

Editorial

Salt: importance in iodine deficiency and sodium excess

Salt, interwoven into so many critical features and events in our collective cultures, economies and socio-political histories, is now important chiefly for the roles it plays in human health. In this issue of *Public Health Nutrition* are two different views of dietary salt and health – first as a vehicle for iodine supplementation, and second, as a cause of chronic disease whose excessive intake should be reduced.

Salt and iodine deficiency

Salt is the primary vehicle for iodization. UNICEF has called iodine deficiency ‘the single greatest cause of preventable mental retardation’ when it occurs among pregnant women and young children. It has also called for universal salt iodization as a ‘cost-effective and sustainable method to ensure sufficient intake of iodine in all individuals’⁽¹⁾. UNICEF is collaborating with the International Council for the Control of Iodine Deficiency Disorders (ICCIDD) in this important task (<http://www.iccidd.org/>). Indeed, iodized salt is now consumed in about 70% of households in the developing world, compared with just 20% in the early 1990s⁽¹⁾. A report by Sultanalieva *et al.*⁽²⁾ in this issue describes the progress of a salt iodization strategy in Kyrgyzstan. Following an informative description of the socio-political circumstances leading to official recognition of the iodine deficiency problem in the Kyrgyz population, they present evidence that salt iodization, while more effective in school-age children, has not guaranteed adequate iodine status among pregnant women. They also describe large variability in the iodine content of salt brands consumed, suggesting problems in ensuring adherence to iodization processes by salt suppliers. The report provides a critical look at an important national programme, and provides evidence that it is hoped will be used as a basis for improvement.

Salt and hypertension

The second, opposing view of salt represents the concern that excessive salt intake is a likely cause of high blood pressure and CVD. Available data indicate that mean Na intakes in most populations around the world are well above 2.3 g/d (6 g salt/d), far exceeding the intake level of 1500 mg/d (4 g salt/d) considered adequate to cover physiological needs⁽³⁾. In this issue, Hulthén *et al.*⁽⁴⁾ provide further sobering evidence of excessive salt intake in a young Swedish male population. Based on 24 h urinary excretion, considered the gold standard for assessing Na intake⁽³⁾, they estimate a mean intake

of 11.5 g salt/d – over twice the maximum intake of 5 g/d recommended by the WHO. Even among the young men in the lowest quartile of Na excretion, mean salt intake (5.8 g/d) exceeds current recommendations. Dietary data show an association between Na excretion and sandwich intake, supporting the contention that convenience foods, particularly ready-made and processed by food industries, are a primary culprit. Their study serves as yet another reminder that intake remains high, and that the health implications will be significant as the population ages.

How to reduce excessive salt intake in a community setting is the subject of the article by Robare *et al.*⁽⁵⁾, who present results from their Key to Life Nutrition Program, a 10-week, community-based, behaviour modification trial aimed at reducing Na intake among older adults with hypertension. While they report a significant reduction in mean 24 h urinary Na excretion from 3174 mg/d at baseline to 2875 mg/d at 12-month follow-up, they note that this is still well above the recommended level of 1500 mg/d for at-risk individuals. The clear implication of their study – well designed and conducted but ultimately limited in success – is that reducing salt intake at the population level through behaviour modification is extremely difficult; reducing it to recommended levels may be near impossible.

The need for government–food industry cooperation

Notably, the call for greater cooperation from food suppliers is a common theme that unites all three articles on salt in this issue. Individual efforts, or even efforts by public health practitioners on behalf of individuals and communities, are futile if the foods in our environment, increasingly supplied by the food industry, do not share our health-related priorities.

The impressive increase in households using iodized salt from 20% to 70% between 1990 and the present may be, according to UNICEF, ‘the most successful public health effort of the past two decades’⁽¹⁾. The success is possible only with cooperation between governments and salt producers. A similar level of cooperation will be necessary to address the problem of salt excess. A major campaign by the UK Food Standards Agency, begun in 2003 to reduce British salt intake to 6 g/d, has actively engaged the food industry, including retailers, manufacturers, meat processors and caterers⁽⁶⁾. A urinary Na survey in the general adult population in the UK showed

a reduction in average daily salt consumption from 9.5 g in 2000–1 to 8.6 g in 2008⁽⁷⁾. Salt reduction campaigns requiring active cooperation by food industries are underway elsewhere as well^(8,9). Despite controversy over how feasible and beneficial salt reduction campaigns will be^(10,11), the payoff for such government–industry cooperation, in terms of reducing the burdens of morbidity and mortality, has the potential to be great⁽¹²⁾.

Assessment of diet for prevention of high blood pressure

In a final article to highlight in this issue, Apovian *et al.*⁽¹³⁾ provide evidence that the DASH (Dietary Approaches to Stop Hypertension) Online Questionnaire provides estimates of food and nutrient intake that are comparable to the more established Block Food Frequency Questionnaire. They therefore offer a new dietary assessment tool to measure adherence to the DASH diet, shown previously to reduce blood pressure and reduce risk of heart disease and stroke⁽¹³⁾. Their article provides some useful perspective on dietary measures to prevent high blood pressure. The evidence linking dietary salt to long-term reductions in blood pressure and CVD risk is reasonably strong^(14,15) but not completely irrefutable⁽¹⁰⁾. Instruction on healthy dietary patterns overall remains a necessary strategy with a wide range of benefits to health.

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