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Glycemic index in relation to nutrient intake, body composition, and metabolic risk factors in French Polynesia

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OBJECTIVE: High-glycemic index (GI) diets have been associated with consumption of foods of poor nutritional quality, and have been linked to a greater risk of cardiovascular diseases and type 2 diabetes in Caucasians. Recent evidences suggest a shift away from traditional lifestyles and diets by the French Polynesians. We aimed at examining the association between dietary GI and nutrient intake, anthropometric variables, and metabolic risk factors in French Polynesia.

DESIGN: We measured dietary GI and nutrient intake among 148 adults from Papeete (capital of French Polynesia) and Tubuai (Austral Islands), using a 24-hours dietary recall. Physiological (lipid profile, fasting glucose and insulin, apolipoprotein levels, and C-reactive protein) and anthropometrical measurements were obtained. We calculated partial correlation coefficients between GI, nutrient intake and biomarker values adjusted for potential confounders.

RESULTS: In total, 41.9% of subjects from Papeete and Tubuai consumed a high-GI diet the day before the survey (p=0.04). No difference in mean (±SD) dietary GI were observed between Islands (60±8 and 61±6; p=0.55). After adjustments for potential confounders, dietary GI was positively correlated with body weight, body mass index, body fat mass, and waist circumference (all p<0.01) in Papeete. Dietary GI was also positively correlated with smaller LDL peak particles size (p=0.05), higher plasma cholesterol (C), C/HDL ratio, apoB100, fasting insulin (p<0.01), and lower plasma HDL-C (p=0.009) in Papeete. We found significant positive correlations between dietary GI, protein consumption and monounsaturated fatty acids intake in Papeete (all p<0.05). No association was observed between dietary GI and any of the nutrient intake and metabolic risk factors in Tubuai.

CONCLUSIONS: Dietary GI is correlated with an unfavourable metabolic risk profile in Papeete, but not in Tubuai. The traditional diet, and other favourable lifestyle factors such as physical activity, which are more predominant in Tubuai, might induce some protection on cardiovascular and metabolic risk factors.

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