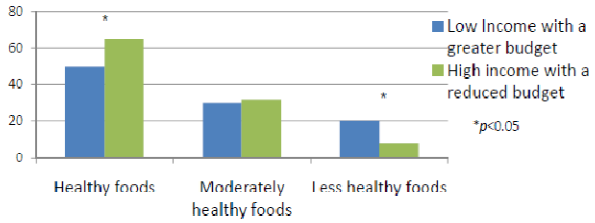
So I've focused very much there on issues around what we might describe as access. And I'll talk about whether they're good measures or poor measures in a moment. We've talked a lot over the last few days about issues of cost, or the price of products. Certainly we know cost is often cited as a barrier to healthy eating, and we've heard that over the last few days, and our own work highlights that, as well. We've done work that has shown that the perceptions of the cost of fruit, at least, or the perception that fruit cost too much, or that healthy foods are not affordable, mediates the relationship between socioeconomic status and intake. So again, helps partly explain why we see differences by socioeconomic status and intake. So perception of cost may be another factor that is important to consider.

In other work related to the SESAW Study, we didn't find socioeconomic differences in fruit intake by neighborhood level, SES. But we did for vegetable. However when we looked at the availability in the stores, store opening hours, and the price of the vegetables in those stores, it didn't explain the differences in intake. So again, relations that we might have expected to see intuitively, are not appearing in the empirical evidence that we're producing.

DEAKIN UNIVERSITY AUSTRALIA

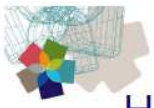
What about cost?

- Small experimental study to equalize the food budgets of high and low income women (Inglis et al, 2009):



- SHELF study – aiming to intervene and assess effect of a 10% price reduction on fruit and vegetable purchasing

And just a final note on the issue of cost. This is work that a former PhD student completed a few years ago which was published. And what she did was small experimental study. We got 2 groups of women, low socioeconomic status and high economic status, and that was based on income levels. We also looked at education levels. And they were matched in terms of family composition. We asked them at the outset about their normal food budget, how much they spend. And we asked them to tell us, using a shopping list, what products they would buy when they did a major shopping expedition. We then provided, hypothetically, the low SES women with an increased food budget, and the high SES women with a reduced budget, so the budgets of the 2 groups were equalized. And we said to them, now tell us what you would buy, here is your shopping list, what would you include on it?



DEAKIN UNIVERSITY AUSTRALIA

How important is the neighbourhood food environment?

The current state of the science in the field:

- There are conflicting findings - eg neighbourhood SES and diet quality/fruit and vegetable intake:
  - Some studies show a positive association (Shohaimi et al, 2004; Turrell et al, 2009)
  - Other studies show no associations (Diex-Roux et al, 1999; Giskes et al, 2006)
- Research still in its infancy – limited amount, different methods, little conceptual work (Brug et al, 2008)
- Most research focused on the built environment (indices of access) - cost and quality of foods rarely considered
- Limited work on multiple levels of influence and how these interact (context)
  - Cannot ignore role known cognitive and social factors (Ball et al, 2006)
  - Cultural and ethnic differences critical (Zenk, 2009)
  - Findings from one country may not apply in another because of contextual factors

And what we found? When we looked at the products that they bought, was that the low income women, despite having the same food budget as the high income women, still would plan to purchase more unhealthy foods and less healthy foods. So again, while we might think that cost is important, particularly for low SES groups, it doesn't always play out in the ways that we might expect.

And just a final note, we are currently initiating a large randomized control trial where we are taking women, and we're looking to intervene and assess the effect of an actual 10% reduction on F&V, and see what difference that makes to purchasing patterns. So that's a study that's just beginning now, and perhaps at some point in the future we can report the findings of that to you. So this issue of cost also appears to be important, but not necessarily in ways we might think.

So I'm going to wrap up because Professor Brug is giving me a very Dutch look. How important is the neighborhood food environment? Well, I think it's important to first pause and think about the current state of the science in the field. And these are my personal reflections, I think broadly shaped by my colleagues. The findings definitely are conflicting. Our own findings are conflicting, they are often not in the directions, or not always in the directions, we might have expected at the outset of our studies. And, indeed, the international literature would bear out that proposition, too. So for example, if we looked at data looking at neighborhood socioeconomic status and indices of quality of F&V intake, some studies show positive associations, so like the studies from the U.S. and Australia. Other studies are showing no associations, so a Dutch study and another U.S. study. So quite significant differences in the kind of findings that are emerging from studies being conducted using different methodologies

and in different places.

And I think that's an important issue to consider. The research in this field really is in its infancy, it's quite early days. There is quite a lot of ecological-level data around, but really that data is not terribly useful on its own. It's certainly been useful in terms of giving us some clues. There is a limited amount of good quality empirical data around. Different methods being used. And I think very important to highlight, and Professor Brug has written about this recently, very little conceptual work to sort of drive what it is we can measure in the environment, what it is we're trying to understand as an important source of influence.

As I've said, the research focuses very much on the built environment and particularly on the indices of access. And certainly, our work has been of that kind. And as I said, cost has rarely been considered, and indeed, quality of foods is almost never considered in any of this work. And I think that's critically important. There is limited work on the multiple levels of influence, so I'm talking here about those personal-level factors, social-level factors, and environment, and how they interact with each other. We cannot ignore the known role of cognitive and social factors in influencing behavior. And so looking at environment in isolation from these is probably not very helpful, and indeed, other factors like cultural and ethnic differences, as Shannon Zenc from the U.S. has pointed out, are also likely to be critically important for some population groups.

And I think I'd be very safe in saying that the findings that we might see from one country will not, probably, apply in another country because of these contextual factors. The cultures are different, the environments are different, the way that people think about food, the way they eat food, are different. And we have to bear that in mind when we are trying to take the findings from one country, and try to apply them to our own.

So what are the implications for policy and practice? I'm going to pick up a point that I think Hans raised in his presentation, it's not because I'm a researcher, it's because I'm keen to see that whatever we do in practice and in policy, is evidence-based. We do need to invest, if this is an area we are serious about. We need to create a better evidence-based, understand what it is about the environment that is important, and what is not important. If we've got limited dollars to invest in influencing the environment, we have to invest wisely.

I think the neighborhood food environment is likely to be important for a portion of the population. It may be very important for quite a significant proportion of the population, we don't know that. And it's likely to be more important for some groups than others. It certainly will not be of equal importance to all.

What might I say in terms of policy and practice in increasing F&V intake? We certainly need to consider issues beyond improved access. Factors like cost, or perception of cost, are likely to be critically important. And if we are talking about perceptions, then we are talking about

education and awareness, or we go back to these, you know, a range of other things that we know are important that influence behavior. And indeed, financial cost may be only one consideration, and we've done quite a bit of work in this area. Issues around perceptions of value for money become important, so it's not just the dollar cost of the food, it's how it is valued. How it's valued in terms of feeding a family, how it's valued in terms of providing families with a treat or a special occasion. And also issues around the time cost in preparing, particularly, vegetables, which are starting to get to issues around convenience. And we know for low SES women, this is a particular issue.

As I said before, I think we need to continue to combine our environment to interventions with those that are focused on perceptions, food skills, knowledge, and taking into account cultural, ethnic, and other important differences. And I guess it would be obvious, but worth repeating, that programs that work in one country may not work well in another country. And again, we have to be cautious in lifting programs from one country, and applying them to another. And with that, I will thank you. But also, if you are interested in this work, I invite you to Melbourne in a year's time for the ISBNPA meeting. Thank you.

QUESTIONS/ANSWERS

Chairman (J. Brug): *Thank you very much, David, for that interesting presentation. Any questions? Right in the front, please go ahead.*

Public: *Thank you very much, your presentation is great, I hope that we will be able to have copies. I'm wondering, you said you're talking about other research; you are still going to be doing future research. Have you thought at all about providing targeted subsidies for F&V to try to increase F&V consumption? Would be interesting to see what results you would get based on what we've seen in a small scale in the U.S. and in the U.K.*

D. Crawford: That's exactly what we're doing in the SHELF study, which I alluded to very briefly, it's a study that was only funded in January, so we're just negotiating now with a major retailer, and they're going to provide us with all their e-sales data. So for individuals involved in the study, we'll have objective data on purchasing patterns. We'll be looking at a 10% price reduction, and following the women up over about a 2-year period.

Public: *So you'll be using a price reduction strategy, as opposed to a targeted--?*

D. Crawford: I'm not sure what you mean by "targeted." You mean targeting particular individuals, or--?

Public: *No, no. In the U.S., in the WIC Program which was described yesterday, and U.K. Healthy Start, the pregnant low income moms get a voucher that's specifically for F&V; it's a cash-value voucher specifically. So it can only be used to purchase F&V.*

D. Crawford: This is effectively the same, it's a 10% reduction only on F&V. We're also doing low calorie or no calorie beverages. It can only be used for those; it's not a 10% discount on anything you buy.

Chairman (J. Brug): *One more opportunity, I'll take the right-hand side of the room.*

Public (Wilma [...] from the Netherlands): *Thank you very much for your presentation. And I*

have a question about your SHELF study. Are you also going to study the issues of cross price elasticity? So if you reduce the price of F&V, the shift in cost. And another question, do you introduce also some marketing strategies, so besides the discount, are you planning also to sign the discount, or how are you going to tackle those things?

D. Crawford: We are actually running 2 interventions that run in parallel with each other, that are separate. In one of them we are doing a kind of skill-building component, which is focused very much on low SES women. So skill-building and price reduction versus no intervention at all. And in the other one there's other arms to the intervention, but all of them involve provisioned information to the women about use of F&V, recipes, improving shopping skills, how to store them appropriately, so there is a range of measures, as well as the price reduction. In terms of looking at, you talked about price elasticity, we'll be monitoring intake of the women of their total diet, so we've got to look at other changes in diet that might result from. And we'll also have electronic sales data for everything they've purchased at the supermarket, so we can look at changes in do they start buying more unhealthy, or other products with the additional funding that they have available to them?

Chairman (J. Brug): *One more small issue, in the school-based studies that have been presented, the influence of availability and accessibility was strong. In your studies, it doesn't appear to be so influential. What do you think is the difference between that school setting and that neighborhood setting that might explain this difference in results?*

D. Crawford: Yeah, how long have you got? I think very briefly, the school environment is a micro environment where, I guess, the range of choices for most children is more limited, so it's what is made available to them within that environment. Neighborhood environments I think are somewhat ill-defined still. Generally, in the research most people use what they call buffers. So in your case, we'd look at everything within 3 kilometers of where Hans lives, and we map that and understand it, and link it to your behavior. But of course, that's not the activity space in which you move. You move yourself from your home to your place of work, and perhaps to visit friends, and to recreate. And in that space you are exposed to all sorts of foods. So that is another feature of why--I guess what I'm saying is, I think our understanding of the environment, and the way we measure it currently--and I'm not just talking about us, I'm talking about the field generally--is really quite blunt.

Chairman (J. Brug): *Thank you very much.*

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Chairman: J. Brug

And we move on to our 3rd speaker, Ange Aikenhead of the International Association of the Study of Obesity, who will further talk about food advertising to children, and about, maybe, tougher regulations, a very important issue that has raised a lot of attention and discussion. So I look forward to your presentation.

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A. Aikenhead (UK)

Food advertising to children - who wants tougher regulation?

Thank you, it's a pleasure to be here today. I'd like to thank the organizers for all their hard work, but also for this opportunity to represent the International Association for the Study of Obesity and to speak on behalf of my colleague, Tim Lobstein, who, unfortunately, was unable to accept this invitation to be here today.

So I'm going to speak a bit about food advertising to children, and more specifically, the current regulatory environment, as well as stakeholder views on this issue within the European Union.

To give you a bit of background, in 2005 the Commission gave industry one year to stop advertising directly to children, otherwise regulation would be introduced. And in 2006, this deadline was extended a further 2 years. In 2007, we saw the White Paper on nutrition and obesity policy, which stated that the preference was to keep the existing voluntary approach, and then to review this position again in 2010. Also in 2007, the European Commission's Public Health Work Plan called for evidence or tools to support policymaking in the area of marketing foods to children.

So in response to this call, the PolMark Project was initiated. PolMark was designed to strengthen the evidence-base available to the Commission as they review their position on marketing regulations, and assess whether or not further initiatives, beyond voluntary ones, are, in fact, necessary. PolMark has been generously co-funded by the Executive Agency for Health and Consumers, as well as the Norwegian Health Directorate, and UK National Heart Forum. This Project was led by IASO, with partners in 11 Member States across the EU.

Our objective was to update the review of current controls and regulations on marketing to children in all 27 EU Member States, which was last undertaken in 2006 by the WHO. Secondly, we identified more than 100 stakeholders across 10 EU Member States who had an interest either in child's health or food and beverage production and promotion. And then we undertook a series of interviews with these stakeholders to assess what the likely barriers and opportunities would be for policy development in this area. Finally, we further utilized the data collected in these interviews to quantify health impact estimates from these stakeholders against their relative positions. And this was really to support the use of health impact assessments as a tool for policymakers, so it was great to hear this mentioned earlier this morning as something that we should be really striving towards.

Our review revealed several trends that had emerged even just in the short 3-year time span since 2006, the first being that action from health policymakers is increasing, which is great news. Two thirds of WHO Euro countries now have statements on marketing to children in their national health plans or strategies, or if they don't, then there is proposed action in this area.

Typically, the first responses are voluntary codes or self-regulation. And prior to 2006, this was generally dominated by codes like the CIAA Code or ICC Code, which are based on more general principles, as opposed to specific restrictions on marketing. I'll give you a few examples of this sort of voluntary or self-regulation: in Spain they have the PAOS Code which, among other things, limits product placement and the use of characters in advertising to children. In France, there is a joint government industry charter which focuses on healthy advertising. And In Denmark, there is a government-approved industry code which is applicable to all children under the age of 13.

We also noted that there are 3 main forms of self-regulation emerging. The first includes codes that are developed by self-regulatory bodies or trade organizations. There are also codes which government tends to encourage or approve the development of. And then finally, there are individual pledges by companies.

So although the Commission has, up until this point, favored self-regulation, that doesn't mean that governments are completely satisfied with this approach. Nor does it mean that we haven't seen the emergence of statutory approaches in various counties. For example in the UK, there is a ban on advertising of high fat, sugar, and salt products during programs targeted towards children under the age of 16. In France there is a requirement for nutritional messages to be included on all food advertising, regardless of whether or not it's targeted towards children or adults. And in Ireland, actually quite early on in 2005, they banned the use of celebrities in children's food advertising, and also require warnings on fast food and confectionary advertisements. We've also started to see proposals for statutory regulation in some of the southern and eastern areas of Europe, which typically are slower to respond.

We've seen an increase in the number of specific restrictions on marketing. So rather than just general overarching principles, there are now rules on things like the types of media, the types of programming, different marketing techniques, and product categories. And also along with that, the variation in these specific restrictions has increased, so there is a whole range of age categories that might be used, and with different types of products there are numerous profiling schemes that are used.

Another thing we noticed is that while there have been leaps and bounds in the area of national policies, policy objectives are not sufficiently specific. I've included just a few examples of them here: things like "reducing exposure to marketing," or "achieving responsible marketing," or "protecting children," are great objectives, but what do they really mean, and how do we go about monitoring them?

So there's been considerable movement towards greater restriction on promotional marketing to children. And the nature and degree of these restrictions varies quite significantly between EU Member States, which creates important implications for monitoring and evaluation. And it's become not so much a question of what is the "right" type of regulation, but who is in control of it, and how is it managed effectively?

So if it's governments that want to be in control, they need to have specific objectives and

measurable indicators, as well as clear timelines for implementation. They need clear and enforceable carrots and sticks to encourage progress. One option which is quite well-accepted in the private sector is the introduction of targets for industry to achieve, and then using various statutory or non statutory measures to ensure that these targets are met.

So on to our stakeholder interviews. We interviewed over 169 stakeholders from various groups. Food producers, advertisers, consumer advocates, public health officials, government officials, media representatives, child and family organizations, and across 10 EU Member States, as well as Brussels.

And I'll just present a quick summary of some of the questions that interviewees were asked. When asked whether or not they thought advertising promotes childhood consumption and obesity, the overwhelming response was yes for 92%, and 40% actually said that they strongly believed marketing of food promotes consumption and obesity. And you can see that of those who didn't agree with this association were primarily food producers and advertisers. I've included a number of quotes which add a bit of color to the responses. So here, an Irish government official says, "Getting rid of marketing will not get rid of the problems, but if we don't take action on what is obvious, then we haven't a hope."

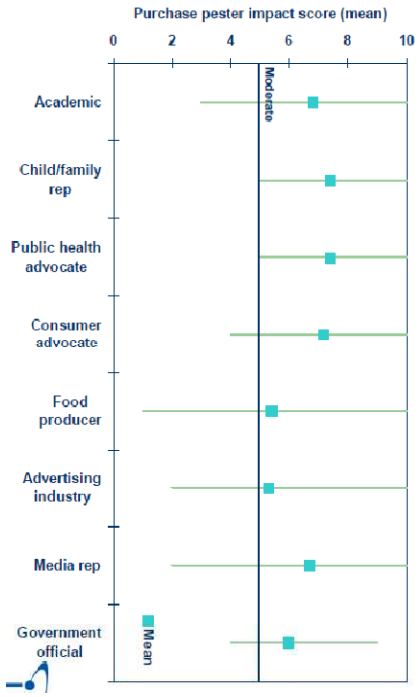
So did our interviewees think that controls on television advertising of food were necessary? 84% said yes, and 69% actually said they didn't believe there should be ads on television before 9 pm for food products.

We surveyed them about their opinions on the current regulatory environment in their own countries, and 64% responded that they don't think regulations are controlled enough right now. 32% felt the level of control was about right, and a small minority, 4%, felt that there was too much control. And these 2 quotes illustrate the extreme range in opinions: a media rep from France says, "I think that food advertisers and the lobbies that feed them do whatever they want in France, they represent an enormous amount of money, and they pay in exchange. They do what they want." And then conversely, a UK food producer says, "We're in a place where we have to put up with food advertising rules. They should not go further, and we would question whether the rules meet the objective of reducing obesity. We don't believe the rules are correlated to the policy outcomes."

And then we asked whether or not children should be protected from food advertising. So 80% agreed, yes they should be up to the age of 8. And 20% actually agreed that there should be protection conferred up to the age of 18 years. And a Danish food producer here describes the issue with developing national legislation in this area when much of marketing transcends national and geographical borders. "Some of the bigger players in this area, like Coca Cola and Danone, set a 12 year [age] limit to marketing to children, and then it's difficult in a small country like ours to say 15 years or 16 or 18."

So to conclude, there is a real division between the views of various stakeholders. Those with commercial interests in advertising, and to a lesser extent, the food industry, generally resist the imposition of controls on marketing. And those stakeholders from public health, consumer groups, and to a lesser extent, child and family organizations, actually believe that greater protection from persuasive marketing is needed. Media representatives, academics, and government officials all tended to occupy central ground, and of course, there is quite a bit of

variation amongst the EU Member States. We also noted that health and consumer groups in particular expressed frustration over what they felt was reluctance on the part of regulatory authorities to challenge commercial interests.

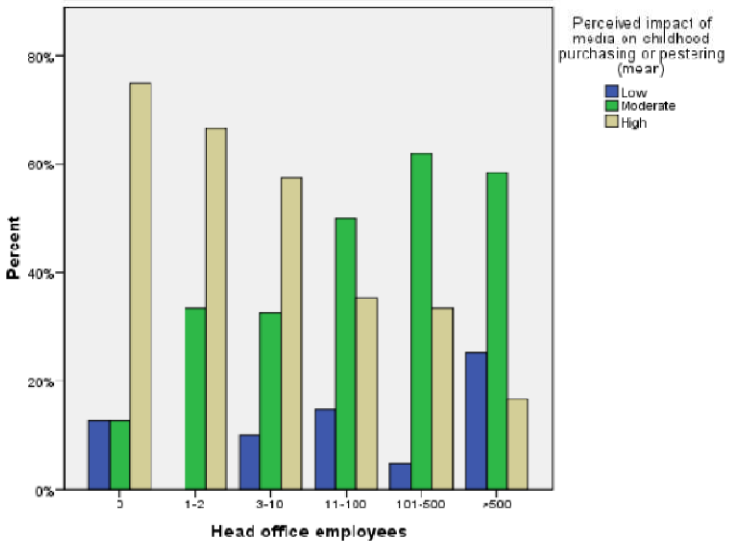


And so the opportunities for finding common ground really need to be increased, and an example of how we might do this is through identifying a set of standards for co-regulation, which would be applicable across the food industry and across European borders.

For our quantified health impact assessment, we looked at these stakeholders across 2 different dimensions. The first being their interest, so whether that was more commercial, or health/consumer/family focused, or neutral. We also examined their level of "power", and this was power to influence policy. We measured power using a number of different variables: head office budget, the number of head office staff in the stakeholder organizations, what their press office budget was, and their advocacy and lobbying budget. We then asked these stakeholders to quantify the impact of food marketing, which was the exposure, on dietary choice and consumption, and then examined these responses for patterns and bias.

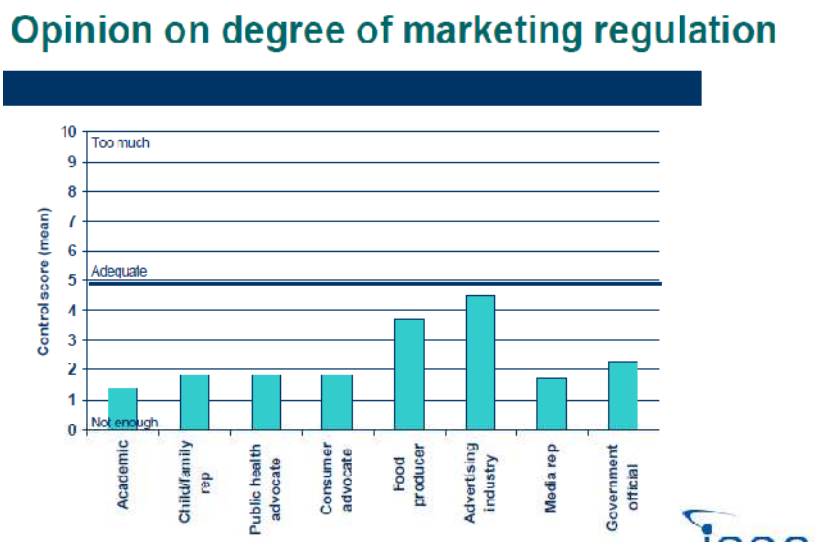
Stakeholders were asked to give an estimate on what they felt the relative effectiveness was of various types of media, in terms of their impact on children's purchasing behavior or pestering of their parents to purchase certain food products. This was done on a scale of zero to 10, zero being no impact, and 10 being very high impact. This chart shows the range and means of these opinions for each stakeholder group. So we can see that, on average, all stakeholder groups felt that the impact of marketing here was more than moderate. And food producers and advertisers were on the lower end of the scale, whereas child family reps, public health groups, and consumers were on the higher end of the range. This was a typical pattern that we saw across all the marketing methods that stakeholders were surveyed about.

Looking again at this perceived impact of media on children's purchasing and pestering, we divided the stakeholder responses into 3 groups for clarity, so low is a score of zero to 3, moderate is 4-7, and high is 7-10. We've looked at power as measured by the number of head office employees, and you can see a clear relationship. In very small organizations, stakeholders are more likely to state that marketing has a high impact on purchase and pestering behavior, whereas stakeholders from much larger organizations were more likely to classify the effect as low or moderate.



Looking again at the purchase/pester variable, this time in relation to a composite power score comprised of a number of different power variables, we can see that lower power organizations are more likely to assess the impact as high, and those from higher power organizations assess the impact of marketing on purchase/pester behavior as lower.

Stakeholders were then asked to assess the adequacy of current marketing regulations in their country, again on a scale of zero to 10, with 10 being too much, and zero being not enough. We can see the emergence of a similar pattern to the one I showed you before. Food producers and the advertising industry tend to be at the higher range of this scale, with opinions close to adequate. And child and family reps, public health officials, and consumer advocates feel that the current level of restrictions are really not adequate enough.



So in conclusion, these quantified estimates of impact show strong differences between organizations that are more market-oriented than those who are child or health-oriented. The organizations with higher power and influence may resist stronger controls, while organizations with lower levels of power are more likely to support stronger controls. And something that's really quite important to note is that, by definition, these less powerful organizations don't have the same resources to influence policy, and so as a result, there is a potential imbalance in the democratic process of which policy makers should be aware.

Following on the work of the PolMark project, IASO is currently undertaking a new project called "StanMark," to develop a set of international standards for marketing food and beverages to children. StanMark is supported by DG RELEX, and it consists of a series of 3 evidence and policy reviews taking place over the course of the next year, with a final wrap-up here in Brussels next May or June. If you are interested at all in further information on StanMark, please don't hesitate to contact me. Thank you very much for your attention.

QUESTIONS/ANSWERS

Chairman (J. Brug): *Thanks so much. Very relevant and interesting material. And there are probably questions or remarks, so please raise your hands.*

Public (From the Netherlands): *I have a question, in your research you have an assumption that advertising is always have a bad influence on children, because unhealthy foods are advertised. But it's also possible that the influence of advertising could be used to promote healthy foods. To what extent do you consider that type of influence in your research?*

A. Aikenhead: You're very right, and this was something, again, that really came out with the comments that were provided by stakeholders in these interviews. And a lot of them alluded to

the real power that advertising does have, and the opportunity that there is to use this power to market foods that are healthy. Unfortunately this kind of marketing does not tend to be the norm.

Public: *There was an activity at the WHO level, dealing with advertisement for sugary drinks for children. Are you aware of this, has your work coordinated, accorded with that?*

A. Aikenhead: Unfortunately that wasn't part of the scope for this project, and I haven't been directly involved in that.

Public (Tim Lang from London): *Just to answer the question about could more money be going to advertising of fruit and vegetables (F&V). The answer is yes, but show me the budgets. Who's got the money to do that? To answer my own question, in Britain we got on the back of the anti-obesity work, which someone earlier put up, I think Nicole Darmon put up the slide of the Chief Scientist's Foresight Report on Obesity. That generated a year later one third of a billion pounds, so that's a lot of money.*
And I sit on the expert advisory group of that, and we allocated 75 million pounds, 25 million pounds a year for 3 years, on a thing called "Change For Life," a very large social marketing excise. I have to say I was deeply, deeply opposed to this. I thought it was giving the advertising companies money to undo the problem that advertising companies caused. So I was opposed to it.
But the results from it are interesting. And I recommend you have a look at it, because within Change for Life, quite a large amount of advertising and marketing has gone on to F&V consumptions, to try and encourage it. And a very large amount of money is now experimenting and going into low income areas and providing incentives for grocers, retailers, much as, Nicole, you were talking about. Incentives to sell and market F&V. So I think it's an impossible task, but when you get big budgets available, there's some interesting natural experiments going on. This is being evaluated, in 3 year's time the results will be up.

Chairman (J. Brug): *A final question and then we move on to the last speaker.*

Public: *I will be very, very brief. Just read the Convention Right of the Child, what is written. "A civil state is obliged to endure the development of appropriate guidelines for the protection of a child from information and materials injurious to his wellbeing, including information that is harmful to their health and development." Okay? We are all agreed with that. Okay.*
"Marketing is an organizational faction, and a set of processes for creating, communicating, and delivering value to customers, and for managing customers' relationship in a way that benefits an organization in these stakeholders."
And this is not my definition, is the definition of the American Marketing Association. Do we have any doubt about the value of marketing to children? And as the President of the European Child Obesity Group, we already rolled the first draft of a statement, a very strong statement, against advertising to children. I'm sorry, but this is a topic that has to be addressed if we are civil human being!

Chairman (J. Brug): *Thank you for that.*

*****

Chairman: J. Brug
Thank you very much, we will move on to our final speaker today. Ritva Prättälä, I already stole from your data in my opening lecture, so please now tell us the real thing.

*****

R. Prättälä (FI)

Vegetable consumption: What makes the difference, education or geography?

Ladies and gentlemen, I must first thank the organizers for being invited here, it's been a great pleasure to listen all the expert lectures in this very well-organized multi-disciplinary Conference. So thank you very much.

My presentation here is dealing with the background and origins of socioeconomic differences in vegetable consumption. And I'm discussing this with the help of empirical data coming from a comparation between 9 European countries. The data was collected during the Eurothine project coordinated by Professor Johan Mackenbach from the Netherlands.

As you certainly already know, there are several studies which have shown that there are socioeconomic differences in the consumption of fruit and vegetables (F&V). Those in lower socioeconomic groups seem to use less F&V. Studies we don't have, are international comparisons studying whether the pattern and the magnitude of these differences is similar in each country, or do we have some exceptions on this general rule?

There have been a couple of systematic reviews based on existing published studies which have suggested that probably it might be that in the southern part of Europe, the educational differences are not as systematic as they are in the northern Europe.

Therefore, I'm asking the following 3 questions. First, is the pattern of socioeconomic variation in vegetable consumption similar in all the studied 9 countries? Does education have an independent effect on vegetable consumption when the other determinants of socioeconomic status, in this case, occupation and place of residence have been taken into account. And finally, do we have socio-economic variation within the countries which is related to the availability or affordability of vegetables in that specific country? With "availability" we mean supply of foods as measured by food balance sheets, the consumption statistics. And with "affordability" we mean the price of vegetables.

And here are the surveys from the 9 countries. The survey data are coming from health behavior or health monitoring surveys, and they are all nationally representative. The national survey data were collected to the coordination center in the Netherlands where the data was harmonized for comparative purposes. All the data have been gathered around the turn of the century.

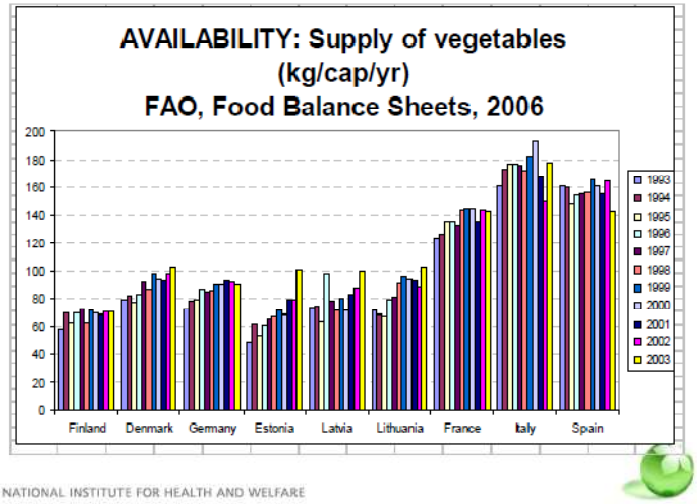
When we looked at the variables what existed in the data, we choose the following ones which could be compared between the countries with reasonable reliability. We concentrated on adults from 16-46 years. In the preliminary stage we did the analyses separately for men and women, but when we saw that the basic results were almost similar when it comes to

socioeconomic differences, we concluded that we can combine, in this case, men and women, in order to increase the statistical power of our analysis.

By "place of residence" we mean a very simple variable, which refers to rural or urban place of residence. Education refers to an international educational classification consisting of 5 educational levels. But as you know, educational distribution in the European countries is very different, and therefore, it is always risky to compare the absolute educational differences in the countries. Therefore, we created an index called, "Relative Inequality Index," which can be interpreted as the distance from the lowest and highest extremes of the educational hierarchy. This is a way to overcome problems of comparability.

When it comes to occupation, once again, we had problems with classification. Here we just could compare the non-manual versus the manual workers. The other occupational classes were so different in the surveys that we didn't have courage to say anything about them.

Finally we had a measure of vegetable consumption. It was a very simple food frequency question, and we only could make a classification of the respondents: we classified them into those who consumed vegetables daily, and those who did not consume vegetables daily. This classification was the only comparable one, Of course, these surveys were not planned for this specific analysis; they have been collected earlier for different, broader purposes dealing with health and health behaviors.



And here is a figure which probably is familiar to you if you followed the excellent presentation of Hans Brug during the first day. This is a description of availability in those countries which were included in our comparison. You can see that the countries can be divided roughly into 2 types. We have the Nordic countries and Germany. Then we have the Baltic countries, Estonia, Latvia, and Lithuania. In these countries, food supply in kilograms per capita per year is much lower than in the Mediterranean or southern European countries, France, Italy, and Spain. However, in the countries with low availability, an increase in vegetable consumption has taken place, especially in the Baltic countries. Whereas, here in Italy or in Spain, we don't see any increase. Maybe this has something to do with the previous discussion on the future of the Mediterranean diet.

Here is a table of affordability. It presents the relative price of vegetables in 2001. The price level index was taken from EU statistics, and divided by gross domestic product, also taken by the EU statistics. The price is related to the general level and standard of living in each country. You will observe that the relative price of vegetables is especially high in the Baltic

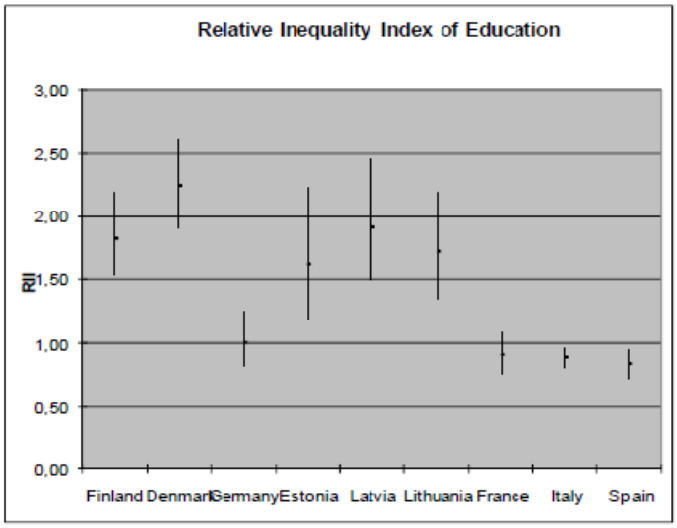
Affordability: Relative price of vegetables 2001

Northern or Central Europe	PLI/GDP *	Baltic Countries	PLI/GDP *	Southern Europe	PLI/GDP *
Finland	1.02	Estonia	1.64	France	0.97
Denmark	1.12	Latvia	1.62	Italy	0.85
Germany	0.86	Lithuania	1.54	Spain	0.82

* PLI/GDP – Price level Index/Gross Domestic Product

countries. Whereas, in France, Italy, Spain, and Germany, the relative price is lower. In Finland and Demark, it is not as high as it is in Estonia, Latvia, and Lithuania, but anyway higher than in the other countries.

On the basis of affordability and availability; we could classify the 9 countries into 3 groups. First, we have Finland, Denmark, Estonia, Latvia, and Lithuania, the northern countries. They have low availability, but high price of vegetables. Then Germany, which has low availability according to food balance sheets, but also low price. And then finally the southern European countries with high availability and low price of vegetables.



In this overhead you will see the relative difference between educational groups in the studied countries. This is the relative index of inequality in the use of vegetables. If the index is 1, there are no educational differences in vegetable consumption in that country. If the index is above 1, that means that there are significant differences in vegetable consumption according to educational level, so that the higher educational groups use, more often, vegetables. If the index is below 1, then the lower educational groups eat, more often, vegetables. These indices describe the educational differences when the place of residence and the occupational status have been taken into account. Thus, the table shows the independent effect of education on the use of vegetables.

As could be expected on the basis of availability and affordability, the educational differences are much smaller in the southern European countries and even the pattern is the opposite compared to the Nordic and Baltic countries.

To summarize the results: We were able to show that socioeconomic differences do not follow a similar pattern in every country. In the Nordic and Baltic countries the differences were much more systematic and their direction was the expected one. In Germany where the prices were low, we didn't see any differences. In France, Italy, and Spain, we found the opposite differences, if we found any.

Answers to the question presented in the title of my presentation. What makes the difference? Firstly, we could show that countries are not similar, this means that geography has significance.. And secondly, we are able to show that we have educational differences if the availability is low and the price is high. So education matters, in certain conditions, as well.

And finally, what should we do to diminish these socioeconomic differences? In order to diminish the socioeconomic differences, vegetables have to be available and affordable. But I agree with the presented intervention studies that we can't rely only on the structural matters. We should find out measures which combine the environmental structural methods with education, health promotion, and other efforts which try to change knowledge schemes and attitudes.

If you wish to read more about the details of this presentation, you can probably consult the paper which has been published recently in Public Health Nutrition *[Prättälä R et al. Association between educational level and vegetable use in nine European countries. PHN 2009, 12(11) 2174-2182]*. Thank you very much.

QUESTIONS/ANSWERS

Chairman (J. Brug): *Excuse me, but I am little surprised with your results as you can expect because we found very big differences between the socioeconomic backgrounds and the F&V consumption. So I would like to know, I suppose that your data were adjusted for age?*

R. Prättälä: Yeah.

Chairman (J. Brug): *Yeah, because, so it's not an explanation. And do you have the same information for fruit consumption? Is it a difference between F&V consumption, for instance?*

R. Prättälä: Our measure on food consumption was very simple, it was just daily users versus the others. And unfortunately, we observed that the daily use of vegetable was not in line with food consumption statistics. But we didn't have enough dietary surveys to be able to compare the quantities. But if I could do this once again, I would try to search more detailed dietary information, because I know that now it exists in, for example, EPIC surveys. It might be that part of the difference which we found, or part of the non-significant differences can be caused by our method. In some countries we identified also when we more detailed dietary surveys. For example, in Finland I have compared these simple questions with the results from more detailed dietary surveys, and usually they are in line. Also, the gender differences were in line with the more detailed dietary surveys. The socioeconomic differences were similar among men and among women.

Chairman (J. Brug): *Thank you. David?*

Public (D. Crawford): *Thank you for that. I wondered, I assume you didn't look at income because you didn't have data on income across all 9 countries. I wondered if you have income for some of those countries, and whether you looked at that?*

R. Prättälä: Well, in this data we didn't have income, but we have once done a survey in Finland where we could have income., It looks like that in regard to vegetables, income really matters - if it's household income divided by the number of persons living in the household.

Public: *Maybe one final thing before we break for lunch. You showed very nice associations between high availability and high affordability, and higher consumption. But in those same southern European countries where we're provided with evidence today that, for example, in Italy and in Spain, consumption among children is exceptionally low. So despite the high affordability and high availability, consumption among children not seems to be in the same pattern as you show for adults. Can you maybe give a few comments on that?*
R. Prättälä: Well, I don't know what is the reason. It might be that in the Southern European culture, children's food habits are different to those of adults. That is a place of a new study.

Chairman (J. Brug): *A final comment by Professor Crawford.*

Public (D. Crawford): *And this may by a very naive question in demonstrating my lack of*

knowledge of food balance sheets, but how within Europe do you account for the huge movement of people between countries, and I'm thinking of tourists, that being a tourist who has been eating huge amounts. How is that accounted for in food balance sheets, and given that you're looking at differences between countries, where I imagine tourism is much greater in some regions than in others, is it possible to account for that? And is it likely to be important?

Chairman (J. Brug): *Well, I'm already 2 minutes late, but if anybody has another minute, please go ahead.*

Public*: It is here the question of vegetables consumption in the south, as compared with the north, but I am asking whether you have discriminated between cooked vegetables and fresh vegetables, because in some low income households, they prepare their foods also based on vegetables, soups, and in other forms. But the consumption of fresh F&V is lower.*

R. Prättälä: Well, we did it first; we tried to measure fresh vegetables versus the others. We have a Spanish colleague among co-authors. He said that he doesn't understand the definition of "fresh" versus "non fresh" vegetables, because all vegetables what they eat, they are fresh, but some are boiled, but the others are not. We tried to compare fresh and non fresh, but this classification did not work in the Mediterranean countries. Therefore, we had to combine them. In France we didn't even have a separate measure for raw and fresh - they were just 'vegetables. This might be typical for southern Europe. The southerners have got used to use vegetables in very many diverse ways. Whereas, in Finland, we do eat a lot of vegetables, but it's mostly salad.

Chairman (J. Brug): *Thank you very much, let's give all presenters one last hand, and then let's eat some vegetables.*

SESSION 7: Round Table: Addressing inequalities in diet in Europe

Friday, May 7, 2010

Session 7	Participants	PAGE
Chairman	T. LANG	
	L HOELGAARD	167
	H. VERHAGEN	172
	A. TURNBULL D.CRAWFORD D. GREENAWAY I. ELMADFA J. BRUG J. DA SILVA BREDA M. CAROLI P. TESTORI P. BRUNI	176
Conclusion and final remarks		197

L. Hoelgaard

I can take the floor for about something like a quarter of an hour because that's the time that we are ahead of schedule. The reason for that is that my colleague, Mrs. Paula Testori who has just recently been nominated as Director General for DG SANCO, is going to participate in the round table discussion, and the schedule was actually to be at 2:30, so for the first time during the Conference, I understand really, we're ahead of schedule. So under those circumstances, we'll be a bit unfriendly or impolite if we were to start this final session, this final round of discussion, which is a bit of a summing of the debate of which we've had over the last couple of days.

So I would suggest that I tell a couple of jokes. The problem is, I don't know any, so how do I get to that point? Anyhow, instead of wasting our time, maybe I could put the question to the audience, which is the following. How many Member States have something similar going on which we've heard is in place in the United States, financed by the USDA budget. What I'm talking about is the Program, the WIC Program, which was presented to us. A very interesting program, a program which, as I understand it, is trying to concentrate on low socioeconomic groups to provide such pregnant mothers with a good nutrition during pregnancy and subsequently after with breastfeeding, or if they're not able to breastfeed, whatever.

How many Member States have a similar program of that kind in the Member States? Now, if the answer is zilch, zero, of course, that's also quite astonishing. And the 2nd question I'd like to ask in that connection, we've talked about this over lunch, is to what extent do Member States have at national level, something similar to the Food Stamp Program? Which is pretty expensive, or at least it has a big budget, in the U.S. probably reflecting, to a certain degree, the number of people who are below the defined poverty line, or whatever we give as a criteria.

So how many Member States have such programs in place that is a nutrition policy specifically, not only on F&V, but I assume with F&V as a key element, in terms of pregnant women? And how many have a kind of a general socioeconomic element in their food policy? And if you have such programs, what's the budget, what's the importance of such a budget that you have? So who volunteer, or do we have anybody who is in the audience who would be able to respond on behalf of the country where you come from? I see no hands, I see no energetic waving. Yes, there's one here, okay, thank you.

Public (from Wageningen University): *As far as I know in the Netherlands there is not a program, especially related to pregnant women. We have food banks which deliver food for free for poor people, but that's it. As far as I know, unless somebody knows something different from those.*

L. Hoelgaard:

We do have, in the EU, as you might be aware of, a program for the so-called Most Deprived Persons. This is a program which has a budget, now--it's been increased--it has a budget of $500 million. And the idea is to provide, at least at the origin of the Program when it was set up some more than 20 years ago, to sort of achieve a double objective. It was at a time when we had, because of the follies of CAP of the time, we had quite considerable intervention stocks available to us. And it was President Delors of the Commission at the time who said,

well, we have here a situation of a very harsh winter--I think it was ’86 or something like that--we have a very harsh winter, we have a lot of people suffering who have no means, or no sufficient means, to feed themselves. So we, from the side of the community, should be showing our solidarity and contributing to alleviate their hardship.

And so this Program was set up by which the different organizations at the level of the Member States who were taking care of charitable kitchens, or whatever programs which were running to take care of the poor people, they could have access to these intervention stocks. Now, they couldn’t use these intervention stocks directly because we were talking about cereals, and we were talking about butter and skim milk powder, or beef, and things like that. But if they couldn’t use them directly--some of them could use them directly, but others couldn’t, like cereal, you can’t use cereals directly, even though there is a good thing, a good Austrian dish because I know that from my wife, of making a soup on the basis of barley, it’s absolutely excellent, it’s very good, I can recommend you. But when I say that to my people, they look at me in amazement and say, are you crazy? Soup on the basis of barley. But that is exactly something where you can use the cereal directly.

But otherwise, the idea would be for these organizations to sell the product that they obtained from the community, the intervention product, to sell it on the market, and for the returns, they would then go out and buy whatever they were interested in, in terms of the distribution for these kitchens, and the distribution centers where the poor people could come and be supplied.

Now, in the meantime, the Program has run up to $500 million per year, and there is a bit of a debate about the Program, because some Member States, a minority, in fact, contest the existence of an EU Program as such, they argue this is not something for the EU to do. This is a national responsibility; we had that argument from my compatriots, from Sweden, from the United Kingdom, from Germany. Germany is, in fact, launching a legal case against the whole program. But the big majority of the Member States are using it. And in particular, it’s extremely effective and powerful and useful in big Member States like Poland, like Italy, like Spain, like France.

Of course, we’re not the only source of financing. They also get, of course, their contribution, whether it’s from, I don’t know, communal or state budget, or simply from private contributions. But this means that we have here an instrument available to us under the Common Agriculture Policy, which is important. But there is an element of discussion about whether its relevance, in terms of under the common policies, in this context, the Common Agriculture Policy.

So if you do have programs of this kind in the Netherlands, and I think the Netherlands does participate in the Most Deprived Persons, as far as I recall it, then there is this element of EU support. But otherwise it’s, of course, very much national programs, and it’s very much on the basis of voluntary initiatives by these organizations.

So Tim was wanting to get in, as well, on this discussion.

Public:

You’ve taken it into a much bigger, and I think rightly, philosophical issue. All I was going to say was that in the U.K., we’ve moved away from direct intervention and contribution of direct food stuffs targeted to people on low incomes, particularly. That was partly because they were almost all created in and after WW II. So they came with, what to us now, is an out-of-date

public health nutrition analysis. It was about calorie-building agricultural produce. The same nutritional thinking went into the founding of the financial instruments of the CAP in ’56 and ’57 onwards.

Now, what we’re trying to do is roll back those direct supports like milk, and beginning to create new instruments. And the 2, you heard one yesterday called Healthy Start. And there is another, which is actually a service, not direct food, but food is beginning to enter in to it, called Sure Start Centers. And big money has gone into those under the Blair and Brown government, which just ended last night in Britain.

So I think we, in Britain, are poised at a moment of going away from direct commodity support. But I think the question you’re asking is a very, very interesting one. That the European traditions are very different in Member States, but we’re poised at an interesting time, politically, I think, not just in Britain, but everywhere.

L. Hoelgaard:

So any volunteers on pregnant women? And vouchers? I see nobody, that seems to be--is that an oddity is that sort of extraneous matter to European thinking or democracies? Is the socialist U.S. Program so revolutionary and radical that we’re not contemplating such ideas or--?

Public:

The answer is yes.

L. Hoelgaard:

Now, of course, this all remains within this room, we would never suggest that the U.S. is socialist, especially not under a Obama administration, but it just struck me, nonetheless, the thought, that there was an element here that goes way further than the welfare state ideas that we’re so proud of in Europe, versus the free marketer laissez-faire, let-people-die-in-the-street attitude in the U.S. Again, a little bit provocative, of course, but that’s why I’m up here.

So I conclude, but I suppose it’s just a taking the temperature of the room here, which is pretty good, that there seems to be no programs. But okay, further study and maybe verification would be necessary, but there seems to be no programs in place in Europe, in terms of pregnant women vouchers.

Public:

Potential.

L. Hoelgaard:

But a potential element incorporated into the new thinking that you’ve been developing in the United Kingdom. But where the focus of the WIC Program, as I understand it, also is F&V, not exclusively and solely, but it is an important, very important element. And in the context of this Conference which is basically, to cut it short is, how can we stuff more F&V in people’s mouths? Do it either one way or the other, the objective remains the same. So normally you wouldn’t want to accept that kind of statement, but the objective justifies the means. And the

whole idea behind this Conference is very much what kind of means, what kind of instruments, what kind of incentives, or what kind of legislation should be there to get towards this goal, and in that process, do good for agriculture, do good for health, do good for nutrition, do good for our citizens? And as Lorelei was saying at the lunch, she was up on 4 wins, so in that sense it's a very positive message.

Somebody who wanted to take the floor?

Public:

If I may speak about pregnant women, I don't think that we have the same situation in Europe or in different European countries than in U.S.A. Because I was just thinking, if we failed something in Slovenia, how we'd take care of pregnant women and their nutrition, and the development of the child. Because every pregnant woman has 6 free checks with gynecologists and his team during the pregnancy, and then the child is invited for the systematic checks and the first 3rd, 6th, 9th, and 12th month. It means the medical staff sees the children, sees the mothers, and they have the ability to connect the mother or the case [...] [...] with the social care center in the local community.

That means there are different mechanisms, which are not vouchers, but I think that the social welfare states have different mechanisms. For instance, mothers have one year of fully paid, that means 100%, maternity leave in Slovenia. And after one year, quite a number, approximately three quarters of children join the kindergartens. And if they are from the low socioeconomic groups, they get nutrition for free, for no charge. And that goes up to the 18 years of age of the child, and the nutritionist provide it in accordance with nutrition guidelines adopted by the Ministry of Health.

So it means it's not a voucher, maybe we are not responding to the real needs of the real marginalized groups or so, but in general, something is existing. But I do agree that we are in the position when we have to rethink whether this is okay or not, whether we can find better mechanisms or so.

But for instance, we were invited as the National Ministry of Public Health, together with the National Economic Institute, to calculate the minimum food cost of the food baskets which would still provide nutrition and needs to people with the--okay, low cost foods, but anyway that the nutritional needs would be covered. And that was in the last year, and the government now is changing the minimum income of working populations in Slovenia so they would be able to buy those minimum of food. Okay, it's again, not necessarily the best solution if they use the money for different purposes, but somehow different mechanisms are in place.

We have to be aware that we are culturally different, we have different history, and we have different systems which are responding to the needs of people. But I do agree, it's necessary to rethink the situation. Thank you.

L. Hoelgaard:

That small is beautiful. That goes also for my own country, because if you have a small country with a small population and it's pretty homogeneous, things are obviously so much easier, compared to a more chaotic situation with a big country with a lot of different groups, socioeconomic, maybe ethnic, etc., which makes it much more messy, much more complicated, and therefore the challenge is quite big.

And I would, therefore, imagine that you would have in a number of our Member States, the bigger Member States, say U.K, or say France, or say Italy, say Spain, an enormous disparity between the rich and the poor, and the different means that are available to people, including therefore, the more vulnerable ones like the case of maybe a pregnant woman which may or may not have somebody to support her.

So here we have Paula who is entering the room right now. We have been behaving well, Paula, and waiting for you. And now I would like those who are going to participate in the round table also to come up here to join Tim. And Tim will be taking over.

Introductory presentation

H. Verhagen (NL)

Quantifying health effects of not consuming F&V

Thank you, Tim. 10 minutes it will be. I was invited to talk about quantifying health effects of not consuming Fruits and Vegetables (F&V), which I will do.

Four parts. First a rapid introduction, on what is F&V versus health. I've seen in the Program that you have already had the big excerpt from that, so I can do that very fast. I'll talk about evidence-based nutrition, joint programming, and I'll end with a conclusion, all within 10 minutes.

First, the introduction about F&V and health. This is a picture from the WHO in 2003, and it indicates where people in the world die from. About two thirds of the people die from the now so-called "non-communicable diseases," which is cancer, cardiovascular disease, diabetes, etc. Also in the future this will be the same. The next slide is on projected deaths by cause for high-, low-, and middle-income countries. Also in future the majority of the people will die from the non-communicable diseases of which in 2030 is predicted 12 million from cancer, 23 million from cardiovascular disease, etc. So this is what people are dying from now, and will die from in the future.

When you look at non-communicable diseases, you can ask, what actually are the causes of non-communicable diseases? Not the consequences, but the causes. These are several-fold. First, there are the issues of eating wrong; we eat the wrong types of foods. We eat too little of F&V, particularly of interest to this audience. We have too high salt intake, we have too high an intake of saturated and trans fatty acids. We are eating the wrong types of foods. We are also eating too much, too many calories, which will lead to overweight and obesity. I would like to stress that these are separate entities: do not only focus on overweight and obesity, as it's only half of the health picture. Eating the wrong types of foods is the other half. Other issues are associated with high blood pressure, high cholesterol, and physical inactivity.

But for this audience, I would like particularly to focus on F&V and health. Because they are linked with chronic diseases, the more, the lesser diseases. Cardiovascular disease, cancer, obesity, you heard it all. Some excerpts: F&V intake, the higher the intake, the lesser coronary heart disease as displayed this picture. It's related with cancer incidence. Higher intakes are probably associated with lesser incidence of e.g. mouth, pharynx, gastrointestinal cancers for fruits as well as the vegetables. As concerns obesity, also higher quartiles of intakes are associated with the lesser risk of obesity.

So far, so good. Many countries, at least 60 countries have specific recommendations, how much F&V we should actually eat. And these can identify certain portions in grams, typically published by the local Ministries of Health, and advocated to the general public. Eat 5 servings, eat 200 grams, etc., etc. Also the World Health Organization recommendations are completely in line with this, as they say eat a minimum of 400 grams of F&V a day.

But do we do so? The answer is clearly 'no'. The dotted line indicates the recommendation; you can see that nearly every country in the world, or nearly every country in this particular scheme, does not meet the recommendations for F&V intake. Does this do bad? Probably. That's all I'll explain under the chapter of evidence-based nutrition.

I would like to take you back to a report published from my own institute in 2004 and in 2006 in English: Our Food, our Health. It's a big report and I only bring you the bottom-line messages. It indicates what you can achieve for public health when your diet is appropriate. When eating the correct types of food, you can extend your life. It will lead to fewer deaths per year, and we, at least, believe, to a considerable savings in euro per year.

Equally well healthy weight, not over-eating. It will save your life, it will save deaths, it will save euro. These are data for the Netherlands only, and they're, more or less, in the same range as not smoking or doing sufficient exercise.

In the same report, we calculated what the public health consequences of focusing on food safety are. Only look at the DALY approach in this respect. DALYs are Disability Adjusted Life Years, which is a parameter which comprises death, as well as disease, into one figure.

In the Netherlands, the annual public health burden due to food safety issues is estimated about 2,500 to 6,000 DALYs. If you compare this with the public health burden in DALYs of healthy diet, eating the correct types of food and not overeating, that's 350,000 DALYs, which is 2 orders of magnitude higher. So as shown in this next clear picture, the public health burden of healthy diet by far outweighs the public health burden of food safety, maybe by about a factor of 100, or at least 2 orders of magnitude. This is an inverse of policy attention, though, as this is not the way their money goes. Also in my country, like in many countries in Europe, and in the world, a lot of policy attention is geared towards food safety issues, which I think is a good earning from the past, but let's say we could spend a little bit more on healthy diet issues.

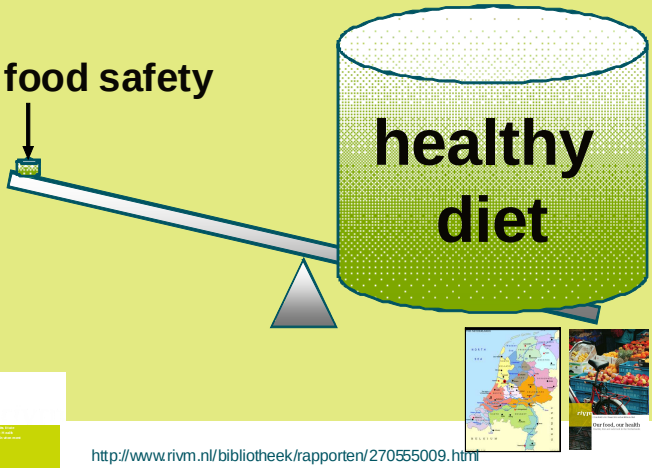
Health gain for healthy diet versus other life style factors

Factor	DALY's/ year	deaths/ year	Life expectancy total
Healthy diet	- 245.000	- 13.000	+ 1.2
Healthy weight	- 215.000	- 7.000	+ 0.8
Not smoking	- 350.000	- 16.000	+ 1.2
exercise	- 150.000	- 7.000	+ 0.7

Comparing health loss and potential health gain by healthy diet and unsafe food in the Netherlands

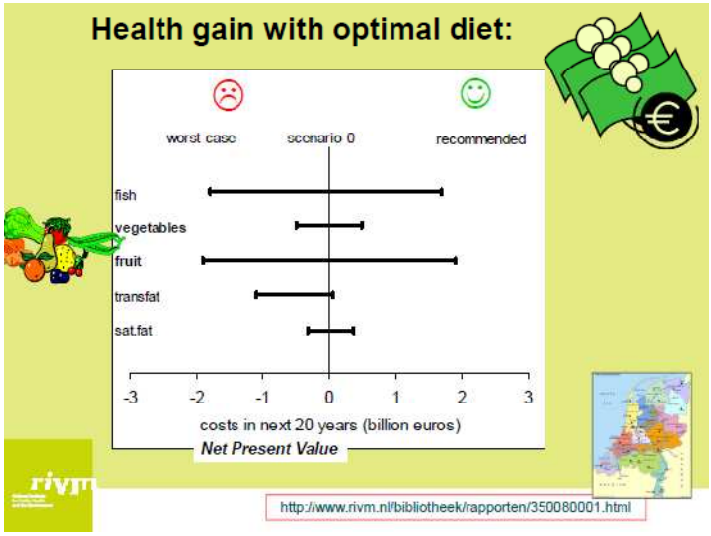
Factor	DALY's / year	Deaths / year	Cases / year
Diet composition #	245,000	13,000	ca. 40,000
Bodyweight	215,000	7,000	ca. 40,000
Healthy diet	> 350,000		
Micro-organisms	1,000-4,000	20-200	300-750 x10^3
Allergens	ca. 1,000	< 1	ca. 32,000
Chemicals	500-1,000	100-200	200-300
Food safety	2,500-6,000		

dietary composition (5 factors)



http://www.rivm.nl/bibliotheek/rapporten/270555009.html

We also calculated in my group what would be the public health gain if we would eat better.



Let's say, eating the correct types of foods, and in particular, F&V. If you look at the zero scenario, which is the current consumption now in the Netherlands. What would we win if we would eat according to recommendations? And particularly focus on the F&V in this respect. The next slide covers the number of deaths that could be saved over the next 20 years attributable to consumption of F&V, i.e. a few 10,000 deaths saved for fruits, as well as for vegetables.

You can also calculate in the number of life years gained if you eat according to the recommendations: you will win life years by a couple of months. Inversely, if you would stop eating the correct foods, you would lose life years for obvious reasons.

And the final slide in this area is, I think, the most relevant one. If you would eat according to the recommendations, you will save money, not on the personal basis, but on a public health basis. And this is a lot of money. For instance, if you look at the fruit area, it's 1.9 billion Euros, Net Present Value over the coming 20 years. It's about half a billion Euros over the coming 20 years for good vegetable consumption. I think these are very extensive figures, and they relate only to the Netherlands. Because the Netherlands is only a small country, you can imagine if you would make similar calculations over Europe, it will turn out into many billions of Euros, which you can save if you would, one way or another, convince people, or have measures that people would eat better. That's my bottom-line message. I can assure you that the cost of the study of producing these figures was not a billion Euros, it was much less.

This brings me from evidence-based nutrition to what I call evidence-based policy decisions. Once you know that you can save money for public health, why don't we do so? If it is cost-effective, please do so. Because there is also the other side of the coin, if you don't do so, you also make a choice. And that's what I choose. Any choice you make, doing nothing, close your eyes, stop doing things, is equally well a choice, as doing something. That's the two sides of the coin, there is always the one or the other alternative.

Finally, I shall talk shortly on joint programming. I'm very happy in the European Union that there is an initiative now to doing things in concert. Not every country on its own, but combining the strength of the one country and one expertise of one country with the other. Not reduplicating efforts, but doing efforts in collaboration. We also have such thing in my own country in the Netherlands where I call this "umbrella" projects. The Ministry of Health, the Ministry of Agriculture, and the National Food Safety Authority in the Netherlands have combined efforts. They have a common agenda, and this is translated now into their respective research institutes. I'm working at the RIVM, which is the Research Institute for the Ministry of Health. And there is Wageningen University, which is the research Institute for the Ministry of Agriculture. And there is also TNO in-between. It's too complicated for this lecture, but we have joined forces now to make a common program to combine our specific strengths, one

with another. And I can even further extend this because my own group at RIVM is also a WHO Collaborative Center on Nutrition. We will be very happy to extend this thinking and this work, also into a wider audience, beyond my own country.

This brings me to my conclusions. F&V are good for health. I would say, do no longer doubt this. Don't take it for the exact figures, you can always ask are they 100% good, are they 90% good? That's, I think, irrelevant. They're good. Then we should work from evidenced-based nutrition into evidenced-based policy. Also the inverse is true. Once you know the data, you have to address the consequences. It's the responsibility of the policy maker to make decisions on the basis of informed evidence. And it's the responsibility of the scientist to prepare for the options to choose from.. And finally. I would make a strong advocacy for joint programming within your country, as well within Europe, or maybe even beyond. I hope that was 10 minutes, thank you.

T. Lang: You left your watch behind in your excitement. Very, very good, very impressive. I thought that was good. Well, what evidence does it take to change policy? Is the question my group works on. In Europe it took 10 deaths. 10 deaths from mad cow disease. BSE, changed European agriculture, veterinary science. 10 deaths. The problem is we have routine mass deaths associated with under-consumption of F&V, that's what I hear; message one I hear from Hans.

The connections are clear, he was saying. We're not eating enough F&V in all countries. Some worse than others. But Hans was saying nothing but good news here. There are no downsides to eating more F&V. That's the good news. The bad news is the health trends are terrible. And the health data is terrible. Some countries worse, but no one good.

So the challenge to the policymakers is: have they got the right messages? Is it that we're not shouting enough? You know, some people think you just shout louder and then policymakers listen. It doesn't happen like that. Is the behavior wrong? Is the difficulty that actually this is a real crisis for European politics? We've got to now start criticizing consumers, whereas, for 40 years we've said consumers are right? Actually, consumers are wrong, is what the data, Hans says, gives us. It sounds very odd, do you want me to repeat it? The consumers are wrong.

So, that's very tricky, politically. Which politician is going to say, we have to do dramatically different things because you're doing the wrong thing, and get voted in? This is difficult, so much more subtle messages have to be given. Or is it something that Hans didn't say, but I think was implicit in what you said. I'm looking, see if I got you right. Where is the leadership? Where is the direction? You noted his tone of frustration. Yeah? Did I get it right?

H. Verhagen: I'm only the scientist, so I do risk assessment; the risk management, needs to be separate, but both need to talk to one another.

T. Lang: But there is also risk communication, and your body language communicated frustration. Okay.

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Round table: Addressing inequalities in diet in Europe

T. Lang

I have given time to the excellent Panel. I am not going to give long introductions for them. We have Joao Da Silva Breda from the World Health Organization, Archie Turnbull from EPHA, Paolo Bruni from COGECA, Paola Testori Coggi from DG SANCO, Lars Hoelgaard we've heard, DG AGRI, and also the Chairs of the previous sessions, Ibrahim Elmadfa and Hans Brug.

Okay, how do we want to do it? Lars, are you prepared to go? Can we literally go? I have asked them to do 5-minute presentations in 1 minute. So possibly 2 if I'm very charitable. Because you are going to be doing some questions. You are going to give your answers. Are you prepared to go, Lars?

L. Hoelgaard

Sure. What is the CAP? The CAP is about supplying food, in abundance, at a price which is reasonable to consumers, assuring that the quality is there together with our colleagues from DG SANCO. The health is assured, animal welfare conditions are respected. That imports coming in from third countries respect our conditions and norms. And the reality is that the consumer is paying less for his food than ever.

If you go back something like 30-40 years ago, maybe a household was spending 30-40% of their income. Today, on the average, something like 12%. So the CAP does supply, does provide, does give the choice. And of course, is it an informed choice? That's the question of which is being debated right now also in the European Parliament. Is the consumer being given enough transparency, in terms of the selection of foods, in terms of informing of the content, and all the rest?

That is something where the use differs. There is a normative approach and there is the choice and the responsibility of the consumer whether to select the goods on the shelf. Now, the question here is going a bit in the normative direction. Do we want it to be left to people, are they responsible? Or do they have to be either coerced, or told, or forced, or by economic means some way or other to provide instruments, to provide incentives? That's really the question and it's a very philosophical question, I know. It's about what kind of society would we like, and here we have divisions at the political level, on the political lines.

The question really which I was raising before was, in the context of a future CAP, where does health fit in, in relation to CAP and in relation to the legislation from our colleagues and DG SANCO?

T. Lang

Very good, excellent questions. We move straight on, should we just go in order, is the Panel happy just to cascade?

J. Breda (WHO)

Thanks a lot, as WHO, I would like just to concentrate a little bit more on inequalities in fact. We saw that 19 out of 50 free Member States we could say that the WHO Europe goes from the Azores to central Asia far away. So it is a huge, big—[…]--and in fact, burden of disease related with low F&V intake is clear and the evidence is there, and is here. So we've identified, all together, the main barriers for F&V intake for the low socio economical groups. We could say that there is cost of food, availability, accessibility, attractiveness, practicability, and appropriateness. Also information of the consumers. These are the main barriers identified in terms of health, helping some of the layers of the society to increase their level of F&V consumption, and at the same time, to reduce burden of disease in these groups.

What do we recommend? What do we think is interesting and acceptable, and something that we could, in fact, support for the whole region? We could use taxes. But also we could use develop, for instance, schemes for the Most Deprived, like the voucher schemes for F&V for the most socially economically deprived portion of the population. School Fruit Programs, they are the best example, I think, we had in the last couple of years, in terms of the multi-sectoral action and interaction between different sectors at governmental level. We have never seen that in last years, so it's very good example. Improve access to, at the local level, to F&V. So these are some of the recommendations that, in terms of the reduction of burden of disease, we can, in fact deliver.

And finally, but not the least, [...] concerns, in terms of the new CAP for us are really important, and we are willing, in fact, to give our contribution. Thanks.

T. Lang

Thank you, again, elegant and short. The problem the WHO has is it's an advice body, not a delivery body. I should say that always it's the difficulty WHO has.

Archie?

A. Turnbull

Thank you. We have the evidence, we need to do more. I think that people know what the facts are but, as Hans V. said, doing nothing is also a choice and change doesn't happen on its own; we have to help it to happen. That's one of the things that we have to take from this meeting.

I think the EU can play a role in improving diet, not only through the Public Health Program, but also through agriculture, trade, education, and competition policy. Tackling chronic disease and health inequalities requires a joined-up policy: A common, sustainable food and agricultural policy.

The solutions to chronic disease, and climate change, and global food security are all linked, they all point in the same direction. We must look at the policy that addresses environmental change, moves consumption towards more plant-based diets, and increases in consumption of

F&V, as a consequence of this.

We have to continue to work on the programs that we've got. Many of these programs have been addressed already, the School Program, the Most Deprived Persons Scheme, they exist. But we have to identify new and innovative ways in which other programs can be brought in, and the policies that we've been discussing can be brought in, and instruments created, that promote healthier diets, and provide multiple benefits for society. Thank you.

T. Lang

Okay, you're asking us to think about programs, you said existing programs and possible new programs. I'd like to flag the possibility, which politicians like, which is can you package small programs and make them look bigger?

Ibrahim, it's you.

I. Elmadfa

Good afternoon. So as an academic, I am concerned in identifying problem and analyzing the situation. And so we put that in different efforts of our group showing that the burden of non communicable diseases is increasing, especially in countries in transition, regions in transition, with according consequences we are all aware about.

And we also must recognize, also from the presentations of this Congress, that the socioeconomic status is a major impact factor on the eating behavior, on the consumption of F&V. It is not only the income, but also the educational level.

And we must also emphasize that there is great need to do more to promote the consumption of balanced diet with more plant foods, and within these food groups more fruits and vegetables. Thank you.

T. Lang

Again, thank you.

J. Breda

Thank you very much. Being the coordinator of a programme in the field of nutrition for public health we are aware of the importance that the policymakers have, and how they could make the difference. Scaling up nutrition at the national and regional level is therefore crucial to move forward. For WHO European Office for Europe in general and for nutrition in particular our entitlement is mostly to promote policy action and implementation and we have an important role of coordination when we are requested to do so by Member-states and also to promote and disseminate best practice.

Today in Europe, we spend in average, 8% of the gross national product in healthcare. And of this 8%, only 3% is spent in prevention. What does it mean to work in prevention? Prevention means to help people make the healthier choice, that through their lifestyles; they can influence their capacity of living better, living longer, and living without the disease. Through physical, through lifestyle, one can diminish of 80% the risk of CVD, and one third the risk of having cancer.

Because it is really astonishing to say I can reduce my risk of an heart attack of 80% through lifestyles, but then there is always the idea that this is not a fact which is demonstrated, which is true, which is real.

T. Lang

He's writing very big notes.

J. Breda

We can stop to smoke, but the factor where we can more easily intervene is the diet. And here is a question of, a mix up of regulatory and voluntary actions, so the best [...] is there are some things which you can do through regulatory, and this is marketing control, information to consumer and food composition, but then there is education because diet is also behavioral like physical activity.

So to conclude, we need evidence-based data, we need to provide policymakers with the information and the clear evidence that health promotion is worthwhile and country of.

T. Lang

Very good, thank you very much. And I ought to have said, welcome to the hot seat of health in the European Union after Robert Madelin, a very nice person to follow.

And the next?

P. Bruni

DG SANCO's always out to help us. And they were on this occasion, too. Let me firstly provide you with some figure concerning COGECA, the General Confederation of Agricultural Cooperatives in the EU, which represents roughly 40,000 cooperatives, with a total turnover of 360 billion euros.

Now, I'll just be very brief as Mr. Lang asked us to be. Now we know and we've heard that in Europe there is a major problem with obesity. We know that there are 22 million overweight children. So there is a real need to ensure a balanced diet. We know that F&V are good for people's health, and that they are good for the [...] economy, because of course, there is also the issue of financial aspects when we speak about people's diets.

I think we've seen that in Europe only 8 countries achieve 400 grams of Fruit & Vegetables (F&V) per person per day, only 8 countries on average. So there are 19 EU Member States, therefore, where the average daily consumption of F&V is not sufficiently high. So we, the producer organizations from the whole of the European Union think that, along with the European Commission, along with DG AGRI, along with DG SANCO, we think that we need to draw up projects in order to increase F&V consumption.

Now that seems to be fairly straightforward, but we need to do it together. And I think the synergy between the public and private sectors is fundamental in order to enable us to increase F&V consumption. Now in Italy, we had the F&V service centers call the CSAOs, I'm a president to them, as well. We had a European Commission project called Mr. Fruitness, and

the aim of that was to increase F&V consumption in 5 countries in northern Europe, that was the overall aim. Now you can see here on the front of the brochure this hero dressed in green, and basically in the book which we have, tell children to eat F&V to make themselves stronger.

Now I think, and we think, that a project like this one, another similar project, that is to say, will be the best way and the easiest way in which we could increase F&V consumption. If you want us to do that, we'll be able to improve the economy and people's health. That's all I have to say, thank you.

T. Lang

Paulo, thank you very much.

And last, but not least, Hans Brug.

J. Brug

Thank you very much. Tim, before this meeting, you sent us a couple of questions that you wanted us to focus on, and a compliant person, like me, of course then focuses, indeed, on those questions. And I want to focus on 2 of the questions that you put forward.

The first question that Tim sent us was, are voluntary measures effective enough, or would legislation be more cost-effective? If we look at the history of public health, of the big public health achievements, we see that health protection has been very effective, much more so than the broader health promotion. And if we look at how did they get rid of the big infectious diseases in Europe, it was health protection. If you look how was traffic safety promoted, it was mostly health protection measures. If we look at food safety issues, and Hans V. very nicely showed that food safety isn't such a big public health issue anymore, that is because we were very effective there, it is health protection. And also, the smoking cessation achievements are very strongly based on health protection measures.

I think if we want to pursue healthier diets, we should move from a health education focus, much more to a health protection focus. That means environmental changes, making the healthy choice not only the easy choice, but sometimes, really, the unavoidable choice. And I think the F&V programs show that that might work. Their eating F&V in the classrooms becomes almost unavoidable. So legislation, I think it is necessary, at least broader environmental changes should be a very strong focus.

Your other question is, is more research necessary, or is evidence sufficient for action? As a researcher I, of course say, more research is necessary. But I think research for action is now necessary. We shouldn't keep focusing on whether F&V are healthful. Now we should do the health protection-oriented interventions, accompany that with good research, so that we do practice-based research in order to improve evidence-based practice.

T. Lang

Very good, now I like that particularly, Lars, you couldn't hear him whispering at me that I am a skeptic about whether policy moves by evidence. I am. I am a skeptic. I think we need evidence, I think evidence can change policy, but policies change very often despite evidence,

and sometimes in the face of evidence, opposed to evidence. So I have a more complex, I'm an academic, I would say this, I have a more complex understanding of the relationship between policy, evidence, and behavior.

But there, we heard from Hans a very strong appeal to say we need to shift now in research towards more action-oriented research. That's interesting.

Okay, meantime, you've been very patient. You've heard this cascade of brilliant ideas and suggestions. All the time, your brain cells have been improved by the fantastic intake of nutrients that you've been having only for these last 48 hours, intakes of F&V, of course. And now it's your turn. First questions? It's over to you. Thoughts, observations, stunned into silence, drowning in complexity. Lars, you can talk.

L. Hoelgaard

No, it's just that Paula said that we need more evidence. You question, well, fine, but it's not all on evidence that policy is made. But to understand the political process in the EU and in the Commission. The Commission, President Barroso, some years ago, instituted a systematic impact assessment evaluation of any far-reaching, or more or less far-reaching, type of initiatives proposals. And justly so, because in the old days, we would just sort of think inside our offices, or based on pressure from pressure groups, or from initiatives from Parliament, or from a Member State, we would think about, well, we'd like to do something in one or the other direction. And we would go for it. And then afterwards, one would discover, well, okay, but there are some aspects which, perhaps, weren't considered, and it was a kind of a political-driven process, to a large extent. Obviously, it has to be political and it has to be policy-driven, but also in order to justify, in this case here, new initiatives--because we have all the time the discussion, should this be something done at the EU level or should it be left to the Member State? We always have this mantra inside, what can best be done at the national level shouldn't be done at the EU level, and it all just creates animosities against Brussels, etc. So there is no reason to do something which can be done just as well, or even better at national level. So that's the first hurdle, we have to justify action at the EU level.

The second test which has to be met is: is the use of EU budge justified? Is the use of taxpayer's money justified? Is it cost-effective? And for that purpose, you cannot get enough data. You cannot get enough evidence. In fact, the more you have, the better you can argue your case. And when it goes in our internal processes in the impact assessment--and I've been to these meetings of impact assessment boards, these guys, they will question you, you are at an examination, if you want, you have to pass the exam. And you have to deliver, you have to be able to persuade the colleagues who probably have a double function.

First of all, they have the function of coming from other DGs, which means if I'm using money, I'm maybe taking money away from them. But secondly, they are the watchdog, they have to be critical and they have to be able to justify, vis-à-vis, the rest of the Commission, and also when it comes out from the Commission as a proposal, that this is something that really has a meaning and is effective. And we have to look at the consequences from an economic point of view, from a social point of view, from an environmental point of view. And I was just thinking, maybe we would have to add a health dimension as a supplementary criteria, which could be combined with the social and other factors. It's just something that just came to my mind.

So, Tim, you have to answer the question, if it's not evidence-based, what is it? Just pure

politics?

T. Lang

Well, I'm Chair, so that's a question I love. And I'm very happy to answer it. Very quickly, I think it's all of that. I think what you just said is absolutely right, but never underestimate the way in which big changes happen through opportunism, firstly. Secondly, never underestimate the way in which big changes in food and health have happened through shock, through crisis. Never underestimate that.

But we have a queue.

L. Hoelgaard

I'd just like to go back to the need for evidence, I think in some respects we have enough evidence, in other respects we need more evidence, and more sophisticated evidence. And one of the things I think we need to really look at, too, is sometimes where evidence gets in the way of policy. We keep looking for more and more evidence instead of taking action. So I think we really need to know when do we have enough evidence to take action?

And the other thing, I guess, to comment on evidence and policy, is evidence is not always enough. I know from some of our experiences, and I think Lorelei will support this as well, evidence combined with a political champion is a very effective way to get things done. Thanks.

T. Lang

Thank you, we have a queue, Archie and Ibrahim, then.

A. Turnbull

Exactly following on what Robert said, we have enough evidence. But following up on what Paula said in listing the various changes that have taken place in protection of health over the last decade or so, we've seen this in tobacco. Everybody knew that there was enough evidence that tobacco was bad for you, that smoking was bad for you. But nothing was happening. The evidence was there but nobody was changing the policy, until finally a group of people got to work and started to get the policy changed.

I think we're at that point now. We have the evidence, we've seen it over the last 2 days, it's very clear. Yes, you can always have more, you can substantiate more, you can prove more. But I think we have enough that we can go ahead and start working on the political aspects, which I think is where this movement is now; that's probably the biggest challenge that we're facing.

On the point of impact assessment, we have to very careful because we discovered recently, also in relation to tobacco that, largely due to the influence of one or 2 companies, impact assessment is to some extent skewed to cost benefit analysis. Health, social dimensions and environmental dimensions are not adequately taken into account. So there is a factor that has to be brought in, and we have to make sure that this is brought in, in the future. Because many of the policies that we are asking for will be assessed, not just on how many lives are going to be saved, but how much money is going to be saved and that is difficult to quantify when talking about lives, disease, etc. So impact assessment is very important, Lars, but we have to

make sure that this wider dimension does get a proper hearing.

T. Lang

Thank you very much. We have Ibrahim, then Margherita, then Paola.

I. Elmadfa

The framework agreement, I think it could be achieved when addressing inequalities in nutrition policy, only in an integrative approach and concerted action between the decision-making institutions. I'm thinking of the European Parliament, the European Commission, and also Member States. It cannot be the task of only one of these institutions.

Do we need more research? Yes, I think we need more research, but better translation of available evidence into policy. This is not a very clear background either, so we need to learn how to put research outcomes into action and how the policy can work with the scientific evidence to develop population group-specific and guided implementation of intervention programs. The European Commission has been funding many projects, their outcome should be better-utilized. I think research should also include monitoring and evaluation of the projects already started, or in the planning to be considered in the near future. This is something I think should be emphasized.

T. Lang

We have a good queue building up here. Margherita, you're next.

M. Caroli

Now speaking as a pediatrician, President of the European Child Obesity Group [...]. I have been listening to the need of evidence or to not to need the evidence, or whatever. We have the evidence which is clearly under our eyes. There are 22 million of children who are overweight. Of these children, about 4 years ago were expected to have one million of hypertension, affected by hypertension, one million affected by metabolic syndrome, and one million and a half affected by fatty liver. Okay? And from this one million and a half of fatty liver affected, 15,000 can go and reach to get cirrhosis.

Now we are not looking or talking about numbers and statistics. If you don't mind, these are persons. And these are our future. And I cannot stand anymore waiting for evidence. For what? We have to act! I'm really bored to listen, do we have to act, what we will do we will do. It looks to me like the Strength of Destiny, at the first act of the opera, all the people in [...] say, we believe, we believe, we believe. At the end of the opera, nobody is left. And then, we are in that same position.

But, we're public health people; we are selling something that cannot be seen. We are trying to sell health, and health is an invisible value. It can, unfortunately, become visible when you lose it. And I don't want that anybody of us go back to home, look their children if they have, in their eyes, and say, you are more important than other children. Because if you don't take any action right now, you are closing your eyes. And there is no child all over the world that is less important than in other one. And I don't care if your child is black, is white, or whatever. It's the same child that has to be taken care.

When we got to the flu, let's say the flu, the last one or the animal, or different animal. Everybody was starting to make medicines, drugs, vaccines. We didn't wait actually for evidence. What are we waiting for? And you know what is the only treatment for fatty liver? Is a dietetic treatment, in which drug companies are not interested? Because the only thing that can make the fatty liver to go back is an increase of F&V intake. Now, if you have the courage to say, we have to wait some more time that you have to face your soul and see if we can. Sorry to be so passion, but I cannot stay anymore.

T. Lang

Without Italy, there was no passion before Italy was created, as we all know. I think the human race requires a little passion, for various reasons.

Paola, your job is not passion, but strict, neutral, evidenced-based policy in DG SANCO.

P. Testori Coggi

There needs to be a mixed regulatory and non-regulatory approach. As policymakers, when we propose an approach, we need to demonstrate that it works. The promotion of F&V, notably in terms of financing, costs a lot. Either you work on price, or you work on a scheme to support people buying, especially poorer people buying. But then, what is the effectiveness of the actions we take? So this is the problem – here, we are working on a more behavioral science-based approach where we try to influence the choice of the individual. But it is very difficult to determine whether that action is really getting results.

And what we are doing (and we are doing a lot of work on this) is working through our Platform. We established a Platform on diet, physical activity, and health with all stakeholders (industry, NGOs, various associations) where we work on specific projects, which have now been running for 5 years. This year we are going to evaluate the initiative to see what concrete results have emerged. When we want, for example, to impose at community level, a project like EPAD – which is a project of physical activity and diet education in schools – we need to demonstrate that the project will give rise to a certain result. So my call for evidence needs to demonstrate what is the most effective intervention mechanism, to tackle, in general, inequalities – not only inequalities in diet, but inequalities in general.

For example, to give an idea, for tobacco, there was an incredible French study which demonstrated that since the introduction of a ban on smoking in public places, there had been a reduction of 27% in emergencies related to heart attacks. This is what we discuss with the ministers – because today there are 13 Member States which have introduced a ban on smoking in public places. And this is hard data on which I can say: you have 27% less emergencies where there is a ban on smoking in public places.

T. Lang

I agree with that, the trouble with smoking is that it's very stark. Not simple, but stark. The difficulty with F&V is it's complex. But you're right, why are we acting strongly on tobacco, but acting when there is very strong evidence, but a different sort of evidence.

Gabriel, were you waving your hand?

Gabriel […]

I'll make a little comment because I think, everybody is talking here, F&V, and we've got evidence, we don't have evidence. Okay, probably we don't have. [...] [...] example tobacco, as you said earlier, we waited long till any action probably. What I wanted to say, yes, Paola said earlier that like there were 4 mainstream lifestyles in probably you could act. And she said, well, probably diet is the easiest one to shift.

And when I see all the presentation from today, from yesterday, and all basically well what is linked to fruit production, frankly, I'm not so sure about this. When we say we have to include some health, probably include some like a bit of healthy eating in the CAP, I mean, I think it's going to be very difficult. And the thousands of farmers out there which have been working for years and years on some type of crops, and I'm not sure you can tell them from one day to another, well guys, your aids are over, now we'll just shift production to F&V. Nobody talked about this during these 2 days, but I would like to see some studies, can we actually cope within the EU with the recommendations we're proposing? If every single European eats 400 grams of F&V a day, can we actually produce it within the EU, or not?

T. Lang

That's a very, very good question, and I hope that Lars is writing a note, even now. Do you want to comment on that?

P. Testori Coggi

Absolutely. Easily. There is no problem. This can be done by simple shifting, if it's even necessary, of some areas with oilseeds, or with cereals, or whatever. It's not a question of supply. The supply can easily be provided. And in addition, we should not forget that the EU is the world's biggest importer of food and agricultural products, including of course, fruits in particular, because some of these fruits we do not produce. And we are the most open trade group in the world, in terms of agricultural products. We export a lot, but we import even more. And we do it in respect of the requirements under the WTO in terms of the SPS. We do not introduce arbitrary non-scientific barriers for trade, whether it is sanitary or phytosanitary, or other technical barriers. We do not do that. We do not resort to these type of tactics unlike some of our trading partners. So there is not a problem of supply.

Now, in relation to what the CAP can do, and the skepticism about what the CAP can do, I forgot to say, or maybe it's been forgotten in the meantime, that in addition to what we have, in terms of the School Fruit Program, we have other instruments under the CAP which target consumption of F&V in a positive manner. For example, when it comes to promotion of F&V, the general rule is that in the reform of 2007, we gave the primary responsibility for managing the market to the producer organizations. And we provide, as a general rule, 50% of their expenditure, and they pay the other 50% of the expenditure. But when it comes to promotion of F&V, and particularly for young people, we increase that percentage – we give 60%. Now, you can argue that's not enough. Okay. But it's still clear that we have given priority to the promotion of F&V for educational purposes for schools, and of those other target groups.

And in addition, in the reform of 2007, we have another element, which is the so-called "free distribution." The free distribution of F&V, which can be part of a crisis management initiative by our producer organizations, we pay from the EU budget 100% of that distribution to social institutions, to prisons, to hospitals, to retirement homes and things like that. Okay, this is a residual, it's not the main policy and instrument, but it is to say that health is there.

It's maybe creeping in step-by-step in a progressive manner. And the question I was raising before is about ways and means, and an intelligent manner to do this in more systematic way.

Well – do we have a bad conscience? No, but we could probably improve, I agree with that.

T. Lang

Okay, I'm going to give priority, there are 4 people queuing up to speak from the floor. Douglas, you were first?

D. Greenaway

Ms. Testori Coggi's requirement of the need for evidence is absolutely essential for policymakers to make effective and responsible decisions. Dr. Caroli's passion is: policymakers won't be moved without passion. And important to that are committed policymakers who will stand on the back of the evidence of Ms. Testori Coggi's, and stand on the back of the passion of Dr. Caroli.

The WIC program, the Women Infants and Children Program, was not able to add F&V to the Program without evidence that it provided substantial health outcomes in impacting chronic diseases. It took the passion of our advocacy community to bring that message to policymakers. And we identified key policymakers, both within the administration and in Congress in the United States, who belonged to specific interest groups, caucuses, the Women's Caucus, the Diabetes Caucus, members of Congress who represented districts where F&V were produced, the minority caucuses of African American and Hispanics where we knew there was a need to increase the consumption of F&V. And we took that evidence that we had to those individuals, we took the passion of our membership to them, and together, the passion, the evidence, and the commitment of policymakers helped to change the policy.

Before we added F&V to the WIC Program, the WIC Program had scientific sound evidence that demonstrated that we reduced infant mortality, low and very low birth weights in this country. In 1994 there was a movement by the, then, Republican majority to cut the Program, significantly. And investment of $800 a year in the WIC Program, compared to $29,000 to increase a low birth weight child to a normal birth weight, that's per pound, resonated with policymakers. $800-1000, seven times $29,000? Hey, this one's an easy decision! So there was both a public health consequence, and a cost benefit consequence. And when you have the passion of people like Dr. Caroli, the evidence that Ms. Testori Coggi needs, and committed policymakers, you can move mountains.

T. Lang

Good advice.

David Crawford next.

D. Crawford

Thank you, Tim, and this is a view from Australia, not knowing a great deal about how things work within Europe, in relation to support research and creating evidence, so I'm going to labor this point about the need for evidence. I would agree that we have enough evidence that

we've got a problem on our hands, that people eat inadequate amounts, that there're health benefits that accrue from consuming F&V, that low SES groups do more poorly. We have plenty of that evidence, we don't need more of that, I would agree.

But what we do not have is good evidence about the solutions, the things that will make a difference in practice that can work in the real world. There has clearly been an underinvestment over a long period of time, at least in my country, I suspect here in Europe, as well, to create evidence. So we need to invest in solutions-based research. And Hans described it as action research; I'll call it solutions-based research.

We don't need more research that tells us that if you don't eat enough F&V you'll get sick, we know that. But we do need to understand what we can do that will work in practice. One of the problems that we have experienced in our country, and I suspect it may exist here in Europe and in the U.S., is the project-based nature of most research. People are generally funded for a 3- or a 5-year program of work. The project ends, and they begin a new project. The kind of problems we're dealing with have developed over a 40- or 50-year period, they're intractable problems. We're talking now about structural and policy-level change which is going to take a long time to implement. And therefore, we need long times to conduct that research, so we need to be thinking about programs of research funding that create evidence into the long-term, not short-term, project-based funding, which is excellent, it's useful, but on its own will not be adequate.

T. Lang

Very good, you've obviously just read our recent food policy book, and you've summarized it in one minute.

The lady from Norway whose name I forget, forgive me.

The lady from Norway

Thank you very much. First of all, I would like to thank for a very interesting meeting to the organizers. I really enjoyed being here. I would just follow-up what David said, and also Hans. One concrete example from Norway that I noticed when I was working on the National Action Plan on Nutrition, was that we lacked the evidence on price regulatory mechanisms. So that is a specific area that I think would be very good to get some more evidence. What kind of measures would really be the most effective, easy to increase the price of unhealthy products, or easy to reduce the price of healthy products?

And another point which is maybe nothing that public health nutritionists doesn't like to think much about, because we like to focus on health behavior, is that in Norway, Action to Reduce Health Inequalities has been on the agenda for some years. But what they actually are focusing on the most, is the social determinants that we have been talking also about, for behavior, why do we act as we do? And 2 measures that has been highlighted in Norway lately is, one, to ensure that children enroll in kindergarten, which is not mandatory, because that has proven to be so important to really give the children a good start at school. And, as we know, education is important for how we behave and what choices we make in life.

The other thing is also connected to the education, is to avoid dropout from higher secondary school, which in Norway is actually as high as 30%. And if they do not finish higher secondary school, they are less likely to be enrolled in employment, which is also very important to have a

choice to choose a healthy lifestyle. So maybe we also should try to focus more on the social determinants that are really determined for how we act. Thank you.

T. Lang

Very good.

Public

Good afternoon. About the need of evidence, I was just wondering if the question shouldn't be why something is not done, rather than why something is done. I can easily imagine that the Commission representatives here--and thank you for having supported this meeting--have many more ideas of actions to take, than money to take them. And the point was made very clearly, that you need evidence to prove effectiveness of action.

But the whole problem that we have been discussed during these 3 days, I think, is that it's all about prevention. It is much easier to prove that healing is effective than to prove that preventing is effective. And it seems to me that though the evidence can be more sophisticated, just as Robert said, prevention pays. I mean, it seems to me that this can be a certainty. So what kind of disaster, what kind of accidents do we need before deciding to take more actions?

T. Lang

Okay, thank you, and the lady here.

Christiane Boyle

I'm Christiane Boyle from the media, I'm coming from Switzerland monitoring this Conference to make some reports in our 2 magazines. One is for the fresh F&V market worldwide, and the other one is for dried fruit and nuts. And so this Conference is very interesting for us.

But listening to all the presentations, I think, and this should be my message to all you professional people, you should talk more to the media. I would like to express that I learned a lot about healthy food during the 3 days, and who is involved, and what should be done, and that the EU has realized that it's time to act. But all your ideas should be transported to the people. And so, please use the media to transport your ideas, and to tell them what you are thinking, and what you are planning. And then they will follow you, I hope.

T. Lang

This is a rarity, media saying please give us more stories. Your job is supposed to go out and pursue the stories! We know, that's good, thank you very much.

We have a brace of Hans': Hans B. and Hans V. Hans V. first.

H. Verhagen

Thank you, Tim. I heard a lot of good things this day and I am glad that I'm here. The first good thing that I learned here is that no one actually doubts that F&V are good for health, and we only have to state whether they are good for health or very good for health. So I think that's

an achievement, and that's where we can work from.

The other thing about research is that I was also told by the Commissioner, he said, we need proof for effectiveness, for efficacy. I think there is a challenge also for research to prove that the interventions are effective, and that we do not go only to the next intervention once the money is gone. So that's good. So I heard a lot of good things.

There is one thing that I did not hear, and I think that we may miss 50% of the opportunities because there is one other aspect that I was not asked to talk about, so that's why I didn't. But now I get the podium to do so. And that has to do with food reformulation. I can indicate in the simple way what food reformulation is. It is taking bad things out, like having lesser salt in your breads, lesser sugar in your products, lesser saturated fat, etc. There is also a possibility for inverse food reformulation, putting good things into the food. In this way, people will not need to adapt their dietary behavior, whereas, their body may see different nutrients. And I, therefore, want to make a strong plea to also investigate if, and to what extent, F&V could enroll into products, thereby, contributing to the overall F&V intake.

There is a challenge on a couple of sides, first there is the technological challenges e.g. trying to get apples into a loaf, which will be difficult. But that is a challenge for the future. And then the other challenge will be to prove that F&V in these new forms of food, are as effective as we have seen for F&V now.

So I would invest actually in both things, investigate the effectiveness of all these campaigns of education, advice, distributing vouchers, etc., i.e. see whether or not they are effective. And investing in the other 50% of efforts, maybe also for money, into food reformulation to the positive end, and to prove that this also contributes to public health.

T. Lang

Never ask a researcher for an idea. But very good, good idea.

Joao, you've got to go to catch a plane, do you want one minute?

J. Breda

Yeah, definitely we agree with this idea of reformulation, it's clearly important, in terms of reducing some of the ingredients in the food that, for instance, are not so good for us. But increasing and enlarging the scope and the food items we have at our disposal, at our disposition, to improve our food habits.

In fact, in terms of the Food and Nutrition Action Plan that WHO in Europe developed, and goes up from 2007 till 2012, in fact one of the areas that is highlighted there is the good possibilities we could find in terms of the reformulation of food. And so, of course, we agree with your idea. And we could, of course, WHO is Member States and we only do what they ask us, but we would like to support those good ideas, in fact.

T. Lang

The gentleman at the far back, I give you priority.

Mariano […]

Yes, I'm Mariano [...] from Italy. My question is, I'm convinced that every colleague here agree with the importance of the evidence, especially of new evidence. And I think that all of the [...] area I agree with Margherita Caroli when she claims for actions. Between the evidence is agreement about the importance of the involvement of different sectors, that somebody made appointment about this, this afternoon.

Regarding the EU campaign, Fruit in the School, that is running in the European countries, my impression is that the cooperation and the integration that is evident, of importance of evidence, between the agricultural sectors, sector at the European level, and the [...] sector, and much more the education sector at European level, it was insufficient, I think.[...], do you think, considering that the project that will run in the next years, do you think there is something to do with to improve the cooperation, the collaboration, the integration between the different sectors? Just because is real evident that this important for the actions. Thanks.

T. Lang

Does someone want to answer that? Lars, I would think that's you.

L. Hoelgaard

Well, on that last point, this was one of the key elements in the School Fruit Scheme from the beginning. To be very crude, an apple once a week is nothing. It doesn't represent anything in terms of market, it doesn't represent anything in terms of health. If it's that, what was the purpose of School Fruit? Well, that's certainly not very ambitious and wasn't worth the 90 million Euros, plus the 60 million Euros at the level of the Member States. So the School Fruit Scheme certainly wasn't devised in that manner as a simple promotion in itself, of fruit once a week, because that's what it amounts to, the amount of money which is available to the Member States.

No-no, it was much more. As I often say, it was the 'key' to the door, to open up the room, with regard to collaboration, and a forced collaboration, because this is a [...], it's a precondition, in terms of being able for the Member States to demonstrate in their accompanying measures, that there has been a close coordination between the health, the education, the agricultural administrations, plus the stakeholders who are involved in putting this together in whatever way they want to do it, because that's left very much to the Member States. But to insist on that any product which is delivered has to be vetted, has to be given its okay on the side of the health authorities before a program, as such, is put into place--before it's even approved. So it is this idea that you get the health, you get the education, you get agriculture, etc., to work together.

But in addition, all the other elements, in terms of integrating agriculture, to link the city to the farm, to link agriculture into the curricula of schools, to make it a normal, natural thing of education, of going to school as part of educating or children to underline the importance of nutrition, diet, etc.

And in addition to that, to understand what is agriculture, how is agricultural production taking place to connect to the local community, to the seasonality of produce, to underline that if you want to make your School Fruit, which is not just fruit, but also vegetables, effective and cost-effective, the most easy way to do it is to obtain supplies locally, and to combine it with

the seasonality when production is high, prices are low, that's the way to get the maximum--but also then to use that opportunity to, perhaps, go with the children out to the farm, to the place, or wherever, so that there is a multitude, there is a multiplication factor element in the School Fruit Scheme.

So an apple a week is nothing. But it is the key to the door to open up all this here what I'm trying to describe. Now, if it doesn't work in practice, then you're pointing to a weakness to the system where we can, then, have a possibility to go in and, perhaps, do more. But on the other hand, we can't sit and do everything of that kind in Brussel. That has to be, the major chunk of it, at the level of the Member States. They have to take the responsibility.

What we can do is, when we do our clearance of account, where the mean guys come from our inspector sides, and they look at the ways and means that the money has been spent, and if they find that the money hasn't been spent, in terms of regularity, in terms of legality, and correctness, then they pinch the money from the Member State, and that's the most effective instrument normally, to hit them on the head, so that the administration is doing its job, in terms of implementation. And there, if there is a weakness, then you should point that out, first of all, at the level of the National Administration. And if it still doesn't work, then go to us, and we'll take out the big stick.

T. Lang

Okay, you heard it here first, the "big stick." And I hope it's a carrot.

Ibrahim?

I. Elmadfa

I do not need to emphasize that to cope with the nutritional insufficiencies and the nutritional problems we face we should go along the food chain, from the primary production, over the processing and the preparation of food. I think this is a task for a "think tank", and it would take time to work out strategies for this.

But I would like to remind us that we met together to focus on the inequities in the diet in Europe. I think to solve these problems we must look for feasible solutions and implement them.

T. Lang

Now, that's very well said, I sense people getting tired, let's just get a grip of this. We've been reminded by Ibrahim here, absolutely right, that although we've had an extremely important tour, a vast panorama, of how F&V sits in modern existence, production, culture, everything, the specific strand we've been asked to think about, is about inequality reduction. Let me be stark, I'm looking at Douglas, we have now the exported approach to welfare from the English--if in doubt in history food, always blame the English--to the Americas. 400 years later, comes back as WIC, a targeted, 38-year old program. When we in Europe have only the unions only 50-odd years old. In its current format, 3 years old. And the only big program we have is CAP, Common Agriculture Policy. That's the only really seriously big program.

Now, are we going to suggest is, or request from this Conference to Lars and to Paola, the 2

senior people from the Commission here, that as F&V watchers, researchers, makers, sympathizers, we would like more F&V from the CAP, into the Common Agricultural Policy, we want a redoubled effort on different instruments, we want clarification of possibilities for new instruments, and we want a health impact strand to come into the CAP. Yes, I think we say yes. I haven't heard anyone arguing against that.

Secondly, I hear a strong plea for more research, yes. But more research with a solutions-orientation, or action-orientation, yeah? I hear that. That may be from intervention trials through to population differences, but at least solutions-oriented, what works? That fascinating study, as ever, from Finland, looking at the differences between the high income, low income, high consuming, lower consuming, etc. The patterns we've got across Europe. We're probably going to have different solutions in different Member States, but as Lars was hinting at, we need to have programs at the EU level that allow that diversity. Now that, Douglas, is not what you have. I'm looking at you to correct me, WIC started in 5 states and spread federal. Do you want to come in, give--?

D. Crawford

Thank you, David. It began as a pilot program, and it existed as a pilot program for 2 years. And at the end of that 2 years was able to demonstrate to the United States Congress, and the Department Agriculture, and the scientific community, there were real life health consequences for the Program. The nutrition value was impacting the pregnant women, postpartum women, breast-feeding women, and infants and children participating in the Program. In 1974, the Program went national, and then it grew from a $50 million Program to a $7.6 billion Program. So it's now national in scope, it's administered by the Department of Agriculture, and the grants come from the Department of Agriculture, and the states administer those grants in the locales around the country.

It is a partnership between the agriculture community and the nutrition community. The agriculture community understands that nutrition results in effective produce, and growing produce, and delivery to markets of produce. So that's really the outcome of these 2 programs working synergistically. Is that helpful, is that what you were looking for?

T. Lang

It is, that's very, very helpful. I think there is a 4th theme that is coming out, I'm looking at Saida. A 4th theme is focus, not target, but focus on women and children, was the thinking. And that is something that isn't just a U.S. tradition, it's everywhere, exactly what the passion that Italians were saying, as we now call you--come in again?

D. Crawford

If I may add, the focus on pregnant women and children, it's hard to politically attack those 2 groups. And the public understands that caring for pregnant women and children is absolutely critical, because the children are the future. And giving them a healthy start is really what sets the nation in a positive place to compete globally with the rest.

T. Lang

I'm a little bit more calm now. But not with less passion, anyway. So what is true is that children and women have to be the first anytime, you know? There is also another more

structured and less emotional factor. That always, since the beginning, since Eve in the heaven, women draw the men. So that means that if we start to convince and to act on women and children, we will also convince men to change their behavior. And this is very important, I guess.

The other thing, if you allow me to say something, is that we have to face the politicians. Now, if we keep going this way, then your generation will be so sick that they will not go to vote, and then they will not be elected anymore. And I think that this is a very good reason to get the very strong support from politicians.

Hans, you want to come in?

Hans Brug

Briefly, react on a few issues there. Yes, pregnant women and children are a really important target group, and it is politically really correct to focus on those 2 target groups. But if you look at the tracking of F&V intakes from young childhood into adulthood, that is not that strong. So if you really want to make a population difference, we should not only focus on pregnant women and young children.

T. Lang

I'm very glad you said that because I was going to say exactly the same thing. The advantage of women and children is you get political support. The disadvantage is you're abandoning 3 generations. And look at the evidence--I'm looking at the 2 DGs talking, we will ask you both if I can just interrupt, they're having a serious discussion which I'm very happy about--this is an important issue. We need you to symbolically, to act, to try and take the opportunity for later generations, not just women and children. But my view, this is my view, is maybe the women issue is merely a way of getting in to creating programs which can be rolled out on wider generation impact. Maybe. Firstly.

The 2nd point I actually want to raise, I have not asked any of my questions, but I want to ask at this late state, to you, to the audience, to us the participants, someone earlier mentioned the dreadful English word, "sustainable." Now, sustainable means everything to everyone, it can mean anything you like, mean just something carrying on forever, or it can mean growing. The term, "sustainable," is now being used in Europe both around sustainable production, methods of agriculture, horticulture, difficult and politically difficult issues about how we grow things. But it is also now moving over to diet.

One of the key advantages of F&V, not all, not all, is that they are low carbon. They can be high water, actually, but the notion of auditing diets through the lens of sustainability, is going to be critical. And the EU is having to address this, all Member States are, all countries are having to address this.

I suspect that the issue of F&V, and plant-based agriculture is going to be altered by climate change more than evidence on public health nutrition. I regret having to say that. But I think it's true.

Now, where are the political opportunities in that? The political opportunities are exactly what Lars was saying, the shift, and I will be more contentious than he was, because he is a neutral civil servant. The difficulty is in shifting from dairy production, which Europe has a massive

industry in--remember I'm from Britain, and I was a dairy producer, I was a farmer--into more horticulture, more plants. That restructuring of agriculture is where the health and agriculture collaboration may be needed in the next 20-30 years. All the thinkers in agriculture are beginning to think about that. And we haven't had that in this Conference. But I add it right at the end, I think the sustainability arguments are going to be key to redefining diets, whether we like it or not. Paola, do you want to make a comment? You can if you want.

P. Testori Coggi

Clearly, I think your point is right. It is inevitable that sustainable food will become a crucial point of discussion, I agree with you. Which solution we will find, I don't know, but it is an important point.

T. Lang

Well, obviously, since you provoked me like that, I would have to respond. No, we don't have a normative view of what people should eat. And we have that for a good reason, because all too much in the past, our CAP has been driven, or production has been driven, by different economic incentives, whether a farmer would be getting more money out of producing milk, say, as you mentioned, versus pig meat, versus beef, or arable crops or all that kind, which led to distortions, which led to, in some cases where the so-called safety net was too strong as surplus stocks, wine lakes and the butter mountains, and all what we hear from the media. The description of the absurdities of the CAP.

And it was therefore, a deliberate choice, a choice which has been made so many years ago, to get out of that [ideogistic] type of support. And to instead have as the key element, what we called "market-orientation," to give the farmer the responsibility to know best for his own circumstances, or her own circumstances, what to produce, and how much to produce. And obviously, the consequence of market-orientation is also efficiencies. It's resource allocation, and I'm an economist, and I like that concept, that you're using your resources in the most efficient manner.

It's also the benefit of the consumer. As I said before, the prices of food has dropped, clearly, in real terms. And what the problem today for the farmer is that he's not getting enough for his produce versus what the consumer is paying at the supermarket, because other guys are reaping some of the benefit. But that's another discussion. To say it clearly, and also in terms of milk production that you mentioned, we want to get out of quotas. We want to get out of quotas, not just because it's the old-fashioned derogistic type of CAP with the different reforms over the years, the clear decision. But also because quotas represent, not only a limitation on production, but also introduces distortions between farmers and between Member States, and other things equal, increases the cost of production. It is a tax, a quota is a tax on production. Because if I want to expand my production, I have to pay for the extra quota so that I can produce more, and without having to pay the so-called "super levy."

Now, what is happening these days is that the quota in the EU is no longer filled. Because some farmers simply aren't earning money, and that's why we've had all the protests and the decisions by the Commission to intervene to support, etc. So it's not the solution and not the answer to go back to old-fashioned policies on the supply side.

What we're talking about here, and much more constructive, is on the demand side, which is--and there I'd like to comment on the observation from our young Norwegian, award-winning

colleague who has had to leave with her poster and her reward, where she raised the question, which is a legitimate one, should we subsidize good food and penalize bad food? And my answer to that is a clear and resounding, no! That is, and should not, and cannot be the role of neither the CAP, or of the public authority.

What it can do is to insist on, as Paola is doing with her labeling proposal, to make sure that food processors, in a transparent and legible manner, inform the consumer about what it is she or he is buying, so that they can do an informed choice, take an informed decision, and then we can add on all the initiatives that Dr. Caroli wants us to do, in terms of incentives, in terms of information, in terms of promotion. And what I have contributed to a little bit with our reforms on the CAP F&V Reform, where I mentioned it before, also the issue of School Fruit. By the way, I forgot in the School Fruit, perhaps one of the key extra wins in it, which is not just to bring it into a natural part of the curricula of schools, but also the multiplier effect on the benefits to the teachers, and to their parents, and to their siblings, who also will then benefit from this positive kind of effect coming out of this initiative.

So, no, to a derogistic supply policy, that is something of the past. Yes to market-orientation, yes to information, so that a consumer does an informed choice. No to economic incentives, in terms of penalizing so-called good, and what is a 'good' food? Nobody can tell me what is a good food. But what you can tell me is a balanced diet. A balanced diet and any excess, whether it's even drinking too much water can be unhealthy. Or even too much F&V. And vegetarians like Tim--I don't know if it's true, but maybe it is--have a need to supplement their nutrition so that there is also a balanced intake. So the point is, yes, to provide incentives, but no to doing something which is coming in as the Big Brother in one way or the other.

I'm going to ask Ibrahim to make a final statement, unless anyone has some burning issue that they want to make. Robert Peterson is leaping in immediately, now I shouldn't have said that.

R. Peterson

I can't help, but I have to comment on what Lars just said. Basically, in terms of Public Health, we really like agriculture products. Some of the products we have the most difficulties with are the convenience foods, the processed foods, because those are the ones that cause a lot of consumer confusion.

But what I would like to say is, that we have to distinguish, there are some foods that we need to eat less of, and there are some foods that we need to eat more of. And some of the price differentiations, and also some of the production policies, have actually made the high calorie-dense foods more expensive, and the actually nutrient-dense foods more expensive. So I think there are issues that we need to look at. We are not saying the whole good food/bad food debate, but we need to eat more of some things and less of others.

T. Lang

Okay, well said. I'm sure Lars would not disagree with that, not least because 2 Danes in the room, they always end up agreeing. The gentleman here.

A gentleman

I would just like to concur with the remarks because I was just about to say myself, that I'm a

traditionalist, and I'm a major advocate of the balanced diet. And the reason for this is, in my lifetime there have been many U-turns in dietary advice. Fairly major ones. And I guess this has been due to poor evidence or lack of evidence, or people making a statement before they could sufficiently back it up.

So my view is that the products of primary agriculture, or primary fishing, are by themselves good. And if this was a seafood conference, I can guarantee you, we would hear exactly the same things being said today, why we should eat more fish, and perhaps if you look at evidence, the evidence for fish is even stronger than for fruit and veg. If it was meat people that were here, they would be saying meat is a good source of high quality protein, a good source of iron. If it was dairy people, they'd say we have blood pressure-lowering peptides. We have many things. So I think the products of primary agriculture all have a major place.

The place where we fall down is in the area of the concentrates and the misuse of the concentrates by industry. For example, the only way you get sugar in high concentrate is honey, it's probably the only natural concentrate of sugar there is, the rest are manmade. Oils, we get them in oil seeds, but what does man do, you buy your oil in the bottle. And then it even goes further because the oil has led to the deep fat frying industry, so when we come to obesity, in my view, the major challenges for obesity are, firstly, is in children.

Our children take much less exercise than they did before, they're driven to school instead of walking to school, but the other major problem is the fast foods which are all based on the concentrates, so Coca-Colas which are of high sugar, the deep fat fried products and so on. And unfortunately, when you look at the lower socioeconomic groups, these are the people also who tend to focus on these very highly processed foods. I don't know if they consider it trendy or something like that. But I think it would be wrong to leave here, I think you have to look at F&V as a component of a balanced diet. They are probably quite good for us, as are fish, as are dairy products, as are meat.

T. Lang

Very wise words, only one of them would I disagree with, there is a fundamental problem about fish consumption, stocks are running out and there are dangers. You cannot give 9 billion people on the planet 2 portions of fish a week, of which one is oily. It is impossible. But this is EGEA, this is not a fish conference.

I'm going to ask you to thank the Panel who have been brilliant in their singularity, in their attention, and in posing different and very, very important points. And above all, for keeping to time and being extremely thoughtful. So I would like to thank you all.

Conclusion and Final Remarks

I. Elmadfa

I would like to thank you, Tim, for the perfect moderation, you have been very capable. And you helped also keeping in time.

Many things have been said, but we need to do more. A drafting group has proposed the following statements in your name and I hope you accept and agree to them.

The fruit and vegetable consumption is well below the recommended level throughout European Union. That's what we have heard from our colleagues in all the presentations, especially in low socioeconomic groups within the EU.

The EGEA 2010 recommends providing economic incentives to increase fruit and vegetable consumption in the low socioeconomic groups in the European Union, promote and strengthen collaboration between sectors, as I said, health, agriculture, social, environment, for joined-up policy action, improve the effectiveness of European Union's School Fruit Scheme through more effective implementation, guidance, accompanying measures, and clear criteria for evaluation, which is very necessary, build an ambitious strategy incorporating effective use of media and social marketing tools to promote increased consumption of fresh F&V.

Those are the statements put by the drafting group and I hope you agree with them.

I see an overwhelming accepting! Thank you very much.
My I ask my co-chair and thank all the participants for their active work and cooperation during the 2-day Conference.

L. Hoelgaard

I'm going to take advantage of my role as co-Chairman before she does so. Because this Conference here is very much due to her commitment, her hard work together with her colleagues, her engagement. So any positive outcome of such a conference of this kind, doesn't come just like that, flying in the window. It is the result of hard, tough work on the behalf of Saida and her APRIFEL Director General, who sponsored this and as such, I think, we should give her and her institution a hand of thanks.

VERSIONS FRANCAISES

	Intervenants	PAGE
Ouverture Officielle	M.T. SANCHEZ-SCHMIDT (EC)	199
SESSION 2 : Alimentation et fonctions cognitives chez les personnes âgées	P. BARBERGER-GATEAU (FR)	202
SESSION 3 : « Un fruit pour la récré » : freins et leviers au changement des pratiques	L. SOULIAC (FR)	209
SESSION 4 : Etude de l'impact des chèques fruits et légumes auprès d'une population précaire	H. BIHAN (FR)	214
SESSION 6 : La consommation de fruits et légumes chez la population en insécurité alimentaire en France	N. DARMON (FR)	220

5 Mai 2010

Ouverture Officielle

M.T. Sanchez-Schmid (Membre du Parlement Européen)

Merci Monsieur Hoelgaard pour cette présentation complète.

Je voulais commencer mon propos en disant que, si je dois aujourd'hui à ma qualité de député européen d'être présente parmi vous, dans cette sixième édition de EGEA qui se tient à Bruxelles, j'aurais tout aussi bien pu assister en tant qu'élue locale à la réunion précédente, tant le sujet m'interpelle.

Depuis longtemps je me sens doublement concernée par ce sujet. Tout d'abord, en tant que citoyenne européenne, puis, dans les différentes fonctions que j'ai pu occuper: professionnelles - comme enseignante - et politiques - comme adjointe au Maire de Perpignan chargée de l'éducation et responsable de la restauration scolaire. Au cours de ces différentes fonctions, je me suis investie dans des actions visant à favoriser la consommation des Fruits et Légumes (F&L).

Ces actions se sont développées dans d'autres Etats, et nous venons d'en avoir plusieurs témoignages. Vous avez mentionné le programme « Shape Up, » qui réunissait un certain nombre de pays européens et abordait la lutte contre l'obésité sous différents aspects, évoqués tout à l'heure par Madame De la Mata, de la DG SANCO. Ce programme faisait la promotion d'actions visant à être en bonne forme : tant dans le domaine de l'exercice physique que dans l'alimentation. Votre démarche est soutenue par l'Union européenne dans différents domaines et depuis de nombreuses années.

Il sera important d'évoquer aussi la contribution de l'agriculture à la santé grâce à la consommation de F&L. Nous savons combien la Politique Agricole Commune est cruciale au sein des politiques européennes et son budget est l'un des plus importants.

J'ai noté que par rapport aux objectifs prioritaires définis en 2007 par EGEA, autant l'Union européenne que les Etats Membres et le Monde Scientifique, peuvent être d'accord et accepter les objectifs définis. Ils ont évidemment tous leur rôle à jouer, des rôles complémentaires qui doivent être assumés pleinement par chacun dans son domaine de compétences. Nous avons, je l'espère, tous en tête, les cibles essentielles : 1) les jeunes et les enfants parce qu'ils construisent leur vie et sont les citoyens de demain, 2) les personnes les plus défavorisées parce qu'elles ont difficilement accès aux F&L pour des raisons économiques ou pratiques. Pour atteindre ces populations, je crois qu'il est important de s'attacher à une politique efficace de communication et j'ajouterais, une politique d'information dirigée autant vers les consommateurs potentiels que sont ces populations, que vers le monde agricole. Je viens d'une région agricole du sud de la France et je crois que l'agriculture doit prendre part et jouer son rôle dans tout ce que nous essayons de développer et d'entreprendre. Car le maintien de l'agriculture et de ses revenus passe aussi par les moyens de promotion que nous essayons de mettre en place dans le domaine des F&L.

Nous savons tous que la consommation de F&L ne se décrète pas et qu'il ne suffit pas d'en faciliter l'accès pour la faire entrer dans les habitudes alimentaires de nos concitoyens. Sur ce sujet, les politiques, aux deux sens du terme, qu'ils s'agissent des personnes ou des stratégies, ont, je le crois profondément, le pouvoir d'influencer les choses et les situations.

Je voudrais, en tant que Député européen, mentionner rapidement, en complément de ce qui a déjà été dit, ce que fait l'Union européenne dans le domaine qui nous concerne aujourd'hui. Vous avez parlé, Monsieur Hoelgaard, du programme « School Fruit Scheme » dont je peux témoigner de l'importance pour en avoir profité, dans la ville du le sud de la France où je suis élue. A l'époque, j'avais porté le message auprès de mes collègues politiques locaux, car le gouvernement français avait lancé une opération de distribution de fruits dans les écoles baptisée "un fruit à la récré," un an avant que n'apparaisse ce programme « School F&V Scheme ». Par la suite, les financements européens nous ont permis une extension qui, dans mon agglomération, concerne aujourd'hui plus de 8000 enfants. Nous avons choisi de commencer dès le plus jeune âge, dans ce que nous appelons en France "les écoles maternelles," et surtout d'accompagner cette distribution d'une véritable démarche pédagogique de sensibilisation, tant dans le domaine du goût et de la découverte des fruits, que dans celui de la santé. Nous savons, et j'ai pu notamment m'en rendre compte en tant qu'enseignante, que les enfants sont d'excellents vecteurs de communication, surtout auprès de leurs parents. Il est important que des habitudes familiales se prennent dans ce domaine. J'ai entendu tout à l'heure dans les initiatives espagnoles que nous n'étions pas les seuls à utiliser cette méthode.

Cette démarche vient compléter, dans de nombreux pays, des politiques d'incitation déjà existantes, mises en place dans le domaine de la restauration scolaire qui, même si elles ne concernent, en tout cas dans mon pays, que quatre repas sur quatorze, peuvent avoir une influence importante. J'ai lu dans les informations que vous nous avez fournies, que la présidence allemande s'était engagée à augmenter de 30% la consommation de F&L dans la restauration collective.

Je crois qu'il est nécessaire aujourd'hui d'approfondir l'évaluation. Celle-ci est faite dans le domaine scientifique, mais moins dans d'autres domaines. Elle est importante car je suis persuadée que notre but à tous est de tendre vers une consommation autonome. Alors nous aurons accompli notre rôle, à savoir, inciter et laisser se pérenniser les politiques que nous mettons en place.

La démarche qui est la vôtre concerne deux Directions de l'Union européenne qui sont les DG Agri et Sanco, mais je souhaiterais qu'elle soit relayée, de façon horizontale à d'autres domaines. Je suis membre de la commission Culture et éducation, et je pense que nous devrions nous sentir éminemment concernés. L'éducation peut jouer pleinement sa part et les médias ont aussi leur rôle à jouer. Ils ont à travers la télévision, à travers la presse, non seulement à rendre compte des politiques publiques, mais aussi une responsabilité dans la transmission du message. Ils jouissent en effet d'une grande influence sur les consommateurs et sur la manière de consommer. Cette stratégie va encore au-delà : on ne peut pas négliger l'aspect environnemental. Enfin, dans l'agriculture que j'ai mentionnée tout à l'heure, le rôle que peut jouer la promotion des F&L pour l'aménagement du territoire au sein de la production agricole est aussi très important.

De plus, je suis aussi Membre d'une commission qui s'appelle « Développement régional » et qui s'occupe des fonds de cohésion et des fonds structurels. Ces fonds peuvent et doivent être sollicités.

Cependant, comme nous l'évoquions au cours du déjeuner, nous allons devoir défendre nos projets au sein du budget européen. C'est toujours, « au bout du bout », une histoire d'argent, de budget. Néanmoins, je suis convaincue que cela « vaut le coup. »

Nous devons nous placer dans un cercle vertueux, dans une chaîne qui, de la graine à l'assiette, doit construire avec les citoyens européens une autre manière de voir et de consommer les F&L au bénéfice de leur santé, du bien collectif et évidemment, dans notre intérêt à tous et dans celui de nos enfants, dans cette Europe que nous voulons, et que nous espérons bien continuer de construire et qui doit tous nous concerner. J'ai fait l'expérience, il y a peu de temps durant la campagne des européennes, de voir combien l'Europe semblait loin pour beaucoup de citoyens. Je crois que nous avons, avec la promotion des F&L un moyen de montrer que nous pouvons agir directement sur leur quotidien et améliorer leur santé à l'avenir. C'est un élément important, et vous avez dit, Monsieur Hoelgaard, que nous avons une mission. Nous devons en prendre pleine possession et exercer nos responsabilités.

Je vous remercie.

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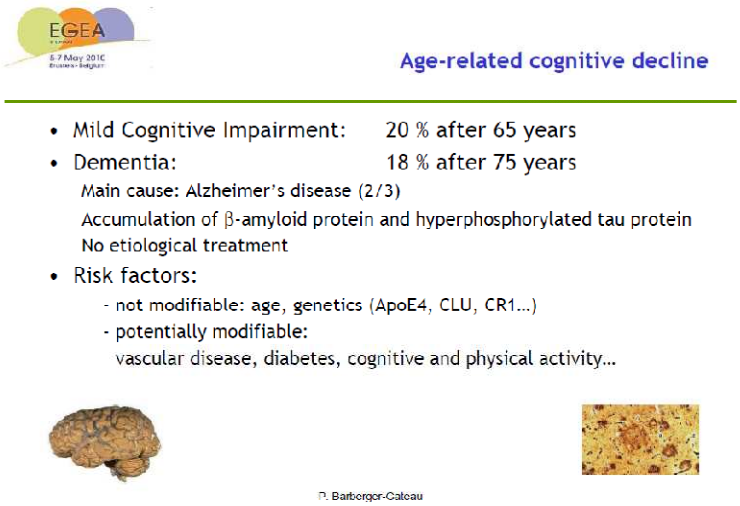
P. Barberger-Gateau (FR)

Alimentation et fonctions cognitives chez les personnes âgées

Pourquoi s'intéresser au vieillissement cérébral quand on pense Fruits et Légumes (F&L) ?

Tout d'abord, parce que le vieillissement cérébral pathologique est fréquent, les troubles cognitifs légers définis comme des performances aux tests neuropsychologiques inférieures à celles attendues pour l'âge et le niveau d'études touchent une personne âgée sur 5 après 65 ans ; la forme la plus grave, la démence qui va atteindre l'autonomie dans les activités de la vie quotidienne en touche environ 1 sur 5 après 75 ans et son incidence augmente exponentiellement avec l'âge.



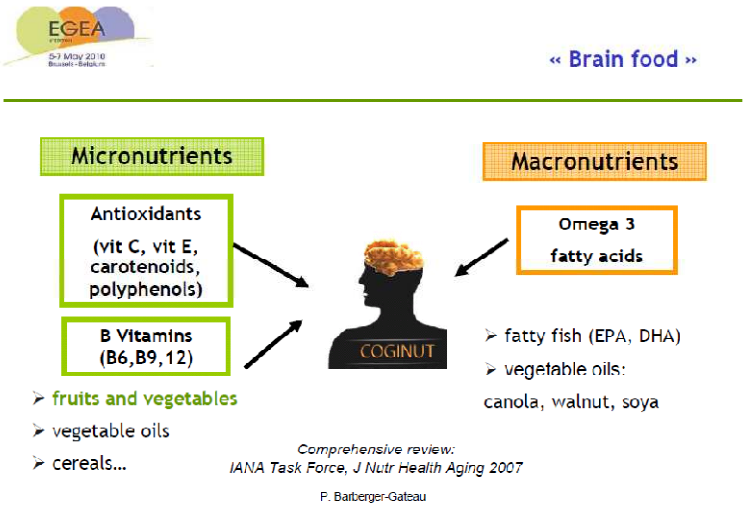
La principale cause de démence est la maladie d'Alzheimer pour environ deux tiers des cas, suivie par la démence vasculaire. La maladie d'Alzheimer est due à une accumulation de protéine bêta-amyloïde dans les plaques séniles et d'hyper phosphorylation de la protéine tau causant une dégénérescence neurofibrillaire. Ces lésions vont être responsables de l'atrophie cérébrale et de la mort neuronale. Malheureusement, il n'y a pas de traitement étiologique de ces deux formes principales de démence, maladie d'Alzheimer et démence vasculaire, actuellement et donc on s'intéresse beaucoup aux facteurs de risque. Malheureusement, la plupart des facteurs de risque, bien identifiés, comme l'âge, et la génétique, n'offrent pas de prise à la prévention. Pour la maladie d'Alzheimer, on sait, par exemple, que la possession de l'allèle Epsilon 4 du gène de l'apolipoprotéine E multiplie le risque par 15 chez les homozygotes, mais on a identifié également récemment d'autres polymorphismes comme CLU ou CR1.

Donc, on cherche à identifier des facteurs de risque sur lesquels on pourrait agir et en particulier, les facteurs de risque vasculaires sur lesquels on va espérer que l'alimentation puisse avoir un impact, comme on vient de le voir abondamment. De plus en plus, on peut considérer que l'expression clinique de la maladie d'Alzheimer du sujet âgé résulte d'une interaction entre la génétique et l'environnement ; sur la partie gauche ici, vous avez la cascade amyloïde classique telle qu'on l'a décrite dans la maladie d'Alzheimer familiale, celle à début précoce qui est due à des mutations des gènes de l'APP, ou des présénilines 1 et 2. Cette cascade amyloïde va donc constituer petit à petit cette accumulation de protéine bêta-amyloïde et va s'accompagner de phénomènes inflammatoires et de stress oxydatif.

A côté, on décrit de plus en plus maintenant chez le sujet âgé, une maladie qui est multifactorielle. A côté de cette prédisposition génétique, voyez les facteurs environnementaux sur lesquels l'alimentation va pouvoir intervenir puisque l'on voit ici des maladies, des

affections métaboliques, l'inflammation sur lesquelles on va pouvoir avoir un impact. L'alimentation en relation avec les fonctions cognitives a été abondamment étudiée dans la petite enfance et beaucoup moins chez la personne âgée, c'est plutôt un intérêt récent.

Deux pistes peuvent être envisagées, tout d'abord, un excès d'apport énergétique qui va conduire à l'obésité, au diabète, au syndrome métabolique dont il a pu être montré qu'ils étaient eux-mêmes associés à un risque accru de maladies vasculaires et aussi un risque accru de démence. Mais ce sur quoi je voudrais insister tout particulièrement aujourd'hui, c'est l'identification de nutriments protecteurs dans l'alimentation. Les recherches actuelles portent sur deux classes de nutriments ; tout d'abord, les acides gras oméga 3, peu abondants dans les F&L, donc je ne vais pas beaucoup vous en parler sauf un tout petit peu à la fin, et également des micronutriments qui, eux, vont se trouver dans les F&L comme les antioxydants et les vitamines du groupe B, en particulier les folates.



Quelques études épidémiologiques se sont intéressées à la relation entre consommation de F&L et risque de vieillissement cérébral pathologique.

Dans l'étude des infirmières américaines, la consommation de légumes, en particulier, les crucifères et les légumes verts à feuilles était associée à un moindre déclin cognitif chez les femmes âgées de 70 ans et plus. Dans l'étude de Kame qui portait sur des japonais vivants aux Etats-Unis, donc une population très particulière, c'est la consommation quotidienne de jus de F&L, au moins trois fois par semaine, qui était associée avec un risque plus faible de maladie d'Alzheimer, mais ils ne retrouvaient pas vraiment d'association avec la consommation de F&L.

Dans l'étude de Chicago, également, on retrouve un risque de déclin cognitif plus faible avec la quantité de légumes consommés et là encore, c'était plutôt avec les légumes verts à feuilles. Enfin, la récente méta-analyse de Luc Dauchet qui vient d'être citée, a bien montré que la consommation de F&L est associée à un moindre risque d'accident vasculaire cérébral, or celui-ci est un important facteur de risque de démence vasculaire.

Dans l'étude française des « Trois cités », nous avons analysé le comportement alimentaire de plus de 8000 personnes âgées de 65 ans et plus qui vivaient à leur domicile à Dijon, Bordeaux et Montpellier et nous les avons suivies ensuite sur plusieurs années. Nous avons pu mettre en évidence que la consommation quotidienne de F&L crus et cuits, c'est un peu une des limites de notre questionnaire, c'est à dire au moins 2 portions de F&L par jour, était associée à une réduction significative de 30% de risque de développer une démence dans les quatre ans qui suivent. Lorsque l'on essaye d'analyser un peu plus finement les données, il semblerait que ce soit plus associé à la consommation de légumes ; on peut donc se poser la question : quels sont les nutriments responsables de ces effets potentiellement protecteurs de la consommation de F&L ? Il y a deux grandes pistes : les vitamines du groupe B, et les antioxydants.

Considérant les vitamines du groupe B, elles sont importantes parce que l'on sait qu'une consommation basse de folates et de vitamine B12 est associée à une *hyperhomocystéinémie* qui, elle-même, a pu être montrée comme facteur de risque de démence et de maladie d'Alzheimer.

Plusieurs études d'observation ont analysé la relation entre consommation de ces vitamines, et le risque de démence ; elles montrent plutôt un effet protecteur d'une consommation, mais avec quelques résultats discordants. Paradoxalement toutes les études d'intervention qui ont supplémenté, soit avec la B6, la B12, ou des folates seuls ou en association ont été strictement négatives, mêmes si elles arrivaient à faire baisser l'*homocystéinémie.* Une seule étude était positive, dans une population bien particulière, parce que c'étaient des hommes âgés de 50 à 70 ans qui avaient le facteur de risque *homocystéinémie* élevée, tout en ayant un statut en vitamine B12 normal, et qui ont été supplémentés à 800 microgrammes d'acide folique par jour, pendant trois ans et là, ce sont des doses qu'il va être très difficile d'atteindre même en mangeant beaucoup de F&L. Donc, une seule étude d'intervention a été positive avec les vitamines du groupe B.
Par contre, vous savez que les F&L sont également des sources très importantes d'antioxydants, comme la vitamine E dont on sait qu'elle peut être pro-oxydante à fortes doses, mais pas aux doses trouvées dans les aliments, surtout dans les huiles végétales et l les graines dont elles sont tirées, et puis d'autres antioxydants qui vont contribuer à régénérer la vitamine E dans l'organisme, comme la vitamine C, les caroténoïdes et les polyphénols. Les F&L peuvent également amener certains cofacteurs enzymatiques des enzymes anti oxydantes en particulier, le sélénium.

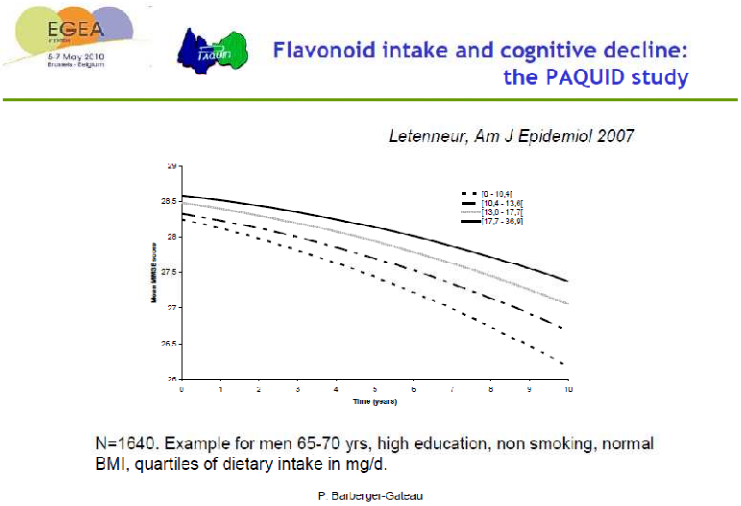
Si l'on regarde en termes de consommation d'antioxydants, la relation entre consommation totale et risque de déclin cognitif ou de démence, dans les études d'observation, donne des résultats très discordants parce que la plupart de ces études sont américaines et comportent de fortes proportions d'utilisateurs de suppléments, en particulier en vitamine E, elles sont donc totalement ininterprétables.

Si l'on regarde les études d'intervention qui, elles, ont contrôlé les apports en antioxydants, vous constaterez d'abord qu'elles ont été faites avec des doses extrêmement élevées, soit de vitamine seule, soit de plusieurs combinaisons d'antioxydants, mais à des doses tout à fait supérieures aux apports nutritionnels conseillés, et elles ont toutes été strictement négatives, à part un des deux volets de l'étude des médecins américains où dans le bras qui avait été suivi au plus long terme avec supplémentation de beta-carotène, il semblait y avoir un peu moins de déclin cognitif. Mais je prends cette étude avec beaucoup de précaution, il y a de gros biais méthodologiques avec, notamment, une mortalité très importante dans ce bras peut-être due au beta-carotène puisqu'il y a des méta-analyses qui ont montré qu'il pouvait être associé à une mortalité accrue et donc l'impact sur le déclin cognitif est, à mon sens, très loin d'être démontré.

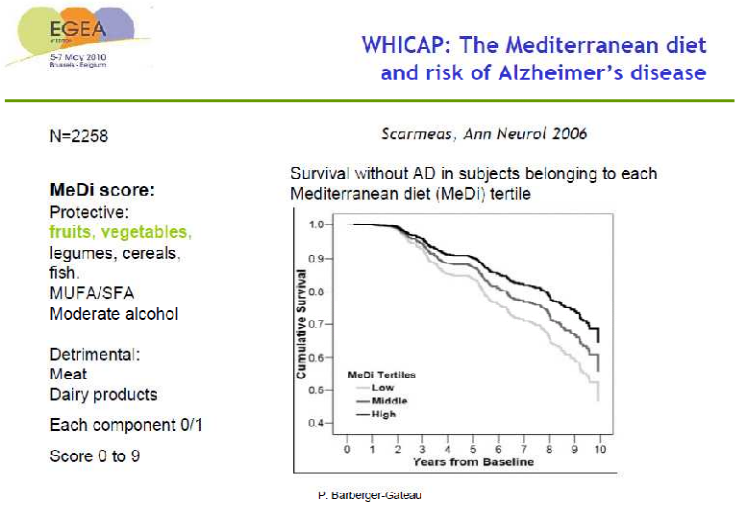
Les caroténoïdes sont une voie extrêmement prometteuse, il y a très peu de données encore là-dessus en relation avec le vieillissement cérébral. Ce sont essentiellement des études transversales, une étude en imagerie par IRM, qui a trouvé moins de lésions de la matière blanche péri-ventriculaire chez les sujets qui avaient les plus hauts niveaux de caroténoïdes dans leur sérum, et puis plusieurs études transversales sur les teneurs plasmatiques en caroténoïdes, le risque de troubles cognitifs légers, de maladie d'Alzheimer et de démence vasculaire. Mais dans ce type d'étude, on ne sait pas si on est en termes de cause ou de conséquence de la maladie.

On manque donc d'études longitudinales, il y en a trois qui ont été publiées ; une qui est négative et deux positives que je vous ai mises ici ; toutes les deux ont suivi le déclin cognitif sur sept ans, toutes les deux ont trouvé que soit une consommation plus élevée de carotène, soit un statut plasmatique en beta-carotène plus élevé est associé à un moindre déclin cognitif, mais dans l'étude fondée sur le plasma, ce statut protecteur n'était observé que chez les sujets qui avaient l'allèle Epsilon 4 du gène de l'apolipoprotéine E. Donc, on rejoint ce problème d'interaction gène/environnement qu'Elio Riboli soulevait dès son introduction.

Enfin, les polyphénols ; nous avons essayé de reconstituer la consommation de polyphénols, et en particulier, de flavonoïdes dans l'étude Paquid qui est une étude de cohorte menée en Gironde et en Dordogne. Nous avons ces données sur 1600 participants, c'est-à-dire un peu moins de la moitié de l'échantillon de Paquid et nous avons pu mettre en évidence grâce au très beau travail de Luc Letenneur, que plus la consommation de flavonoïdes était élevée, ici, vous avez la représentation en quartiles, en milligramme par jour, moins le déclin cognitif était lent et il y a un magnifique gradient, tout en ajustant sur un ensemble de facteurs de confusion potentiels qui sont listés ici.



Les F&L sont évidement une des composantes importante du régime méditerranéen, on en a déjà beaucoup parlé ce matin. Une étude américaine la « WHICAP » a reconstitué le score de la diète méditerranéenne de Trichopoulou en donnant un point aux F&L et autres aliments supposés protecteurs dont la consommation était supérieure à la médiane et un point, lorsque la consommation des aliments délétères était inférieure à la médiane. Scarmeas a ainsi pu mettre en évidence, là encore, un très beau gradient en fonction du score d'adhérence à la diète méditerranéenne, plus l'adhérence est élevée, plus le déclin cognitif est lent au fil de 10 ans de suivi et le risque de démence incidente est plus faible.



Nous avons recalculé exactement le même score dans notre cohorte des « Trois cités » à Bordeaux pour laquelle nous avions ces données et nous avons, là encore, pu mettre en évidence qu'une adhérence élevée au score méditerranéen entre 6 et 9 dans notre cohorte était associé à un déclin cognitif significativement plus lent au fil de cinq années de suivi. Dans notre cohorte, nous n'avons pas retrouvé d'association protectrice avec la maladie d'Alzheimer,

mais il faut bien se souvenir comment est calculé le score de Trichopoulou, c'est par rapport aux médianes observées dans l'échantillon, alors un individu qui, chez nous, se trouvait classé en dessous de la médiane pour certains aliments, par exemple, les F&L, se trouve en fait avoir une consommation supérieure à celle des « bons mangeurs » américains. Donc nous avions une population qui mangeait déjà relativement bien, donc sur laquelle il est plus difficile de mettre en évidence des associations protectrices avec les consommations de F&L.

Donc, en conclusion, l'ensemble de ces travaux suggèrent des effets protecteurs conjoints des antioxydants, des vitamines du groupe B, en particulier, les folates, des acides gras oméga 3, je ne vous en ai pas beaucoup parlé, mais le poisson est une composante du régime méditerranéen, et probablement d'autres composants que l'on commence à connaître comme les caroténoïdes ou les polyphénols contre le déclin cognitif et le risque de la maladie d'Alzheimer ou de démence en général.

Les études d'intervention sont souvent extrêmement décevantes ; elles ne sont pas du tout à des doses nutritionnelles et donc, en conclusion, tout ceci suggère que les F&L ont totalement leur place au sein d'une alimentation variée qui pourraient contribuer à ralentir le déclin cognitif du sujet âgé et donc, à avoir un impact potentiel énorme en terme de santé publique.

En conclusion, je remercie toute mon équipe à Bordeaux et je vous remercie pour votre attention.

QUESTIONS/REPONSES

Public (Monsieur Maouche – Algérie) : *J'ai été impressionné par votre intervention, peut-être parce que j'ai eu droit au texte en lui-même comprenant mieux le français que l'anglais, j'ai un peu mieux compris ce qui se passait ; je vous remercie pour cette intervention que je trouve extrêmement haute et rigoureuse et je faisais la relation entre ce que l'on appelle, ce que certains appellent le diabète de type 3 qui est la maladie d'Alzheimer, donc je faisais la relation entre l'indication des protéines endothéliales, genre lysine, etc., que l'on trouve dans les diabètes et des glycations de protéines au niveau de la protéine T0 que l'on trouve au niveau du cerveau, donc c'est vrai que vous avez essayé de démontrer que les F&L protégeaient de la maladie d'Alzheimer, il m'est difficile de comprendre le sens du mot protection parce que moi, dans mon idée, c'est de dire, est-ce que cela induit la maladie ? Est-ce que cela n'induit pas la maladie ? Est-ce que cela protège de la maladie ? J'essaie de faire cette distinction dans ma tête, je n'ai pas très bien suivi.*

P. Barberger : Je suis tout à fait d'accord avec vous ; j'ai sûrement utilisé le terme « protégé » de façon un peu abusive. Disons « ralentirait l'expression clinique » parce que dans la maladie d'Alzheimer, vous avez cette prédisposition génétique qui n'existe pas chez tout le monde, il y a 20% de la population qui a un allèle Epsilon 4. Donc il y a des gens qui vont faire une maladie d'Alzheimer, ou en tous cas, ce qui y ressemble cliniquement sans avoir cet allèle et inversement, des gens qui ont l'allèle et qui ne feront jamais la maladie de leur vivant, ils l'auraient peut-être faite, mais à 120 ans.
Donc à mon avis, ce n'est pas de la protection, mais c'est ralentir le déclin. Il y a plusieurs cibles sur lesquelles on peut agir, effectivement, la cascade amyloïde, mais on n'a pas énormément d'arguments pour se dire que l'alimentation interviendrait directement au niveau de la cascade d'amyloïde et à mon avis, ce serait peut-être plus au niveau des acides gras oméga 3, en particule du DHA dont on a pu montrer chez l'animal qu'il était associé à une diminution des plaques chez des souris qui faisaient spontanément cette maladie d'Alzheimer.

Les F&L, à mon sens, mais ce n'est pas démontré encore, il faudrait accéder davantage au cerveau auraient plutôt un effet neuroprotecteur global par un ensemble de mécanismes, y compris effectivement par la glycation des protéines. Il y a énormément de mécanismes, je me suis centrée sur ceux qui étaient peut-être les plus spécifiques, les plus classiquement évoqués dans le vieillissement cérébral, le stress oxydant, l'inflammation, mais il y a également tout ce qui est autour du diabète de type 2 qui, lui-même, est un facteur de risque important de la maladie d'Alzheimer, de l'hypertension artérielle, j'aurais pu parler du potassium qui est dans les F&L et qui contribue à diminuer l'hypertension artérielle, donc, à mon avis, il y a énormément de nutriments impliqués et d'interactions entre nutriments. J'étais très intéressée par les travaux sur les profils alimentaires parce que c'est effectivement la voie dans laquelle nous cherchons actuellement, on voit bien que cette diète méditerranéenne, c'est une conjonction d'aliments. Lorsque l'on prend les aliments un par un, on a moins de protection lorsque l'on considère l'interaction entre nutriments. Je ne vous ai pas non plus montré nos travaux, on a regardé les profils qui associaient la consommation de poissons ou d'huiles riches en acides gras en oméga 3, comme les huiles de colza et de noix et consommation de F&L et c'est là que l'on a aussi le maximum de protection parce que l'on a des antioxydants qui vont protéger les acides gras polyinsaturés à longue chaîne de la péroxydation lipidique et qui vont protéger les membranes neuronales. J'ai l'impression que l'on est dans une convergence de mécanismes.

Public : *Vous disiez que cela va ralentir le processus, de déclaration du processus et pas d'autres marqueurs, d'autres marqueurs intermédiaires peut-être, des facteurs qui pourraient être examinés afin de pouvoir déterminer l'existence de cette composante.*

P. Barberger : C'est là une des difficultés de la recherche dans le domaine de la maladie d'Alzheimer parce que nous n'avons pas de marqueurs périphériques, spécifiques aisément accessibles. Il y a des marqueurs en imagerie IRM avec l'atrophie de l'hippocampe, en particulier, mais qui nécessitent de faire de l'imagerie sur des grandes séries de sujets, c'est ce que nous sommes en train d'analyser, et il y a des marqueurs dans le liquide céphalo-rachidien. Mais dans les études épidémiologiques, il est totalement exclu de faire des ponctions lombaires pour avoir des échantillons de liquide céphalo-rachidien. C'est clairement tout un pan de la recherche fondamentale d'avoir des marqueurs pathognomoniques de la maladie d'Alzheimer aisément accessibles en périphérique ; pour l'instant, nous ne les avons pas. , Concernant l'imagerie, j'aurais pu parler aussi d'hypo-métabolisme en PET scan, mais ça c'est encore moins faisable que l'imagerie par IRM.

Public : *On trouve dans la littérature, quelques informations concernant les phospholipides en tant que précurseurs et d'examiner les faits dans la structure les fonctions LCR est-ce que cela vaut toujours ou pas ?*

P. Barberger : Les études d'observation ont presque toujours constamment associé les acides gras omega 3 à un risque diminué de la maladie d'Alzheimer, que l'on parle de consommation de poissons, d'acides gras plasmatiques, d'acides gras dans les membranes des globules rouges avec quelquefois des interactions avec l'Epsilon 4. Ceci dit, il y a eu quelques études d'intervention et la toute dernière « Opale » vient de paraître. Elles sont négatives, donc on est encore dans l'expectative, on n'a peut-être pas ciblé les bonnes quantités d'acides gras oméga 3, en général, on en donne beaucoup plus que les ANC, ou on n'a pas ciblé les bons individus, ou on intervient sans doute trop tard sur de trop courtes périodes et c'est toute la difficulté d'avoir la fenêtre de prévention idéale dans cette maladie qui va s'étendre pendant des dizaines d'années. La constitution des lésions neuropathologiques dans le cerveau prend des dizaines

d'années avant que les gens expriment des symptômes, c'est très difficile de faire la preuve de l'impact des nutriments par des études d'intervention, mais les hypothèses restent valables.

Public : *Merci Pascale pour ton excellente intervention ; j'avais deux questions, la première, c'est sur les caroténoïdes : est-ce que l'on voit des différences entre les caroténoïdes pro-vitaminiques A et les non pro-vitaminiques A parce que l'on sait qu'il y a des effets de l'acide transrétinoïque qui sont des effets neuroprotecteurs et ma deuxième question : Est-ce que cela a été étudié avec le statut inflammatoire ?*

P. Barberger : À ma connaissance concernant les caroténoïdes, les seules études qui ont étudié plusieurs classes de caroténoïdes sont transversales et en étude transversale, on voyait plutôt sortir les caroténoïdes xanthophylles, donc pas les pro-vitamines A ; par contre, en longitudinal, les deux études que j'ai présentées faisaient sortir le beta-carotène, donc plutôt pro-vitaminique A, pour l'instant, c'est un petit peu discordant, mais on manque complètement de données longitudinales, nous sommes en train de les analyser.

J'espère que l'on pourra vous les présenter bientôt.
Ensuite, l'hypothèse inflammatoire, oui, c'est extrêmement intéressant dans la maladie d'Alzheimer, c'est clair ; on a l'impression qu'il y a une neuro-inflammation à bas bruit dans le cerveau vieillissant qui va être exacerbée en cas notamment d'inflammation systémique périphérique aigue et on peut se poser la question du rôle d'anti- inflammatoires comme les acides gras oméga 3 à longue chaîne, en particulier l'EPA, et c'est vrai que nous avons observé des associations entre statut plasmatique en EPA qui est précurseur des eicosanoïdes anti-inflammatoires et moindre déclin cognitif et moindre risque de maladie d'Alzheimer, mais pour l'instant, il n'y a pas eu d'études d'intervention qui donnent de grosses doses d'EPA, elles sont plutôt concentrées sur le DHA et ne marchent pas.

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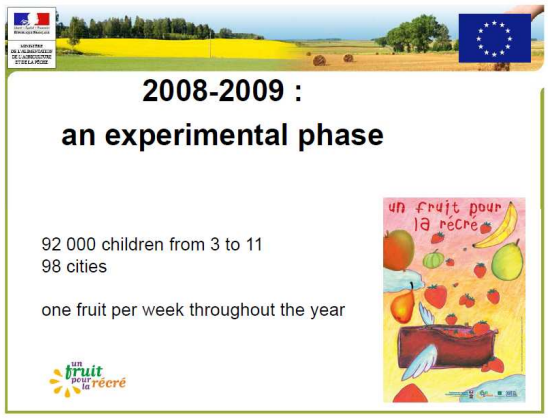
L. Souliac (FR)

« Un fruit pour la récré » : freins et leviers au changement des pratiques

Merci Monsieur le Président et bonjour à tous.

Comme vous l'a dit Monsieur Hoelgaard, je vais vous présenter le programme de distribution de fruits à l'école qui est mené en France depuis 2008 et je vais essayer de vous expliquer les difficultés que nous avons rencontrées, les moyens que nous avons mis en œuvre pour contrer ces difficultés. Je vous présenterai ensuite les résultats d'une évaluation que nous avons menée en 2008/2009 qui nous ont permis aussi d'ajuster notre stratégie nationale.



Ce programme a été monté en concertation avec la filière des Fruits et Légumes (F&L) frais et transformés en concertation avec les autres administrations, notamment avec les ministères chargés de l'Education Nationale, de la Santé, avec des Fédérations de Parents d'Elèves, les syndicats qui s'occupent de restaurations scolaires et enfin les représentants des élus. Le programme en 2008/2009 était une phase expérimentale que nous avons menée sur 92 000 enfants qui étaient âgés de 3 à 11 ans, donc de l'école maternelle à l'école élémentaire. Il concernait une centaine de villes et le cahier des charges prévoyait que l'on distribuait un fruit par semaine, tout au long de l'année scolaire, les communes étaient volontaires pour s'engager dans le programme et le financer.

La première difficulté concerne la publicité du programme et la motivation des élus à s'engager dans la mesure où ils financent l'achat des fruits. Comme l'a dit Monsieur Hoelgaard, Monsieur Barnier, alors Ministre chargé de l'agriculture, était très investi dans l'affaire. Il a participé à de nombreuses conférences de presse, il a écrit aux représentants des élus. Nous avons mis en place un site web, une hotline pour répondre aux questions ; nous avons rédigé des articles dans les journaux professionnels de F&L parce qu'en France dans les communes rurales beaucoup d'élus sont aussi agriculteurs et puis aussi dans les journaux destinés aux instituteurs. Toutefois, compte tenu des résultats nous avons amplifié les démarches, le Ministre a envoyé une lettre à chaque élu de France, il y en a quand même 36000. Nous avons aussi adressé une lettre à toutes les communes qui étaient inscrites dans le programme social de distribution de lait à l'école pour faire un lien entre les deux programmes européens, on a fait d'avantage de promotion et puis on a élu une ambassadrice pour porter le projet en la personne d'Estelle Denis ,journaliste sur une chaîne télévisée populaire.
Pour le moment, nous touchons 350 000 enfants, notre ambition pour l'année suivante, serait de toucher 1 million d'enfants. L'opération sera ouverte à l'ensemble des collèges et lycées de France au secondaire.

La deuxième difficulté rencontrée concerne le financement de l'opération. Les communes volontaires doivent payer 49 % du montant et l'on s'aperçoit que les grosses communes répondent moins bien à nos sollicitations que les communes rurales. Un maire d'une commune rurale du sud de la France explique, de façon à motiver les autres élus, que l'achat d'un fruit par semaine aux enfants des écoles équivaut au financement d'un feu d'artifice du 14 juillet, et que ce coût n'est pas aussi conséquent. Nous avons rappelé aux communes que les fonds privés sont autorisés, mais en fait les communes n'y font pas appel. En outre, nous avons essayé d'être plus souple, on a ouvert la possibilité d'adhérer au programme pour un, deux ou trois trimestres. Cela reste le choix de la commune, nous faisons le pari que cette facilité permettra aux communes de mettre le pied à l'étrier et puis rapidement, si cela marche bien, elles vont être tentées à la demande des parents et des enfants de poursuivre le programme sur une plus longue durée.

La troisième difficulté concerne le moment de la distribution et la liste des produits éligibles.

L' Agence Française de Sécurité Sanitaire des Aliments a émis une recommandation pour qu'il n'y ait pas de collation matinale à l'école afin de contrer l'obésité infantile. Cette collation matinale, considérée comme du grignotage, empêche les enfants d'avoir suffisamment faim à midi. Notre programme s'intitulant « un fruit pour la récré» laisse à penser à un possible grignotage. Nous avons décidé d'avoir des guidelines plus strictes précisant que le fruit pouvait être donné à l'arrivée des enfants le matin à l'école, ainsi un délai assez grand existe entre la distribution de fruits et le repas du midi et que le moment du goûter reste le moment le plus approprié.

En France, le « Programme National Nutrition Santé » ne considère pas les fruits séchés tels que le pruneau, les figues, les abricots secs et les fruits à coques éligibles au repère des 5 F&L par jour. Les producteurs de pruneaux, dans le sud ouest de la France, les producteurs de la noix de Grenoble souhaiteraient que leur production puisse aussi être découverte par les enfants. Nous avons saisi l'Agence de Sécurité des Aliments pour qu'elle nous dise dans quelles conditions, on pourrait faire découvrir ces fruits.

La quatrième difficulté est liée au code des marchés publics et à l'achat de produits locaux. En effet, les consommateurs ont besoin d'être rassurés, il y a eu différentes crises sanitaires, notamment les produits importés de Chine et qui contenaient de la mélamine. Les consommateurs accordent plus de confiance aux produits locaux. On note une réelle demande des parents d'élèves pour que les communes s'approvisionnent sur les marchés locaux. Le code des marchés publics n'autorise pas l'achat dans une zone géographique déterminée, ce serait anticoncurrentiel. Il faut donc essayer qu'il y ait une bonne adéquation entre l'offre et la demande, donc les agriculteurs doivent faire connaître aux mairies, grâce à de petits guides, la liste des produits régionaux, les variétés cultivées, les quantités disponibles, à quelles saisons et du côté des maires, il faut aussi qu'ils fassent de l'allotissement, c'est-à-dire qu'ils séparent leurs commandes publiques en plusieurs petits lots et puis autant faire se peut qu'ils demandent des fruits de saison, mûrs à point, fraîchement récoltés, de toute façon, cela va dans le sens de la qualité du produit.

Par ailleurs, on a décidé de mener une évaluation parce qu'on voulait être sûr que l'on n'allait pas entraîner des effets secondaires, des effets pervers que l'on n'aurait pas prévus. Nous souhaitions aussi mesurer la satisfaction des enfants et des parents et on voulait savoir si notre stratégie allait bien répondre aux objectifs que l'on s'était fixés. Nous avons sollicité le Centre International des Hautes Etudes d'Agronomie de Montpellier (CIHEAM). Le CIHEAM a d'abord travaillé en focus groupe avec des questions ouvertes ; ensuite, il a construit des questionnaires fermés auxquels ont répondu 2500 enfants et 2200 parents avant la distribution des fruits puis cinq mois plus tard. L'évaluation a aussi porté sur le niveau de connaissance des enfants et des parents, sur les éventuels changements de comportement ou de pratiques alimentaires, changements dans les actes d'achats.

Concernant les enfants, les résultats de cette évaluation montrent que d'une façon générale, les enfants sont très contents qu'on leur donne des fruits à l'école, nous avons insisté pour une approche ludique, on ne force pas les enfants à manger des fruits. Il s'agit de leur faire découvrir le fruit, le métier des hommes qui sont derrière, d'où viennent les fruits, leur origine, etc. et 62% des enfants ont dit qu'ils aimeraient bien en manger encore plus.

Ce qui était amusant, c'est le niveau de connaissance des enfants ; dans le T0, on a vu que les enfants classent comme fruit tout ce qui contient des fruits, y compris lorsque les produits n'en contiennent qu'en apparence, exemple : un thé aromatisé à l'orange, un yaourt aromatisé à la fraise, etc. Il y a un travail pédagogique à mener là-dessus et par contre, ce qui est vraiment encourageant, c'est qu'à travers nos actions pédagogiques, on s'aperçoit que les enfants ont beaucoup appris sur la saisonnalité, ils étaient 39% à connaître un petit peu les saisons des fruits et après l'opération, ils étaient quasiment pas loin de 50% à connaître quelque chose, donc si on continue dans cette voie là, je pense que l'on aura des futurs consommateurs bien avertis.

On a demandé aux enfants de s'exprimer sur leur goût, ils ont répondu qu'ils n'aimaient pas les kiwis ; ils les trouvent trop acides, ceci montre que la qualité des fruits est vraiment un point important du cahier des charges.

Lorsque vous donnez le fruit à la récréation, les enfants ne vont pas manger de gâteaux en même temps, donc c'est bénéfique, mais par contre, quand ils rentrent chez eux, ils gardent leurs habitudes alimentaires, ils ont leur pot de pâte à tartiner, ils ont leurs gâteaux. Il y a encore un travail à faire avec les enfants, mais aussi avec les parents sur l'éducation alimentaire et sur la composition du goûter.

Concernant les parents, 90% des parents ont dit qu'ils étaient satisfaits, 94% des enseignants également. Ce résultat est rassurant parce qu'au début, les réticences étaient importantes par crainte de désorganiser la classe, par souci de gérer les déchets, de gérer la découpe des fruits et finalement, quand les gens commencent, ils s'organisent rapidement et sans souci.

En point positif, on observe que quand les enfants sont dans le programme, les parents vont plus souvent au marché, les parents ont davantage envie de naturalité, ils ont envie d'acheter plus de fruits. Avant l'opération 31% des parents allaient acheter des fruits au marché, après l'opération, 41%.

Par ailleurs, il est important de signaler l'opération aux parents, de mettre des messages dans le carnet de correspondance pour qu'il y ait de meilleures pratiques, pour qu'ils soient plus attentifs aux goûters des enfants quand ils rentrent.
Les professeurs nous ont dit qu'ils avaient des difficultés pour télécharger depuis notre site web nos documents pédagogiques qui sont gratuits, accessibles à tous, que l'on adhère au programme ou non. Pour faciliter le téléchargement, on les a travaillés en haute définition pour que même photocopiés en noir et blanc ils soient jolis et agréables. Au demeurant, il s'avère que les écoles ne sont pas assez équipées, donc on allons élaborer des mallettes pédagogiques avec un exemplaire de chaque document tiré en couleur pour vraiment inciter les enseignants à s'en servir.

Donc, nous avons essayé d'être à l'écoute au maximum des demandes. Je voudrais remercier la Commission particulièrement parce qu'elle nous autorise à modifier notre stratégie tous les ans et même en cours d'année si besoin et ça, c'est vraiment quelque chose qui nous facilite la vie.

Je vous remercie de votre attention.

QUESTIONS/REPONSES

Public : *On parle de programmes, on distribue des fruits et on dit le médecin a proposé justement de manger des F&L et on a tendance à proposer cela au début des repas, alors que si on proposait le fruit à la fin du repas, cela viendrait remplacer le snack ou le gâteau, ça viendrait remplacer peut-être aussi le goûter à la maison, est-ce que vous pouvez un peu commenter ?*

L Souliac : Concernant le moment du repas, nous, de toute façon, dans le programme, le fruit est donné hors restauration du midi, restauration scolaire et les recommandations de notre Agence Sanitaire, c'est qu'il faut laisser un temps suffisant soit trois ou quatre heures entre chaque repas, donc il ne faut pas que cette distribution de fruits intervienne trop tôt autour du repas de midi, c'est ça l'obligation.

Public (de l'Association Européenne des fruits frais et légumes frais) : *je vous remercie pour votre présentation qui m'a semblé très intéressante, je suis heureuse d'entendre que la France a bien avancé sur ce programme, j'ai trois questions : d'abord, vous dites que les grosses villes sont en général plus réticentes à la participation au programme que les zones rurales, cela m'étonne, est-ce que vous savez pourquoi ? On a tendance à penser pourtant que les grandes villes ont de meilleures structures de distribution.*
Un autre petit commentaire par rapport à l'achat de produits locaux, c'est une bonne chose, mais on parle aussi de la variété, c'est prévu aussi dans le programme, on doit faire goûter aux enfants tous les produits locaux, tous ceux qui pourraient les intéresser, par ailleurs, je voudrais vous féliciter sur l'évaluation, il est bon que vous ayez insisté aussi sur le fait qu'il faut mettre quelque chose en place avant le début du programme pour que l'on puisse vraiment évaluer les résultats du programme.
Et vous avez mentionné que les enfants ne savent pas exactement finalement ce que c'est un fruit, ils croient qu'un yaourt avec des fruits, ce sont des fruits en tant que tel, cela montre à quel point, il y a une mauvaise connaissance du fruit et du légume au niveau des enfants et puis, ils pensent qu'il y a des fruits dans un produit qui n'en contient même pas.

L. Souliac : A la question, pourquoi les grandes villes sont plus réticentes ? Je pense que c'est une question de budget, quand on est dans une grande ville, on a beaucoup d'écoles, beaucoup d'enfants et la somme à débourser pour l'achat des fruits est importante, donc c'est une vraie

décision politique, il faut persuader le conseil municipal de l'intérêt de la démarche. Concernant la ville de Paris, la restauration scolaire est gérée par chaque arrondissement, l'opération de distribution va commencer par les arrondissements investis dans les questions de santé.

Public : *Dans le cadre des marchés publics, le cadre des marchés publics ne permet pas aux collectivités territoriales de privilégier la promotion de produits locaux ou de saison pour la distribution de fruits dans les écoles ; ce n'est pas ce que prétend l'interprofession en France, dès lors que selon ces recommandations soutenues par votre Administration, les marchés sont passés par bons de commandes hebdomadaires auprès de fournisseurs présélectionnés dans un accord cadre : est-ce que l'expertise de l'interprofession est défaillante à ce sujet ou est-ce qu'il s'agit de mettre en place de nouvelles logistiques d'approvisionnement ?*

L. Souliac : Concernant le code des marchés publics la difficulté, c'est que les communes ne connaissent pas forcément l'ensemble des possibilités qui leur sont offertes par le code des marchés publics. Dans le cahier des charges « un fruit pour la récré », on a inclut les préconisations qui sont faites par le CCC et Interfel, ainsi les élus peuvent s'y référer. Pour acheter des produits locaux, l'idée n'est pas de créer forcément une nouvelle logistique, mais de mettre en relation l'offre et la demande, les maires doivent faire connaître leurs besoins et les producteurs locaux faire connaître leur offre. La règle du code des marchés publics, c'est que l'on ne peut pas mettre de critères géographiques dans l'appel d'offre, ni de distances kilométriques.

Public : *J'aimerais savoir dans les écoles : qui est intéressé par la mise en œuvre de ce programme ? Est-ce que c'est la direction ou est-ce que ce sont certains représentants du personnel qui s'y intéressent et qui est-ce qui donne les recommandations en termes de fruits à acheter ?*

L. Souliac : En France la responsabilité de la restauration scolaire est une compétence que l'Etat a déléguée aux communes, donc c'est le maire qui est responsable et dans la commune, il y a un gestionnaire de la restauration et c'est lui qui passe les commandes. La distribution, à proprement parler, est organisée dans chaque école par le directeur ou la directrice de l'école avec l'aide des enseignants.

Public : *Le seul problème, c'est que nous allons insister dans le cadre de ce programme sur les mesures d'accompagnement, il est important de discuter des aspects de saisonnalité, les aspects de l'agriculture, les aspects de santé, tous ces éléments qui doivent être liés au fait de la distribution des fruits ou aussi des légumes, et par conséquent, si on le donne au début ou à la fin de la journée, à quel moment est-ce qu'il y a les mesures d'accompagnement ?*

L. Souliac : Les mesures d'accompagnement peuvent être faites par le professeur des écoles sur le temps scolaire, il s'agit alors de faire une poésie ou une comptine autour des fruits ou bien de faire un cours d'histoire, de sciences naturelles ou de géographie autour des fruits mais cela peut aussi prendre la forme d'une sortie pédagogique chez un producteur ou bien encore la mise en place d'un potager à l'école. Les mesures d'accompagnement peuvent aussi se faire dans l'espace périscolaire qui est adapté à la distribution de fruits, nous avons un système de garderie juste après l'école (centres de loisirs attaché à l'école) où des dames de service peuvent découper les fruits, les enfants peuvent faire des jeux ou des ateliers autour des fruits.

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H. Bihan (FR)

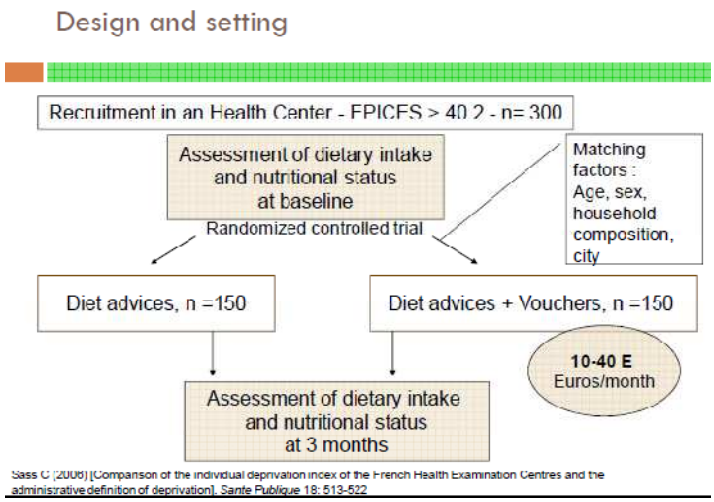
Etude de l'impact des chèques fruits et légumes auprès d'une population précaire

Comme on a vu au long de ces journées, la consommation de Fruits et Légumes (F&L) est très faible chez les personnes de bas niveau socioéconomique avec des différences importantes et ceci amène des campagnes de santé publique, des campagnes médiatiques et donc comme on vient de voir en détail avec Monsieur Greenaway des programmes et notamment aux Etats-Unis avec la possibilité d'obtenir des chèques pour acheter ou pour avoir en échange des F&L.

En France, c'est l'un des objectifs du PNNS, c'est donc le Plan National Nutrition Santé qui a débuté en 2001 ; l'un de ses objectifs est de diminuer de 25% le nombre de petits consommateurs qui étaient des personnes définies comme mangeant moins de 3,5 portions de F&L par jour et ces personnes représentent 35% de la population générale et si maintenant on prend une étude dans une population extrêmement précaire puisqu'il s'agissait de personnes se nourrissant essentiellement dans des centres de distribution alimentaire, on a 95% de la population qui ne consomme que très peu de F&L.

L'objectif de notre étude, c'était d'évaluer l'efficacité d'un supplément économique pour acheter des F&L chez une population précaire avec deux critères d'évaluation. Le premier était la faisabilité et l'acceptabilité de ces chèques dans une population qui n'est pas habituée à en recevoir et puis l'autre critère principal était l'efficacité de ces chèques sur la consommation de F&L.

Comment a-t-on organisé cette étude ? On a recruté les personnes, les volontaires dans un centre d'examen de santé - *vous verrez tout à l'heure sur la carte* - sur un critère de recrutement qui était un score français de précarité qui s'appelle le « Score Epices » qui a été validé en France et qui est utilisé dans des centres d'examens de santé. Et on a recruté 300 personnes qui ont été randomisées entre un groupe recevant des conseils alimentaires et un groupe qui recevait des conseils et des chèques, alors ces conseils alimentaires étaient donnés par une diététicienne formée, avant le tirage au sort sans savoir si la personne allait recevoir ou non des chèques et ces conseils concernaient essentiellement la consommation de F&L en conseillant une consommation de plus de cinq F&L par jour. On donnait également à nos volontaires le guide alimentaire du PNNS qui reprend ces conseils alimentaires et un guide de l'Aprifel qui détaille comment on peut manger dans des conditions socioéconomiques difficiles, comment s'approvisionner en produit de F&L moins chers. Dans le groupe qui recevait en plus des chèques, le montant des chèques dépendait du niveau de la composition de la famille, c'était un montant qui allait de 10 euros par mois pour une personne



Sass C (2006) [Comparison of the individual deprivation index of the French Health Examination Centres and the administrative definition of deprivation]. *Sante Publique* 18: 513-522

seule jusqu'à 40 euros pour un couple avec deux ou trois enfants. Donc les sujets ont été évalués à l'inclusion et à trois mois pour leur statut nutritionnel, leur apport en F&L ; on a regardé également une répartition entre les deux groupes sur l'âge, le sexe, la composition du foyer et les villes.

Voici, à titre d'exemple, comme précédemment, le chèque qui était donné à nos volontaires échangeables dans des grandes surfaces grâce au code barre qui est sur la droite du chèque et puis une affiche qui permettait aux volontaires d'être sensibilisés afin d'accepter l'inclusion dans cette étude.

On avait également un questionnaire auto-administré aux volontaires pour recueillir les données socioéconomiques, des questionnaires concernant l'insécurité alimentaire ainsi que l'achat de F&L dans les magasins avoisinants ; un recueil de 24 heures, un examen clinique avec des mesures anthropométriques, la tension, le poids, la taille et puis également, ce qui nous paraissait important dans cette étude, des marqueurs de la consommation de F&L avec des dosages vitaminiques : vitamine C, beta-carotène et puis d'autres dosages.
On a regardé la consommation de F&L et je vous parlerai de ces résultats uniquement déclaratifs et non pas des résultats des questionnaires des 24 heures. Puis on a surtout, en fait, regardé notre population entre des personnes qui consommaient extrêmement peu de F&L parce que l'on a des sujets qui consomment des F&L moins d'une fois par jour et on les a comparés aux sujets qui tout en étant précaires arrivaient à consommer des F&L plus d'une fois par jour. Donc on a regardé à l'inclusion les facteurs déterminants la très, très faible consommation de F&L et puis on a regardé à trois mois l'évolution de cette consommation et l'évolution des taux plasmatiques de vitamines.

La première partie des résultats sont des données sur la faisabilité ; vous voyez sur la carte de France, le département de Seine-Saint-Denis qui se trouve au nord-est de la région parisienne, département représenté ici et au centre se trouve le centre d'examens de santé avec les quatre villes autour. On avait plus de 50 magasins, c'était des supermarchés dans tout l'ensemble du département, 22 avaient été contactés avec un démarchage de la part de Monsieur [Henry] qui est présent dans la salle pour sensibiliser le responsable de rayons sur l'échange des chèques et au niveau de l'acceptabilité des chèques, ils ont été acceptés, pas vraiment par tous les magasins, mais en tout cas par ceux qui ont été contactés et ceux qui étaient limitrophes du centre d'examens de santé. On a eu quelques petits soucis dans les villes qui étaient vraiment loin situées, mais pour des raisons essentiellement personnelles, c'est-à-dire des caissières qui refusaient de « s'embêter », on peut dire cela simplement avec les chèques. En terme d'acceptabilité de la part de nos volontaires, on a eu aucun souci c'est-à-dire que tous les volontaires étaient très heureux d'être bénéficiaires des chèques et donc leur ont fait un très bon accueil.

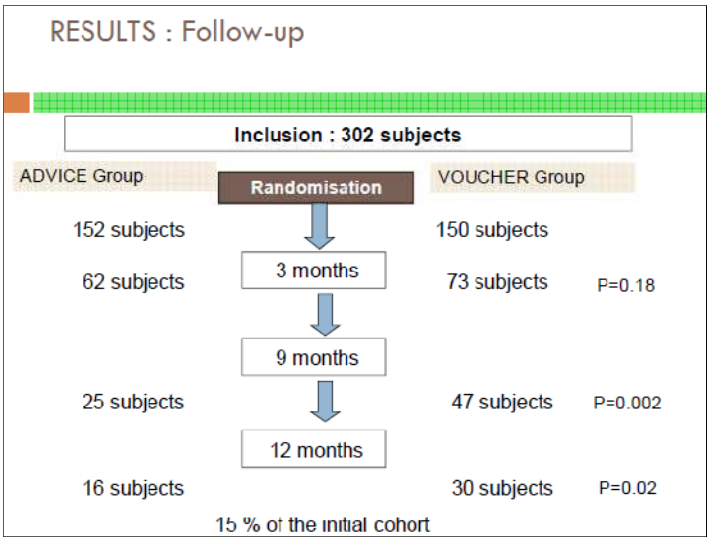
Maintenant, en ce qui concerne les données socio économiques de cette population, on a une population d'un âge moyen de 44 ans, 162 femmes et 133 hommes, 46% ne travaillaient pas à plein temps, 42% avaient un faible niveau d'éducation, 44% vivaient seuls, mais avec des enfants pour la plupart, 65% étaient obèses ou en surpoids et 42% n'avaient jamais accès à une voiture, connaissant le département, cela rend un petit peu plus difficile l'accès aux courses et donc, on a vraiment une population extrêmement précaire. Cela, on le confirme aussi quand vous voyez ces résultats de consommation de F&L, la consommation moyenne chez la population incluse des 300 personnes est de 1,19 fruits par jour, 0,94 légumes par jour et une consommation totale de F&L de 2,13. Quand on regarde la population en la séparant vraiment, à peu près 30% de cette population ne mange pas quotidiennement des F&L. Voici un petit peu de détails, 67% ne mangeaient pas de fruits tous les jours, 76% ne mangeaient pas de légumes

tous les jours.

On a regardé sur ces 30% de volontaires qui ne mangent même pas tous les jours des F&L, quels étaient les facteurs déterminants et c'est des données qui confirment d'autres données, mais qui sont toujours intéressantes à rajouter. Le jeune âge est un facteur de risque d'être un très petit consommateur, un niveau d'éducation secondaire par rapport à un niveau universitaire était aussi un fort risque d'être un petit consommateur et l'absence de moyens financiers, donc ces trois facteurs étant les facteurs ressortant dans l'analyse multi variée, notamment, quand on ajustait en parallèle sur le score de précarité, la situation financière, les questionnaires d'insécurité alimentaire et l'anxiété par rapport à l'idée de manquer d'aliments.

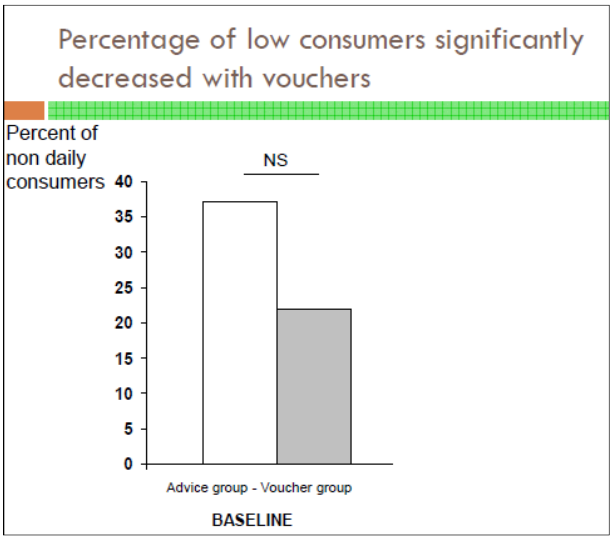
Autres données sur les facteurs déterminants ; on leur demandait dans les questions de perception du coût des aliments : « *est-ce que je pense que les aliments des F&L sont abordables* ? » Et vous voyez ceux qui ne sont pas d'accord avec ça, ceux qui pensent que les F&L ne sont pas abordables sont à très haut risque d'être des consommateurs non quotidiens et de même que ceux qui vont répondre également que l'absence d'argent les empêche de manger sainement. t, donc on voit que l'on a Beaucoup de facteurs sont corrélés à cette faible consommation.
Maintenant, j'en viens aux résultats qui sont probablement ce que l'on attend le plus, ce sont les résultats de suivi et d'efficacité ; la première donnée qui est probablement importante, c'est celle du suivi et de la difficulté de suivi ; vous voyez ici, on avait 302 sujets à l'inclusion à trois mois et je vous rappelle que c'était des sujets qui avaient été contactés dans un centre d'examens de santé pour faire un dépistage, un bilan de santé systématique, l'équipe de recherche présente sur place leur proposait une évaluation nutritionnelle et donc de bénéficier de chèques ou de conseils.

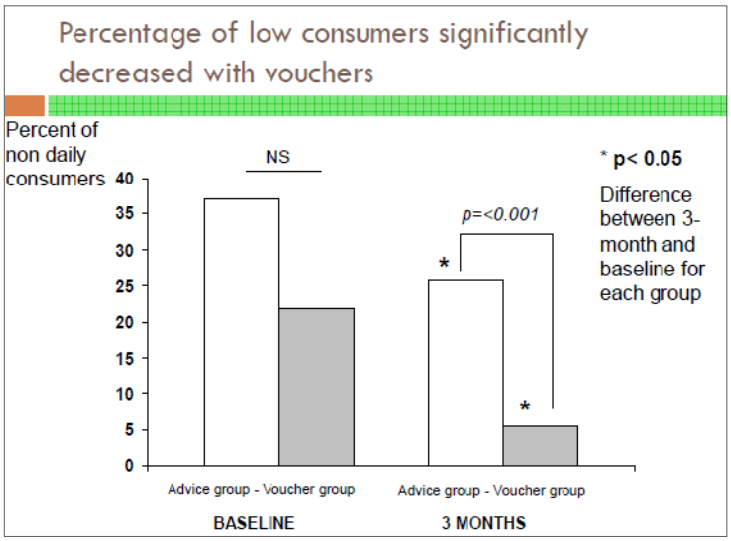
A trois mois, on a perdu déjà la moitié des sujets ; on revoit 62 sujets dans le groupe conseil et 73 sujets dans le groupe chèque. *Comment ces sujets revenaient-ils* ? On les contactait par courrier et par trois appels téléphoniques pour leur fixer des rendez-vous et malgré cela, on a perdu un nombre important de sujets. On avait proposé, à ceux qui étaient revenus à trois mois, grâce à un financement supplémentaire, de poursuivre l'étude et à neuf et douze mois, on a encore une perte importante de sujets, ce qui fait qu'au total à douze mois, on n'a plus que 15% de la cohorte initiale.



Alors si je peux faire d'emblée un commentaire sur cette diapositive, c'est vrai que ce sont des résultats qui se retrouvent dans les autres études auprès des populations précaires c'est-à-dire que l'on comprend bien que ce sont des gens qui ont du mal à reperdre une demi journée de travail, surtout quand le travail est difficile, pour revenir faire une évaluation de santé pour une perspective d'avenir qui leur parait probablement inutile et donc, on peut aussi sur cette diapositive, voir qu'au-delà de neuf mois, on a finalement plus de sujets qui sont revenus dans le groupe chèque et donc un taux de déperdition moins important pour les personnes qui avaient des chèques et ceci est aussi une donnée importante sur l'acceptabilité et l'enthousiasme des volontaires à recevoir les chèques.

Maintenant, en ce qui concerne la consommation, ici, à l'inclusion, dans le





groupe chèque, on a, en moyenne, une consommation à 2,5 un peu plus faible dans le groupe conseil et un peu plus importante dans le groupe chèque, mais sans différence et à trois mois, on va voir une augmentation dans les deux groupes, significative au sein de chaque groupe, mais par contre, on est à la limite de la significativité, on ne montre pas de différence de l'effet des chèques en plus des conseils, mais c'était vraiment limite.
Par contre, lorsque l'on regarde maintenant nos petits consommateurs et c'est vraiment cette population qui nous a paru intéressante d'étudier ; à l'inclusion, on a entre 25 et 35% de consommateurs non quotidiens de F&L, sans différence entre les deux groupes et quand on les regarde à trois mois, on a une diminution du nombre de petits consommateurs dans les deux groupes, mais avec une diminution beaucoup plus importante chez les gens qui ont reçu des chèques et dans le groupe chèque, on a 5% de gens, qui à la fin de ces trois mois, sont d'extrêmement petits consommateurs de F&L et donc 95% des gens qui recevaient des chèques nous déclarent au bout de trois mois manger quotidiennement des F&L et ça, c'est probablement un des résultats le plus important de cette étude.

L'autre résultat est celui qui concerne le statut vitaminique Je le présente plus rapidement. Quand vous regardez, on n'a pas de différence entre les deux groupes, ni à l'inclusion, ni à trois mois, mais il n'y a pas non plus d'évolution du statut vitaminique qui reste identique avec le même pourcentage de personnes déficitaires, à peu près un tiers de la population déficitaire, soit de façon modérée, soit de façon importante en vitamine C, et le reste après les trois mois d'études et en ce qui concerne le taux de beta-carotène et on a une différence entre les deux groupes, mais que l'on explique par un biais probablement du au nombre de perdus de vue.

Ce que l'on peut souligner dans cette étude, c'est que c'est une étude en population extrêmement précaire avec une consommation de F&L qui est très basse et même, je trouve plus basse que dans les programmes américains donnant des chèques, que l'on met en évidence au départ des barrières importantes et notamment, financières, à l'accès aux F&L, alors que l'on n'a pas mis vraiment en évidence, des données que je ne présente pas, des problèmes d'accessibilité. C'est-à-dire que la plupart des gens ont trouvé que les F&L étaient disponibles, au niveau achalandage, dans les magasins de la région et également, ils étaient tous, 91% nous disaient être motivés pour manger des F&L et c'était vraiment le problème financier qui arrivait au premier plan.

Concernant l'efficacité des chèques, ce que l'on peut conclure, c'est que les chèques sont très

efficaces pour diminuer le nombre de petits consommateurs. Dans les autres études, donc les études de la WIC qui ont évalué l'efficacité des chèques, on voit aussi une grande différence sur les deux colonnes de droite entre les groupes contrôles où la consommation moyenne de F&L diminue, alors que dans les groupes recevant des chèques on a une augmentation plus importante de la consommation de F&L.

Pour conclure, c'est la première étude française qui montre l'effet de ce genre d'attitude, à la fois de conseils et de chèques échangeables contre des F&L dans une population très précaire, avec donc un plus grand impact des chèques pour diminuer le nombre de petits consommateurs. Néanmoins, on ne retrouve pas d'amélioration du statut vitaminique. Mais une des explications, c'est vrai que l'augmentation obtenue par les chèques ou par les conseils est quand même beaucoup plus faible que celle que l'on peut voir dans les études retrouvant une amélioration du statut vitaminique où souvent on a une explosion de la consommation de fruits apportant des vitamines. Et pour nous, c'est vrai qu'en trois mois, l'augmentation de la consommation est insuffisante probablement pour avoir un impact vitaminique. Donc ce que l'on peut avoir comme piste de travail, c'est, d'une part, peut-être, de cibler encore plus ces consommateurs, cibler les populations précaires qui vont en avoir besoin ou d'utiliser également l'autre hypothèse, les chèques comme un outil pour modifier les habitudes alimentaires. Il y a un des travaux d'évaluation de la WIC, l'article du docteur Hermann, qui montrait bien qu'après un type d'intervention d'éducation comme cela, avec des chèques, on a un effet rémanent qui reste au delà de six mois.

Je vous remercie.

QUESTIONS/REPONSES

***Public**: Tout d'abord, félicitation pour votre très beau travail qui illustre parfaitement toutes les difficultés de l'évaluation des actions de santé publique avec une méthodologie rigoureuse et sans nous en cacher, vraiment les faiblesses potentielles ; pour ma part, j'aurais une question méthodologique, j'ai peut-être mal écouté, mais normalement vous avez randomisé des individus, donc ils ont signé un consentement, alors comment peut-on donner un consentement éclairé, déjà quand on est en situation de grande précarité, et d'autre part, quand on vous dit, on ne sait pas si on va vous donner des bons qui valent de l'argent pour acheter des choses ou pas, est-ce que vous ne pensez pas qu'il y a forcément un biais, et qu'il y a forcément un attrait pour le fait d'être dans le bras intervention qui va biaiser l'acceptation de laisser lui-même.*

H. Bihan: Pour répondre à votre question, je suis tout à fait d'accord sur la difficulté d'évaluation de ces études ; le discours que l'on avait quand on accueillait les personnes et qu'on leur proposait l'étude, c'était de leur dire, comme vous avez pu voir peut-être brièvement sur l'affiche, on pense que vous avez peut-être des difficultés pour manger 5 F&L par jour, venez-nous en parler, on va faire une enquête alimentaire et on va vous donner des conseils. Et à ce moment là, au départ, quand on incluait les sujets, la première partie de l'entretien avec la diététicienne et le remplissage des questionnaires qui étaient donc des auto questionnaires, on ne parlait pas réellement de la possibilité des chèques, à ce moment là, pour éviter justement d'avoir des déceptions. Aux premières personnes, on parlait aussi de randomisation et, dans le département où je travaille, on a une population d'origine musulmane où le terme de tirage au sort était également mal perçu. Et ce que vous dites aussi dans une situation précaire, ce n'était pas très bien perçu, très rapidement, on n'a pas parlé d'échec, lorsque l'on a proposé l'étude, on leur a proposé l'étude en disant qu'on va faire une enquête nutritionnelle, vous allez avoir des conseils nutritionnels et c'était simplement à la fin des quinze minutes d'entretien avec la

diététicienne et que la diététicienne réalisait le tirage au sort, elle disait à la personne, en plus vous avez des chèques ou bien on vous revoit dans trois mois sans forcément évoquer les chèques.

***Public** : D'après votre expérience, est-ce que ces personnes ont vu leur poids baisser ?*

H. Bihan : On a ces données là et la réponse est, non ; il n'y a pas de modification du poids par contre, on avait un petit effet sur la tension artérielle qui diminuait.

***Public :** Merci beaucoup pour cette présentation, une question : de nouveaux éléments montrent que lorsque l'on subventionne les F&L et bien, l'économie réalisée est souvent utilisée par les familles pour acheter des snacks et des sucreries, est-ce que cela ne sert pas à rien ? Est-ce que vous avez le moindre commentaire là-dessus ?*

H. Bihan : Parce qu'on voulait initialement récupérer les tickets de caisse, mais ça, c'est quelque chose qui est très difficile et que l'on n'a pas pu mettre en place, les gens ne revenaient pas avec leurs tickets de caisse et on n'a pas pu évaluer cet aspect là, je n'ai pas la réponse.

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N. Darmon (FR)

La consommation de fruits et légumes chez la population en insécurité alimentaire en France

Ce travail porte sur la notion d'insécurité alimentaire en France et sur ce qu'elle recouvre. C'est la première fois que dans des enquêtes françaises nous avons posé ces questions sur l'insécurité alimentaire et donc analysé les résultats en fonction de cette dimension.

Ce travail a été fait en collaboration avec Florent Vieux et Aurélie Bocquier (Florent est ici dans la salle, il présente un poster d'ailleurs), à partir des données de l'enquête de consommations nationales réalisées par l'Agence Française de Sécurité Sanitaire des Aliments et coordonnée par Lionel Lafay.

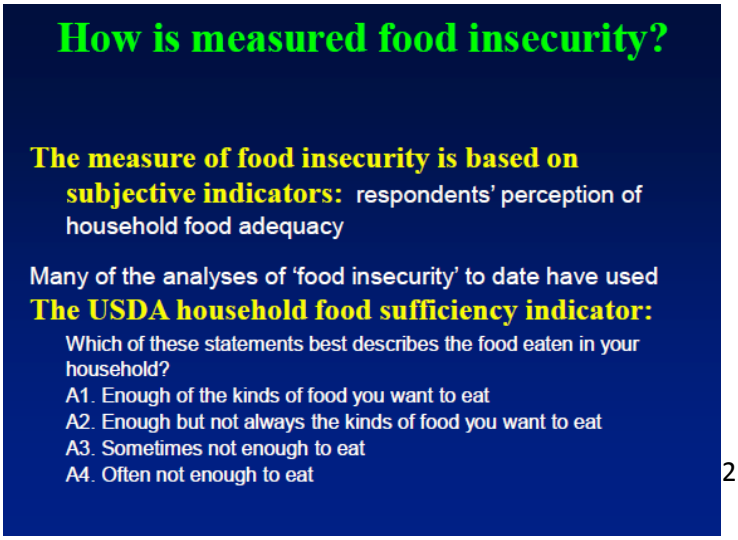
Qu'est-ce que l'insécurité alimentaire ? En fait, l'insécurité alimentaire se définit contre quelque chose, c'est *l'absence* de sécurité alimentaire. La réelle définition c'est la définition officielle de la sécurité alimentaire donnée en 1996 lors du Sommet Mondial de l'Alimentation à Rome, cela se définit comme ça :

L'insécurité alimentaire existe lorsque tous les êtres humains ont, à tout moment, un accès physique et économique à une nourriture suffisante saine et nutritive leur permettant de satisfaire leur besoin énergétique et leur préférence alimentaire pour une vie saine et active ; vous voyez l'ambition qu'il y a derrière cette définition qui est extrêmement générale et qui englobe différentes dimensions de l'alimentation.

Donc l'insécurité alimentaire va se définir comme l'absence de sécurité alimentaire et donc elle va dénoter un accès insuffisant en qualité ou en quantité à une nourriture saine et qui soit acceptable à la fois pour l'individu, mais aussi acceptable socialement.

Dans les études nord-américaines, l'insécurité alimentaire a été associée, bien sûr, avec un faible revenu et puis, plus généralement, avec une alimentation déséquilibrée avec des déficiences nutritionnelles et avec une santé, en général, mauvaise, en particulier, plus d'obésité, d'hypertension, de dépression ; on retrouve beaucoup de travaux qui montrent ce lien extrêmement fort avec ces affections.

On montre aussi que les personnes en situation d'insécurité alimentaire souvent sont celles qui ont un degré d'acculturation plus important et ce sont souvent aussi des personnes seules ; donc, ce sont des études nord-américaines qui le montrent et à partir de quoi ? En fait, à partir d'un questionnaire qui va évaluer, de façon subjective, la perception de l'individu par rapport à la situation alimentaire de son foyer ; il s'agit vraiment d'un indicateur de perception subjective ; il y a eu plusieurs indicateurs et beaucoup d'études ont utilisé l'indicateur de la « *USDA Food Efficiency Indicators* » et il s'agit uniquement d'une simple question à laquelle quatre réponses peuvent être données ; alors quelle est cette question ? On demande



aux personnes parmi les quatre situations suivantes : quelle est celle qui correspond le mieux à celle de votre foyer ?
- Premièrement, vous pouvez manger tous les aliments que vous souhaitez, soit
- vous avez assez à manger, mais pas toujours tous les aliments que vous souhaiteriez ou alors,
- il vous arrive parfois de ne pas avoir assez à manger ou
- il vous arrive souvent de ne pas avoir assez à manger.

Il y a eu d'autres indicateurs depuis, mais en France, c'est celui-ci que nous avons retenu puisqu'il était relativement simple. Comme il s'agissait d'introduire une nouvelle question, nous avons retenu cet indicateur en un seul item et quatre possibilités.

Comme je vous l'ai dit, l'insécurité alimentaire est mesurée régulièrement aux Etats-Unis, elle est mesurée aussi au Canada, en Nouvelle-Zélande, en Australie et dans quelques pays en cours de développement - *je ne sais plus si on peut dire cela maintenant* -, mais je ne crois pas qu'elle a été mesurée en Europe, peut-être que quelqu'un ici me dira le contraire, et je serais heureuse de l'apprendre, en tout cas, en France, c'était la première fois que ces questions étaient introduites dans nos enquêtes françaises. Il se trouve qu'en France, nous sommes bien dotés maintenant puisque nous avons trois enquêtes nationales sur l'alimentation, donc on peut faire des comparaisons et quand on annonce des chiffres, on est à peu près sûrs de ce que l'on dit.

Quelles sont ces enquêtes ? Il y a l'enquête INCA qui est réalisée par l'Agence Française de Sécurité Sanitaire des Aliments, l'AFSSA, on en est déjà à la deuxième enquête INCA, la dernière a été réalisé en 2006-2007.
L'Enquête Nationale Nutrition Santé qui est réalisée par l'Institut de Veille Sanitaire et qui a la particularité par rapport aux autres d'avoir aussi des informations sur la santé et aussi des prélèvements biologiques, ce qui est différent de l'enquête INCA qui ne regarde que les consommations alimentaires.
Et puis, nous avons une enquête qui est réalisée par notre Institut de Prévention et d'Education à la Santé, l'INPES, cette enquête, c'est le baromètre santé nutrition ; au même moment, ces questions ont été introduites dans les trois dernières enquêtes.

Je vais vous présenter les résultats que nous avons obtenus à partir de l'enquête INCA2.

Premier résultat : C'est celui que l'on attendait le plus, je dirais : quelle est la prévalence de l'insécurité alimentaire en France ?

A partir de la question que j'ai énoncée tout à l'heure, et puis aussi avec d'autres questions qui sont proches et qui traitent en fait de vulnérabilité alimentaire des individus.

Vous voyez que l'on a dans cette population représentative d'adultes français, 7,3% des personnes qui ont répondu être inquiets à l'idée de manquer d'aliments, de temps en temps ou plus souvent ; 3,6% de l'échantillon ont également répondu qu'ils n'avaient pas les moyens financiers de pouvoir consommer de la viande, du poisson ou de la volaille une fois tous les deux jours.

What is the prevalence of food insecurity in France?

Data from adults participating in the INCA2 cross-sectional representative survey conducted by the AFSSA *(Lafay, 2007)*

n= 2 624 adults,18-79 y	%
Worry about lack of food (Often, Sometimes or Occasionally)	**7.3 %**
Can't afford to eat Meat/Fish/Poultry every 2 days	**3.6 %**
Enough but not always the kinds of food you want to eat (A2 of the USDA FI indicator)	**16.0 %**
Sometimes or often not enough to eat (A3 and A4 of the USDA FI indicator)	**0.9 %**
Food insecurity = A2+A3+A4 of the USDA FI indicator, *for financial reasons*	**12.2%**

On en vient maintenant aux questions spécifiques que nous avons introduites pour la première fois, pour la réponse : « dans notre foyer, nous avons assez à manger, mais pas toujours les aliments que nous souhaiterions »,

nous avons 16% des personnes qui ont répondu à cette question de cette façon.

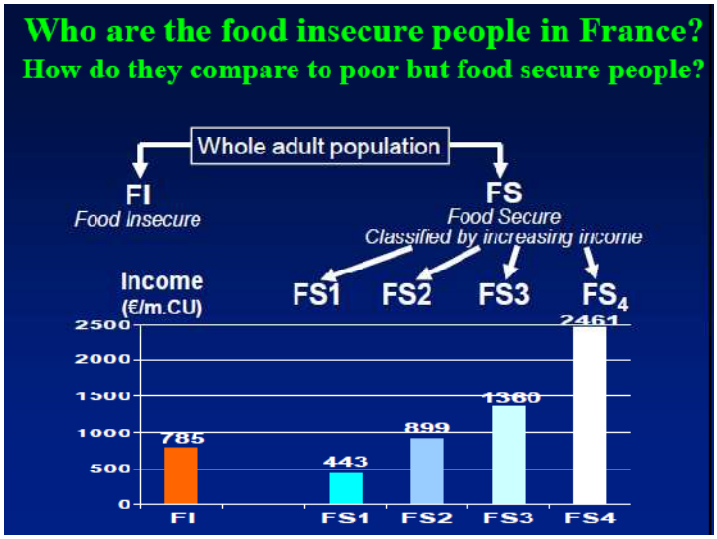
Pour l'insécurité plus quantitative, là, heureusement, les chiffres sont beaucoup plus faibles puisque l'on a seulement 0,9% des personnes qui ont déclaré avoir souvent ou parfois, pas suffisamment à manger dans leur foyer.
Les 16%, c'est un chiffre un peu énorme et en fait, ce chiffre diminue quand on applique un filtre, c'est-à-dire une question complémentaire de la question sur l'insécurité alimentaire. En effet, on leur demande : "si vous avez répondu oui, à telle ou telle question, pour quelle raison est-ce que vous avez répondu oui ? Est-ce que c'était pour des raisons financières ? Ou est-ce que vous êtes, par exemple, au régime"… on peut très bien imaginer, par exemple, que quelqu'un qui est au régime va répondre qu'il n'a pas toujours les aliments qu'il souhaiterait avoir
Or, quand on applique ce filtre et que l'on additionne toutes les réponses qui dénotent un problème, soit qualitatif, soit quantitatif, c'est à dire les trois dernières réponses possibles à la question sur l'insécurité alimentaire, alors on arrive à 12,2% de personnes que nous avons considérées comme vivant dans un foyer en situation d'insécurité alimentaire en France, pour raisons financières.

Comme c'était une notion nouvelle pour nous, l'essentiel de ce que je vais vous présenter est fait de résultats descriptifs et ce qui nous intéresse en fait c'est le lien avec la pauvreté parce que jusqu'à présent, nous avons plutôt considéré des indicateurs classiques de type revenus, niveau d'éducation, statut socio professionnel, pour regarder les inégalités en termes de d'alimentation en France.

Quel est ce lien ? Vous voyez, ici, que si l'on regarde dans notre échantillon, parmi les personnes qui ont un revenu en dessous du seuil de pauvreté, donc parmi des personnes pauvres, on trouve 21% de personnes en situation d'insécurité alimentaire, si par contre, on regarde parmi les non pauvres, il y en a 7,8% qui sont en situation d'insécurité alimentaire. Nous avons aussi une grande proportion de personnes qui ne déclarent pas leur revenu ou ne souhaitent pas déclarer leur revenu et quand on regarde parmi ces personnes, on a à peu près le même pourcentage que parmi ceux qui ne sont pas pauvres et donc comme je vous le disais dans l'ensemble de l'échantillon 12,2%.

Donc déjà la première information, c'est que l'insécurité alimentaire est certes trois fois plus présente parmi les pauvres que parmi les non pauvres, mais on la voit aussi à des taux non négligeables dans des foyers et qui ont un revenu qui est supérieur, pas énormément supérieur, mais quand même supérieur au seuil de pauvreté monétaire ; alors pour aller plus loin, pour savoir qui sont ces personnes, ce que nous avons fait finalement, c'est de considérer la population dans son intégralité et de la découper en cinq catégories.

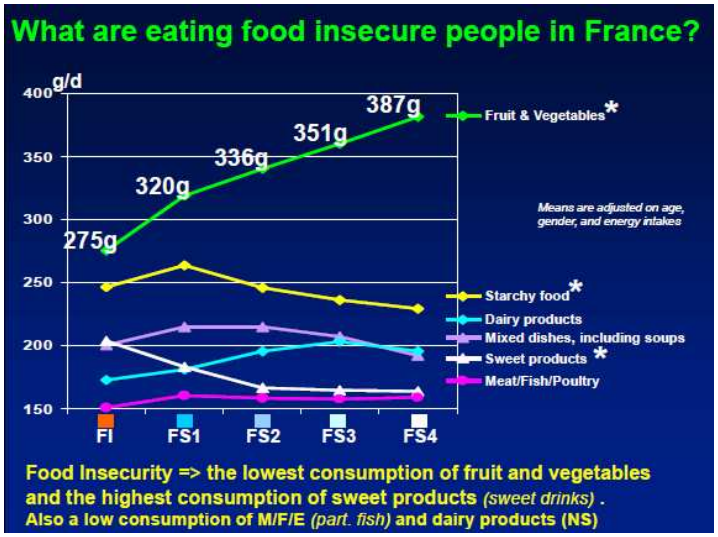
Une première catégorie, ce sont nos 12,2% de personnes qui sont en situation d'insécurité alimentaire et puis le reste de l'échantillon, nous l'avons divisé en quartile en fonction de leur revenu. Nous avons donc d'une part les personnes en insécurité alimentaire et puis d'autre part le reste de l'échantillon avec un revenu croissant. Notez que je présente le revenu par mois et par unité de consommation, une personne seule c'est une unité de consommation, vous voyez que le revenu des personnes en situation d'insécurité alimentaire, finalement, est intermédiaire entre le premier quartile et le deuxième quartile du revenu des personnes non pauvres, c'est-à-dire celles qui sont au-dessus du seuil de pauvreté. En résumé, grâce à cette question sur l'insécurité alimentaire, on identifie des personnes qui n'auraient pas été identifiées si on avait seulement tenu compte du taux de pauvreté puisque leur revenu est (faiblement) supérieur au seuil de pauvreté.



En termes de socio démographie, qui sont ces personnes en situation d'insécurité alimentaire? Par certains critères, elles ressemblent beaucoup à celles qui sont dans le premier quartile de revenus et notamment, on voit ici que ce sont plus souvent des femmes que des hommes. Là, par contre, on a une différence par rapport aux personnes non pauvres, ce sont quand même plus souvent des personnes seules ou alors seules avec des enfants, donc les situations de mono parentalité sont très représentées dans cette catégorie. Vous ne serez pas étonnés de voir qu'elles ont aussi un statut socio professionnel défavorable et bien plus défavorable d'ailleurs que toutes les autres catégories et par contre, leur niveau d'éducation n'est pas le plus faible puisque probablement, ce sont des personnes jeunes, cela doit jouer aussi.

En terme de conditions de vie, on a beaucoup moins de personnes qui sont propriétaires de leur logement, moins de personnes qui ont une voiture, peu d'entre elles ont accès à un jardin et vous voyez une très nette différence sur la proportion de personnes qui fument, deux fois plus de fumeurs dans cette population par rapport à tout le reste de l'échantillon.
On voit des conditions de vie défavorables aussi quand on regarde par exemple le niveau d'équipement du foyer et le niveau d'équipement dans la cuisine qui est plus faible également et elles passent plus de temps devant la télévision
Et puis il y a aussi d'autres critères où les différences sont extrêmement nettes, ce qui n'est pas très étonnantes parce que ce sont des questions directement ciblées sur les difficultés financières, l'anxiété à propos du manque d'aliment. En ce qui concerne les difficultés d'accès aux soins, les personnes signalent, par exemple, qu'il leur arrive fréquemment de renoncer à des soins pour des raisons financières et vous voyez là qu'elles sont terriblement différentes du reste de notre échantillon qui n'est pas en situation d'insécurité alimentaire.

En termes de consommation alimentaire, qu'est-ce qu'elles mangent par rapport aux autres ? J'ai représenté ici les consommations en grammes par jour des grands groupes d'aliments et vous voyez que ce qui est extrêmement notable, c'est, d'une part la diminution de la consommation de Fruits et Légumes (F&L) en fonction du revenu, ça on le savait déjà, mais vous voyez que ces personnes en situation d'insécurité alimentaire, même si elles n'ont pas le plus faible revenu, ce sont elles qui consomment le moins de F&L et c'est vraiment très net, il y a une cassure ici.



Pour les autres groupes d'aliments, il n'y a pas de très grandes différences, si ce n'est ici pour les produits carnés, on voit une très faible consommation de poissons et une forte consommation ici de produits sucrés qui s'échangent pratiquement avec la

consommation de féculents, alors je pourrais peut-être revenir dessus, mais en général, ce que l'on voit quand le revenu diminue, c'est une augmentation de féculents raffinés et vous voyez ici que pour ces personnes en situation d'insécurité alimentaire, elles ne vont pas chercher leurs calories dans les féculents, mais plutôt (et encore plus que les pauvres ici) dans les produits sucrés, notamment, les boissons sucrées quand on regarde après dans cette catégorie, ce sont les boissons sucrées qui font nettement la différence, ici, je vous ai mis les grammes, vous voyez les différences importantes en grammes de F&L et si on regarde maintenant en terme de qualité nutritionnelle et bien, il n'y a pas de différence d'apports énergétiques il n'y a pas de différence d'apport en macro nutriment, ni même en acides gras saturés, par contre, et c'est cela qui est le plus important, des différences très importantes en terme de qualité nutritionnelle, de teneur en micronutriments, vous voyez ici le « *Mean Adequacy ratio* », un indicateur qui mesure l'adéquation aux recommandations en 22 nutriments. On voit qu'il est beaucoup plus faible ici dans cette catégorie (insécurité alimentaire) et au contraire, la densité énergétique est particulièrement élevée dans cette catégorie. Enfin, si on ajuste pour la quantité de F&L consommés, cela atténue mais ne suffit pas à rétablir la différence de MAR, il y a toujours un grand différentiel en termes d'apports nutritionnels. Par contre, il n'y a plus de différence en terme de densité énergétique, c'est vraiment la consommation de F&L qui fait la différence en terme de densité énergétique entre ces 5 groupes de population.

Pour conclure, nous avons quand même 12% de personnes qui sont en situation d'insécurité alimentaire en France, elles sont dans des situations financières difficiles, même si elles n'ont pas un faible revenu, elles sont probablement confrontées à des contraintes difficiles, des charges de logement, probablement aussi du coût lié au fait de fumer, on a beaucoup de fumeurs dans cette population, je pense que c'est important de mettre en parallèle avec ces 12,2% de la population, le nombre de personnes qui sont aidées par l'aide alimentaire en France, on estime à peu près 2,3 millions de personnes qui fréquentent les circuits de l'aide alimentaire et donc cela fait à peine 3 ou 4 fois moins que ces 12,2 % de personnes dont on voit qu'elles sont en forte vulnérabilité sur le plan alimentaire, donc mener des actions uniquement dirigées dans le circuit d'aide alimentaire, ça ne les atteindra pas, cela ne suffira pas.

Voilà, c'est surtout le message que je voulais faire passer. Merci

QUESTIONS/REPONSES

***Public** : J'aurais une question concernant la différence qui pourrait exister entre des pauvres en milieu rural et des pauvres en milieu urbain, parce que dans le lien avec l'insécurité alimentaire, il me semble qu'être pauvre en milieu rural devrait être moins pénalisant qu'être pauvre en milieu urbain et comme la population urbaine a tendance à s'accroître, donc là, il me semble qu'il y a un point qui mériterait d'être mis en évidence.*

N. Darmon : Effectivement, ce serait très intéressant, d'ailleurs, merci de nous le dire, on va essayer de le faire, de comparer les deux, mais je ne suis pas tout à fait de votre avis, je ne parierai pas dans le sens d'une meilleure situation des personnes vivant au milieu rural puisque l'on a, vous voyez, on a beaucoup de caractéristiques, ce sont des personnes isolées qui n'ont pas forcément accès à une voiture, donc en milieu rural, c'est encore beaucoup plus difficile à vivre et on a quand même quelques études qualitatives, plus qualitatives que quantitatives sur les différences entre la vulnérabilité alimentaire à la ville et à la campagne, c'est plutôt encore plus défavorable à la campagne.

Public : *Est-ce que l'on a des données sur l'origine ethnique des personnes qui remplissaient ces enquêtes* ?

N. Darmon : On n'a pas de données là-dessus puisque c'est interdit en France de collecter des données sur l'ethnicité, donc on n'a pas du tout de données de cet ordre.

Public : *Un petit détail encore, vous verrez que la plupart des personnes ont les moyens de s'acheter de la nourriture, mais pas [sûrement] ce qu'ils voudraient pouvoir acheter ; qu'est-ce qu'ils voudraient acheter, de la nourriture saine ou plutôt le genre d'alimentation dont ils n'ont pas besoin ?*

N. Darmon : C'est très intéressant de poser cette question, elle n'a pas été posée, c'est juste une petite question dans un très large questionnaire, c'était la première fois qu'on la posait, je vois d'emblée les difficultés puisque que ce serait une question ouverte, mais ce serait effectivement intéressant de la traiter. Merci.