Concurrent Session 2: Dietary Intake

Variations in dietary acid-base balance
AD Patchett, CA Nowson, L Riddell
School of Exercise & Nutrition Studies, Deakin University, VIC 3125

Background – Increased net acid excretion has been found to negatively affect bone mass in children and women and may have an impact on other indicators of health such as blood pressure.

Objective – To determine the potential renal acid load (PRAL) and net acid excretion (NAE) levels derived from dietary assessment in community dwelling adult men and women following a variety of different diets.

Design – PRAL and NAE (mEq/d) were calculated from 24-hour recall data (1-3 days) in subjects (mean age 54 (10) SD years), on a range of diets (>4 weeks): low vegetable (veg), dairy; low fat, high CHO, energy deficit (LFHCHOEND); Dietary Approaches to Stop Hypertension, energy deficit (DASHEND); low sodium (Na), high potassium (K); DASH.

Outcomes – The usual Australian diet and low fruit and vegetable diet had the highest acid load. Diets with increased fruit and vegetables reduced acid load. PRAL on DASHEND was lower (-9 mEq/d, P=0.03) than the DASH diet.

<table>
<thead>
<tr>
<th>Diet</th>
<th>Sex (n)</th>
<th>Protein % energy</th>
<th>K (mmol/d)</th>
<th>PRAL (mEq/d)</th>
<th>NAE (mEq/d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usual intake</td>
<td>M 135 F 72</td>
<td>18 (4)</td>
<td>95 (27)</td>
<td>+12 (23)</td>
<td>59 (23)</td>
</tr>
<tr>
<td>Low veg, low dairy</td>
<td>M 55 F 38</td>
<td>18 (3)</td>
<td>66 (17)</td>
<td>+23 (17)</td>
<td>70 (18)</td>
</tr>
<tr>
<td>LFHCHO END</td>
<td>M 25</td>
<td>21 (3)</td>
<td>113 (22)</td>
<td>+1 (20)</td>
<td>52 (20)</td>
</tr>
<tr>
<td>DASH END</td>
<td>M 26</td>
<td>21 (3)</td>
<td>134 (25)</td>
<td>-15 (18)</td>
<td>33 (18)</td>
</tr>
<tr>
<td>Low Na, high K</td>
<td>M 26 F 14</td>
<td>19 (4)</td>
<td>142 (33)</td>
<td>-19 (20)</td>
<td>28 (21)</td>
</tr>
<tr>
<td>DASH Australia</td>
<td>M 55 F 38</td>
<td>19 (3)</td>
<td>127 (32)</td>
<td>-6 (21)</td>
<td>41 (22)</td>
</tr>
</tbody>
</table>

*All values mean (SD)

Conclusion – Diets higher in fruit and vegetables reduce the acid load for a similar intake of protein. Diets with a similar dietary pattern but designed for energy deficit also reduced acid load. This reduction in acid load may account for some of the favourable effects on bone of these dietary patterns.

New Zealand children’s dietary intakes during school hours
A Regan, W Parnell, A Gray
Department of Human Nutrition, University of Otago, Dunedin

Background – Children are often targeted for nutrition intervention programmes with the aim to prevent ill health later in life. Schools are seen as an ideal place to implement such interventions as most children attend together and foods are usually consumed. Most schools in New Zealand are publicly owned and therefore government agencies have the authority to influence policy surrounding food at school, so that agencies appear pro-active in the fight against nutrition related disease. There are no data showing on the dietary intakes of children during school hours in New Zealand. This prevents school based nutrition interventions from being evidence based and specifically targeted to sub groups of children who maybe in particular need.

Objectives – This study describes the dietary intakes of New Zealand children during school hours. The information gathered will be of benefit to organisations planning school based nutrition policies or interventions including ethnic and socio-economic determinants of dietary intakes.

Design – The study is a secondary analysis of data from the National New Zealand Children’s Nutrition Survey 2002 (CNS 02). The CNS 02 sample included 3275 children aged 5-14 yr, of which 2958 provided dietary data on school days.

Dietary intakes were measured by 24 hr diet recall. All foods consumed between 9am and 3pm, Monday to Friday were assumed to have been consumed at school.

Outcomes – Preliminary results show the mean energy intake of children during school hours was 2.5MJ, which equates to 30.7% of their daily energy intakes. Of the energy consumed during school hours 29.1% was contributed from fat (11.5% from saturated fats), 53.8% from carbohydrates (9.6% from sucrose) and 9.7% from protein.

Conclusions – The results so far show that children’s dietary habits during school hours are in accordance with current guidelines.