

ESSENTIAL FATTY ACIDS

MINERALS

FOOD SOURCES	FUNCTIONS	TOXICITY	REMARKS
Calcium: Dark green leafy vegetables, broccoli, cooked dried beans, Chinese cabbage, nuts, seeds, figs, calcium-fortified foods such as tofu, orange juice and soy milk.	Main function is development and maintenance of healthy bones and teeth. Aids in blood clotting. Essential in production and activity of numerous enzymes and hormones that regulate digestion, energy and fat metabolism, and in nerve transmission.	Excessive intake might increase risk for calcium deposit into soft tissues, reduce zinc and iron absorption, impair vitamin K metabolism.	Requires vitamin D for absorption. Calcium intake is only one of the many factors contributing to osteoporosis. In general, calcium from plant foods is more easily absorbed than is calcium from animal products.
Iron: Dark green leafy vegetables, legumes, nuts and seeds, blackstrap molasses, sea vegetables, dried fruit, whole and enriched grains.	Manufacture of hemoglobin, transportation of oxygen in blood to all our body cells. Strengthens the immune system.	Excess iron is accumulated and might catalyse the formation of free radicals, increasing the risk of cancer and heart disease. Excess iron, especially the heme type found in animal sources, can lead to liver toxicity.	Nonheme iron (in plant food) is better regulated by our body needs. Vitamin C can increase absorption up to fourfold. Cooking in cast-iron cookware can increase iron content.
Zinc: Wheat germ, almonds, brazil nuts, pumpkin seeds, beans, whole grain products, mushrooms, tempeh.	An essential component in numerous enzymes in the body. Prostate gland function. Metabolism of carbohydrates, protein and fats for energy. Proper functioning of insulin, maintenance of genetic code. Wound and burn healing.	Relatively non-toxic. Large doses might inhibit copper absorption and reduce iron absorption.	Some studies suggest that zinc reduces the duration of colds.
Magnesium: Nuts, seeds, beans and peas, avocados, bananas, dark green leafy vegetables, whole grains, soy beans.	Metabolism of carbohydrates, proteins and fats for energy. Synthesis of genetic material. Functions in muscle relaxation and contraction, nerve transmission, reduction in tooth decay and heart problems. Similar functions as calcium.	Kidneys are efficient at excreting excess magnesium.	Meat is a very poor source of magnesium. Closely related to potassium. Functions together with calcium and phosphorus in formation of bones and nerves
Potassium: Whole grains, potatoes, avocados, bananas, oranges, beans and peas, dried fruit.	Maintains normal balance and distribution of fluids throughout the body. Regulates nerve transmission and many cell membrane functions. Regulates normal blood pressure, proper calcium balance and heartbeat.	Uncommon to reach levels high enough to cause problems.	Works closely with sodium and chloride. Helps prevent and treat hypertension caused by excessive sodium.
Phosphorous: Legumes, soy beans, nuts and seeds, wheat germ, rice bran, wheat bran.	Healthy bones and teeth. Growth and repair of cells. Nerve and muscle activity. Metabolism of carbohydrates, protein and fats for energy. When the dietary calcium-to-phosphorus ratio is too low (about 1:4), which would occur with the consumption of large amounts of meat and soft drinks and low amounts of calcium sources, bone health may be negatively affected.	For people with kidney problems, excess amount can contribute to osteoporosis, due to imbalance in ratio of calcium to phosphorus.	Vitamin D increases phosphorus absorption. Closely related to and affected by calcium and magnesium.
Boron: Cabbage, prunes, dates, raisins, nuts, grapes, pears, beans, green leafy vegetables.	Essential for normal calcium and bone metabolism.	Much is unknown; No RDA established.	Meat and fish are poor sources.
Iodine: Iodised salt, wheat germ, sea vegetables, other vegetables; depending on iodine content of soil they are grown in.	Functions as a component of the thyroid hormones, which regulate the rate of metabolism, growth, reproduction, nerves and muscles. Healthy hair and skin.	Greater than 10 times RDA can cause a hyperactive and enlarged goitre.	Meat is a poor source of iodine. Sea vegetables are excellent natural sources.
Manganese: Spinach, whole grains, raisins, blueberries, pineapple, legumes, nuts, dark green leafy vegetables, dried fruits.	Formation of connective tissues, fats, cholesterol, bones, blood clotting factors and proteins. Metabolism of carbohydrates.	Uncommon to reach such high levels as to interfere with iron absorption.	Meat is a poor source of manganese.
Selenium: All plant foods grown in selenium-rich soil.	Antioxidant. Protects against cancer and heart disease. Important for normal development of fetus during pregnancy.	Can be toxic if consumed in amounts greater than 600 mcg to 750 mcg.	Works closely with vitamin E as antioxidant. Selenium content of food depends on selenium content of soil.
Copper: Whole grains, beans, nuts, prunes, potatoes, dark green leafy vegetables.	Development and maintenance of the heart, arteries, blood vessels and skeletal system. Aids in nerve transmission, red blood cell production, normal hair and skin colour. Metabolism of carbohydrates, protein and fats for energy.	Rare.	Balance of iron, zinc and copper is important. Excess calcium inhibits absorption of copper.
Chromium: Nutritional yeast, whole grains, wheat germ, apples, bananas, spinach, black pepper, blackstrap molasses.	Functions mainly as a component of glucose tolerance factor, which maintains normal blood sugar levels by increasing and regulating insulin effectiveness. Stimulates synthesis of protein.	Excess intake can inhibit, instead of enhance, the effectiveness of insulin.	Refined and processed foods are low in chromium. Cooking acidic food in stainless steel cookware will increase chromium content.
Omega 3: (linoleic acid) flaxseeds, flax seed oil, walnuts, green beans, soy beans, enriched foods.	Important in normal functioning of all body tissues; may protect against atherosclerosis, heart disease and stroke, and relieve symptoms associated with ulcerative colitis, menstrual pain, and joint pain.	Possibly decreased blood clotting at very high amounts.	We still have much to learn about Omega 3 & 6.
Omega 6: (linolenic acid) nuts and seeds, esp sunflower seeds; vegetable oils, evening primrose and hemp oils.	Same as above.	Too much will counteract Omega 3 synthesis.	Meat, except fish, is a poor source of these essential fatty acids.



What is a healthy vegetarian diet?

A healthy vegetarian diet should consist of a wide variety of plant foods from the following groups: **Grains, Vegetables, Fruits, Legumes (beans and peas), Nuts and Seeds.**

The Physicians Committee for Responsible Medicine (PCRM) has recommended the following daily servings:

- Grains:** 5 or more servings (1 serving = half cup cooked rice, 1 slice of bread)
- Vegetables:** 3 or more servings (1 serving = 1 cup raw, half cup cooked vegetables)
- Fruits:** 3 or more servings (1 serving = 1 medium piece of fruit, 4 ounces fruit juice)
- Legumes:** 2 or more servings (1 serving = half cup cooked beans, 250ml soymilk)

Be sure to include a good source of vitamin B-12, such as fortified foods or vitamin supplements.

Table: Examples of the wide varieties of plant foods

GRAINS	VEGETABLES	FRUITS	LEGUMES	NUTS & SEEDS
barley	alfalfa	kang kong	baked beans	almonds
bran	artichoke	lettuce	black beans	brazil nuts
brown rice	asparagus	mushroom	broad beans	cashews
millet	bell pepper	onion	chick peas	flax seeds
oatmeal	beets (& roots)	pak choy	green beans	macadamia nuts
pasta	brussels sprout	parsley	kidney beans	pecans
quinoa	broccoli	radish	lentils	pine nuts
wheat	cabbage	tomato	honeydew	pistachio nuts
wheat germ	carrot	pumpkin	kiwifruit	pumpkin seeds
	cauliflower	sea vegetables	lemon	sesame seeds
	celery	spinach	mango	sunflower seeds
	cucumber	sweet potato	orange	walnuts
	eggplant	yam	papaya	
	kale	watercress	persimmon	
	kai lan	zucchini	plum	
			watermelon	
			tofu	

GUIDELINES ON A HEALTHY VEGETARIAN DIET & LIFESTYLE

- 1 Eat a wide variety of plant foods.
- 2 Cut down on refined flour, refined sugar, high fat, high sugar and other highly processed food products, such as cakes and fried foods, as they provide less nutrition.
- 3 Get your protein from legumes, nuts, seeds and whole grains. These sources not only provide protein, they are also good energy sources.
- 4 Choose wholemeal and natural food products such as brown rice and whole wheat flour.
- 5 Limit intake of fats, as both saturated and unsaturated fats increase free-radical production and impair the immune system, and saturated fats can cause many other health problems.
- 6 Avoid hydrogenated or partially hydrogenated vegetable fats (read your food labels), as they increase your level of bad cholesterol (LDL) and decrease the level of good cholesterol (HDL).
- 7 Raw foods such as fruits and some vegetables (alfalfa, broccoli, carrot, celery, lettuce) can be beneficial because levels of some nutrients are reduced by heat.
- 8 Cook your vegetables briefly, and take your fruits as soon as they are cut open, to minimise loss of nutrients.
- 9 Do not neglect nuts and seeds such as almond nuts and pumpkin seeds as they are very nutritious.
- 10 Minimise intake of salt as salt is a significant factor for high blood pressure and other health problems.
- 11 Avoid MSG and other unnatural flavourings or preservatives.
- 12 Cut down on caffeine and tannin, found in coffee and tea, especially right before or after a meal, as they inhibit the absorption of nutrients by the body.
- 13 Avoid smoking and alcohol as they cause a multitude of health problems.
- 14 Drink more water, at least 2 to 3 litres a day.
- 15 Go organic, if possible, as organic foods are are eco-friendly, without pesticides etc.
- 16 Get adequate direct sun exposure, at least 20 minutes 3 times per week, for your body to manufacture vitamin D, which is important for calcium absorption.
- 17 Exercise regularly, at least 20 minutes 3 times per week.
- 18 Learn stress management and relaxation techniques.

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Help Build A Better World!

Please share the vegetarian rationale with family and friends.

Vegetarian Society (Singapore)
website: www.vegetarian-society.org | email: info@vegetarian-society.org

A Healthy Vegetarian Diet & Lifestyle Can Meet ALL Our Nutritional Needs Even Without Eggs Or Dairy Products.

VITAMINS

FOOD SOURCES	FUNCTIONS	TOXICITY	REMARKS
A (Carotenoids) Dark green, dark yellow and orange vegetables, carrots, sweet potatoes, cantaloupe, kale, mango, spinach.	Converted in the body to vitamin A, which is essential for good eyesight and night vision, for bone formation and normal body growth, <i>esp.</i> skin and teeth, assists pregnancy and lactation. Acts as antioxidant, protects against cancer and heart disease, enhances immune system.	Carotenoids are non-toxic when consumed from food in moderation, safety of supplements is less clear.	Vitamin A found in animal food may be toxic in prolonged excessive intake, and can cause vomiting, nausea, joint pain, bone deformities, itching, hair loss, headaches, birth defects.
B1 (Thiamin) Wheat germ, nutritional yeast, cooked beans and peas, raisins, oranges, nuts, whole grains.	Normal functioning of all body cells, <i>esp.</i> nerves. Metabolism of carbohydrates, protein and fats for energy.	No known toxic levels.	Chicken and beef are poor sources. Vitamin B1 is lost when cooking water is discarded or when baking soda is added to cooked vegetables.
B2 (Riboflavin) Dark green leafy vegetables, sea vegetables such as dulse, kelp and nori, asparagus, mushrooms, sweet potatoes, avocados, wheat germ, whole grains.	Metabolism of carbohydrates, protein and fats for energy. Important for normal growth and development, hormonal production and regulation, formation of red blood cells.	No known toxic levels.	Easily destroyed by light.
B3 (Niacin) Cooked dried beans and peas, nuts, whole wheat and grains, potatoes, nutritional yeast.	Metabolism of carbohydrates, protein and fats for energy. Aids in synthesis of fats and certain hormones, formation of red blood cells and detoxification. Maintenance of all body cells.	Large doses (more than 3 grams) may cause liver damage	Relatively stable to heat and light; little is lost during cooking unless cooking water is discarded. Fruit, except for orange, is a poor source.
B6 (Pyridoxine) Cooked dried beans and peas, nutritional yeast, wheat germ, nuts, bananas, avocados, leafy greens, cabbage, cauliflower, potatoes, whole grains, dried fruit.	Metabolism of carbohydrates, protein and fats for energy. Involved in production of red blood cells and many enzymes. Aids in formation and maintenance of the nervous system and immune system, regulation of mental processes and mood.	Toxic to the nervous system when taken in large doses	Significant losses during processing of flours, in frozen foods or when cooking water is discarded. 1 medium banana contains more vitamin B6 than 3 ounces of beef or chicken. Vitamins B6, B12 and folate protect against heart disease.
B7 (Biotin) Oatmeal, nutritional yeast, legumes, soy beans, mushrooms, bananas, nuts, whole grains.	Metabolism of carbohydrates, protein and fats for energy.	No known toxic levels.	Water soluble. Also known as vitamin H. Biotin deficiency is rare.
B-12 (Cyanocobalamin) Nutritional yeast, fortified foods and beverages such as cereals, soy milk and orange juice.	Metabolism of carbohydrates, protein and fats for energy. Formation and maintenance of the nervous system. Essential for replacement and maintenance of all body cells.	No known toxic levels.	B12 present in sea vegetables, tempeh, and miso has been shown to be an inactive B-12 analogue. B12 requirements are very small, and it is both stored and recycled in the body to last a long time.
Folate (Folic Acid) Dark green leafy vegetables, nutritional yeast, beans, avocados, wheat germ, whole grains, peanuts, peas, tahini (sesame seed butter), soy beans, mushrooms, potatoes, various fruits such as bananas, oranges.	Synthesis of DNA. Essential for normal growth and maintenance of all cells. Involved in the production of neurotransmitters that regulate mood, sleep and appetite. Important in the creation of new fetal and maternal tissue during pregnancy. Reduces heart disease risk by reducing homocysteine levels in blood.	No known toxic effects. But large doses (4mg) could mask a B-12 deficiency, causing nerve problems to progress undetected to irreversible stages.	Plant foods are our best source of folate. Folate is easily lost when foods are improperly stored for too long or at warm temperature, or in overcooking or reheating, or when cooking water is discarded.
Pantothenic Acid Legumes, soy beans, avocados, mushrooms, green vegetables, bananas, oranges, whole grains, wheat germ.	Metabolism of carbohydrates, protein and fats for energy. Production of fats, cholesterol, bile, vitamin D, red blood cells, some hormones and neurotransmitters. Aids in building of body cells.	No serious toxic effects other than diarrhoea.	Pantothenic acid is easily available in a wide variety of foods. Significant amounts are lost in refining of grains.
C (Ascorbic Acid) Fresh fruits and vegetables, such as peppers, broccoli, citrus fruits, tomatoes, guavas, strawberries.	Formation and maintenance of collagen, which reduces infections, strengthens connective tissue, and promotes healing. Promotes healthy teeth, gums and bones. Antioxidant. Strengthens immunity.	Megadoses (>1g) can cause nausea, diarrhoea, and increased susceptibility to colds and infections.	Enhances the absorption of iron when both are consumed in same meal. Easily lost by improper handling, overwashing, overcooking, reheating, slicing and chopping; freezing has little effect.
D Sunlight, fortified foods and beverages.	Regulates absorption and use of calcium and phosphorus. Aids in formation of normal bones and teeth. Aids in maintenance of healthy nerve and muscle systems.	Toxic in large doses, <i>esp.</i> for children and pregnant women.	Vitamin D is poorly supplied in all diets, unless fortified. 20 minutes of direct sunshine, 3 times per week, is enough for our vitamin D needs.
E (Tocopherol) Vegetable oils, seeds, nuts, wheat germ, spinach, peaches, avocados, broccoli, dried prunes, whole wheat.	Main function is as an antioxidant. Protects body cells and tissues from damage. Regulates use and storage of vitamin A. Impedes premature aging, cancer and heart disease. May alleviate symptoms of PMS.	Relatively non-toxic, though large doses might interfere with vitamin K activity.	Most animal foods are poor sources of vitamin E. Easily lost when flours and oils are processed & bleached.
K Green, leafy vegetables, broccoli, cabbage, cauliflower, avocados.	Main function is to regulate blood normal clotting. Promotes growth and healthy bones.	Large doses can cause anaemia and a severe form of jaundice in infants.	Meat is a poor source of vitamin K. Most of what we need comes from our intestinal bacteria.