

Iodine

Iodine is vital for good thyroid function, which in turn is essential for health. Iodine deficiency during pregnancy and early infancy can result in preventable brain damage and severe motor impairments. In adults low iodine intake (or very high intakes) can cause hypothyroidism. Hypothyroidism can manifest as low energy levels, dry or scaly or yellowish skin, tingling and numbness in extremities, weight gain, forgetfulness, personality changes, depression, anaemia, and prolonged and heavy periods in women. Goiter, an enlarged thyroid gland visible between the Adam's apple and the collar bone, is often present. Hypothyroidism can also cause carpal tunnel syndrome and Raynaud's phenomenon. Hypothyroidism can lead to significant increases in cholesterol levels and homocysteine levels is implicated in about 10% of cases of high cholesterol levels. Correcting hypothyroidism can lead to a 30% drop in cholesterol and homocysteine levels.

An iodine intake of less than 20 micrograms (mcg) per day is considered severe deficiency, 20-50mcg/day is considered moderate deficiency and 50-100mcg/day is considered mild deficiency.

Iodine is typically undesirably low (about 50 micrograms/day compared to a recommended level of about 150 micrograms per day) in UK vegan diets unless supplements, iodine rich seaweeds or foods containing such seaweeds (e.g. Vecon) are consumed. The low iodine levels in many plant foods reflects the low iodine levels in the UK soil, due in part to the recent ice-age. About half the iodine consumption in the UK comes from dairy products. In the US iodised salt is widely used and some other foods are fortified with iodine. In Canada all table salt is iodized. The UK has no iodine fortification strategy for plant foods or salt.

Low zinc intakes exacerbate the effect of low iodine intake. Some otherwise healthful foods contain goitrogens - substances which can interfere with iodine uptake or hormone release from the thyroid gland. These foods are generally only a concern if iodine intake is low. Consumption of brassicas, such as cabbage, Brussels sprouts, broccoli and cauliflower, increase the requirements for iodine, especially if consumed raw. Soy beans, raw flaxseed, cassava (used in tapioca), sweet potatoes, lima beans, maize and millet also increase the requirements for iodine.

It is important not to over-consume iodine as it has a relatively narrow range of intakes that reliably support good thyroid function (about 100 to 300 micrograms per day). Someone consuming large amounts of iodised salt or seaweeds could readily overdo it. Excessive iodine has a complex disruptive effect on the thyroid and may cause either hypothyroidism or hyperthyroidism, in susceptible individuals, as well as increasing the risk of thyroid cancer. Hyperthyroidism may also occur, particularly in elderly people, due to long term slight iodine deficiency as this may result in additional nodules on the thyroid.

Hyperthyroidism may manifest as an enlarged thyroid (goiter), heart rate irregularities, tremor, sweating, palpitations, nervousness and increased activity and eye abnormalities. Some individuals deliberately take kelp to try to lose weight by over stimulating the thyroid. This is a dangerous practice.

Subclinical hypothyroidism, with raised thyroid stimulating hormone (TSH) levels but mild or absent overt symptoms, has been found to be more common among vegans than the general population. Most vegans have low iodine intakes but a significant minority consume excessive amounts of iodine from seaweed, particularly kelp. Both low and excessively high iodine intakes in vegans have been linked to elevated TSH levels.

The key to good thyroid function is adequate, but not excessive iodine intake. Intakes in the range 100-300 micrograms per day are desirable, though intakes up to 500 micrograms per day are probably not harmful. If taking supplements go for about 100-150 micrograms per day, to give a total intake of 150-200 micrograms per day. The supplements supplied by The Vegan Society contain an average of about 150 micrograms, so one a day provides about the right amount. Many kelp supplements contain higher levels and should be restricted to two a week.

If using seaweeds as an iodine source it is best to use seaweeds that have been found to have a fairly consistent iodine content, such as kelp (kombu). Consumption of more than 100g/year (by dried weight) of most seaweeds carries a significant risk of thyroid disorder due to iodine intakes in excess of 1000 micrograms per day.

Nori is low in iodine and several sheets a day can be eaten without any concern about excess iodine. Frequent addition of small amounts of powdered or crumbled seaweed to stews or curries while cooking, or to other foods as a condiment, is an excellent way to provide adequate iodine (in the absence of other supplementation) and is a healthful practice for vegans. 15g of dried kombu or kelp in a convenient container in the kitchen provides one year's supply for one person.

Most vegans know that B12 deficiency can cause neurological complications and tingling sensations or numbness. B12 deficiency is also a common cause of elevated homocysteine levels in vegans. It should be noted that hypothyroidism (myxedema) can also cause nerve damage, tingling sensations and elevated homocysteine and should be considered as an alternative diagnosis for these symptoms.

Thyroid function can be readily tested by doctors based on a blood sample and measurement of thyroid related hormone levels.

Information courtesy of Stephen Walsh