

HOW AND WHY F&V PREVENT CHILDHOOD OBESITY

- ▶ Obesity is a **complex, multifactorial, and largely preventable disease**¹ with prevention having more positive effect when children are younger^{2,3}.
- ▶ Globally, the prevalence of overweight and obesity among children and adolescents aged 5-19 has risen dramatically from 4 % in 1975 to over 18 % in 2016: an estimated 41 million children under the age of 5 years, and over 340 million children and adolescents aged 5-19 years, were overweight or obese in 2016⁴.
- ▶ Over 60 % of children who are overweight before puberty will be overweight in early adulthood⁵.
- ▶ Obese children are **more likely to develop a variety of health problems as adults** such as cardiovascular disease, insulin resistance, musculoskeletal disorders, some cancers and disability⁶.
- ▶ Childhood obesity is also strongly associated with **mental disorders**, underachievement in school and lower self-esteem³.
- ▶ Health professionals and particularly general practitioners and pediatricians have an important role in childhood obesity prevention because they are in a unique position to partner with families and patients^{7,8}.

1. Healthy lifestyle for childhood obesity prevention

-Prevention is based on **behavioral modification** starting from the prenatal age (before birth) by promoting healthy maternal weight, diet and lifestyle beginning in the prenatal period, and appropriate weight gain in infancy, transition to healthier foods with weaning, and parental role modeling of healthy dietary and physical activity behaviors^{6,7,8}.

-**Breastfeeding** has also an important role in childhood obesity prevention. It is associated with a **reduction of 13% in the odds of overweight and obesity**. Also, each additional month of breastfeeding is associated with a 4% reduction in the prevalence of overweight⁹.

-**Counseling should be tailored to the child's developmental stage and the socioeconomic, cultural, and psychological characteristics of families**. The whole family should be involved by targeting specific behaviors, such as increasing fruit and vegetables (F&V) consumption and reducing sedentary behaviors^{7,8,10}.

-Specific school food environment policies are suited to improve targeted dietary behaviors including F&V consumption.

-Although further research is needed, some studies showed that the promotion of F&V positively affects the intake¹¹.

-Below are the lifestyle recommendations to prevent obesity from preschool age to adolescence:

- **Consumption of F&V** (5 servings or 400 g/day) as well as legumes, whole grains and nuts should be promoted;
- **High-energy and low nutrient density foods and beverages** (e.g. Sweetened or energizing drinks, fruit juices, fast food, high-energy snacks) should be avoided and reserved for events;

- **4 daily meals (breakfast, lunch, dinner and a snack)** should be taken, by favoring household consumption of meals¹²;

- **Active play and lifestyle and family - or sports - based moderate** (e.g. walking very brisk, badminton, tennis double, etc.) **to vigorous** (e.g. hiking, jogging, basketball, tennis single, etc.) physical activity for a total of 60 minutes/day should be promoted;

- **Sedentary behaviors** (i.e. sitting and screen time) should be limited to less than two hours a day^{7,8}.



2. The importance of fruit and vegetable consumption in childhood obesity prevention

- A **daily consumption of at least 400 g (5 servings) of F&V**, as recommended by the WHO to prevent chronic diseases including obesity, is indeed one of the cornerstones of a healthy diet. **It is considered as key component of all healthy dietary patterns** and is highly recommended across worldwide dietary guidelines¹⁴.

- F&V are highly recommended in childhood obesity prevention because they have a **low energy and high nutrient density, a high fiber and polyphenols content, and a low glycemic load** (see sheet 7, part 3).

BOX 1 : PRACTICAL ADVICES FOR PARENTS TO ENCOURAGE F&V CONSUMPTION IN YOUNG CHILDREN IN ORDER TO PREVENT CHILDHOOD OBESITY^{8,15,16}

1. The first thing to keep in mind is that **10 to 15 taste exposures to a new food item may be needed** for its successful acceptance in preschool-aged children, which is greater than most parents are willing or able to provide¹⁷.

2. F&V could be provided as snacks, by keeping them washed, cut up and in plain sight in the refrigerator to be readily and easily available and visible (24-48h). Such environmental manipulations help children and adolescents make healthier choices, because visible and easily available foods are more likely to be chosen than are foods that require an effort to find.

3. Increase the size of the serving dishes, spoons, plates, bowls, etc. when serving F&V, while decrease those for calorie-dense foods.

4. Parents are advised to **serve more often vegetables**. To save time, they can buy vegetables prewashed and in sachets, canned or frozen at the supermarket. **At least one leafy green or yellow vegetable** should be included, each day such as spinach, broccoli, winter squash, greens, or carrots. If the child refuses one vegetable, **parents can try to propose another one**: for example, deep-yellow or orange vegetables instead of green vegetables.

5. Trying out new recipes recipes of spaghetti, lasagna, chili, etc. by adding more vegetables could be helpful.

6. A fruit or vegetable must be added as part of every meal or snack. For example, parents could put fruit on cereal, add a piece of fruit or small salad to the child's lunch, use vegetables and dip for an after-school snack, etc.

7. Adding eye appeal could also be very useful, for example cut fruit and vegetables into interesting shapes (i.e. smiley face, etc.).

8. Involving children in cooking as well as in food shopping can increase their willingness to taste novel foods and direct their food choices towards foods containing vegetable^{18,19}. For a hesitant eater, tasting an unfamiliar food can sometimes be intimidating. Cooking with them can help children explore foods using other senses besides taste.

9. Parents should be advised to follow the rule **"Eat when your body is hungry. Stop when your body is full"**. Infants do this naturally when breastfeeding and starting solids. So, it is important to maintain that natural habit throughout toddlerhood to the teen years and to stop engineering how much children eat and let them learn to feel necessities. This skill of responding to natural hunger and normal cues of satiety can be a huge asset for children for their entire lives.

10. As they are children's role model, **parents should eat more F&V themselves and to lead by example**. Ideally, they have **to eat at least one meal together as a family every day** or to try for 3 to 4 times per week.



For further information:

→ sheet 2 "F&V consumption during pregnancy"

→ sheet 6 "How and why F&V must be in complementary feeding"

→ sheet 7 "How and why F&V prevent overweight and obesity in adults"

→ sheet 9 "How to deal with the obesogenic food environment?"

