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Iodine intake and non-alcoholic beverages: results of the second German National Nutrition Survey

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The second German National Nutrition Survey (NVS II) provides representative current information on food consumption, energy and nutrient intake of the German population. 15,371 participants, 14–80 years of age, were asked about their usual food consumption over the past 4 weeks (dietary history interview) [3]. Data collection was carried out between November 2005 and November 2006. Nutrient intake was calculated by using a preliminary version of the German Nutrient Database II.4 (BLS) [1, 3].

In Germany, the daily median iodine intake is 92 μg for women and 99 μg for men (iodised salt not considered). It was shown that non-alcoholic beverages contributed a high proportion to iodine intake (27% for men and 35% for women, respectively) [3]. Primarily, this high proportion was explained by the very high average amount of 2.3 l of beverages consumed per day, although the iodine content of non-alcoholic beverages is rather small.

We are grateful for the information regarding iodine content of non-alcoholic beverages given by Remer [4]. One important factor for the quality of nutrient intake calculations, based on food consumption data, is the availability of high-quality analysis data. These data originate from nutrient data bases.

The results of the NVS II confirm the low contribution of fruit juices to iodine intake mentioned by Remer [4]. The calculation of iodine intake within the NVS II is based on iodine contents of 8–10 μg/l for the fruit juices consumed most often (Table 1). Remer and Fonteyn measured an iodine content below the detection limit for apple and orange juice, respectively (<5 μg/l) [5]. For this reason, the iodine content used for the calculation of nutrient intake within the NVS II is nearly twice as high as the detection limit described by Remer and Fonteyn [5]. However, iodine data obtained from the BLS are comparable to the data of Souci-Fachmann-Kraut, another food composition and nutrition table in Germany (10 μg/l) [6].

Iodine content of multivitamin juice used for the calculation of nutrient intake is about 2.5 times higher compared with the data of Remer and Fonteyn [5].

Therefore, in the NVS II the calculated iodine intake for an average consumption of fruit juices of 250 g/d is only about 2 μg/d higher compared with the detection limit of Remer and Fonteyn [5].

However, it should be noted that fruit juices only make up a small part of the group of non-alcoholic beverages. Particularly, drinking water (tap water, mineral water), coffee and tea are important beverages. When reviewing the iodine contents of non-alcoholic beverages used for the calculation of nutrient intake, it was discovered that the iodine contents of three groups of non-alcoholic beverages of the BLS are extremely high. The iodine contents of fruit and herbal tea in the BLS are about 50 μg/l. Obviously these concentrations seem too high. Therefore current analysis data must be determined.

In addition, iodine content of tap water is 29 μg/l in the BLS, whereas mineral water has only 6 μg iodine/l. In the German Iodine Monitoring 1996, the average iodine content of tap water is 3.8 μg/l [2]. Current data for the iodine content of tap water will be collected and then corrected in the new BLS version II.4. However, it should be noted that tap water is consumed considerably less than mineral water (approx. 15% of the total amount of water consumed).

Upon completion of the final version of the BLS II.4, data of the iodine intake of the NVS II will be recalculated and republished.

The iodine excretion of the 14–18 year old participants of the German Health Interview and Examination Survey of Children and Adolescents (KiGGS) is about 125–140 μg/d. This is consistent with the iodine intake of the calculated data of the NVS II, as the calculation of Remer [4] shows. It is correct, that the second scenario of iodine intake, which was developed for the NVS II (the entire amount of ingested salt was completely iodised) should not be used for this comparison. In our report, we explicitly indicated that a general fortification of all prepared food items and recipes with iodised salt will lead to an overestimation of the actual iodine intake. The true iodine intake will be somewhere in between the two scenarios, assuming that all salt consumed is either iodised or not [3].

There is no doubt that iodised salt contributes to a great extent

Table 1 Iodine content of fruit juices in comparison

Juice	Iodine concentration (μg/l)	
	Remer and Fonteyn[a] [5]	BLS II.4[b]
Orange juice	<5	8
Apple juice	<5	10
Multivitamin juice	<5–7.4	19

[a]<5 μg/l detection limit
[b]BLS: preliminary version

to an improved iodine status. Therefore, all efforts should be made to maintain or even increase the use of iodised salt.

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