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Habitual dietary fibre intake is associated with discretionary food intake and body composition of New Zealand European and Pacific women.

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Introduction: Diet is a modifiable risk factor for noncommunicable diseases like obesity. This study assessed relationships between habitual dietary intake and body fat content of New Zealand European and Pacific women.

Methods Pacific (44%) and NZ European (56%) women ($n=287$) aged 18-45 years were recruited based on body mass index (normal and obese) and stratified as having low (<35%) or high ($\geq 35\%$) body fat percentage (BF%). Habitual dietary intake was calculated with the National Cancer Institute method, considering a 5-day estimated food record and a semi-quantitative food frequency questionnaire. BF% was assessed by dual-energy x-ray absorptiometry. Fasting blood samples were analysed for markers of insulin sensitivity.

Results: Higher energy adjusted habitual dietary fibre (DF) intake was associated with significantly lower BF% ($\beta = -0.35$, $p \leq 0.001$), and this relationship became stronger after further adjustments of other macronutrients ($\beta = -0.47$, $p \leq 0.001$). No other macronutrients were significantly associated with BF%. Consuming a higher proportion of discretionary foods was associated with significantly higher BF% ($\beta = 0.22$, $p \leq 0.001$). In comparison to the lowest (16g/d [13.3, 17.6]) tertile of DF intake, women in the highest (27.6g/d [24.9, 30.6]) tertile of DF intake consumed a significantly lower proportion of their total diet from discretionary foods (57.7% [48.8, 63.5] versus 38.8% [32.1, 49.7] $p < 0.001$, respectively). Significant differences in the homeostasis model assessment of insulin resistance (HOMA-IR) index were observed between the lowest (3.3 [2.1, 5.3]) and highest (2.1 [1.3, 3.1], $p \leq 0.001$) tertile of DF intake. In addition, we observed significant differences in HOMA-IR between low-BF% (1.9 [1.3, 2.7]) and high-BF% (3.4 [2.5, 5.9], $p \leq 0.001$) groups.

Conclusions: Higher habitual DF intake was associated with lower BF% and HOMA-IR index, suggesting a potential metabolically protective effect. These results support current dietary guidelines advocating for higher habitual DF intake, but highlight the importance of future guidelines to address discretionary food intake.