

HOW AND WHY F&V PREVENT CANCERS?

► **Cancers are the second leading cause of death globally and are responsible for ~1 in 6 deaths.**

In high-income countries^(a), lung, colon, rectum and breast cancers are the most diagnosed cancers.

In upper-middle income countries^(b), it's basically respiratory cancers particularly lung, liver and stomach cancers. For both sexes combined, lung cancer is the most commonly diagnosed (11.6% of the total cases)¹.

FIGURE 1: CANCER PREVENTION RECOMMENDATIONS



Source: World Cancer Research Fund/American Institute for Cancer Research. Diet, Nutrition, Physical Activity and Cancer: a Global Perspective. Continuous Update Project Expert Report 2018. Available at dietandcancerreport.org

F&V and cancer prevention

Many cases of cancers are preventable because a range of modifiable lifestyle and environmental factors can have a strong influence on cancer risk even though, some risk factors, such as inherited mutations, are already fixed.

Not smoking, having an adequate diet, being physically active and maintaining a healthy body weight could reduce the global burden of cancer². Healthy dietary patterns - all characterized by high intake of fruits, vegetables and cereals and low intake of animal foods - are associated with a risk reduction of colorectal and breast cancer³.

F&V consumption is a key element of World Cancer Research Funds recommendations (WCRF) for cancer prevention (Figure 1). There is strong evidence that F&V are related to the risk of aerodigestive cancers, and there is suggestive evidence of a protective effect for other cancers (Table 1).

► Table 1: Evidence* for F&V consumption and protection or increase risk²

CONVINCING EVIDENCE OF PROTECTION	
F&V	Aerodigestive cancers (mouth, pharynx, larynx, esophagus)
Foods containing dietary fiber	Colorectal
EVIDENCE OF PROTECTION GRADED "SUGGESTIVE"	
F&V	- Esophagus - Lung (in people who smoke/used to smoke) - Bladder
Vegetables	- Breast - Mouth, pharynx, larynx
Citrus fruits	- Stomach (cardia)
Foods containing carotenoids	- Lung - Breast
Foods containing vitamin C	- Lung (in people who smoke/used to smoke) - Colon
EVIDENCE OF RISK INCREASE GRADED "SUGGESTIVE"	
Low consumption of F&V	Colorectal
Low consumption of fruits	Stomach

^(a) Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Spain, UK, USA, ...

^(b) Brazil, Bulgaria, Mexico, Romania, Russian Federation, ...

Also, F&V consumption is associated with:

- **lower level of body adiposity** - intermediate factor in the pathway of developing several cancers;
- **reduced risk** of other chronic diseases, such as cardiovascular diseases².

It has been estimated that 6,9 to 8 % of cancers may be avoided if everybody has a consumption of F&V between 500g to more than 800 g of F&V / day⁴.

Furthermore, low F&V intake is a risk factor for some cancers (**Table 1**) through multiple mechanisms such as inducing genome instability, reducing apoptosis and increasing cellular proliferation and inflammation².

EAT A DIET RICH IN WHOLEGRAINS, VEGETABLES, FRUITS AND LEGUMES²

GOALS

1. Consume a diet that provides at least **30 grams per day of fiber** from food sources (i.e. wholegrains, non-starchy vegetables and fruit of different colors), legumes.
2. Include in most meals foods containing **wholegrains, non-starchy vegetables, fruit and legumes** such as beans and lentils.
3. Eat a diet high in **all types of plant foods** including at least **5 portions** (1 portion ~ 80g) of a **variety of non-starchy vegetables and fruit every day**.
4. If you eat starchy roots and tubers as staple foods, eat non-starchy vegetables, fruit and pulses (legumes) regularly too if possible.

Wholegrains



Barley

Brown rice

Oats

Vegetables



Broccoli

Cabbages

Tomato



Eggplant



Green leafy vegetables



Pepper

Starchy vegetables



Manioc

Potatoes & sweet potatoes

Taro

Yam

**The WCRF/AICR criteria consider a range of factors including:*

- *the quality, the number and the type of the studies,*
- *whether there is any unexplained heterogeneity between results from different studies or populations,*
- *whether there is a dose-response relationship,*
- *whether there is evidence of plausible biological mechanisms at typical levels of exposure.*

The clearly defined grading criteria enable evidence to be classified as:

- *'strong' ('convincing', 'probable' or 'substantial effect on risk unlikely')* or
- *'limited' ('limited - suggestive' or 'limited - no conclusion').*

Only evidence judged to be strong is usually used as the basis for Recommendations².



For further information:
→ sheet 12 "F&V: energy, nutrients and claims"