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NASJONALT INSTITUTT FOR ERNÆRINGS- OG SJØMATFORSKNING

Large intraspecies variation in iodine content in fish

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Food composition data are the basis for almost everything in nutrition, and should receive more attention in agriculture to render our food supply more nutritious.

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"Relevant, reliable and up-to-date food composition data are of fundamental importance in nutrition, dietetics and health, but also for other disciplines such as food science, biodiversity, plant breeding, food industry, trade, and food regulation" Barbara Burlingame (FAO official)



Dietary advise no. 5

Eat fish for dinner two to three times a week. Fish is also a great filling in sandwiches.

- Representing 300-450 grams fish per week for adults
- At least 200 grams should be oily fish such as salmon, trout, mackerel or herring







Fish is essential for food- and nutrition security



The Norwegian Food Composition Table (FCT)

LFFS

- www.matvaretabellen.no (english version, annual updates)
- provides information concerning the nutrient- and energy content of the most commonly consumed foods in Norway
- 1600 food items and values for 38 nutrients are included in the FCT
- The FCT's nutritional values are compiled from:
 - Chemical analyses performed in Norwegian quality-assured laboratories (NIFES)
 - Values that are provided by the industry or borrowed from foreign food composition tables
 - Values that are estimated based on similar food items and dishes

The Norwegian Food Composition Table 2017 $\frac{N + F + F}{2000}$

| Cod product | Iodine (µg/100g) | Reference |
|----------------------------------|------------------|--|
| Cod, cured, simmed | - | Missing value |
| Cod, filed, pre-fried, frozen | - | Missing value |
| Cod, filled, pan-fried | 198,6 | Calculated value from in-house recipe |
| Cod, fillet, roasted | 198,6 | Calculated value from in-house recipe |
| Cod, fillet, simmered | 185,7 | Calculated value from in-house recipe |
| Cod, lightly salted, sliced, raw | - | Missing value |
| Cod, slices, raw | 143 | Calculated from similiar food item |
| Cod, unspecified, raw | 119 | NIFES |
| Cod, wild, raw | 119 | NIFES |





Iodine content in fish and fish products (µg/100 g)





https://sjomatdata.nifes.no

- nutrients and contaminants in fish, shellfish and seafood products.
- data from 2006 until 2017
- data from about 30 fish species, 15 different shellfish and almost 40 seafood products
- More than 70 nutrients



Iodine in cod fillet





Samples

milligram per 100 grams

| Year | Mean | Min | Мах | Median | Analyses |
|------|-------|-------|------|--------|----------|
| 2010 | 0.093 | 0.031 | 0.21 | 0.068 | 10 |
| 2007 | 0.100 | 0.026 | 0.28 | 0.092 | 10 |





Large intraspecies variation in iodine content

| | Fish species | Catch area | n | Mean \pm SD | Min. – max. |
|----|--------------|----------------------------|-----|---------------|-------------|
| | | | | μg/ 100g | µg/ 100g |
| Ľ | A CONTRACTOR | All areas | 121 | 190 ± 160 | 22 - 720 |
| | Atlantic cod | Barents Sea | 55 | 250 ± 140 | 47 - 720 |
| s. | | Norwegian Sea | 11 | 400 ± 190 | 100 - 700 |
| | | North Sea | 55 | 96 ± 100 | 22 - 680 |
| | | All areas | 61 | 280 ±190 | 35 - 820 |
| | | Barents Sea | 20 | 410 ± 200 | 92 - 820 |
| | | Norwegian Sea | 20 | 210 ± 150 | 35 - 620 |
| | Saithe | North Sea and Skagerrak | 21 | 220 ± 170 | 46 - 560 |





New data compared to Food Comp table



Nerhus et al, submitted





Conclusion

- Large intraspecies variation
- Large variation between species
- No clear association between iodine and station or size of fish
- Analytical uncertainties should be visualized in the food composition table
- Need more data (chemical analysis) on food composition