

Wholegrain rye and wheat foods and markers of bowel health in men

M Noakes¹, G McIntosh¹, P Royle¹, P Foster¹ and F Fleming²

¹CSIRO Health Sciences and Nutrition, Adelaide, South Australia, 5000

²George Weston Foods Ltd, Enfield, New South Wales, 2136

Background: Whole grain cereals may provide significant health benefits compared to refined cereals when substituted into an Australian diet. Australian rye foods are available, but have not been studied for their potential to influence health as whole grain foods and in amounts likely to be beneficial, as has occurred in Finland (1,2).

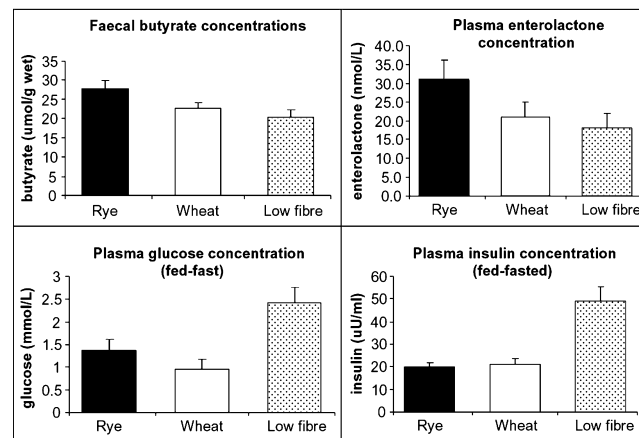
Objectives: To evaluate the effects of whole rye foods compared to fibre matched whole wheat and low fibre white wheat flour foods on markers of bowel health, colon cancer risk and on post prandial glucose and insulin response.

Subjects: 28 males, mean age 56 years, mean BMI 30 kg/m² and no history of bowel disease or chronic constipation.

Experimental Design: Three interventions of 4 weeks duration in a completely randomized crossover design: 1.Low Fibre Wheat (LFW) – 20 g dietary fibre/day. 2.High Fibre Wheat (HFW) – 35 g dietary fibre/day. 3.High Rye Fibre (RF) – 35 g dietary fibre. Key test foods in the form of bread, crackers and cereal were provided. Fasting blood and 48 hour faecal samples were collected at the end of each period. An assessment of insulin and glycemia one hour after a standard breakfast cereal meal (50 g available carbohydrate) was also performed.

Results: Relative to LFW, both RF and HFW increased faecal output by 33–36%, decreased pH by 0.2 units, decreased post prandial insulin by 46–49%, decreased post prandial glucose by 16–19% and reduced faecal β -glucuronidase by 29% and faecal p-cresol 21–33% (all $P < 0.05$). Only RF showed a significant 41% increase in plasma enterolactone and a 36% increase in faecal butyrate.

Conclusion: When matched for fibre, consumption of moderate amounts of both high fibre rye and whole wheat foods equally improved several markers of bowel and metabolic health. Overall, rye food intake resulted in the most favourable changes.



References

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Key words: Rye, faecal butyrate, plasma enterolactone