Salt iodization:
An effective global public health strategy to prevent iodine deficiency

Symposium 100 years salt iodization
Bern, 6 Oct 2022

Dr. Maria Andersson
Dietary iodine requirement

150 µg/day

>90% excreted
Adapted from:
Haldimann et al. Public Health Nutr. 2015,

Milk, cheese & dairy products, 26%

Adapted from:
Bath et al. Nutr. Rev. 2022,
Carlsen et al. Nutrients 2018
**Universal salt iodization**

- **Per capita salt intake**
  - 10 g/day → 5 g/day

- **15-40 µg iodine/g salt**

- **30% losses from production to consumption**

- **Dietary iodine**
  - 150 µg/day

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**Iodine lacking, 51%**

- **Milk, cheese & dairy products, 26%**

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Adapted from:
- Bath et al. Nutr. Rev. 2022,
- Carlsen et al. Nutrients 2018

WHO 2007, UNICEF 2018
Adequate iodine intake in all population groups


Most salt consumed iodized (15-40 ppm)

Milk, cheese & dairy products, 26%

Adapted from Bath et al. Nutr. Rev. 2022, Carlsen et al. Nutrients 2018
World Summit for Children
World leaders agreed to a goal of elimination of iodine deficiency

WHO/UNICEF
Recommend universal salt iodization

UN General Assembly
Goal to eliminate iodine deficiency

1990
<20% of the world’s population consumed iodized salt

1994

2002

2021

89% of the global population consumes iodized salt
147 countries have legislation for salt iodization

Global Fortification Data Exchange - https://fortificationdata.org
Global public health success

Iodine intake in countries worldwide:

- No data
- Excessive
- Optimal
- Insufficient

1993: 62% Optimal, 8% Insufficient
2003: 66% Optimal, 5% Insufficient
2011: 45% Optimal, 11% Insufficient
2022: 53% Optimal, 11% Insufficient

Iodine global Network 2022 - https://ign.org
Zimmermann & Andersson Eur J Endocrinol. 2021
Salt iodization is efficacious for the prevention of iodine deficiency. WHO 2014

Cost-effective
- Prevented 720 million cases of clinical iodine deficiency disorders worldwide - potential global economic benefit of nearly $33 billion
- Health gains predicted over 120 years in Germany were 33 million QALYs and 5 million life years

Gorstein et al. Thyroid 2020, Shaffner et al. Thyroid 2021

Safe
Iodine fortification at 15-40 ppm well below the upper intake levels for iodine as given by the EFSA (600 ug/day)

M Andersson | 6 Oct 2022 | 9
Challenges in Europe

- Memory of historically severe iodine deficiency fading
- Voluntary salt iodization
- Policies differ between countries
- Only partial use of iodized salt in processed foods
- Salt reduction
- Decreased consumption of milk and dairy products (+vegan diets)

Salt intake (g/day)

<table>
<thead>
<tr>
<th></th>
<th>2008-11</th>
<th>2010-12</th>
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<tbody>
<tr>
<td>Germany</td>
<td>9.3</td>
<td>8.6</td>
</tr>
<tr>
<td>Switzerland</td>
<td>6.7</td>
<td>4.9</td>
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Haldimann et al. Public Health Nutr. 2015
Maintaining adequate iodine intake for the next 100 years