

Letter-to-the-Editor:**Potential Risks of Excess Iodine Ingestion and Exposure:
Statement by the American Thyroid Association Public Health Committee**

Iodine is a micronutrient required for normal thyroid function. Recommended Daily Allowances (RDA) for iodine intake are 150 mcg in adults, 220-250 mcg in pregnant women, and 250-290 mcg in breastfeeding women in the U.S. (1,2). The U.S. diet generally contains enough iodine to meet these needs, with common sources being iodized salt, dairy products, some breads, and seafood. During pregnancy and lactation, women require higher amounts of iodine for the developing fetus and infant. The American Thyroid Association recommends that women take a multivitamin containing 150 mcg iodine daily in the form of potassium iodide (KI) (3) during preconception, pregnancy, and lactation to meet these needs (4).

Ingestion of greater than 1,100 mcg of iodine per day (Tolerable Upper Limits for iodine) (1) is not recommended and may cause thyroid dysfunction. During pregnancy and lactation, when the risk of excess iodine are primarily related to the fetus and newborn infant, the recommendations for the upper limit vary and range from 500-1,100 mcg of iodine daily (2). In particular, infants, the elderly, pregnant and lactating women, and individuals with preexisting thyroid disease (such as autoimmune Hashimoto's disease, Graves' disease, non-toxic thyroid nodules, history of partial thyroidectomy, and other conditions) are susceptible to adverse effects of excess iodine intake and exposure (5). The public is advised that many iodine, potassium iodide, and kelp supplements contain iodine in amounts that are up to a hundred times higher than the daily Tolerable Upper Limits for iodine. The American Thyroid Association (ATA) advises against the ingestion of iodine and kelp supplements containing in excess of 500 mcg iodine daily for children and adults and during pregnancy and lactation. Chronic iodine intake in amounts greater than the Tolerable Upper Limits should be closely monitored by a physician. There is only equivocal data supporting the benefit of iodine at higher doses than these, including a possible benefit for patients with fibrocystic breast disease (6). There is no known thyroid benefit of routine daily iodine doses in excess of the U.S. RDA.

There are a limited number of medical conditions in which the short-term use of high amounts of iodine is indicated. Exceptions for the recommendations to not exceed the Tolerable Upper Limits include closely-monitored patients prescribed Lugol's solution or SSKI (saturated solution of potassium iodide) in their treatment of severe hyperthyroidism, such as thyroid storm and prior to surgery in patients with Graves' disease, and individuals in the vicinity of a nuclear power plant who are recommended to take KI in the event of a nuclear accident. SSKI is not indicated nor recommended in individuals with thyroid nodules. Finally, patients receiving the large amounts of iodine in iodinated contrast dyes, as required for radiologic studies, should be monitored for iodine-induced thyroid dysfunction if risk factors are present.

Key points:

- Adequate iodine intake is required for normal thyroid function
- The recommended iodine intake in non-pregnant adults is 150 mcg daily

- Pregnant and breastfeeding women should take a prenatal vitamin which contains 150 mcg of potassium iodine daily
- Given a Tolerable Upper Limit of 1100 mcg iodine daily, ingestion of an iodine or kelp supplement containing in excess of 500 mcg iodine daily should not be done
- Certain exceptions to these recommendations include those for specific medical conditions, which usually require only a limited number of doses for a short-term duration; such individuals should be closely monitored for thyroid dysfunction

References:

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