SALT INTAKE FROM PROCESSED FOOD AND DISCRETIONARY USE IN AUSTRALIA

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Introduction

- Food Standards Australia New Zealand (FSANZ) recently estimated Australians’ salt (NaCl) intakes as part of the proposal for mandatory iodine fortification.
- This paper compares Australian salt intake with that in the UK.
- Salt (NaCl) and ‘sodium (Na)’ are not synonymous descriptors but are sometimes used, incorrectly, as if they were.

Background: UK Studies

- In 1983, Sanchez-Castillo et al gave 83 British subjects lithium tagged salt to use at home and measured 24-hour urinary excretion of sodium, chloride and lithium. From this, total ‘salt’ intake was estimated to be 10.6 g in men and 7.4 g in women.
- This was subsequently described as 10% coming from natural sodium, 15% from discretionary use and 75% being that added during processing.
- In 2005, the UK Food Safety Authority4 reported that in England the ‘salt’ intake was 10.2 g for men and 7.7 g for women (9.0 g/day for the whole study sample). This estimate was derived from a survey collecting 24-hour urine samples which were analysed for sodium content. Mean sodium excretion (153 mmol/day) was then converted to a predicted ‘salt’ intake of 9.0 g/day.

Australian Estimates

Salt (NaCl) from processed foods:

- Estimating an increase in inodic intake under various fortification scenarios with iodised salt required estimates of salt (NaCl) intake from different foods to be calculated.
- Food composition tables commonly report sodium, not salt (NaCl), levels.
- Many foods (e.g. milk) contain no salt (NaCl) but do contain naturally occurring sodium.
- Using the most recent data available, including results from FSANZ’s food composition analysis programs up until 2005 and uptake of permissions for sodium-containing additives, a salt (NaCl) composition database was derived. For example, the sodium estimated to be derived from sodium bicarbonate in biscuits was subtracted from the total analysed sodium content before NaCl content was calculated.
- These salt (NaCl) composition values were applied to food intakes from the Australian 1995 National Nutrition Survey (NNS).

Discretionary salt

- The NNS did not quantify salt (NaCl) intakes. However, it did identify those respondents who added salt to food during cooking and after it is cooked.
- Results indicate that 62% of Australians aged 2 years and above are discretionary salt users.
- Other published sources indicate that 18% of salt (NaCl) intake is discretionary. A nominal intake of NaCl from discretionary use was calculated for each user (see Table 1).

Results (Table 1):

- NaCl intakes from processed foods were estimated to range between 3.5 and 5.6 g per day.
- NaCl intakes from processed foods were highest in persons aged 14-29 years and lowest in those aged 0-2 years.
- When NaCl from processing and discretionary use (Figure 1) were summed, the NaCl intake of the population ranged from 3.8-6.4 g per day. This contributes approximately 1,000 – 2,500 mg sodium to total sodium intake.
- The proportion of people using discretionary salt generally increased with age.
- Total sodium was not calculated as the project focus was on iodine fortification via iodised salt.

Figure 1. Estimated mean salt intake of the population (1995 NNS consumption data combined with updated composition data)

Comparison with other reports

Figure 2 illustrates the non-comparability of the Australian1 and British2 data.

Figure 2. Sodium intake from these sources, expressed as salt equivalents.

Conclusion

- This analysis has applied recent composition data to food consumption data collected in 1995. Data from the 2007 Australian Children’s Nutrition & Physical Activity Survey will allow an assessment of whether changes in food composition have led to a change in NaCl intake and therefore sodium intake, or whether changes in food consumption have counteracted the changes in composition.
- Owing to the different ways authors use the word ‘salt’, readers need to be careful when comparing results in different studies.

Table 1: Predicted intakes of salt in Australia, estimated using food intakes from the 1995 National Nutrition combined with updated food composition data

<table>
<thead>
<tr>
<th>Age group</th>
<th>Proportion consuming discretionary salt (%)</th>
<th>Estimated mean discretionary NaCl intakes (mg/day)</th>
<th>Estimated mean NaCl intake from processed foods (mg/day)</th>
<th>Estimated total mean intake of NaCl (mg/day)</th>
<th>Estimated mean intake of salt from processed foods (mg/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-3 yrs</td>
<td>36</td>
<td>0.8</td>
<td>3.6</td>
<td>3.8</td>
<td>1,500</td>
</tr>
<tr>
<td>4-8 yrs</td>
<td>48</td>
<td>0.9</td>
<td>4.0</td>
<td>4.9</td>
<td>1,750</td>
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<tr>
<td>9-13 yrs</td>
<td>65</td>
<td>1.6</td>
<td>5.6</td>
<td>7.2</td>
<td>2,100</td>
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<tr>
<td>14-18 yrs</td>
<td>63</td>
<td>1.2</td>
<td>5.6</td>
<td>6.8</td>
<td>2,200</td>
</tr>
<tr>
<td>19-29 yrs</td>
<td>59</td>
<td>1.2</td>
<td>5.6</td>
<td>6.8</td>
<td>2,200</td>
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<tr>
<td>30-49 yrs</td>
<td>60</td>
<td>1.1</td>
<td>6.0</td>
<td>6.1</td>
<td>2,200</td>
</tr>
<tr>
<td>50-69 yrs</td>
<td>70</td>
<td>1.0</td>
<td>4.5</td>
<td>5.5</td>
<td>2,050</td>
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<td>70 yrs &amp; above</td>
<td>75</td>
<td>0.9</td>
<td>4.2</td>
<td>5.1</td>
<td>1,900</td>
</tr>
<tr>
<td>7 yrs &amp; above</td>
<td>65</td>
<td>1.0</td>
<td>4.8</td>
<td>5.8</td>
<td>2,150</td>
</tr>
</tbody>
</table>

grouped as often or usually vs never or rarely

References

3. James WPT, Ralph A, Sanchez-Castillo CP. The dominance of salt in manufactured foods in the sodium intake of affluent societies. Lancet 1987;i:426-9