

GREENWHEAT FREEKEH™
Food in Asia PROJECT

CSIRO
Health Sciences and Nutrition

Preliminary Executive Summary

Human Feeding Trial

**Effects of Cracked Greenwheat Freekeh™ on
Biomarkers of Bowel and Cardiovascular Health**

Authors:

Tony Bird PhD

Manny Noakes PhD

Michelle Jackson BAppSc

David Topping PhD FTSE

(March 2004)



1. EXECUTIVE SUMMARY

- + The primary objective of the controlled feeding study was to determine the effect of a diet containing Cracked Greenwheat Freekeh™ foods compared to a diet containing white rice or couscous on a range of biomarkers of bowel and cardiovascular health
- + Thirty three healthy volunteers were recruited and 20 (6 men and 14 women) completed the study trial in which they consumed one of the three diets in random order for 4 weeks. The diets contained similar amounts of energy, protein, fat, carbohydrate and starch, however, the Freekeh™ diet was expected to supply a greater quantity of fibre compared to the refined cereal diets.
- + Cereal foods were well-tolerated and their consumption was not associated with abdominal discomfort or other adverse effects.
- + Dietary treatments had no effect on blood lipid profile (n =17 volunteers).
- + Consumption of Freekeh™ was associated with an improvement in nearly every bowel health indice relative to baseline and white rice, and to a lesser extent couscous. The following general responses ($P < 0.05$) in key faecal parameters were observed in response to dietary intervention with Freekeh™:
 - A marked increase in stool weight (eg faecal output was 33% greater for Freekeh™ than couscous)
 - Greater defecation frequency and faecal moisture content compared to rice)
 - A fall in pH from baseline whereas consumption of the other cereals had no effect on this variable
 - Increases in total short chain fatty acid concentration and excretion
 - Pronounced increases in concentration and excretion of the important short chain fatty acid butyrate
 - Larger numbers of bifidobacterial and lactobacilli, indicative of a prebiotic effect
- + There were consistent and substantial differences in key functional, metabolic and bacteriological variables in response to consumption of the Freekeh™ diet. These changes are likely to result in improved bowel habit and may diminish risk for developing several degenerative bowel diseases, including colorectal cancer and diverticulosis. Freekeh™ foods may also be of benefit in preventing or ameliorating constipation.