Mandatory iodine fortification of bread and salt increases iodine excretion in adults in Denmark - A 11-year follow-up study - DTU Orbit (09/12/2018)

Background & aims: Iodine fortification is widespread. Systematic monitoring of iodine fortification programs should be carried out to secure an optimal fortification level. Our aim was to investigate the effectiveness of the Danish iodine fortification program by comparing iodine excretion at baseline and at 11-year follow-up, and to study determinants for any change in iodine intake including dietary habits, education, life style factors and health parameters. Methods: A follow-up study based on the Danish DanThyr cohort examined in 1997-1998 just before iodine fortification was introduced, and reexamined in 2008-2010. In total, 2465 (59.1%) adult participants were reexamined. Results: Median (IQR) iodine concentration in urine had increased by 19 (-25-68) μg/L to 83 (47-133) μg/L. Estimated 24-h iodine excretion had increased by 36 (-21-95) μg/24-h to 134 (93-206), and calculated total iodine intake (diet plus supplements) had increased by 16 (-18-48) μg/day. Iodine excretion had increased significantly in all age and gender groups, but was still below the recommended amount at follow-up. The increase in iodine excretion was positively associated with changes in milk intake, with changes in the use of iodine supplements, and with bread intake at follow-up. Salt intake, education, self-rated health, smoking, alcohol intake and physical activity were not associated with the increase in iodine excretion. Conclusions: The strategy to combat iodine deficiency in Denmark seems to be working because the fortification led to increased urinary iodine excretion in (almost) all participants. However, the level of iodine fortification of salt is too low. © 2013 Elsevier Ltd and European Society for Clinical Nutrition and Metabolism.