

Should we take vitamin supplements?

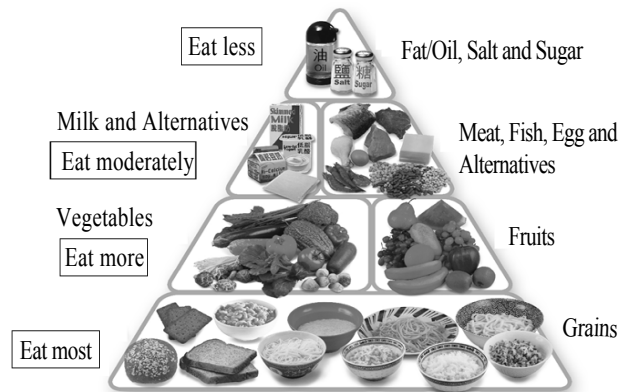
There are various kinds of vitamin supplements available in the market. Should we take these "tonics" to maintain good health?



We should maintain a balanced diet and should not be a picky eater. Eating according to the "Healthy Eating Food Pyramid" can provide the necessary amount of vitamins to stay healthy.

If you need to have diet control because of any illnesses, you should consult a doctor or dietitian. Never take any vitamin pill or supplement on your own.

Healthy Eating Food Pyramid



Reference: Centre for Health Protection, Department of Health

Student Health Service
Department of Health
Student Health Service website: www.studenthealth.gov.hk
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VITAMINS



Food nutrients include carbohydrates, protein, fat, vitamins and minerals. The body needs to obtain appropriate amount of vitamins from food in order to maintain normal functions of cells and organs, and to promote growth and development. Any deficiency or overdose of vitamins could have adverse side effects.

Functions and Categories

✧ Vitamins have various functions that help to regulate metabolism, to prevent chronic diseases (such as heart disease and cancer), and to maintain normal appetite, mental health and immunity. Basically vitamins can be classified into two categories:

(1) Fat-soluble vitamins

- ❖ Include vitamins A, D, E and K. They can dissolve in fats and be absorbed along with fats in the diet
- ❖ Excess fat-soluble vitamins are stored in the liver and will not be eliminated from the body

(2) Water-soluble vitamins

- ❖ Include vitamins B and C. They can dissolve in water
- ❖ Excess water-soluble vitamins are excreted through urine

✧ The amount of vitamins in food is affected by the ways in which food is stored or cooked. Vitamins A and C and some vitamins B can be destroyed under strong light, so food rich in those vitamins should be stored in dim places or in the fridge. Vitamin C and some vitamins B are soluble in water and can be destroyed under heat. Therefore, we should avoid soaking the food in water or cooking the food for too long.

Vitamin	Function(s)	Food sources	Health effect(s) of deficiency	Health effect(s) of overdose
Vitamin A	<ul style="list-style-type: none"> ● Help in production of photo-sensitive substance (rhodopsin) in retina, which is important for night vision ● Promote growth and development ● Maintain healthy skin, mucous membrane and normal function of immune system 	<ul style="list-style-type: none"> ● Liver ● Fish liver oil ● Oily fish e.g. salmon, mackerel ● Egg yolk ● Foods containing carotenoids e.g. carrot, spinach, broccoli, papaya, tomatoes, sweet potatoes * β-carotene (one kind of carotenoids) can transform into vitamin A in the body 	<ul style="list-style-type: none"> ● Night blindness, dry eyes ● Epithelial tissue keratinization ● Retard growth ● Impair immune function 	<ul style="list-style-type: none"> ● Dry skin ● Hair loss ● Liver damage
Vitamin D	<ul style="list-style-type: none"> ● Help body absorb calcium and phosphorus, so as to maintain bone growth ● Maintain the balance of calcium and phosphorus in blood ● Maintain normal function of immune system 	<ul style="list-style-type: none"> ● Egg yolk ● Liver ● Fish liver oil ● Oily fish e.g. salmon, mackerel ● Skins produces vitamin D when exposed to sunlight 	<ul style="list-style-type: none"> ● Children: rickets ● Adults: osteomalacia 	<ul style="list-style-type: none"> ● High calcium levels in blood and urine which increase the risk of calcification of soft tissue
Vitamin E	<ul style="list-style-type: none"> ● Act as antioxidant which protects cell membrane from oxidative damage ● Maintain normal function of immune system 	<ul style="list-style-type: none"> ● Plant oil e.g. corn oil, sunflower oil ● Nut e.g. almonds ● Seed e.g. sunflower seeds ● Dark green vegetables e.g. spinach, broccoli 	<ul style="list-style-type: none"> ● Premature infants: haemolytic anaemia 	<ul style="list-style-type: none"> ● High dosage of Vitamin E may antagonize the effect of Vitamin K and lead to difficulty in blood clotting
Vitamin K	<ul style="list-style-type: none"> ● Help blood clotting and prevent excessive bleeding ● Participate in bone metabolism 	<ul style="list-style-type: none"> ● Dark green vegetables e.g. spinach, broccoli ● Soya beans 	<ul style="list-style-type: none"> ● Excessive bleeding may occur due to difficulty in blood clotting 	<ul style="list-style-type: none"> ● Uncommon
Folate	<ul style="list-style-type: none"> ● Help produce cells and red blood cells 	<ul style="list-style-type: none"> ● Spinach, broccoli ● Egg ● Kidney beans ● Orange, papaya 	<ul style="list-style-type: none"> ● Megaloblastic anaemia 	<ul style="list-style-type: none"> ● Long term use of high dosage of folate can affect zinc absorption ● Masking undiagnosed Vitamin B12 deficiency
Vitamin B1	<ul style="list-style-type: none"> ● Participate in carbohydrate metabolism and enables the body to get energy from foods ● Maintain normal function of nervous system 	<ul style="list-style-type: none"> ● Pork ● Fish e.g. tuna ● Beans e.g. black beans ● Brown rice 	<ul style="list-style-type: none"> ● Beriberi ● Wernicke encephalopathy ● Korsakoff's psychosis 	<ul style="list-style-type: none"> ● Uncommon
Vitamin B2	<ul style="list-style-type: none"> ● Participate in protein and fat metabolism ● Maintain the health of mucus membranes, skin, eyes and nervous system ● Help produce coenzymes which assist in energy production 	<ul style="list-style-type: none"> ● Liver ● Milk ● Egg ● Meat ● Spinach, broccoli ● Nut e.g. almond 	<ul style="list-style-type: none"> ● Glossitis ● Angular stomatitis ● Cheilosis 	<ul style="list-style-type: none"> ● Uncommon
Vitamin B3	<ul style="list-style-type: none"> ● Participate in carbohydrate, protein and fat metabolism ● Help produce coenzymes which assist in energy production 	<ul style="list-style-type: none"> ● Meat ● Fish ● Brown rice ● Whole wheat bread ● Seed e.g. sunflower seed, pumpkin seed 	<ul style="list-style-type: none"> ● Pellagra 	<ul style="list-style-type: none"> ● Flushing
Vitamin B6	<ul style="list-style-type: none"> ● Participate in carbohydrate, protein and fat metabolism ● Help produce heme ● Help in nerve impulse transmission ● Maintain normal function of immune system 	<ul style="list-style-type: none"> ● Meat ● Fish ● Banana ● Potatoes ● Nut e.g. hazelnuts 	<ul style="list-style-type: none"> ● Anaemia ● Depression ● Weakened immune system 	<ul style="list-style-type: none"> ● Peripheral neuropathy
Vitamin B12	<ul style="list-style-type: none"> ● Help produce red blood cells ● Maintain healthy nervous system ● Help in protein metabolism 	<ul style="list-style-type: none"> ● Milk ● Fish ● Egg ● Liver ● Meat 	<ul style="list-style-type: none"> ● Megaloblastic anaemia 	<ul style="list-style-type: none"> ● Uncommon
Vitamin C	<ul style="list-style-type: none"> ● Help produce collagen and maintain the health of blood vessels, connective tissue and cartilage ● Help the absorption of non-heme iron ● Act as antioxidant ● Maintain normal function of immune system 	<ul style="list-style-type: none"> ● Citrus fruits e.g. mandarin orange, orange, grapefruit, lemon ● Strawberry ● Kiwi fruit ● Guava ● Broccoli ● Green pepper 	<ul style="list-style-type: none"> ● Scurvy (gum bleeding, tooth loss, fatigue, bone pain, etc.) 	<ul style="list-style-type: none"> ● Diarrhoea