Iodine update

Why should a trace mineral like iodine cause such a stir amongst health professionals and food authorities? Iodine is essential for the synthesis of the thyroid hormones (T3 and T4) and is critical to every stage of the life cycle. The thyroid hormones regulate body temperature, metabolic rate and support mental growth and development in children with the most crucial period being from foetal development to the third year of life.

Iodine is only needed in very small amounts. For adults, the recommended dietary intake per day is 150 micrograms while for pregnant and lactating women requirements increase to 220 and 270 micrograms respectively. New Zealand soils are low in iodine, which results in a low iodine content in New Zealand grown fruits, vegetables and grains. For this reason dietary sources are limited but include iodised salt, eggs, milk, seameal custard, fish, shellfish and seaweed.

There is growing evidence to suggest mild-to-moderate iodine deficiency is resurfacings as a result of recent inadequate iodine intakes. Back in 1924, when iodine deficiency disorders (IDD) were a significant health issue, New Zealand introduced the iodisation of salt for the first time. Initially, the concentration levels were too low to bring about an effective impact, thus fortification levels were increased in 1938. This contributed to the dramatic reduction in the occurrence of goitre (enlarged thyroid gland) and an improved iodine status, leading to reduced attention to iodine deficiency as a public health issue.

Interestingly, iodine was under the spotlight again in 1997 when blood donors were tested for iodine levels in Dunedin and Waikato. Both men and women were found to have critically low intakes of iodine. A critically low intake is one that is below 50 micrograms per day, increasing the risk of goitre significantly. Another landmark study in the late 1990s found high numbers of children (aged 8-10 years) from Dunedin and Wellington with mild to severe IDDs, and the 2002 National Children’s Nutrition Survey found around a quarter of children surveyed (5-14 years) had low iodine levels.

The plausible reasons for the re-emergence of mild iodine deficiency include:

- increased consumption of commercially prepared foods which are manufactured with non-iodised salt
- health messages to reduce salt intake, resulting in consumers using less salt in the home
- increased use and availability of flake salts such as rock and sea salt, many of which are non-iodised

In light of the growing concern over our declining iodine status, Food Standards Australia and New Zealand amended the food standard for cereals and cereal products to require mandatory replacement of non-iodised salt with iodised salt in bread. From September 2009, it will be mandatory for bread manufacturers to use iodised salt in all breads except organic and unleavened varieties (for example pita bread and tortillas).

At present, dietary sources of iodine are limited. Following the fortification of bread with iodine it is expected that an adult’s average daily iodine intake will increase by 30-70 micrograms. Unsurprisingly, this will vary between individuals and will depend on the amount of bread consumed. For example, males tend to consume more bread than females and for some ethnic groups bread is not a staple food so consumption is very low. Even with fortification, it is likely that pregnant and breastfeeding women whose current intakes are well below the RDI will still not get enough iodine from their diet.

Upper Level of Intake (UL)
The highest average daily nutrient intake level likely to pose no adverse health effects to almost all individuals in the general population.
References:

Some key questions that arise with iodine fortification are:
- What would be an appropriate level of bread intake in order to keep within safe limits of iodine intake?
- Is there risk if one exceeds his/her recommended iodine intake?

For adults, the Upper Limit (UL) of iodine is 1100µg/day (see Box for definition). The effects of high iodine intakes on thyroid function are variable and depend on the health of the thyroid gland. Very high intakes (in excess of the UL) of iodine may inhibit thyroid hormone production. A sudden increase in iodine intake in those used to very low intakes for prolonged periods of time can produce iodine-induced hyperthyroidism or thyrotoxicosis. However, it is unlikely that this would be an issue for New Zealanders as the decline in iodine levels is relatively recent.

Where to from here?
Overall, this is a complex issue. Although there are some uncertainties around the impact of the amended food standard, it is expected mandatory iodine fortification will help to improve the iodine status of New Zealanders. Iodised table salt will continue to have an integral role in helping us meet iodine needs however it is important that health messages regarding salt consumption are not contradictory. Messages still need to focus on reducing salt consumption, however, when salt is consumed it should be iodised.

The New Zealand Food Safety Authority and the Ministry of Health have made joint commitments to monitor the food supply and the dietary outcomes of the population to assess the effectiveness of iodine fortification in years to come.

Dietary Sources of Iodine
- Eggs, milk and milk products, fish, shellfish, seaweed custard
- Foods containing seaweed, sushi, seaweed and alginates (food-thickening agents)
- Iodised salt
- From September 2009, bread excluding organic and unleavened varieties

Following fortification, vulnerable groups (breastfeeding and pregnant women) will still need to be particularly careful in selecting a range of dietary sources of iodine to ensure dietary recommendations are met. Kelp and seaweed tablets (known to be rich sources of iodine) are not considered suitable due to the variability in iodine content and risk of toxicity. If an oral iodine preparation becomes available as a registered medicine, this may be appropriate to recommend.

Fact sheets
Accompanying each newsletter is a fact sheet that you can photocopy for patients, clients and community groups. The fact sheet with this newsletter is all about ‘coconut cream’.

Contact us
If you have colleagues who would like to go on the mail list to receive the newsletter please contact Lily Neumegen (lilyn@adhb.govt.nz), phone – 09 623 4600 ext. 27215.
Coconut cream

Coconut and coconut products are naturally high in fat, the majority of which is saturated fat. Although fat is an essential nutrient many of us consume more than our bodies need. In particular, saturated fat should be limited because it raises blood cholesterol and promotes heart disease.

The coconut palm is the most valuable commodity of the Pacific and is an integral part of life. Some studies have shown that a diet high in coconut in the traditional pacific diet is not linked with a greater risk of heart disease. Despite this, the lifestyle and diet of Pacific peoples has changed with modernisation resulting in a shift away from traditional foods (such as yam, taro, green vegetables, taro leaves, watercress, seafood and fruit). In New Zealand, diets are likely to be high in both traditional fats (coconut products, oily fish) and fats from takeaways, packaged foods and low-quality meats. The bottom line? A diet high in any source of fat can contribute to obesity, which in turn is a risk factor for heart disease and diabetes.

In New Zealand, canned coconut cream is readily available and often has water added to maintain consistency. The Nutrition Advisory Group for the Let’s Beat Diabetes programme (Counties Manukau District Health Board), reviewed New Zealand recommendations surrounding coconut milk use and found inconsistent public health messages.

Thirty-four varieties of coconut milks/creams and reduced fat alternatives such as coconut flavoured evaporated milk, were assessed in Counties Manukau supermarkets. Of the brands that were compared, it was found that products labelled as ‘Lite’ were not necessarily lower in total or saturated fat. Further to this, the ‘Lite’ brands and alternatives were not always available and were often more expensive. The suggestion to add coconut essence to evaporated milk is good in theory, but for many Pacific people this is unrealistic and culturally inappropriate.

Conclusions

Coconut products are an integral part of the pacific diet and their elimination is unnecessary. Although some studies have shown the beneficial effects of coconut cream, it is still an energy dense food and a healthy diet should contain only moderate amounts of fat.

Given the range of brands available in New Zealand the most practical option is to advise a reduction in the quantity of coconut cream used and the frequency of its use.

Recommendations

- Coconut milk/cream should be diluted with water and/or reduced fat milk over time so that the families palate can adjust.
- Those skilled in label reading should be encouraged to compare the ‘per 100 gram’ column to make a choice based on the lowest total fat content.
- For more information refer to the Let’s Beat Diabetes Nutrition Advisory Group position paper: Coconut in the diet.

Did you know?

The amount of fat in a 250ml cup of:
- Coconut cream: 17 teaspoons
- Coconut milk: 12 teaspoons
- 50% coconut cream, 50% low fat milk: 9 teaspoons
- 50% coconut cream, 50% water: 8.5 teaspoons

References

Drink eight glasses of water a day?

This statement has been repeated so often, particularly in the popular press. Is it a case of repeating something often enough that people have come to believe it? Is the statement scientifically true?

Entering “eight glasses of water per day” into a Google search engine yields over 1,450,000 results. The majority of which, support recommendations for eight glasses of water.

So, where did the recommendation for eight glasses come from?

A comprehensive literature search in 2002 by Valtin couldn’t find the origins although an unreferenced passage in a book co-authored by Dr Stare and Dr Williams in 1974 states: “How much water each day? This is usually well regulated by various physiological mechanisms, but for the average adult, somewhere around six to eight glasses per twenty-four hours”.

Recommendations

- The NZ Ministry of Health recommends approximately 3000ml of water per day for men and 2200ml for women. However, solid food (especially vegetables and fruit) contribute approximately 1000ml of water, and 300ml is produced by the breakdown of food.
- The remainder of the water needs to come from fluids such as water, milk, tea and other beverages.
- When choosing fluids, water and low-fat milks are better choices than fruit juice, energy drinks and soft drinks.

There is weak evidence to support recommendations to drink large quantities of water. Food and beverages contribute to total daily fluid intakes.

Water content of common food and drinks

<table>
<thead>
<tr>
<th>Food / drink</th>
<th>Portion size</th>
<th>Water ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>250 ml</td>
<td>250</td>
</tr>
<tr>
<td>Soft drink</td>
<td>250 ml</td>
<td>235</td>
</tr>
<tr>
<td>Tea (white)</td>
<td>240 ml</td>
<td>235</td>
</tr>
<tr>
<td>Milk (reduced fat)</td>
<td>200 ml</td>
<td>180</td>
</tr>
<tr>
<td>Yoghurt</td>
<td>200 g (1 pottle)</td>
<td>165</td>
</tr>
<tr>
<td>Banana</td>
<td>140 g (medium)</td>
<td>105</td>
</tr>
<tr>
<td>Apple</td>
<td>155 g (medium)</td>
<td>130</td>
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<tr>
<td>Vegetable soup</td>
<td>300 g</td>
<td>270</td>
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<tr>
<td>Carrot - raw</td>
<td>76 g (medium)</td>
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<td>Boiled potatoes</td>
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<tr>
<td>Baked beans</td>
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<td>75</td>
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<tr>
<td>Fish grilled</td>
<td>200 g</td>
<td>142</td>
</tr>
</tbody>
</table>

References