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IODIZED SALT, BEST SOURCE FOR IODINE DEFICIENCY

Public Health

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Iodine is a trace mineral that is needed for the production of thyroid hormone. The body does not make iodine, so it is an essential part of your diet. Iodine is found in various food. If you do not have enough iodine in your body, you cannot make enough thyroid hormone. Thus, iodine deficiency can lead to enlargement of the thyroid (goiter), hypothyroidism and to intellectual disabilities in infants and children whose mothers were iodine deficient during pregnancy. Approximately 40% of the world's population remains at risk for iodine deficiency.

Sources of Iodine

Iodine is found naturally in soil and seawater. The availability of iodine in foods differs in various regions of the world. In our country maintain adequate iodine in their diet by using iodized salt (, by eating foods high in iodine, particularly dairy products, seafood, meat, some breads, and eggs, and by taking a multivitamin containing iodine.

Approximately one third of the world's population lives in areas where natural sources of iodine are low, and therefore they require the permanent presence of iodine-supplying interventions. This population at risk of iodine deficiency is unevenly distributed across the world and within countries. Salt iodization is the preferred strategy for control of iodine deficiency disorders and is implemented in more than 120 countries around the world. Many countries worldwide have successfully eliminated iodine deficiency disorders or made substantial progress in their control largely as a result of salt iodization.

Symptoms of Iodine Deficiency

All of the symptoms of iodine deficiency are related to its effect on the thyroid:

Goiter-

Without adequate iodine, the thyroid progressively enlarges (develops a goiter) as it tries to keep up with demand for thyroid hormone production. Worldwide, iodine deficiency is the most common cause of thyroid enlargement and goiter. Within a goiter, nodules can develop. Patients with a large goiter may experience symptoms of choking, especially when lying down, and difficulty swallowing and breathing.

Hypothyroidism –

Hypothyroidism, also called underactive thyroid disease, is a common disorder. With hypothyroidism, your thyroid gland does not make enough thyroid hormone. The thyroid controls how your body's cells use energy from food, a process called metabolism. Among other things, your metabolism affects your body's temperature, your heartbeat, and how well you burn calories. If you don't have enough thyroid hormone, your body processes slow down. That means your body makes less energy, and your metabolism becomes sluggish.

Pregnancy related problems

Iodine is very important for women who are pregnant or nursing their infants. Severe iodine deficiency in the mother has been associated with miscarriages, stillbirth, preterm delivery, and congenital abnormalities in their babies. Children of mothers with severe iodine deficiency during pregnancy can have intellectual disabilities and problems with growth, hearing, and speech. In the most severe form, an underactive thyroid can result in cretinism (a syndrome characterized by permanent brain damage, intellectual disabilities, deaf mutism, spasticity, and short stature), though this is not seen in the United States. Congenital hypothyroidism due to iodine deficiency is the most common preventable cause of intellectual disabilities in the world. Even mild iodine deficiency during pregnancy, which may be present in some women in the United States, may be associated with low intelligence in children.

PREVENTION

As with many diseases, it is better to prevent the problem rather than have to treat it. Over the last 80 years, worldwide efforts have been made to eliminate iodine deficiency. Indeed, elimination of iodine deficiency has been a major goal of the World Health Organization. Iodized salt has been the mainstay of treatment for iodine deficiency worldwide, including in the United States. Injections of iodized oil are occasionally used in regions of the world where widespread iodized salt use is not possible. Iodination of water supplies also has been effective in some places.

Recommendation –

The Institute of Medicine has set the Recommended Dietary Allowance (RDA) for iodine in adult men and women at **150 µg per day**. Individuals who add tablet salt to their food regularly should use iodized salt. One teaspoon of iodized salt contains approximately **400 µg** iodine.

Recommendation for Pregnant women and Lactating women

The RDA is 220 µg iodine per day for pregnant women and 290 µg iodine per day for breastfeeding women. Because the effects of iodine deficiency are most severe in pregnant women and their babies, the American Thyroid Association has recommended that all pregnant and breastfeeding women in the take a prenatal multivitamin containing 150 µg iodine per day.

What is iodized salt

Iodized salt is a type of fortified salt which is fortified with iodine. It is a table salt.

Why should we consume iodized salt

In many countries, iodine deficiency is a major public health problem that can be cheaply addressed by purposely adding small amounts of iodine to the sodium chloride salt. Iodized salt is easily available and cheapest source of iodine so that consumption of iodized salt prevents iodine deficiency. Worldwide, iodine deficiency affects about two billion people and is the leading preventable cause of intellectual and developmental disabilities. Deficiency also causes thyroid gland problems, including "endemic goitre".

Production of iodized salt

Edible salt can be iodized by spraying it with a potassium iodate or potassium iodide solution. 57 grams of potassium iodate is required to iodize a ton (2,000 pounds) of salt. Dextrose is added as a stabilizer to prevent potassium iodide from oxidizing and evaporating. Anti-caking agents such as calcium silicate are commonly added to table salt to prevent clumping.

Why salt is considered an appropriate vehicle for fortification with iodine

- salt is one of the few commodities consumed by everyone
- salt consumption is fairly stable throughout the year
- salt production is usually limited to a few geographical areas
- salt iodization technology is easy to implement and available at reasonable cost throughout the developing world
- the addition of iodine to salt does not affect its colour, taste or odour
- the quality of iodized salt can be monitored at the production, retail and household levels