

## Sustainable prevention of Iodine Deficiency Disorders in Europe

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Malnutrition in Europe is a growing phenomenon that scars our society, especially younger generations. Policy measures and strategies have been deployed over the past decade to tackle diseases associated with excessive food intake (e.g. obesity). However, public health policies have failed to address the other end of the problem: The lack of micronutrients and its impact on health. Iodine insufficiency is one of the causes of malnutrition leading to debilitating health issues.

Inadequate iodine intake affects the production of thyroid hormones, the energy metabolism and brain development, particularly in foetuses and new-borns. When deficiency is severe, these can lead to serious health conditions, commonly referred to as Iodine Deficiency Disorders (IDD). Yet, early symptoms often go unnoticed (e.g. tiredness, low energy levels) and can lead to undiagnosed hypothyroidism and negative effects on children's IQ. Potential benefits of preventing iodine deficiency include better education for children and a better quality of life.

In Europe, it is generally assumed that iodine deficiency is a problem of the past. However, a recent pan-European study (EUthyroid) has shown that **iodine deficiency is regaining ground** and called policy-makers for action<sup>1</sup>. Pregnant women and children are particularly vulnerable populations in the face of IDD.

As representative of the iodine value chain – from producers to end-users – the **World Iodine Association (WIA)** supports the EUthyroid's **Krakow Declaration on Iodine** (18 April 2018) as a key step towards the sustainable prevention of iodine deficiency in Europe and calls on Member States and the European Union to adopt a harmonised policy framework to ensure optimal iodine intake in the population.

### SUMMARY

WIA calls for higher levels of harmonisation between national health and nutrition policies across the European Union and for the diversification of the dietary sources of iodine to effectively and sustainably prevent iodine deficiency in Europe. Two key solutions can ensure adequate dietary intake of iodine for all:

1. **Food fortification**, adding iodine to salt and certain foods;
2. **Feed fortification**, supplementing animal feed with iodine to secure adequate levels of iodine in animal products, such as dairy products, eggs and fish.

Not all national policies recognise iodine deficiency as a public health concern, while measures on food and feed fortification are unevenly implemented across the EU. This lack of harmonisation puts the health of European citizens at risk of IDD.

### Background

Against common belief, iodine deficiency is not the sole concern of developing countries. Based on the outcome of the EUthyroid project (funded under Horizon 2020), scientists concluded that up to 50% of new-borns in Europe do not reach their full cognitive potential due to insufficient iodine intake.

Despite that, the effects of inadequate iodine intake are little known and addressed:

- Few countries include dispositions to prevent IDD in their public health policy;
- No harmonised policy framework exists across the European Union.

The Krakow Declaration on Iodine raised the alarm about the seriousness of this health issue and denounced the lack of political engagement to measure, control and prevent IDD. Up to now, 65 organisations, ranging from patients' organisations and physicians to scientists and industry, have signed the document, calling for policy-makers to act.

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<sup>1</sup> The **Krakow Declaration on Iodine**, 18 April 2018: <https://www.iodinedeclaration.eu>

One of the root causes of insufficient intake for most Europeans is the low levels of iodine in most soils, determined by geology. Iodine deficiency can be easily prevented with measures that secure proper iodine content in the daily diet. WIA supports the two main solutions to ensure adequate iodine intake proposed in the Krakow Declaration on Iodine: Food fortification and feed fortification.

## **1. FOOD FORTIFICATION**

Already in 2007, the World Health Organisation (WHO)<sup>2</sup> and UNICEF published a report on 'Iodine deficiency in Europe: a continuing health problem'. The latter recognised iodine deficiency as a major public health concern and advised governments on how to tackle the matter. Under Regulation (EC) No 1924/2006 on health and nutrition claims, the European Food Safety Agency (EFSA) recognised the health benefits of iodine on thyroid functions and on children's brain development.

Food fortification – adding iodine to ingredients and/or foods – is one of the key instruments that have shown positive results. It can take three forms: salt iodization, processed food supplementation and the fortification of crops and vegetables.

### **1.1. Salt iodization**

Salt is commonly recognised as the most cost-effective vehicle for iodine, due to its widespread consumption and to the low cost of iodization. This theoretically allows to reach a wide range of individuals, regardless of their socio-economic status. As a result and together with UNICEF, the WHO launched a strategy on salt iodization in 2013. The latter explicitly recognises the compatibility of salt reduction and iodine fortification policies. In the European Union, Regulation (EC) No 1925/2006 on the addition of vitamins and minerals allows the addition of iodine to salt. Furthermore, the 2008 EU Salt Reduction Strategy endorses the WHO's strategy to fight iodine deficiency.

Notwithstanding Regulation (EC) No 1925/2006, the range of iodine that can be added to salt is not harmonised across the EU for some countries apply lower thresholds than others. Likewise, access to iodized salt vary from one Member State to the next. For instance, iodized salt is little available in retail stores in the United Kingdom<sup>3</sup>. In this sense, national legislation can undermine free trade. The EU should guarantee the freedom of choice to its citizens through mutual recognition. Yet, the problem is broader.

Despite support from international organisations, reality is at odds with the WHO's objective to sustainably prevent IDD. While salt reduction is a major public health objective and salt intake is decreasing, awareness about the adverse effects of iodine deficiency is also dropping. This has a negative impact on individuals' ability to reach the Recommended Daily Amount (RDA) for iodine (150 µg/day, WHO).

Thus, WIA believes that the solution lies in the diversification of dietary sources of iodine in connection with education campaigns to raise public awareness about the needs for essential micronutrients.

### **1.2. Processed food supplementation**

Food products may be fortified indirectly by using iodized salt. Regulation (EC) No. 1925/2006 specifies the iodine substances that may be added to salt: sodium iodide, sodium iodate, potassium iodide, potassium iodate. However, this disposition is not evenly implemented across the EU, especially with regard to iodized salt used in food.

Some Member States restrict the use of iodized salt in food to only some of the four above-mentioned substances. Depending on the type of iodide or iodate used in the salt, the food product (e.g. bread) can be barred from entering certain countries. Harmonisation of the levels and types of iodized salt in food would ensure free trade by applying the principle of mutual recognition.

### **1.3. Increasing iodine content in crops and vegetables**

There can be other sources of iodine than salt. Several countries around the world have been developing 'nutrition sensitive agriculture' as a way to improve the micronutrient content of cereals, vegetables or fruits through plant nutrition. This method is particularly used in areas with poor nutrient content in the soil.

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<sup>2</sup> WHO Report, March 2013: ['Salt reduction and iodine fortification policies in public health'](#).

<sup>3</sup> ['Availability of iodised table salt in the UK'](#), Public Health Nutrition, 2014 February: 17(2).

For instance, Finland has been adding selenium to apples since 1984 through the the medium of all field fertilizers. This led to a sustainable improvement of selenium status of Finns. In Italy, since 2008, consumers can find potatoes rich in iodine in local supermarkets and retail stores. A recent break-through in science has uncovered that the fortification of cereal grains with iodine is possible and has huge potential to prevent iodine deficiency.

Increasing the iodine of crops and vegetables is a cost-effective instrument combining good agricultural practices, basic dietary needs and public health considerations. This method allows to preserve consumers' access to good iodine intake regardless of their dietary behaviour (e.g. vegetarianism, veganism). It fits in the development of sustainable, nutrition sensitive agriculture. More than that, it is one of the most innovative ways to prevent malnutrition.

WIA calls on Member States and the European Union for harmonisation with regard to:

- Monitoring the status of iodine intake in individual EU countries,
- The recognition of the diversity of iodine sources in the diet,
- Levels of iodine in salt (in terms of range, minimum and maximum thresholds),
- The types of iodine than can used in iodized salt for food products, and
- Support to alternative sources of iodine in the daily diet.

## 2. FEED FORTIFICATION

All animals need iodine for optimal thyroid function and foetal development. Pasture, grains and other plant-based feed components produced in Europe are naturally low in iodine. Iodine content of milk, meat or eggs is lowered when the animals do not receive additional supplementation.

The addition of iodine to feedingstuffs is common practice in the EU. However, depending on the type of livestock, the levels of supplementation may vary, thus exposing some animals to iodine deficiency. For instance, 100% of the ration is fortified with minerals and vitamins in poultry and swine. On the other hand, iodine insufficiency is more often reported in ruminants as 50 to 100% of their feed is composed of grass and forage with low iodine concentration. In such cases, iodine intake can fall below the recommended daily amounts. To countervene that tendency, farmers may add iodine to the forage insofar as it does not exceed the maximum total content of iodine.

Dairy products are an important dietary source of iodine for all Europeans depending on the country. Furthermore, providing animals with adequate amounts of essential micronutrients such as iodine, improves animal health and well-being. That is the reason why Regulation (EC) No 1831/2003 allows the fortification of feed with iodine<sup>4</sup>. The Regulation specifies a *recommended maximum iodine content* in the complete feed: 2 mg/kg (ppm) for ruminants; 3 ppm for hens. Such strict limits pose a problem to ensure significant amounts of iodine in animal products, such as eggs and dairy, and do not allow to use feed fortification as an effective tool to fight iodine deficiency.

### Call to action!

WIA strongly calls on national and European policymakers to tackle the problem of increasing incidence of iodine deficiency in the European population. It is crucial to monitor, control and effectively prevent iodine deficiency disorders on the long run. To ensure that daily diets meet the RDA for iodine, WIA is in favour of an EU harmonised policy for the iodine fortification of food and feed. This can be achieved by recognising iodine deficiency as a public health concern across the EU and by adapting the existing regulatory framework.

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<sup>4</sup> [Community Register of Feed Additives](#), version of 4 May 2018.