

## **THE NATIONAL NUTRITION COUNCIL RECOMMENDS THE FOLLOWING ACTIONS TO IMPROVE THE IODINE INTAKE OF THE POPULATION**

The dietary intake of iodine is too low in Finland based on population studies. The National Nutrition Council recommends that the iodine intake of the population is best improved by using iodised salt. The total intake of salt, however, should be further reduced. The population-level recommendation for salt intake is no more than 5 g/day.

The following recommendations are given with regard to the use of iodised salt:

- The salt used should contain 25 µg/g of iodine.
- Iodised salt is to be used in mass catering.
- Iodised salt is to be used in homes.
- Bakeries are recommended to use iodised salt in all of their production.
- In Finland, the use of iodised salt should gradually be opted for in all food preparation, including the food industry.

The use of iodised salt is to be stated in the product labelling by using the indication “iodised salt” or “salt (salt, iodine)” in the list of ingredients.

The recommendation for the use of iodised salt must be taken into account when food recommendations for different age and population groups are implemented. To secure sufficient iodine intake, those on a vegan or milk-free diet are recommended to use food supplements containing iodine, the intake from which, in addition to the diet, should not exceed the age-group specific recommended daily intake (50 to 150 µg/day). Seaweed products whose iodine content is not known or whose iodine content is high are not recommended to be used at all. Some seaweed products have been found to exhibit adversely high iodine concentrations. The total daily intake of iodine, including intake from diet and food supplements, should not exceed 600 µg/day.

The implementation of the proposed actions and their effects on the iodine intake and iodine status of different age groups is to be monitored on a regular basis. The monitoring should be included in national programmes, and a responsible body and resources should be assigned for it. The use of iodised salt in mass catering and in the food industry are to be examined by means of surveys in

2016. The iodine intake and iodine status of the adult population are monitored as part of the National FINRISK 2017 Study. The regular monitoring shall include special groups vulnerable with regard to iodine intake, such as pregnant and breastfeeding women, infants and pre-school-age children.

## **BACKGROUND AND GROUNDS OF THE RECOMMENDATION**

Iodine is an essential nutrient that is needed for the production of thyroid hormones and for the normal foetal and child growth and development. Iodine deficiency causes thyroid enlargement, or goitre, that was still common in the early 20<sup>th</sup> century. Iodine deficiency in the foetal stage may cause neurological development disorders.

The World Health Organisation WHO recommends monitoring the iodine status of the population by measuring the urinary iodine concentrations in the population. About 90% of the iodine ingested in food is excreted in urine. According to the WHO criteria, median urinary iodine concentrations for populations must exceed 100 µg/L, at which level the risk of goitre in the population is the lowest. Urine iodine concentration of 50 to 100 µg/L indicates mild deficiency. The limits for moderate and severe iodine deficiency are 20 to 50 µg/L and < 20 µg/L, respectively. In the National FINRISK 2002 Study, the median urinary iodine concentration was 81 µg/L, and in the FINRISK 2012 Study, 63 µg/L. Based on the FINRISK studies and the population-level target values defined by the WHO, adult Finns have a mild iodine deficiency. Urine iodine concentration was below 50 µg/L for 35% of the population. The mild deficiency is further corroborated by the intake calculations carried out in the 2000s based on diet interviews. In the National FINDIET 2012 Survey, the median intake was 117 µg/day (assuming that 10% of the salt was iodised). The recommended intake for adults is 150 µg/day. For pregnant women, 175 µg/day is recommended, and for breastfeeding women, 200 µg/day.

## **USE OF IODISED SALT AND SOURCES OF IODINE IN THE DIET**

The use of iodised salt is the most commonly used means worldwide to increase the intake of iodine and to prevent iodine deficiency. Iodine was added to salt in Finland as well starting from the middle of last century, thanks to which goitre, a disease caused by iodine deficiency, nearly disappeared from Finland. From the 1960s onwards, the iodine status of the Finns remained

excellent for decades. Calculated from the food consumption data, the dietary intake of iodine was at that time nearly 300 µg/day (the recommendation of the National Nutrition Council is > 150 µg/day). However, the situation has become worse since then. According to the latest National FINDIET 2012 Survey, the iodine intake was as low as 117 µg/day. In particular the reduced share of home-made food and the use of non-iodised special salts and spice mixtures, the use of ready-made products and eating outside of home have decreased the intake of iodine. The food industry and mass catering primarily use non-iodised salt. The amount of iodine in animal feedstuffs has decreased as well. The most important sources of iodine in the Finnish diet are milk products, eggs, fish and iodised salt.

### **MODELLING THE INTRODUCTION ON IODISED SALT**

The National Nutrition Council examined the iodine status and iodine intake of the population in 2013–2014. Based on the assessment of the situation, modelling calculations were carried out in view of improving the iodine intake of the population. The newly analysed iodine concentrations in foodstuffs were used in the calculations. The modelling calculations were carried out at the National Institute for Health and Welfare using the FINRISK 2012 adult population data. Because bread is an essential part of the Finnish diet and one third of the salt intake comes from cereal products, bread was used as the iodine carrier in the calculations. The opportunities to influence the iodization of bread were estimated to be good, because the majority of the bread consumed in Finland is of domestic origin. Bread is a daily used plant-based foodstuff that is suitable for all population groups. Additionally, the increased use of wholegrain bread is recommended in the nutrition recommendations. Iodised salt is used in bread in Denmark and Australia, for example. In the modelling calculations, the new limit pertaining to ‘highly salty foods’ in compliance with the legislation and the salt content of bread in accordance with the Heart Symbol criteria were used. Based on these calculations, the iodization of bread at the level of 25 µg/g corrects well the iodine intake of the population but is not alone sufficient. If all the salt consumed were iodised, the intake would be sufficient also in the lowest consumption groups and would not exceed the upper limit of safe intake in the highest consumption groups.

The National Nutrition Council resolved to recommend that the iodization of salt be started immediately in bakery products and that iodised salt be opted for in homes and mass catering. To

secure the sufficient iodine intake of the population, a transition to the use of iodised salt comprising all foodstuffs is necessary during the next few years. These measures would make it possible to restore the iodine intake of the population to its previous good level even if the intake of salt in the population were reduced in compliance with the recommendations. According to the modelling calculations, the median intake would rise from the present level of approx. 110 µg/day to 280 µg/day at most, in which case the intake would exceed the recommended level of 150 µg/day for 95% of the adult population.

The purpose of the proposed actions is to proactively prevent iodine deficiency. The increase is not based on any increase in the incidence of the iodine-deficiency disease goitre in Finland. Instead, the Nordic iodine recommendation was used as the basis of the modelling. The nutrition recommendation, which for iodine is 150 µg/day, contains a safety margin to secure sufficient intake at the population level.