# FACT SHEET

# IODINE

Iodine is an essential nutrient and is widely distributed in nature, although its distribution is variable being adequate in coastal regions and lower in areas further from the sea.

**Function**
Important for production of thyroxin (in the thyroid gland), the principal regulator of metabolic rate in humans, growth and maturation of brain and skeleton.

**Sources**
- Food sources of iodine are dependent on the soil content of iodine
- Main dietary sources are milk and dairy products, seafood and iodised salt. Vegetables, fruits and cereals are generally poor as soils and water are deficient.
- Other sources are medications such as cough mixtures, throat lozenges, iodine antiseptics, multi -vitamin and mineral tablets and foods containing the colouring agent erythrosine.
- Dairy foods have been a source of iodine because of the use of iodophores as sanitizers. However with the move away from iodophores to other sanitizers in the dairy industry the level of iodine in dairy foods is declining
- Iodised salt is a good source but is not routinely used. Salt is discouraged because of its association with high blood pressure and iodized salt is not promoted
- All infant formulas sold in Australia must comply with Food Standards Australia New Zealand (FSANZ) Standard 2.9.1. All infant formula is required to contain between 1.2-10ug/l00kJ iodine.
- Breast milk will contain adequate iodine provided that the mother's diet is adequate in iodine

**Metabolism**
- It is readily absorbed into the blood in the form of iodide from the gastrointestinal tract and taken to the thyroid gland and made into thyroid hormone. An adult needs to trap at least 60ug of iodine per day for adequate thyroid hormone production.
- About 90% of the absorbed iodine is excreted in the urine and some in the faeces each day
- Urinary iodine excretion reflects the daily iodine intake and is a universal measure of nutritional iodine status
- Goitrogens are chemicals in plants that block iodine uptake and incorporation into thyroid hormones eg present in cabbage turnips sprouts, tobacco, cassava, millets grains. The most important in Australia is from tobacco.

**Recommended Dietary Intakes.**
These vary form country to country. The NH&MRC are currently reviewing the Australian RDI for iodine in Australia. The current RDI for adult males is 150ug/day; females 120ug/day; infants 0-6 months 50ug; 7-12 months 60ug and 1-3 years 70ug

**Iodine Deficiency**
Iodine deficiency causes goitre (an enlarged thyroid gland), slower metabolism and loss of energy, miscarriages and decreased fertility. Babies born to iodine deficient mothers risk brain damage, mental retardation, stunted growth and defects in speech and learning. Iodine deficiency is the leading cause of preventable metal retardation in the world. Its impact on society is lower productivity and higher demand on social services.

Iodine deficiency and goitre have been a problem in parts of Australia in the past particularly in Tasmania, the hilly areas of the Great Dividing Range the Adelaide Hills and areas around Canberra. Recent studies of school children in Melbourne, the Central Coast in NSW and Tasmania and pregnant and postpartum women in Sydney show evidence of mild iodine

deficiency suggesting its re-emergence. As a result the National Iodine Nutrition Study (supported by FSANZ, State Departments of Health and Education, medical profession, scientists and the food industry) is being undertaken to measure the urinary excretion of Australian children and thyroid size to gain a snapshot of iodine nutrition throughout Australia. This will provide valuable information so that iodine intakes can be optimised and deficiency prevented.

The Tasmanian government is already addressing the problem of low iodine intakes by recommending that all bread be baked using iodized salt.

**Excess Iodine**

- The upper limit of iodine intake is about 1000 ug/day.
- The adult thyroid gland regulates absorption of iodine but the foetus and infant do not do this well and large quantities can lead to goitre and hypothyroidism.

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