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Short Communications

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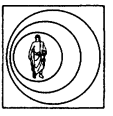

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Contents

Dietary Recommendations

Chairman: *H. Jakobsen*, Copenhagen and *H.K. Henderickx*, Gent

Obesity

Chairman: *A.S. Truswell*, London

Epidemiology

Chairman: *F. Fidanza*, Perugia

Nutritional Significance of Genetic Disease

Chairman: *W. Auerswald*, Vienna

Special Clinical Nutrition

Chairman: *A.S. Truswell*, London

Parenteral Nutrition

Chairman: *J. Hrubý*, Prague

Alcohol Consumption and Diseases Associated with It

Chairman: *F. Fidanza*, Perugia

Proteins and Nutrition

Chairman: *F. Vivanco,* Madrid

Carbohydrates

Chairman: *J. Hrubý,* Prague

Fat and Nutrition

Chairman: *E.M. Widdowson,* Cambridge

Comparative Aspects of Nutrition and Growth

Chairman: *G. Ritzel,* Basel

Metabolism

Chairman: *H.K. Henderickx*, Gent

Absorption

Chairman: *W. Auerswald*, Vienna

Main Papers

Nutrition and Metabolism, Vol. 21, No. 1–3, 1977

Nutritional Significance of Genetic Disease

Chairman: *A. François*, Paris

Comparative Aspects of Nutrition and Growth

Chairman: *K.E. Blaxter*, Aberdeen

Alcohol Consumption and Diseases Associated with It

Chairman: *C. den Hartog*, Rijswijk

Round Table on Comparison of Dietary Recommendations in Different European Countries

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Alimentary Iodine Deficiency in the Federal Republic of Germany: Current Inefficiency of Goitre Prophylaxis

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Recent epidemiologic surveys showed that goitre is endemic in the FRG with an average incidence of 15 % (5) and that the alimentary iodine intake of 50 µg iodine/day (3, 4) is less than 30 % the optimum recommended by the PAHO (2). A successful iodine prophylaxis is hitherto not possible in the FRG: the law on dietetic food restricts the iodine content of iodinized salt to a maximum of 5 mg/kg (ppm) and the salt is only to be used for 'medically established' iodine deficiency. Therefore, the Thyroid Section of the German Society for Endocrinology recently recommended a goitre prevention program by compulsory iodination of salt with 10 mg iodine/kg (6). The present paper reports an investigation, in which the iodine content and its stability of available salts was studied.

Material and Methods

All salts were bought in groceries (23 table salts, 8 sea salts and 142 iodinized salts). In order to avoid mistakes depending on inhomogeneity of iodine within one packing, always 100 g of salt were dissolved in 1 liter of distilled water and this solution was diluted before the iodine determination to a concentration of approximately 4 µg iodine/100 ml. The iodine content was analyzed by an iodine determination on a modified PBI Autoanalyzer, as previously described (3). The iodine standards ranged from 0.5 to 7.0 µg/100 ml. The intra-assay and interassay coefficients of variation were 4 and 6 %, respectively. The recovery of 5 standards added to solutions of 7 different table salts was 105 ± 15 % (mean ± SD). In 6 different commercial control sera 103 ± 16 % of the iodine content were found.

Results

The mean of the coefficients of variation of the iodide content within all different charges of 4 iodinized salts of the FRG was 7 %. In figure 1, the iodine content is plotted against the duration of storage of the unopened packages. Salt A (packed up in cartons) was iodinized sufficiently, but one charge was

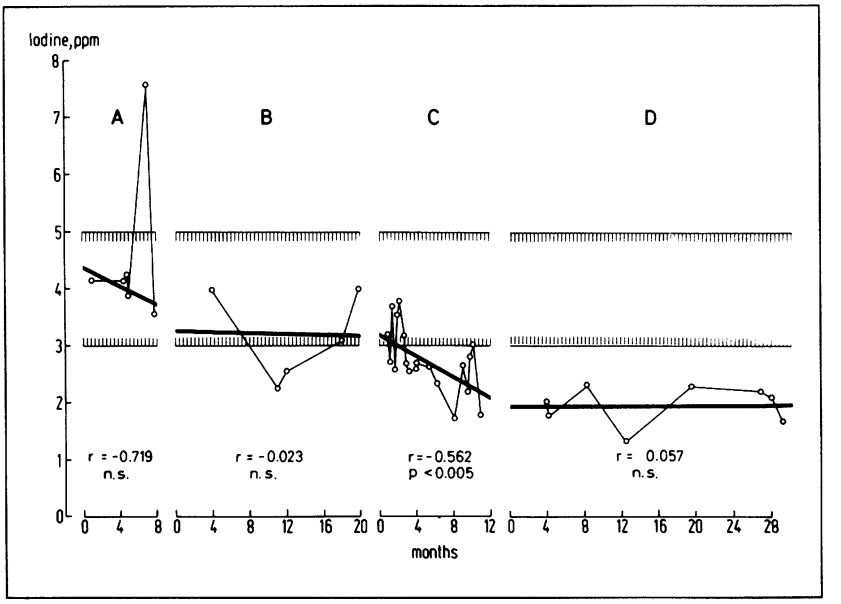

Fig. 1. Iodine content and time of storage of 4 different iodinized salts (A, B, C and D) of the Federal Republic of Germany.

Table I. Measured and intended iodine content of iodinized salts of different European countries

	Iodine content of iodinized salt, ppm	
	measured	intended
FRG	2.00 (n = 32)	3–5
	2.75 (n = 28)	
	3.17[1] (n = 13)	
	4.03 (n = 43)	
Austria	5.49 (n = 11)	10
	3.66 (n = 1)	
Denmark	2.78 (n = 1)	
France	13.70[1] (n = 1)	10–15
	8.58 (n = 5)	
	6.39 (n = 1)	
GDR	0.31 (n = 2)	
Great Britain	22.41[1] (n = 2)	20–35
Switzerland	6.64 (n = 2)	10

[1] Salts packed up more tightly.

apparently iodinized twice. The loss of iodide during storage – also observed by other authors (1, 7) – was not statistically significant. Only 3 of 5 charges of salt B (packed up more tightly) were iodinized sufficiently. On average, there was no loss of iodide. Salt C (packed up in cartons) showed a fluctuating content of iodide between the different charges (CV = 20 %) and a progressive loss of iodide ($p < 0.005$). All charges of salt D contained only half of the demanded iodide. The loss of iodide is more pronounced, if the packings are stored after opening. In salts packed up in cartons, we found a loss of iodide with a half-life of 7 months, whereas salt B packed up more tightly, was stably over a year.

We also measured table salts, sea salts and iodinized salts of different European countries. The iodine content of all table salts was below 0.2 ppm. The sea salt preparations varied from 0.2 to 1.0 ppm, which is insufficient for goitre prevention. Only 2 iodinized foreign salts packed up more tightly, were iodinized sufficiently; the iodine content of 5 foreign salts packed up in cartons was less than claimed (table I).

Conclusion

The stability of iodide in the presently available salts is not yet satisfactory. The stability should be achieved by chemical stabilizers, or alternatively by iodination with iodate instead of iodide (1). It may also be improved by packing in tins.

References

1 *Davidson, W.M.; Finlayson, M.M., and Watson, C.J.:* The stability of various iodine compounds in salt blocks. Sci. Agr. *31:* 148–151 (1951).

2 *Dunn, J.T. and Medeiros-Neto, G.A.:* Endemic goiter and cretinism: continuing threats to world health. Scientific Publication No. 292 (Pan American Health Organization, Washington 1974).

3 *Habermann, J.; Heinze, H.G.; Horn, K.; Kantlehner, R.; Marschner, I.; Neumann, J. und Scriba, P.C.:* Alimentärer Jodmangel in der Bundesrepublik Deutschland. Dt. med. Wschr. *100:* 1937–1945 (1975).

4 *Hötzel, D.; Pietrzik, K. und Thomas, M.:* Jodversorgung in der Bundesrepublik Deutschland. Ern.-Umsch. *23:* 244–249 (1976).

5 *Horster, F.A.; Klusmann, G. und Wildmeister, W.:* Der Kropf: Eine endemische Krankheit in der Bundesrepublik? Dt. med. Wschr. *100:* 8–9 (1975).

6 *Scriba, P.C.; Kracht, J. und Klein, E.:* Endemische Struma-Jodsalzprophylaxe. Dt. med. Wschr. *100:* 1350–1355 (1975).

7 *Voudouris, E.:* Zur Beständigkeit des jodhaltigen Kochsalzes. Z. Lebensm. Unters.-Forsch. *157:* 287–290 (1975).

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