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Australian native grain reduces blood glucose response and Glycemic Index

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Australian Aboriginal and Torres Strait Islander peoples are disproportionately affected by diet-related disease such as type 2 diabetes, the rate of which is 20 fold higher than that of non-Indigenous young Australians(1). Before colonisation, Gomeroi and other First Nations people harvested, threshed and ground native grass seeds with water into a paste before cooking(2). The introduction of white refined flour has meant that time-consuming grass seed processing has mainly ceased, and native grains are no longer eaten habitually. The aim of this study was to determine the effect of 10% incorporation of two native grain flours on postprandial blood glucose response and Glycemic Index (GI). Five male and five female subjects, with a mean age of 30 ± 0.9 and BMI of 21.6 ± 0.4 and normoglycemic, participated in GI testing of three flour + water pancake compositions matched for available carbohydrate: 100% wheat (Wheat) and 90% wheat:10% native grains (Native_*a* and Native_*b*). Effect on satiety was determined using subjective ratings of hunger/fullness over the time course of the GI testing. In comparison to the plain flour pancake, replacing 10% plain wheat flour with Native_*b* flour significantly reduced the GI by 28.8% from 73 ± 5 to 48 ± 5, having a profound effect on postprandial blood glucose levels in 9 of 10 subjects ($p<0.05$, paired t-test). The GI of 10% Native_*a* flour pancake was not different from 100% wheat flour pancake (75 ± 5). Satiety tended to be greater when native grains were incorporated but this study was not powered to detect effect on satiety. In conclusion, replacing only 10% of plain wheat flour with Native_*b* flour was sufficient to significantly reduce the blood glycemic response to the pancake. This replacement could be easily implemented for prevention and treatment of type 2 diabetes. For Aboriginal people with access to grain Country, the nutritional health benefits associated with eating native grains, as well as the cultural benefits of caring for Country, will have a direct transformational impact on local communities. Our vision is to revitalise Gomeroi grains and to guide a sustainable Indigenous-led industry to heal Country and people through co-designed research.

Keywords: native grains; type 2 diabetes; Glycemic Index; satiety

Ethics Declaration

Yes

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