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Breakfast intake, habits and body composition in New Zealand European women

A thesis presented for the partial fulfilment of the requirements for the degree of

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in
Nutrition and Dietetics

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New Zealand

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Abstract

ABSTRACT

Background: The rise of obesity and related poor health outcomes is rampant in New Zealand. Dietary factors are key in the aetiology of obesity. One dietary factor with wide reaching implications on health and weight maintenance is breakfast consumption. Breakfast consumption has declined in New Zealand in recent years, and adverse health outcomes have risen concurrently. Breakfast consumption has been associated with lower BMI, improved appetite control, better diet quality, and more stable glycaemia.

Objective: The aim of this study was to describe and compare reported and observed breakfast consumption between obese and normal weight New Zealand European women aged 18-45 years, living in Auckland, New Zealand.

Methods: In a cross-sectional study, healthy women (n=75 normal BMI, n=82 obese BMI) completed a 5-day food record, an observed ad libitum buffet breakfast assessment and body composition measurements. Nutrient intake, food choices and behavioural aspects, including pace of eating and meal skipping data were obtained and analysed.

Results: More normal BMI women (n=69; 84.1%) than obese BMI women (n=56; 74.6%) consumed breakfast daily. Obese BMI women consumed significantly more energy at the observed breakfast (1915 ± 868 kJ) than at the recorded breakfast (1431 ± 690kJ, p<0.001); however neither BMI group met one third of estimated energy requirements at either breakfast occasion. Carbohydrate consumption was lower than recommended (AMDR: 45-65%) in both groups in the recorded breakfast (40.7% and 42.6%; normal BMI and obese BMI respectively), whereas total fat consumption was higher than recommended (AMDR: 20-35%) (36.5% and 35.9% respectively). Protein consumption was within AMDR recommendations (15-25%) for both groups in the recorded breakfast (16.3% and 17.5%) but not in the observed breakfast, (13.0% and 14.0%), obese BMI and normal BMI respectively. Foods with the greatest contribution to energy at the observed breakfast for obese BMI women were discretionary items (fats, cake and biscuits), compared with sweetened cereals, nuts and seeds for normal BMI women. Having a faster pace of eating and consuming foods with a higher energy density significantly increased the likelihood of falling into the obese BMI category (b=3.11, p=0.016; b=1.35, p=0.042 respectively).

Conclusions: Consuming a breakfast, particularly one that contains whole grains, fruits and low-fat dairy products, and minimising discretionary items could enable women to more closely meet dietary recommendations, and as a result, improve health outcomes.

Key words: breakfast, obesity, energy intake, appetite, pace of eating
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<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>AMDR</td>
<td>Acceptable macronutrient distribution range</td>
</tr>
<tr>
<td>ANS</td>
<td>Adult Nutrition Survey</td>
</tr>
<tr>
<td>BIA</td>
<td>Bioelectrical Impedance Analysis</td>
</tr>
<tr>
<td>BMI</td>
<td>Body mass index (kg/m²)</td>
</tr>
<tr>
<td>CCK</td>
<td>Cholecystokinin</td>
</tr>
<tr>
<td>CRP</td>
<td>C-reactive protein</td>
</tr>
<tr>
<td>CVD</td>
<td>Cardiovascular disease</td>
</tr>
<tr>
<td>EAR</td>
<td>Estimated Average Requirement</td>
</tr>
<tr>
<td>GLP-1</td>
<td>Glucagon like peptide 1</td>
</tr>
<tr>
<td>IL-6</td>
<td>Interleukin-6</td>
</tr>
<tr>
<td>NCD</td>
<td>Non communicable disease</td>
</tr>
<tr>
<td>NHANES</td>
<td>National Health and Nutrition Examination Survey</td>
</tr>
<tr>
<td>NHMRC</td>
<td>National Health and Medical Research Council</td>
</tr>
<tr>
<td>NRV</td>
<td>Nutrient Reference Values</td>
</tr>
<tr>
<td>NZ</td>
<td>New Zealand</td>
</tr>
<tr>
<td>PCOS</td>
<td>Polycystic ovarian syndrome</td>
</tr>
<tr>
<td>PYY</td>
<td>Peptide YY (or peptide tyrosine tyrosine)</td>
</tr>
<tr>
<td>RMR</td>
<td>Resting metabolic rate</td>
</tr>
<tr>
<td>USA</td>
<td>United States of America</td>
</tr>
<tr>
<td>T2DM</td>
<td>Type 2 diabetes mellitus</td>
</tr>
<tr>
<td>WC</td>
<td>Waist Circumference</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organisation</td>
</tr>
<tr>
<td>WHR</td>
<td>Waist to hip ratio</td>
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