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The **business address** of the Salt Skip Program is Queensland Hypertension Association
PO Box 193, Holland Park, QLD 4121, phone (07) 3899 1659, FAX (07) 3394 7815.
Use the **editorial address** when writing about the newsletter—see the panel on page 4.

What label format works best to identify low-sodium foods?

It is well established that the health of nations would benefit by consuming less salt.

A strategy being followed by many countries is to encourage an overall reduction in the concentration of salt in processed foods (where it is estimated that about 75% of the sodium in the Australian diet comes from). An alternative strategy is to produce foods that are low in sodium and to raise awareness of shoppers to seek out these foods.

The identification of low salt foods should be made easy for the convenience of the core group of shoppers who will only buy low salt foods, but also for the unconvinced who basically want to buy healthy food but who are easily led astray if identifying information is confusing.

Researchers in New Zealand tested 3 different labelling formats in an online experiment. They tested the Nutrient Information Panel (the tabled information which often appears on the back of food labels), the percentage dietary intake format which appears on the front of many labels in Australia and the traffic light label. Since the Nutrient Information Panel is a requirement of food labels in Australia, participants viewed a fictitious can of baked beans with the NIP only, or the NIP in combination with the other 2 labels.

Their adult subjects were categorised into those with hypertension and those

without. The results showed that people with diagnosed hypertension were better than people without hypertension at discriminating between high- and low-sodium baked beans using all labelling formats. The poorest discrimination occurred on the packaging that only had the Nutrition Information Panel.

The investigators concluded that shoppers' ability to discriminate between foods with low-sodium and high sodium increased as the front of pack label became less numeric and more visual. The traffic light label promoted greater discrimination than the percentage dietary intake format particularly for identifying the high-sodium food.

Although it is clearly useful for shoppers to identify low sodium foods, in order to reduce their sodium intake they must also be able to identify high-sodium foods.

The paper cites British research that indicates that shoppers spend about 29 seconds per product bought, and 32% of consumers do not look at the product in detail at all.

Reference: McLean R, Hoek J, Hedderley D. Effects of alternative label formats on choice of high- and low-sodium products in a New Zealand population sample. Public Health Nutrition 2012;15:783-791.

How well do you taste salt?

The Beaver Dam Offspring Study is an investigation of sensory loss and ageing conducted in Wisconsin in the United States. The subjects are the adult children of an earlier population based study of hearing loss.

This study was conducted in 2005-2008 on 2371 adults aged 21 to 84 years of age.

A number of studies have suggested that salt preference is influenced by changes in intake of dietary sodium. After 2 to 3 months of sodium restriction, acceptance of low-sodium foods increases, and the level of preferred salt in food decreases. On the other hand, rising dietary sodium intake leads to a elevated preferred level of salt in food.

If the intensity of salt taste is related to salt preference (i.e. higher intensity of taste is associated with a lower preference level), then, the investigators reasoned, the intensity of salt taste should also be related to sodium intake and prevalence of hypertension in a population sample.

They conducted their study by measuring salt taste intensity using a filter paper disk which had been impregnated with a known concentration of a sodium chloride solution. After putting the filter paper on their tongue, participants were asked to record the intensity of the sensation on a scale from 'no sensation' (0) to the 'Strongest imaginable sensation of any kind' (100).

About 32% of subjects categorised the salt taste intensity as being 'less than moderate' (i.e. less than 16) while about 10% of participants rated it as 'strong' or 'very strong' (above 34 or above 52). This salt taste intensity was associated with age (less intense for younger people), with gender (less intense for men) and by education (less intense for those with a college degree).

People who tasted the test sodium level as

'strong' or 'very strong' were more likely to never add salt to their food – the percentage of people in this study who never added salt to their food was 24%.

There was no significant association between whether a person had hypertension and the intensity of their taste for salt.

Unfortunately, total dietary intake of sodium was not measured in this cross-sectional study. It is therefore not clear what the relationship is between salt taste intensity and sodium intake, or in which direction the relationship might work. It is suggested that people who avoid sodium may develop a more intense salt taste (salty food tastes saltier) – therefore salt intensity would be associated with the avoidance of salt. However other researchers have suggested that people who have a greater intensity of salt taste are more likely to like salty food and seek it out. It seems there might be at least 2 mechanisms at work – a sensory perception of salt taste intensity that is genetically determined, and also an influence of habitual salt intake which modifies how salt taste is perceived – the palate becomes accustomed to a level of saltiness beyond which is considered 'intense'.

Reference:

Fischer ME, Cruickshanks KJ, Pinto A, Schubert CR, Klein BEK, Klein R, Nieto FJ, Pankow JS, Snyder DJ, Keating BJ. Intensity of salt taste and prevalence of hypertension are not related in the Beaver Dam Offspring Study. Chemical Perception 2012;5:139-145.

Opioid mechanisms mediate the appetite for salt.

When rats are sodium replete, they prefer salt concentrations in water that are close to isotonic (the same concentration of salt that is in their cells) – most strains will drink substantially more isotonic solution than plain water over a 24 hour period. Also when fluid replete, most strains of rats prefer solutions that are close to isotonic and will avoid drinking saltier solutions. However, when rats are made sodium deficient, they will robustly ingest solutions that are more salty than isotonic solutions. Hypertonic solutions have become palatable to them.

This is evidence for the principle that a given taste stimulus can induce pleasant or unpleasant sensations depending on the status of the animal or individual. The increase in positive hedonic response may be mediated by opioids.

An opioid is a psychoactive chemical found in the central and peripheral nervous system (and in the gastrointestinal tract). It has pain-killing effects as well as leading to a sense of euphoria.

It is well established that opioids produced in the body have a role in regulating the palatability of food – it is widely believed that opioids function to enhance palatability and thereby increase consumption. Administration of opioid receptor inhibitors (such as naloxone or naltrexone) to humans negatively effects the palatability ratings of food. This is true for obese, bulimic and normal weight individuals, and the drugs also significantly decreases the intake of sweet, high fat foods in binge eaters.

Some researchers suggest that the endogenous opioid system promotes overeating and is responsible for increasing rates of obesity. Most studies of the effect of opioids on food palatability have focussed on fat and sugar intake, but there is now evidence to suggest that it also has a role in the palatability of salty foods.

Na ES, Morris MJ, Johnson AK. Opioid mechanisms that mediate the palatability of and appetite for salt in sodium replete and deficient states. Physiology and Behaviour. 2012;106:164-170.

June's QHA Tip -Salt Skip Shopping

Debbie's Low Sodium Foods Story

Over the past few years Debbie and her partner Martyn had gone through some interesting times with a confusing medical condition and then having to learn how to undertake a low sodium diet. In the end, Debbie and Martyn set up their own company that now specialises in retail low sodium food products – Low Sodium Foods.

In late 2010, Debbie was quite ill out of the blue. It wasn't until April 2011 that she was finally diagnosed with Meniere's Disease. Her Doctor had put her onto a low sodium diet in January 2011 with the suspicion of Meniere's. Since then, low sodium eating has become the norm for Debbie and she is now completely drug free and manages her Meniere's Disease solely through low sodium eating.

Finding Low Salt Content

It's hard to find low sodium foods, low enough for people with Meniere's or other medical conditions requiring low-salt in Australian supermarkets. You just have to take a spin with a trolley in any food supermarket store and read the food labels. It can be quite frustrating, challenging and even upsetting when shoppers aren't able to find any foods with any real flavours.

Debbie and Martyn went on to spend a year sourcing different types of products, specifically for people like Debbie, but also for other people with conditions requiring low sodium foods such as heart disease, stroke, diabetes, kidney disease and hypertension to name just a few. The result of their research is a range of low sodium foods, available direct from their website to pantry cupboard. The company's website also has links to perishable products; Pyengana Cheddar Cheese, Bresnahan's Butchers and Fine Foods for Low Sodium Sausages and Burger Patties.

Low Sodium Foods now stocks 32 different products - from mayonnaise, salad dressings and tomato sauce to curry powders, meal bases, a range of baking and stock powders, tortilla wraps, mustards and tinned tuna. Low Sodium Foods deliver Australia-wide and have plans to expand their range of products. Find them at www.lowsodiumfoods.com.au or T: 02 4759 1593

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Salt Skip Program
editorial address:
Malcolm Riley
17 One Tree Hill Rd
Ferry Creek VIC 3786

Email:
Malcolm.Riley@csiro.au

Salt Skip News will
continue to be distributed
in hard copy in The BP
Monitor (QHA newsletter)

Salt aware tips

- Prepare food with **fresh vegetables** for lunch and evening meals.
- Make healthy snacks **convenient**, e.g. have fresh fruit pre-chopped, keep low-fat yoghurt in the fridge, and healthy muffins in the freezer ready to be heated.
- **Reduce** consumption of high fat, high sugar or high salt snack foods.
- Keep takeaways and fast foods such as burgers, fried chicken and pizza to an **occasional treat**.
- Include **healthier options** such as boiled eggs and salad, raw vegetable sticks and fresh fruit pieces in lunch boxes.
- **Check food labels** for salt to compare products, brands and varieties and choose the lower salt options.
- **Choose low salt foods** (< 120mg/100g) where possible and avoid high salt (> 500mg/100g) foods.
- **Don't add salt** to your children's food during cooking and discourage them from adding salt at the table.
- Use **lemon juice, garlic, vinegar, or herbs and spices** as an alternative to salt when cooking.
- **Avoid stock cubes, soy sauce, mustard, pickles and mayonnaise** where possible. At the very least choose low salt varieties.
- **Limit salty snacks** to once a week as a treat.

From the AWASH website: <http://awash.org.au/>

Have you tried shopping online?

Debbie and Martyn have started a low sodium foods website.

Have a look at :

<http://www.lowsodiumfoods.com.au/>

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Salt Skip Editorial Committee: Prof Michael Stowasser (Director, Hypertension Unit, University of Qld School of Medicine, Princess Alexandra Hospital, Brisbane), Sister Dianne Robson (Hypertension Nurse, Hypertension Unit, Greenslopes Private Hospital, Brisbane), Prof Caryl Nowson (Nutrition & Ageing, Deakin University, Melbourne), Jane Brown (Home Economist, Salt Skip Program, Hobart), and Dr Jennifer Keogh (Dietitian, Australian Institute of Weight Control, Adelaide). Text drafted (edited where other authors are named) by Dr Malcolm Riley, Nutrition Epidemiologist, CSIRO. Printed by Snap Printing, Edward Street, Brisbane.