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Dietary intakes and body composition of Māori and Pacific women in the women's EXPLORE study

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Abstract

The most thorough record of dietary intake among New Zealand (NZ) Māori and Pacific women was undertaken in the 2008 NZ Adult Nutrition Survey, but it did not consider the relationship with body composition. The aim of this study was to investigate the relationship between dietary intake and body composition (particularly body mass index (BMI) and body fat (BF) percentage) of all Māori (n=79) and Pacific (n=75) women (16-45 years old) recruited in the women's EXPLORE study. Anthropometric data was measured using weight, height, and air displacement plethysmography (BodPod), while dietary data was assessed using a validated, 220-item, semi-quantitative food frequency questionnaire. On average, the BMI (28.2 kg/m²) and BF (34.6%) of Māori women classified them as overweight, while the average BMI (31.9 kg/m²) and BF (37.8%) of Pacific women classified them as obese. There were significant positive correlations between the BMI and BF percentage of Māori (r=0.86) and Pacific women (r=0.87), which suggests BMI is a good indicator of BF percentage in these populations. The percentage of Māori and Pacific women who exceeded their estimated energy requirement was similar and identical to the percentage of women found in the obese BF percentage groups, respectively. Dietary intake was compared with NZ guidelines, revealing that both groups of women consumed inadequate carbohydrate. In contrast, both groups consumed excess total and saturated fat, and sodium in excess of the upper level, mostly due to high intakes of takeaways. Takeaways were also the top contributor of total energy (13.4%), protein (13.4%) and fat (17.7%) in Pacific women. Obese Māori women consumed more takeaways (42.7%) than non-obese. Obese Pacific women consumed more discretionary breads, cereals and starchy foods (e.g. iced buns, croissants and paraoa parai (fry bread)) (210%) than non-obese. Recommendations include reducing takeaways, fats (e.g. butter), and sugar-sweetened beverages. Instead, opt for more complex carbohydrates and leafy green vegetables. Further research should investigate relationships between dietary intake and waist circumference, as well as other factors influencing body composition, such as physical activity and level of deprivation.

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Abbreviations

ADG	Australian Dietary Guidelines
ADP	Air displacement plethysmography
AI	Adequate Intake
AMDR	Acceptable Macronutrient Distribution Range
BF	Body fat
BIA	Bioelectrical impedance analysis
BMI	Body Mass Index
BMR	Basal Metabolic Rate
CHD	Coronary heart disease
CVD	Cardiovascular disease
DAS	Dietary assessment software
DF	Dietary fibre
DHHS	Diabetes, Heart and Health Study
DPRF	Dietary Patterns and Risk Factors study
DXA	Dual-energy X-ray absorptiometry
EAGNZA	Eating and Activity Guidelines for New Zealand Adults
EAR	Estimated Average Requirement
EE	Energy expenditure
EER	Estimated Energy Requirement
EI	Energy intake
EXPLORE	Examining the Predictors Linking Obesity Related Elements
FAVs	Fruit and vegetables
FFM	Fat free mass
FFQ	Food frequency questionnaire

MOH	Ministry of Health
MUFA	Monounsaturated fat
NHMRC	National Health and Medical Research Council
NRV	Nutrient reference value
NZ	New Zealand
NZANS	New Zealand Adult Nutrition Survey
NZHF	New Zealand Heart Foundation
NZHS	New Zealand Health Survey
PAL	Physical activity level
PUFA	Polyunsaturated fat
RCT	Randomised controlled trial
RDI	Recommended Dietary Intake
RMR	Resting metabolic rate
SD	Standard deviation
SDT	Suggested Dietary Target
SFA	Saturated fat
SSB	Sugar-sweetened beverages
SSE	Standard serving equivalents
TEE	Total energy expenditure
T2DM	Type two diabetes mellitus
UL	Upper Level of Intake
WC	Waist circumference
WHO	World Health Organization
WHR	Waist-hip ratio
WHtR	Waist-height ratio