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

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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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List of Abbreviations

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