

First European map on iodine deficiency

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Credit: Krivec Ales from Pexels

Iodine deficiency (ID) is the world's leading cause of preventable brain damage. The EU-funded project EUthyroid has set up the first joint European database that can provide information on iodine status and thyroid disease load.

ID can result in the development of disorders such as goitre, [thyroid](#)

dysfunction and cretinism. Despite the fact that it can easily be prevented by fortification of table salt, industrial salt and cattle food with iodine, the European region has shown severe depletion of iodine in the human population and up to 360 million European citizens are exposed to ID disorders. In addition, the costs required by the healthcare systems for the treatments of these subjects are enormous. An effective European monitoring programme is a crucial step towards eradication of ID disorders with significant benefits to the EU economy and the healthcare systems.

Harmonisation of the collective approaches that ensure sufficient iodine intake in European countries is imperative for the prevention of ID disorders. The EUthyroid project established a joint European database from registry-based outcome data related to iodine status in Europe.

Iodine is an essential dietary mineral that is required for normal thyroid function and the regulation of human metabolism. It is a major constituent of the thyroid hormones thyroxine (T4) and triiodothyronine (T3). "The aim of our study was to harmonise national and regional surveys of iodine status and thyroid disorders in up to 56 studies from 27 countries and provide a reliable view of the current status of iodine-related disorders in Europe," says Professor Völzke, project coordinator.

Monitoring iodine status in Europe

The EUthyroid project supported the harmonisation of studies via the collection of quantitative information on the socio-economic status of adults and children. In addition, an instructional video and guide on thyroid ultrasound examination and a web-based training and certification tool for ultrasound observations were also applied.

The team developed a dried blood spot ELISA assay to cross-validate the reference range of the major thyroid hormone binding protein

thyroglobulin for pregnant women and women of reproductive age. "The main problem that we encountered was the extreme heterogeneity of registry data, where information on diseases and treatments were coded. Despite this, we achieved harmonisation of data from three major European birth cohort studies in the Netherlands, UK and Spain into one large dataset," says Professor Völzke. "This provided a proof-of-principle study on the effects of thyroid function on child IQ and the risk of behavioural disorders in over 9 500 mothers and their children, and enabled us to study the effect of low maternal iodine on neurodevelopment," he continues.

EUthyroid goes public

Project members employed a combined dissemination strategy by alerting policy makers, stakeholders and the general public using a range of media. This included project websites, scientific publications, national press, television and social media.

"We were able to endorse the Krakow Declaration on Iodine in 2018, the first official declaration that presented recommendations towards preventing ID disorders and securing sufficient [iodine](#) status in Europe," states Professor Völzke. This document comprised three major sections that were involved in the methodology, control and support of ID prevention. The prevention of ID disorders and thyroid diseases was thus addressed from a political perspective.

EUthyroid has conducted the most in-depth analysis of ID and provided the first European network for collection and dissemination of ID-related information across Europe. The expectation is that EUthyroid infrastructure will continue to pave the way towards Europe becoming the benchmark for ID prevention worldwide.

Provided by CORDIS

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