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The food industry fights for salt

See pp 1249, 1283, 1284, 1285

But delaying salt reductions has public health and commercial costs

Like any group with vested interests, the food industry resists regulation. Faced with a growing scientific consensus that salt increases blood pressure[1 2] and the fact that most dietary salt (65-85%) comes from processed foods,[3] some of the world's major food manufacturers have adopted desperate measures to try to stop governments from recommending salt reduction. Rather than reformulate their products, manufacturers have lobbied governments, refused to cooperate with expert working parties, encouraged misinformation campaigns, and tried to discredit the evidence. This week's *BMJ* finds them defending their interests as vigorously as ever.

In 1988 the *BMJ* published data from the Intersalt study suggesting that populations with high average intakes of salt were likely to have higher average systolic blood pressures and that salt intake predicted rise in blood pressure with age.[4] The salt producers' international trade organisation, the Salt Institute, criticised the study, particularly the methods used to relate blood pressure to age, and asked the investigators to hand over their raw data for reanalysis. The investigators instead performed the reanalyses themselves: these appear on p 1249,[5] confirming the previous findings. The Salt Institute sent the *BMJ* a letter in response to the reanalysis, and this appears on p 1283,[6] along with a commentary from an independent expert (p1284)[7] and an answer from the Intersalt investigators (p1285).[8]

The Salt Institute's letter is the latest volley in a 20 year campaign by the food industry, waged since the role of diet in heart disease first became a public health issue. The aim is to promote the view that data from population studies have little bearing on individual patients and, in the case of salt, no basis in human physiology. This individualist view has influential proponents, including the current director of NHS research and development, Professor John Swales,[9] and it currently guides government policy in Britain. Because of it the government's strategy for health, *Health of the Nation*, gives no target for dietary salt reduction (although it does ask food manufacturers to explore the development of products with less salt).[10] Also because of it, the recommendations on salt from a major review of diet and cardiovascular disease[2] have been ignored.

In 1994 the third review from the cardiovascular review group of the government's advisory committee on medical aspects of food policy recommended that people should reduce their salt intake by a third, from a daily average of 9 g (150 mmol) to 6 g (100 mmol).[2] While endorsing the group's other recommendations at the launch of the report in November 1994 Britain's chief medical officer, Sir Kenneth Calman, specifically cast doubt on the evidence linking salt and blood pressure and emphasised that this recommendation was not part of government policy.

The food industry has everything to gain from keeping controversy alive.[11] Common salt is the main source of flavour in processed foods. Tasting panels show that low salt foods are often unappetising, and there is currently no good alternative to sodium chloride. Improving flavour by adding more natural ingredients (such as fruit and vegetables) would be expensive.

The food industry has lobbied fiercely against the threat to its profits. In June 1994, after confidential drafts of the cardiovascular review group's report were circulated to the government's nutrition task force (which included at least one consultant to the food industry), representatives of Britain's four major manufacturers of sweets and snacks—Cadbury Schweppes, Tate and Lyle, United Biscuits, and Mars—demanded a meeting with the Department of Health. The department made no concessions. That year United Biscuits stopped its contributions to the Conservative party and Tate and Lyle shifted nearly half its annual donation to the opposition parties.

Trying to discredit the evidence

In August 1994 right wing journalists attempted to discredit the cardiovascular review group's still unpublished report. Several articles in the *Daily Telegraph* and *Sunday Telegraph* vilified what were portrayed as attempts to tell the public what it could and could not eat.[12] The review group's suggestion that adopting a healthy diet would mean people eating an average three egg-sized potatoes a day rather than two was portrayed as prescriptive and absurd. Digby Anderson of the right wing Social Affairs Unit described the review group's experts as "a group of food activists...with strong leftist-bossy histories."[13] Claiming that the report's recommendations were unscientific, he and other journalists quoted only two experts on heart disease: Dr Michael Baxendine, also described as medical advisor to United Biscuits, and Joanna Scott, also spokeswoman for the Food and Drinks Federation.

In May 1995 industry representatives on the government's nutrition task force declined to participate in discussions on how to reduce the salt content of their products.[14] In October the task force was disbanded on the grounds that its terms of reference had been fulfilled—even though its remit was to implement healthy eating into the next century.

The tactics over salt are much the same as those used by other sectors of industry. The Sugar Association in the United States and the Sugar Bureau in Britain have waged fierce campaigns against links between sugar and obesity and dental caries. Publication of a report from the World Health Organisation on diet and chronic disease[15] was delayed by

representations from the sugar industry and 40 ambassadors from sugar producing countries who had been alerted by the industry.

A delay in the introduction of regulations on salt in Britain is perhaps the best that salt producers can expect. Elsewhere they have already lost the battle. The United States departments of agriculture and health have recently recommended a daily average salt intake of no more than 6 g for the general population[16] despite representations from the Salt Institute and other bodies. Scandinavian countries have also adopted lower salt programmes. In Finland doctors only receive full reimbursement for antihypertensive drugs if they have given patients a six month trial of weight loss, alcohol restriction, and salt reduction (J Huttunen, personal communication).

But delay has its cost, to commercial interests as well as the public's health. While the Salt Institute fights, other players in the food industry are changing. Many manufacturers have already diversified into low salt products, while others such as Heinz have been reducing the salt content of their products. The sodium content of 100 American foods monitored by the Center for Science and the Public Interest has fallen by 10-15% over the past 12 years.[17]

Despite these trends, governments have a tough job ahead. The world's food and soft drink industry spent over £550m on advertising in 1994, compared with less than £5m on promoting fresh fruit and vegetables.[18] In Britain, basic cooking skills are in decline[19] as processed foods make up more of the average diet. To counter these forces governments will need to invest substantial resources in health education. The British government should be congratulated on the achievements of the *Health of the Nation*. But if it is serious about reducing premature deaths from cancer and heart disease it will need to ignore the voices of vested interest and listen to the advice of its independent expert advisors.

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Salt and blood pressure revisited

See pp 1249, 1283, 1284, 1285

How much more evidence do we need?

The relation between salt intake and blood pressure is no news to the food industry, nor to the expert committees in the United States, Norway, and elsewhere recommending reductions in daily intake of salt to about 100 mmol sodium or less.[1 2] However, with three quarters of the presently consumed salt well hidden in processed food, there is little that people can do to influence their intake. Thus, any attempts to influence the amount of salt in food must be directed at the food industry.

Hard data are now accumulating to give substance to the debate, most notably the Intersalt study, the first report of which was published in the *BMJ* in 1988.[3] This cross sectional study of 10 074 men and women with a broad age span was designed to describe the association between urinary excretion of sodium chloride (as a measure of salt intake) and blood pressure. After adjustments for body mass index, alcohol intake, sex, and age, it showed that a reduction in sodium intake of 100 mmol/day would reduce systolic and diastolic blood pressures by 2.2 mm Hg and 0.1 mm Hg respectively. This was based on individual data and was lower than expected from previous studies.[4] But there was more to Intersalt than this. The study also had an ecological design that allowed the slope of the blood pressure curve to be estimated at different ages and different levels of sodium intake. This showed that increasing intake of sodium chloride by 100 mmol/day would increase systolic blood pressure by 10 mm Hg 30 years later. Was this true? Did Intersalt reflect the real relation between salt and blood pressure, and why were the individual results so much weaker than the ecological findings?

In this issue of the *BMJ* (p 1249) the Intersalt researchers present updated results for the relation between sodium excretion and blood pressure.[5] These results are more robust than those in their first report. A striking finding is that the association between sodium excretion and blood pressure is stronger when body mass index is not adjusted for. The most likely explanation for this finding is that body mass index, which correlates with sodium excretion, is measured more accurately than sodium excretion and will therefore emerge as the strongest explanatory variable in a multiple regression analysis.[6] That sodium excretion is the critical factor is also strongly suggested by data from the three Chinese Intersalt collaborating centres, which reported low body mass indexes but some of the strongest associations between sodium excretion and blood pressure, and some of the highest rises in blood pressure.

Causal relation is difficult to demonstrate

The magnitude of the effect of sodium excretion on blood pressure in this updated analysis is similar in the analyses within and across populations. This is comforting, even if the lack of effect on diastolic blood pressure in the population analysis when body mass index is adjusted for remains unexplained. A major reason for the stronger association between sodium excretion and blood pressure in the updated analysis than in the first report is a more complete correction for regression dilution bias, a correction which is warranted when variables are measured with error.