# Editorial

## Dietary salt reduction for control of hypertension

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***Editor***

In developed as well as developing countries, the four main factors affecting blood pressure are high salt intake, low potassium intake, overweight, and low physical activity level. This is also true for the increase in blood pressure with advancing age, occurring in all societies. It is now accepted that excess dietary salt raises blood pressure levels, whereas dietary salt reduction reduces blood pressure and prevents vascular complications.[1] The effect of salt on blood pressure is presumably due to the inability of the kidneys to excrete large amounts of salt, as humans are evolutionary adapted to ingest and excrete less than 1 gram of salt per day.[2] In this connection it should be noted that the more important element in common salt (sodium chloride) is the sodium ion, and any restrictions applying to common salt also apply to all food items that contain sodium ions, such as sodium glutamate and baking soda.

Worldwide, dietary salt intakes tend to be high. Surveys in European countries (Switzerland, United Kingdom, Italy, Finland) based on 24-h urine collections found salt intakes in the range of 10-11 g/day in men and 8-9 g/day in women.[3] Similarly, in period of 2005-2006 the average salt consumption in the United States was 10.4 g/day in men and 7.3 g/day in women.[4] In comparison, the total salt intake of 15 Javanese women was 5.8 g/day, as determined by the urinary lithium-marker technique.[5]

With regard to dietary salt (sodium) reduction, the WHO and FAO have recommended a maximum daily intake of 5 g salt per day for blood pressure control and reduction of hypertension prevalence and related health risks in populations.[6] Several European countries, namely United Kingdom, Germany, Austria, Switzerland, and Finland, have set the recommended salt consumption at 6 g/day,[1] while in the United States a daily salt intake of less than 5.8 g (2300 mg of sodium) has been recommended by the Department of Health and Human Services and the Department of Agriculture. Certain population groups, such as hypertensives and Blacks should limit their sodium intake to 1500 mg/day.[4] On 20 April 2010, the Institute of Medicine (IOM) issued a report on "Strategies to reduce sodium intake in the United States," the recommendations of which has since been under careful review and evaluation by the Food and Drugs Administration (FDA). Recently the American Public Health Association has recommended a daily sodium intake of less than 1500 mg.

In developed countries about 80% of dietary salt comes from commercially prepared foods. The United Kingdom was notably the first country in the world where a salt reduction of more than 30% in some food products was achieved. Since 2005 a consensus was reached with the food industry to voluntarily reduce the salt content of their products gradually within a few years, thus preventing rejection by the consumer. Actually, the acquired taste for highly salted foods, especially in children, was due to habituation to these commercial products. These efforts to

reach the recommended salt consumption of 6 g/day are still continuing.[1] Other countries that have achieved population-wide dietary salt reduction are Japan, Finland, and Portugal.[4] The Finnish National Nutrition Council in 2005 recommended an absolute salt intake level of 7 g/day for men and 6 g/day for women.[7] After a nation-wide dietary sodium reduction campaign since 1978, after 30 years the average sodium intake in Finland has decreased more than 40%.

The cost-effectiveness of dietary salt reduction has been the subject of many studies, such as the study by Bibbins-Domingo et al. This study used the Coronary Heart Disease (CHD) Policy Model to determine the cost-effectiveness of daily reduction of up to 3 g of salt (1200 mg of sodium), as compared with the treatment of hypertension with medications. According to this study, dietary salt reduction of 3 g per day is projected to effect an annual reduction of 60,000 to 120,000 new CHD cases, 32,000 to 66,000 stroke cases, 54,000 to 99,000 cases of myocardial infarction, and 44,000 to 92,000 deaths from any cause.[4]

In the United States, the Center for Science in the Public Interest (CSPI), which is supported by subscribers to their Nutrition Action Health newsletter, won a legal action against the FDA, resulting in the 1990 Nutrition Labeling and Education Act. Unfortunately, in 2006 CSPI found that sodium consumption had actually increased, with a 50% annual decrease in new low-sodium foods and a concomitant steady decrease in consumer concern about sodium. It is to be hoped that in the near future the FDA will take a more active role in salt reduction efforts, in cooperation with such organizations as CSPI, IOM, and APHA.

In developing countries, the main source of excess dietary salt is foods prepared at home.[1] Other sources are the products of national and international food and beverage industries available in supermarkets and foods prepared by informal sidewalk food vendors. Assuming that the branded products could be regulated as to salt content, there still remains the problem of persuading the housewives and the sidewalk vendors to use less salt in preparing their products. In the absence of an official policy on salt reduction, there remains the option of health education at primary and secondary school level, and also at individual and community level, possibly taking several decades before showing results. In addition to promoting dietary salt reduction, countries with endemic iodine deficiency should also increase the level of iodine fortification in salt to 80-100 ppm of $KIO_3$ to provide a daily iodine intake of 150µg, as recommended by Mustafa.[5]

## REFERENCES


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