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The effect of Australian *Plantago* whole seed flour on cardiometabolic health

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Obesity is a global pandemic with major negative health consequences such as diabetes, cardiovascular disease and cancer. Western dietary patterns contain high amounts of processed and discretionary foods that are strong obesogenic factors.^(1,2) The Western diet is common in both developed and developing countries and contributes to the current obesity pandemic and high prevalence of chronic disease.^(1,3) Dietary fibre supplements may aid in eliminating the cardiometabolic risks associated with obesity and Western dietary patterns. Psyllium husk (milled from *Plantago ovata* seeds) is an excellent fibre supplement but its production is wasteful, discarding the nutrient- and fibre-rich inner seed tissues, and therefore using a whole seed flour (WSF) may yield additional health outcomes.⁽⁴⁾ We aimed to investigate the effect of WSF of two *Plantago* species of differing nutrient composition on obesity and cardiometabolic health. Groups of C57/Bl6 mice were fed an obesogenic high-fat high-sugar diet ($n = 10$ males and 10 females), or the same diet supplemented with 2.5% *Plantago ovata* WSF ($n = 10$ males and 10 females) or 2.5% *Plantago turrifera* WSF ($n = 10$ males and 10 females). Weekly body weight was recorded. After 12 weeks of intervention, intraperitoneal glucose tolerance (IPGTT) was assessed, and blood samples and faeces were collected. Mice were then sacrificed, and organ weight was recorded. Total cholesterol, HDL-C, LDL-C, triglyceride, and apolipoprotein B were measured. Proliferation and apoptosis in the intestine and liver tissue, and the microbiome of different groups will be evaluated. Preliminary analyses show significant differences in weight and IPGTT between groups as well as females and males with data analysis ongoing.

References

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