

The effect of a mandatory iodization programme on the prevalence of benign thyroid disorders: an evaluation of four years' iodization of salt in Denmark

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ABSTRACT

This PhD dissertation emanates from Department of Endocrinology and Gastroenterology I, Bispebjerg Hospital and Research for Prevention and Health, The Capital Region of Denmark, as a part of the Danish Investigation on iodine intake and thyroid disease (Dan-Thyr). The dissertation builds on two separate cross-sectional studies done (in Aalborg and at Bispebjerg) before and after the initiation of a mandatory iodization programme in 2000. With the programme all household salt produced in Denmark and salt used in the bread industry is iodized.

The aim of the thesis was to describe the effects of an iodization programme on the prevalence of goitre and thyroid function on a population level.

We found a lower median thyroid volume in both regions after the iodine fortification. The effect was most pronounced in Jutland, where the most severe iodine deficiency was demonstrated before the iodization. Also, we found a lower prevalence of goitre in all investigated age groups.

In relation to the iodization we found an increment in prevalence of hypothyroidism. The expected increment in prevalence of hyperthyroidism could not be demonstrated. On the contrary, we found lower prevalence of mild hyperthyroidism.

We also demonstrated a weaker association between smoking and goitre after the iodization indicating an iodine dependent mechanism for the goitrogenic effect of tobacco smoking.

It is concluded that the Danish iodization programme has been beneficial, but that continued surveillance is essential as the effects are still dynamic. Currently a re-examination of the subjects examined before iodization is performed to elucidate the effects of iodization on an individual level.