

# vegetarian diet

## clinical information for practitioners & patients

Vegetarian or plant based diets have been around since the beginning of human kind. This information handout is designed to provide some up-to-date information on health benefits, risks and special considerations for those following, or embarking upon a vegetarian diet. It does not replace the advice and individual guidance of your healthcare practitioner.

### There are several categories of Vegetarians and Vegans

Semi-vegetarian	Dairy foods, eggs, chicken, and fish, but no other animal flesh
Pesco-vegetarian	Dairy foods, eggs, and fish, but no other animal flesh
Lacto-ovo-vegetarian	Dairy foods and eggs, but no animal flesh
Lacto-vegetarian	Dairy foods, but no animal flesh or eggs
Ovo-vegetarian	Eggs, but no dairy foods or animal flesh
Vegan	No eggs, dairy, fish or meat

### Health benefits of a vegetarian-based diet

- Lower in saturated fat, cholesterol and animal protein
- Higher in carbohydrates, fibre, magnesium, potassium, folate, and antioxidants such as vitamins C and E and phytochemicals.
- Lower body mass indices and lesser risk for obesity.<sup>1</sup>
- Lower rates of death from ischemic heart disease and lower risk for coronary artery disease.<sup>1</sup>
- Lower incidences of high blood cholesterol levels, hypertension, type II diabetes, constipation, gallstones, prostate and colon cancer.<sup>2</sup>

### Potential risks of a vegetarian diet

- Vegetarian, and in particular vegan diets, increase the risk of deficiencies of vitamin B12 which is found exclusively in animal foods, in addition to vitamin B2, vitamin A, vitamin D, n-3 fatty acids and several minerals, such as copper, calcium, iron, zinc, and iodine.<sup>3</sup>
- The need for vitamin B12 increases during pregnancy, breast-feeding, and periods of growth. A chronic deficiency can lead to irreversible nerve deterioration.<sup>3</sup>
- A lack of vitamin D may causes rickets in children, while inadequate calcium can contribute to the risk of osteoporosis in later years.<sup>5</sup>
- Iron and zinc are the most common mineral deficiencies occurring on vegetarian diets.<sup>4</sup>
- Vegetarians are susceptible to iron deficiency anaemia because of a lack of readily absorbed iron from meat, but also from eating foods with constituents that inhibit iron absorption such as bran, soy protein and cereal fibre.<sup>5</sup>
- Vegans must guard against inadequate calorie intake and chronic deficiencies as mentioned in point one. They may need to reconsider their restricted diet for pregnancy or other conditions of increased nutritional demand. They should supplement their diet daily with at least a multivitamin/mineral and vitamin B12.
- Protein deficiency is a common problem amongst vegetarian and vegans, which in children can impair growth and in adults can cause loss of hair, muscle mass, immune function and energy.
- The elderly should be especially cautious with restricted diets as nutritional deficiencies increase with age (eg. anaemia), as does the body's ability to absorb nutrients.<sup>6</sup>

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## Top Tips for a healthy diet

- See also the *Nutrmedicine Healthy Eating Clinical Protocol* sheet.
- Minimise intake of nutritionally deficient foods such as sugar, processed, refined and fast foods
- Choose whole or unrefined grain products instead of refined products (white breads, white flour products, white pasta, white rice (except basmati))
- Choose a wide variety of nuts, seeds, legumes, fruits, and vegetables. Eat with the seasons to receive a variety of foods high in nutrients.
- Include a combination of available protein sources daily to attain adequate levels of amino acids.
- Include good sources of vitamin C to improve iron absorption
- For vegans and ovo-vegetarians, include fortified food sources of vitamin B12 such as fortified soymilks or cereals, or include a daily supplement.
- Include a vitamin D supplement if sunlight exposure is low and a calcium supplement if diet is inadequate or needs are increased. (See also *Nutrmedicine Dairy Clinical Protocol* sheet)
- Have regular checks for iron levels especially if you are a teenager, menstruating female, pregnant or elderly.

## Quick reference table of nutrients

(See also *Nutrmedicine Nutrient List*)

Vitamin B12	Fatty fish, spirulina, fortified soymilk and cereals, supplements
Vitamin D	Butter, fortified dairy free spreads, sardines, supplements
Calcium	Dairy products, tofu, green vegetables, seeds, nuts, legumes
Iron	Legumes, tofu, green leafy vegetables, dried fruit, whole grains, fortified cereals/breads
Zinc	Red meat, fish and shellfish, whole grains (especially the germ and bran), legumes, nuts, seeds, tofu.

## Combining plant protein sources

Vegans, and especially children, must be sure to consume adequate calories and protein. Animal foods, including eggs and dairy, provide all eight of the essential amino acids and constitute a "complete" or "primary" protein. Plant foods are "incomplete" or "secondary" proteins and contain fewer amino acids than animal foods. Plant-based diets can provide adequate amounts of amino acids but only when a varied diet is eaten on a daily basis. The mixture of proteins from grains, legumes, seeds, nuts and vegetables provide a complement of amino acids so that deficits in one food are made up by another. Not all types of plant foods need to be eaten at the same meal, since the amino acids are combined in the body's protein pool. To gain the greatest use of all the amino acids, it's best to consume complementary proteins within three to four hours. The following combinations are strongly advised:

- Grains with legumes – Basmati rice with Lentil Dahl
- Grains with eggs or dairy – Wholemeal toast with poached egg
- Legumes with nuts and seeds – Stir fry tofu with sesame seeds and cashews
- Legumes with eggs or dairy – Chickpea curry with yoghurt
- Nuts and seeds with grains – Almond spread on spelt bread
- Nuts and seeds with eggs or dairy – Roasted seed/nut mix sprinkled onto fruit & yoghurt

<b>Legumes</b>	black-eyed peas, chickpeas, peas, peanuts, lentils, sprouts, and black, broad, kidney, lima, mung, navy, pea, and soy beans etc
<b>Grains</b>	Rice, wheat, corn, rye, bulgur, oats, millet, barley, buckwheat, spelt, kamut and Quinoa (all available as a whole grain, flour, bread or pasta/noodles)
<b>Nuts</b>	Cashew, walnut, brazil, pecan, pistachio, almond, hazelnut, macadamia etc
<b>Seeds</b>	Pumpkin, sesame, sunflower, linseeds, etc

Vegetarian and vegan diets can meet the current recommendations for all of the above-mentioned nutrients, but in order to be healthful, they require very careful and proper planning and may require supplementation. As with any diet, it's important for the vegetarian diet to include many different foods, since no one food contains all the nutrients required for good health. The wider the variety, the greater the chance of getting the nutrients you need.

\*Reference available on request.