

Pump up on ANTIOXIDANTS

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What is Antioxidant?

Antioxidants help protect body cells and DNA from free radical damage by reducing the risk of development of chronic diseases such as heart disease, stroke and cancer.

Antioxidants are made of nutrients such as vitamins (C and E), mineral (particularly Selenium) and plant chemical compounds or phytochemicals such as carotenoids (mainly beta carotene, lycopene and lutein), flavonoids (mainly from anthocyanins, catechins and isoflavones) and phenolic compound (Ellagic acid) found in fruit, vegetables and whole grains.

The best sources of antioxidants are found naturally in our food particularly in colourful fruits and vegetables and whole grains.

Examples are deep-coloured fruits and vegetables such as apricots, peaches, berries (strawberries, raspberries and blueberries), citrus fruits, grapefruit, grapes, mango, papaya, prunes, watermelon, bell peppers, beets, beans, broccoli, spinach, carrots, corn, eggplant, garlic, onions, sweet potatoes and tomatoes.

Dietary antioxidants are the best sources because fruit, vegetables and whole grains

are an integral part of a healthy diet, and their consumption is associated with reduced risk of cardiovascular diseases (e.g. heart disease and stroke) and cancer. In addition, plant-based foods contain an array of vitamins, minerals, fibre and phytochemicals needed for good health.

Health Benefits

• Fruits and Vegetables

A study, examining the effect of fruit and vegetable intake and cardiovascular disease (CVD) risk in adults aged 25 to 74, found that fruit and vegetable intake three or more times a day versus less than once a day was associated with a reduction of 27% in stroke incidence and 27% in CVD mortality.

Consuming three or more servings of fruits and vegetables a day reduced mortality from stroke and heart disease by 42% and 24% respectively.

Green leafy vegetables and fruit and vegetables rich in vitamin C (> 30mg/serving) such as *kailan*, mustard green, spinach, tapioca shoots, Chinese cabbage, broccoli, cauliflower, eggplant, bitter melon, capsicum, pumpkin, guava, papaya,

kiwi, longan, lychee, orange, rock melon, strawberry, apricot, etc, have a greater impact on CVD risk, i.e. with every one serving/day increase in intake, the risk reduction is 11%.

Fruit is associated with greater reduction in CVD risk than vegetables, i.e. 13% versus 7% for three or more servings.

The beneficial components are potassium, folate, and antioxidants (flavonoids, diallyl sulphides and glucosinolates) present in fruit and vegetables.

• Whole Grain

The protective dietary factors against CVD identified in whole grains (a source of carbohydrate) are insoluble cereal fibre, magnesium, folate, vitamins B-6 and E, which are inherent in the whole grain.

The protective mechanisms of whole grains were mediated by multiple pathways, notably through decreased LDL cholesterol (bad cholesterol), increased insulin sensitivity especially in obese people, i.e. BMI ≥ 30 .

Studies have demonstrated that insulin resistance is higher in obese subjects, i.e.

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BMI ≥ 30 . The insulin sensitivity is mediated through the effect of magnesium and insoluble cereal fibre in whole grains, therefore protect against development of type 2 diabetes and CVD.

About 4.6g/day of cereal fibre (equivalent to two slices of whole wheat bread) particularly from dark breads; rye or whole wheat has greater effect on CVD risk than fibre from bran or granola cereals or cold cereals. Consumption of cereal fibre lowers the incidence of CVD by 21%.

How much fruit, vegetables and whole grain to eat?

Consume antioxidants naturally from dietary sources. Aim to eat at least two servings of fruit and two servings of vegetables a day, along with two to three servings of whole grain products a day.



1 serving of vegetable is:

- 1 cup (250ml) of cooked leafy or non-leafy vegetables (100g)
- 100g raw non-leafy vegetables
- 1 round plate (10 inches) of cooked vegetables
- 150g raw leafy vegetables



1 serving of fruit is:

- 1 small apple or pear or persimmon (100g)
- Half a mango (160g)
- 1 slice of papaya (200g)
- 1 slice pineapple (120g)
- 1 wedge of honeydew (200g)
- 10 large cherries (120g)

*Note: All fruits contain carbohydrate, which can raise blood sugar level in people with diabetes if taken in excessive amounts at any one time. If you have diabetes, keep fruit intake to one serving at one time at meals or at tea time.



1 serving of whole grain product is:

- 2 slices of whole-meal or whole wheat breads
- 4 whole wheat biscuits
- 1/2 bowl of brown rice
- 2/3 cup of uncooked oats (50g)

Other sources of Antioxidants:

Other dietary sources for selenium include whole grains such as brown rice and oatmeal, egg, chicken, salmon, tuna and seafood.