SALT AND HYPERTENSION

This information is brought to you by many of the Australian nutrition professionals who regularly contribute to the Nutritionists Network (‘Nut-Net’), a nutrition email discussion group.

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Please note the following explanations for terms used throughout this FAQ

*Salt is ‘sodium chloride’. Because many of the health effects of salt are attributed to sodium, reference is often made to 'sodium intake' or 'sodium excretion'. Sodium intake/excretion is usually measured in milligrams (mg) or millimoles (mmol): 1 mmol of sodium is equal to 23 mg.

*Hypertension is a technical term for high blood pressure. Hypertension is a major risk factor for heart disease and the most important risk factor for stroke. A survey conducted in 2005 found that 28.8% of Australian adults over 25 years of age suffer from hypertension. The percentage of hypertensive adults in Australia was found to increase steeply with age, e.g. 44.7% for those aged 55-64 years and 67.4% for those aged 65-74 years.

What are the current recommendations for salt intake, and how much salt are Australians actually eating?

The National Health and Medical Research Council has set an ‘Adequate Intake’ of 20–40 mmol (460–920 mg) of sodium per day. This corresponds to 1.15–2.3 grams of salt. Most Australian adults have a daily salt intake of about 10 grams, i.e. many times the maximum value of the Adequate Intake range. A ‘Suggested Dietary Target’ of 1600 mg of sodium (equivalent to about 4 grams of salt) has been set for Australian adults. This is about half the average Australian adult’s current salt intake.

I’ve heard that eating too much salt can be harmful, but I thought that the kidneys simply excrete excess salt. If my kidneys are functioning normally, can I eat as much salt as I like?

No—excess salt consumption raises your blood pressure. Salt would rapidly be fatal if the kidneys could not excrete it as fast as you eat it. But, the kidneys excrete salt faster at a higher blood pressure, and the ability of the kidneys to raise blood pressure provides powerful and life-saving protection against the accumulation of a dangerous backlog of salt. However, high blood pressure (also known as ‘hypertension’) unfortunately has a number of dangerous long-term health outcomes, and greatly increases the risk of both stroke and heart disease. The National Health
and Medical Research Council has set an ‘Upper Limit’ for sodium intake of 2300 mg per day (corresponding to approximately 6 grams of salt). Intakes above this level are regarded as likely to cause harm.

**Does hypertension have other causes aside from eating too much salt?**

Hypertension is also associated with overweight and obesity, alcohol intake and being sedentary. However, some people who have none of these other risk factors still develop high blood pressure when their salt intake is too high, making salt the ‘prime suspect’.

Various drugs and herbal remedies, glandular disorders and kidney diseases can cause ‘secondary hypertension’. Identifying and treating the secondary cause of hypertension can sometimes cure the condition in such cases (for example surgical removal of an abnormal gland). However, the return to normal blood pressure is only temporary, because almost no one consuming a typical western (i.e. high-salt) diet escapes the rise of blood pressure that is associated with increasing age. No less than 90% of those who survive to middle age on the diet of an industrial society develop hypertension in their later years.

**Is there any reason to avoid salt when my blood pressure is normal?**

The rise of blood pressure that usually occurs with age is the most common and most dangerous of at least 25 health problems caused or aggravated by salt. People who are lucky enough to have normal blood pressure should adopt a low-salt diet to prevent hypertension developing later in life—lowering salt intake after a rise in blood pressure has occurred will not always have a reverse effect on blood pressure.

**Why do we like salt if it is harmful?**

Processed foods are generally salty because the populations of western nations developed a taste for salt over many centuries when salting was one of the few ways in which foods could be preserved. The taste buds can be ‘trained’ to become accustomed to a wide range of salt levels in food. Because people in western nations became habituated to the taste of very salty foods, most people now prefer the salty taste, even though it is entirely unnatural for humans (or any other mammals) to maintain a diet that is high in salt. The unavoidable trade-off of salt preservation is that palates adapted to high concentrations of salt require salt as a condiment, because most normal (i.e. unsalted) foods now seem tasteless to people who have developed a taste for very salty foods. Extricating ourselves from the disastrous health consequences of this dilemma is one of the major public health challenges of the 21st century.

About 20 ‘salt-free’ societies have been discovered. Even the most salt-free—the Yanomama (aka the Yanomamö) of Brazil—strongly disliked salt when they first tasted it. But as with every other human population, exposure to high-salt foods led to acceptance, and those Yanomama who are acculturated to western diets are now just as ‘hooked’ on salt as most westerners.
Very few of us were allowed to keep the discriminating palates we were born with. The sodium content of breast milk is \(~14\text{ mg per 100 g, which makes breast milk a ‘low-salt’ food (The Food Standards Code defines low-salt foods as having no more than 120 mg of sodium per 100 g of food). Canned and bottled baby foods are also low in salt (by law), but teething rusks and biscuits are not. As a result, teething rusks in Australia have sodium contents up to 350 mg/100 g. Bread has 500–600 mg/100 g, butter about 800 mg/100 g, while Vegemite has about 3450 mg/100 g. This makes Vegemite—a standard children’s food in Australia and New Zealand—about 250 times saltier than breast milk! So it isn’t surprising that children rapidly become used to the taste of salty food.

Why are professional chefs and caterers virtually unanimous that salt is essential to good cuisine?

Because they—and most of their clientele—have salt-adapted palates. Low-salt foods may taste bland to most people now because the taste buds of most people have adjusted to a high-salt diet. However, taste buds are ‘flexible’ with respect to salt—they can adjust to both higher and lower salt intakes. By gradually reducing salt intake over a period of several months, the palate will alter to the extent that normal processed foods (i.e. those with added salt) will thereafter taste ‘too salty’.

What sort of food is low enough in salt to comply with the dietary guidelines?

Every fresh food—plant or animal—is low in salt with rare exceptions (mainly some shellfish). Throughout hundreds of thousands of years of human evolution the diet of our ancestors consisted largely of fresh fruit, vegetables and nuts, together with lean fresh meat and/or fish (and no added salt). This ‘natural’ diet is believed by many nutritionists to be the most health-promoting diet of all.

The Australian dietary guideline for salt is simply to choose foods low in salt. Processed foods are the big problem when trying to adhere to the salt guideline because most processed foods have salt added to them. Look for ‘low-salt’ or ‘no added salt’ on the label of processed products. This will be of benefit to the health of all family members, and catering is easier if the whole family eats low-salt foods.

In summary, nearly every fresh food—plant or animal—is low in salt and nearly every processed food is high in salt, unless the label indicates ‘low-salt’ or ‘no added salt’.

When my diet is low in salt I would like to be able to prove it. Can my doctor do this with a blood test?

No, a blood test cannot measure salt intake because the kidneys continually regulate the sodium content of the blood and keep it constant within very narrow limits. The kidneys transfer excess salt to the urine. A medical laboratory can estimate your salt intake per day by measuring the sodium in a 24-hour collection of urine.

Do low-salt foods provide enough salt to meet the needs of the growing child?
Yes—breast milk is the proof of that. Growth is most rapid for the first four to six months of life, when infants usually double their birth weight. They can do this with breast milk which contains only 14 mg of sodium per 100 g of breast milk. Low-salt foods may have up to 120 mg of sodium per 100 g of food, almost ten times more than the baby is receiving with the natural infant diet.

**If salt is bad for humans, why do some animals trek vast distances for a salt lick?**

This salt hunger is specific to a few species of grazing and browsing animals in inland continental habitats where the sodium content of grass may be less than 1 mg/100 g. Salt hunger has never been recorded in any human population—the Yanomama (the world’s most salt-free society) even disliked salt when they first tasted it!

**Can you give me ten easy steps to a healthier salt intake?**

Many health-conscious people find the following steps straightforward and easy to follow:

1. Start the day with no-added-salt porridge or a low-salt cereal, with or without low-fat yoghurt (stewed fruit or rhubarb can be added to enhance flavour).
2. Snack on fruit, dried fruit and nuts (unsalted).
3. Remove most of the processed foods from your shopping list and buy mostly fresh foods, especially fruit and vegetables.
4. Dress salads with olive oil and balsamic vinegar without adding salt or salty dressings.
5. Remove salt shakers from the table and the kitchen, including salt in all its guises—sea salt, garlic salt, onion salt, and all the expensive gourmet salts of various colours.
6. If you need supplementary iodine, using ‘iodised salt’ (salt that has been supplemented with iodine) is not appropriate. There are many other sources of iodine to help you meet your iodine requirements that can be recommended by your pharmacist.
7. Cook food to conserve flavour using methods such as steaming, roasting, baking, stir-frying, microwaving or barbecuing. Boiling foods can result in loss of potassium and flavour into the boiling water; this may entice you to add salt after cooking.
8. If fresh vegetables, meat, poultry, eggs and fish still seem to need more flavour, use your favourite herbs, spices and vinegars, not salt, to create the flavour you desire.
9. Read the Nutrition Information Panel on processed products and select only low-salt processed foods—that is, those with a sodium content no higher than 120 mg/100 g.
10. Buy wholemeal or whole-grain bread from small bakers or specialty bread shops that cater for discriminating customers. Some low-salt breads are also available in some supermarkets. You can also make your own bread (perhaps with added iodine) in a breadmaker.
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