



Nutri
Scene

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Eat more of a variety of vegetables and fruits, cereals and pulses such as beans to help prevent cancer.

THE choices we make about what we eat, drink and how active we are each day will together provide us important protection against cancer at all times of life, from childhood to old age.

I have been writing on the prevention of cancer in this column. I have been relying on the World Cancer Research Fund (WCRF) expert report on *Food, Nutrition, Physical Activity and the Prevention of Cancer*, released in November 2007 to convey to readers the important message of the prevention of cancers.

This week, we look at the fourth WCRF recommendation: eat mostly foods of plant origin.

What is the link to cancer?

The WCRF Expert Panel identified several reasons why these plant foods may protect against cancer.

- They contain various vitamins and minerals which help keep the body healthy and strengthen our immune system
- They are also good sources of substances like phytochemicals. These are biological active compounds, which can help to protect cells in the body from damage that can lead to cancer.
- Plant foods contain dietary fibre. Foods containing fibre are also linked to a reduced risk of cancer. Fibre is thought to have many benefits, including helping to speed up "gut transit time", i.e. how long it takes food to move through the digestive system.
- Plant foods can also help us to maintain

Plant foods and cancer prevention

healthy weight because many of them are less energy dense.

WCRF recommendations

The recommendation of WCRF is therefore: eat mostly foods of plant origin.

The public health goals, which are for populations and are therefore principally for health professionals are:

- Population average consumption of non-starchy vegetables and of fruits to be at least 600 g daily
 - Relatively unprocessed cereals (grains) and/or pulses (legumes), and other foods that are a natural source of dietary fibre, to contribute to a population average of at least 25 g non-starch polysaccharide daily
- The personal recommendations, meant for people, as communities, families, and individuals are:
- Eat at least five portions/servings (at least 400 g) of a variety of non-starchy vegetables and of fruits every day
 - Eat relatively unprocessed cereals (grains) and/or pulses (legumes) with every meal
 - Limit refined starchy foods
 - People who consume starchy roots or tubers as staples are also to ensure intake of sufficient non-starchy vegetables, fruits, and pulses (legumes)

These goals and recommendations are broadly similar to those that have been issued by other international and national authoritative organisations. These recommendations are not just for reducing risk to cancers, but for a variety of diet-related chronic diseases.

Fruits and vegetables

Fruits and vegetables supply a variety of



Watermelons are a good source of beta carotene.

nutrients. Some are especially abundant in vitamin A and C, and most contain dietary fibre. Some good sources of beta-carotene, which are precursors of vitamin A, are dark green leafy vegetables such as sawi, spinach, cekor manis, kangkong and kai-lan; fruit and root vegetables such as tomatoes, bell peppers, sweet potato and carrots. Fruits like mango, papaya and watermelon are also rich sources.

Some rich sources of vitamin C are guava, cashew apple, papaya, mango, starfruit and oranges. Many green vegetables also contain folate. Other sources of folate are peas, okra and sweet corn. Oranges, orange juice, pineapple juice and plantain also contain folate.

Fruits and vegetables are placed at level two of the Malaysian Food Guide Pyramid. The MDG recommends "eating more" fruits and vegetables, with at least five servings of fruits and vegetables daily. A serving of fruit can be a small to medium orange or apple; a medium-sized banana or ½ a medium-sized guava. A serving of vegetable equals ½ cup cooked dark green leafy vegetables with edible stems or ½ cup cooked fruit vegetable (eg tomatoes) or root vegetable (eg carrots)

Cereal grains and legumes

Cereals (grains) are the seeds and energy stores of cultivated grasses. The main types are rice, wheat, maize (corn), oats, barley and sorghum. The major nutrient in cereal is starch; they are therefore an economical source of energy. Cereals are also a fair source of proteins in the diet. The nutritive value of cereal protein can be improved by combining with milk, meat or legumes.

Many of the grains that we consume today are refined. However, during the refining process, e.g. polishing of rice and refining of wheat, important nutrients are removed, particularly dietary fibre, oil, B vitamins and protein. It is therefore strongly recommended to consume more of the unpolished varieties of grains.

Leguminous include peas, beans and lentils. The most popular legume amongst Malaysians is probably soya bean and its products. We have been consuming soya bean in various forms, e.g. as soya milk, tofu, taukua, tempeh, taufu-fah, fu-chok and soya bean sprout.

All legumes except for soya beans are very similar in nutritional content. They are rich in protein, carbohydrate and dietary fibre. They are also important sources of some vitamins such as the B-vitamins. With 34% protein content, soya beans is a richer source of plant protein compared to other legumes, whose protein content range from 14 to 24%. Soya beans are available in different forms such as soya milk, tofu, tempeh, textured vegetable protein (TVP), and soya sprouts.

Dietary fibres are healthful

Fibre is the indigestible polysaccharide portion of plants. They can be in the forms of soluble and insoluble fibre. The sources of soluble fibres are fruits, cereals and legumes and insoluble fibres are vegetables and wheat

bran.

Fibres found in these foods are now known to be able to bring about a variety of beneficial effects to health. For example, fibres help proper bowel function, reduce symptoms of chronic constipation, diverticular diseases, and hemorrhoids and may lower the risk for heart disease and some forms of cancer.

Dietary fibres are now added to a variety of foods that do not traditionally contain them, e.g. to milk powder and beverages. A variety of non-digestible polysaccharides and oligosaccharides have been recognised as dietary fibre and with approved function claims, e.g. inulin, fructooligosaccharide, galactooligosaccharide, mixture of these oligosaccharides, polydextrose resistant dextrin and resistant starch.

Phytochemicals are bioactive components

Besides vitamins and minerals, plant foods like orange, cabbage and oats contain numerous naturally occurring components that possess physiological and health benefits that go beyond the basic nutrients. Many of these chemicals in plants (phytochemicals) have been shown to be capable of reducing the risk of chronic diseases such as diabetes, hypertension and coronary heart diseases.

Fruits and vegetables contain a good amount of these bioactive components. Carotenoids are good examples of these phytochemicals and some common carotenoids with known physiological functions are beta-carotene, lycopene and lutein. These are found in the orange-red pigments of fruits and vegetables.

Other healthful phytochemicals in fruits and vegetables are glucosinolates, found in vegetables of the Brassicafa family, which include cabbage, cauliflower, kai-lan, Chinese cabbage, pak-choy and Brussel sprouts.

Some bioactive components identified in the soya bean and their potential health benefits investigated are isoflavones, phytosterols and saponins.

Yes, I know you have heard about the goodness of plant foods before. You have heard about the vitamins and minerals and dietary fibre in these foods. However, I do not think we are not consuming enough of plant foods. I feel we have to do better.

■ *NutriScene is a fortnightly column by Dr Tee E Siong, who pens his thoughts as a nutritionist with over 30 years of experience in the research and public health arena. For further information, e-mail starhealth@thestar.com.my. The information provided is for educational and communication purposes only and it should not be construed as personal medical advice. Information published in this article is not intended to replace, supplant or augment a consultation with a health professional regarding the reader's own medical care. The Star does not give any warranty on accuracy, completeness, functionality, usefulness or other assurances as to the content appearing in this column. The Star disclaims all responsibility for any losses, damage to property or personal injury suffered directly or indirectly from reliance on such information.*