People who eat seaweed regularly may have excessive iodine intakes


Marine foods, such as fish and shellfish, are naturally high in iodine due to the high iodine concentration in seawater and seaweed. During recent years, seaweeds have become increasingly popular in diets in Europe and North America. In Europe, seaweed represents a potential new dietary iodine source, and is considered as an especially healthy food or even a “super food.”

The aim of a recent study was to describe iodine intake and iodine status in a group of seaweed (termed macroalgae) consumers in Norway, and to report on their thyroid function. Convenience sampling was used to recruit 44 consumers of macroalgae during September, October and November 2019, including frequent macroalgae consumers, defined as habitual consumption of macroalgae on a weekly basis. All participants delivered two urine samples. The participants were encouraged to consume macroalgae in the same manner as usual, and were instructed to sample their urine 3–4 and 7–8 h after consumption.

Iodine intake from iodine-rich foods and iodine-containing supplements was calculated for the last 24 h, and habitual iodine intake was calculated from a short food frequency questionnaire. These included questions about intake of milk and yogurt, cheese, eggs, and fish, or iodine-containing supplements (non-algae).

The median urinary iodine concentration (UIC) among the 44 macroalgae consumers included in this study was 1200 (370–2850) µg/L after macroalgae consumption, and the estimated median iodine intake from macroalgae alone was 2200 (280–4060) µg/day.

Their median UIC considerably exceeds the cut-off value for excess intake of 300 µg/L, indicating excessive iodine nutrition. Further, the median estimated iodine intake of 2430 µg/day was four times higher than the tolerable upper intake level (UL) from the European Food Safety Authority of 600 µg/day. 64% exceeded the UL from The U.S. National Academy of Medicine, of 1100 µg/day. Macroalgae were the main contributor to dietary iodine in this study.

The authors state: “A large share of the products the participants reported to consume were not labeled with iodine concentration. Similarly, in the UK, only 22 products out of 224, (10%), stated information regarding iodine content. Due to variations in iodine concentration with season, harvesting location, age, and size of the macroalgae, storage and processing conditions, the iodine concentration is difficult to determine without specific analysis of products. The iodine concentration for the same species may vary considerably.”

“For the products in our study with declaration of iodine, the concentration was highly variable, ranging from 63 µg/g to 35,000 µg/g for whole food macroalgae and 0.6 µg/g to 3360 µg/g for macroalgae containing foods. With such variations in iodine content and with products without iodine declaration, it is difficult to decide if a product is safe to consume.”

The authors conclude that vulnerable people, such as pregnant women and individuals with thyroid autoimmunity, should avoid consuming macroalgae so as to avoid the risk of excess iodine consumption.