

The 48th Annual Scientific Meeting of the Nutrition Society of Australia, 3-6 December 2024

Nutritional implications of a three-phase low fermentable oligosaccharide, disaccharide, monosaccharide and polyol diet in irritable bowel syndrome

L.P. Manning¹, C.J. Tuck², M. Van Den Houte³, L. Van Oudenhove³ and J.R. Biesiekierski⁴

¹Department of Food, Nutrition and Dietetics, La Trobe University, Bundoora, Victoria, Australia

²Department of Nursing and Allied Health, Swinburne University, Melbourne, Victoria, Australia

³Translational Research Center for Gastrointestinal Disorders, Katholieke Universiteit, Leuven, Belgium

⁴Department of Nutrition, Dietetics & Food, Monash University, Melbourne, Victoria, Australia

Irritable bowel syndrome (IBS) is a chronic disorder of gut-brain interaction that affects 3.5% of Australians and is characterised by abdominal pain and altered bowel motions⁽¹⁾. The low fermentable oligosaccharide, disaccharide, monosaccharide, and polyol (FODMAP) diet (LFD) is a three-phase process (Phase 1 FODMAP restriction, Phase 2 FODMAP reintroduction, and Phase 3 FODMAP personalisation) efficacious for IBS symptom management⁽²⁾. However, data on the nutritional adequacy post-phase 1 is lacking. This study aimed to evaluate the nutritional adequacy across the three phases of the LFD in adults with IBS. Adults meeting the Rome IV criteria were recruited for a 25-week longitudinal trial. Participants underwent dietetic consultation at week 0 for phase 1 FODMAP restriction (weeks 1–5), phase 2 FODMAP reintroduction (weeks 6–13) and phase 3 FODMAP personalisation (weeks 14–25). Nutrient intake was assessed using a food frequency questionnaire to determine the average daily intake⁽³⁾ collected at weeks 1, 5, 13, and 25. Participant nutrient intake was compared to the age and gender-specific Australian Recommended Dietary Intake at each time point. A least squares means analysis using the post hoc Tukey Kramer test for significance was used to determine significant changes in nutrient intake at a population level between phases of the LFD. Nutrient data was available for $n = 88$ at week 1 (mean age 34.9 ± 12 years, 88% female), $n = 78$ at week 5, $n = 50$ at week 13 and $n = 40$ at week 25. There were no nutrients for which participants met 100% of the requirements between weeks 1–13. At week 25, vitamin C was the only nutrient for which participants met 100% of the requirements. There was no significant increase in nutrient intake during FODMAP reintroduction (week 13 to 25). At week 25, compared to week 1, there was a significant reduction in energy (10146 to 7721 kJ, $p = 0.0001$), protein (112 to 90 g, $p = 0.0149$), carbohydrates (275 to 195 g, $p < 0.0001$), fat (99 to 76 g, $p = 0.003$), dietary fibre (38 to 25 g, $p < 0.0001$), sodium (2364 to 1834 mg, $p = 0.0031$), magnesium (435 to 318 mg, $p < 0.0001$), calcium (1180 to 909 mg, $p = 0.0168$), iron (14 to 11 mg, $p = 0.0001$) and folate (576 to 404 μg , $p < 0.0001$). The nutrient intake of participants following the LFD worsened across the three phases of the LFD. These results signify the importance of monitoring nutrient targets in conjunction with managing symptoms of IBS. Further research is needed to determine the long-term consequences of poor nutrient intake from the LFD.

References

1. Sperber A, Bangdiwala S, Drossman D *et al.* (2021) *Gastroenterol* **60**, 99–114.
2. Black CJ, Staudacher HM, Ford AC (2022) *Gut* **71**, 1117–1126.
3. Barrett JS, Gibson PR (2010) *J Am Diet Assoc* **110**, 1496–1476.