

# Low FODMAP diet

Cian Hackett Michael R. Kolber MD CCFP MSc

## Clinical question

Does the low FODMAP (fermentable oligo-di-mono-saccharides and polyols) diet (LFD) improve symptoms for patients with irritable bowel syndrome (IBS)?

## Bottom line

The LFD might improve symptoms for those with primarily diarrhea-subtype IBS. However, most studies were of low quality; high-quality studies are needed.

## Evidence

Four RCTs with mainly young female participants compared the LFD to a normal diet (ND).

- Denmark: the largest, high-quality, 6-week, open-label RCT of 123 IBS patients receiving specialist care.<sup>1</sup>
  - On a 500-point symptom scale (minimal clinically important difference was 50),<sup>2</sup> LFD led to an improvement of about 150, probiotics about 80, and ND about 30 points.
  - Subgroup analysis: only diarrhea patients improved.
  - Limitations: pre-enrolment investigations included colonoscopy and genetic lactase deficiency testing; analysis was per protocol.
- Australia: blinded crossover trial of LFD versus ND (each for 3 weeks, with a 3-week washout period) of 30 IBS patients and 8 controls in primary or secondary care.<sup>3</sup>
  - Global gastrointestinal symptoms: with LFD 70% had a more than 10-point improvement on a 100-point scale.
  - Limitations: ND results not reported; high-fibre diet included in LFD arm; authors had conflicts of interest.
- United Kingdom: 3-week, non-blinded RCT of 41 patients with diarrhea-predominant IBS or substantial bloating, receiving specialist care.<sup>4</sup>
  - Adequate symptom control was reported for 68% of LFD and 23% of ND patients (NNT=3); however, symptom control at baseline was different (not significantly): 37% for LFD and 58% for ND; symptoms actually worsened in the ND arm (58% controlled at baseline, 23% at the end).
- Fourth RCT: too short (2 days) to draw conclusions.<sup>5</sup>
- Two systematic reviews had conflicting conclusions<sup>6,7</sup>:
  - More research is required<sup>6</sup> or LFD is efficacious in treating functional gastrointestinal symptoms.<sup>7</sup>

## Context

- Cohort studies demonstrate LFD benefit,<sup>6,7</sup> but IBS patients have a high placebo response rate<sup>8</sup> (even when told they are getting placebo).<sup>9</sup>
- Patients who initially improve on LFD worsen with reintroduction of fructose or fructans.<sup>10</sup>
- The LFD is restrictive, limiting many fruits, dairy products, wheat, legumes, and artificial sweeteners.<sup>11</sup>

## Implementation

Approximately 7% of North Americans have symptoms of IBS<sup>12</sup>; about 4% of IBS patients actually have celiac disease.<sup>13</sup> Testing for celiac disease is recommended for those with IBS symptoms.<sup>12</sup> Fibre (psyllium or bran) appears beneficial for primary care IBS patients<sup>14</sup>; gluten-free<sup>15</sup> and elimination diets<sup>16</sup> have less convincing evidence. Antidepressants improve global symptoms of IBS (NNT=4).<sup>17</sup> Given side effect profiles, it is reasonable to try tricyclic antidepressants for diarrhea-subtype and selective serotonin reuptake inhibitors for constipation-subtype IBS.

Mr Hackett is a fourth-year medical student and Dr Kolber is Associate Professor in the Department of Family Medicine, both at the University of Alberta in Edmonton.

The opinions expressed in Tools for Practice articles are those of the authors and do not necessarily mirror the perspective and policy of the Alberta College of Family Physicians.

## References

1. Pedersen N, Andersen NN, Végh Z, Jensen L, Ankersen DV, Felding M, et al. Low FODMAP diet vs Lactobacillus rhamnosus GG in irritable bowel syndrome. *World J Gastroenterol* 2014;20(43):16215-26.
2. Francis CY, Morris J, Whorwell PJ. The irritable bowel severity scoring system: a simple method of monitoring irritable bowel syndrome and its progress. *Aliment Pharmacol Ther* 1997;11:395-402.
3. Halmos EP, Power VA, Shepherd SJ, Gibson PR, Muir JG. A diet low in FODMAPs reduces symptoms of irritable bowel syndrome. *Gastroenterology* 2014;146:67-75.
4. Staudacher HS, Lomer MCE, Anderson JL, Barrett JS, Muir JG, Irving PM, et al. Fermentable carbohydrate restriction reduces luminal bifidobacteria and gastrointestinal symptoms in patients with irritable bowel syndrome. *J Nutr* 2012;142:1510-8.
5. Ong DK, Mitchell SB, Barrett JS, Shepherd SJ, Irving PM, Biesiekierski JR, et al. Manipulation of dietary short chain carbohydrates alters the pattern of gas production and genesis of symptoms in irritable bowel syndrome. *Gastroenterol Hepatol* 2010;25:1366-73.
6. Rao SCC, Yu S, Fedew A. Systematic review: dietary fibre and FODMAP-restricted diet in the management of constipation and irritable bowel syndrome. *Aliment Pharmacol Ther* 2015;41:1256-70.
7. Marsh A, Eslick EM, Eslick GD. Does a diet low in FODMAPs reduce symptoms associated with functional gastrointestinal disorders? A comprehensive systematic review and meta-analysis. *Eur J Nutr* 2015 May 17. Epub ahead of print.
8. Ford AC, Moayyedi P. Meta-analysis: factors affecting placebo response rate in the irritable bowel syndrome. *Aliment Pharmacol Ther* 2010;32:144-58.
9. Kaptchuk TJ, Friedlander E, Kelley JM, Sanchez MN, Kokkotou E, Singer JP, et al. Placebos without deception: a randomized controlled trial in irritable bowel syndrome. *PLoS One* 2010;12(2):e15591.
10. Shepherd SJ, Parker FC, Muir JG, Gibson PG. Dietary triggers of abdominal symptoms in patients with irritable bowel syndrome: randomized, placebo-controlled evidence. *Clin Gastro Hepatol* 2008;6:765-71.
11. *The low FODMAP diet*. Stanford, CA: Stanford Hospital and Clinics. Available from: <https://stanfordhealthcare.org/content/dam/SHC/for-patients-component/programs-services/clinical-nutrition-services/docs/pdf-lowfodmapdiet.pdf>. Accessed 2015 Apr 1.
12. American College of Gastroenterology Task Force on Irritable Bowel Syndrome. An evidence-based position statement on the management of irritable bowel syndrome. *Am J Gastroenterol* 2009;104:S1-35.
13. Ford AC, Chey WD, Talley NJ, Malhotra A, Spiege BMR, Moayyedi P. Yield of diagnostic tests for celiac disease in individuals with symptoms suggestive of irritable bowel syndrome. *Arch Intern Med* 2009;169(7):651-8.
14. Bijkerk CJ, de Wit NJ, Muris JWM, Whorwell PJ, Knottnerus JA, Hoes AW. Soluble or insoluble fibre in irritable bowel syndrome in primary care? Randomized placebo controlled trial. *BMJ* 2009;339:b3154.
15. Biesiekierski JR, Newnham ED, Irving PM, Barrett JS, Haines M, Doecke JD, et al. Gluten causes gastrointestinal symptoms in subjects without celiac disease: a double-blind randomized placebo-controlled trial. *Am J Gastroenterol* 2011;106:508-14.
16. Atkinson W, Sheldon TA, Shaath N, Whorwell PJ. Food elimination based on IgG antibodies in irritable bowel syndrome: a randomized controlled trial. *Gut* 2004;53:1459-64.
17. Ruepert L, Quartero AO, de Wit NJ, van der Heijden GJ, Rubin G, Muris JWM. Bulking agents, antispasmodics and antidepressants for the treatment of irritable bowel syndrome. *Cochrane Database System Rev* 2011;(8):CD003460.



Tools for Practice articles in *Canadian Family Physician (CFP)* are adapted from articles published on the Alberta College of Family Physicians (ACFP) website, summarizing medical evidence with a focus on topical issues and practice-modifying information. The ACFP summaries and the series in *CFP* are coordinated by Dr G. Michael Allan, and the summaries are co-authored by at least 1 practising family physician and are peer reviewed. Feedback is welcome and can be sent to [toolsforpractice@cfpc.ca](mailto:toolsforpractice@cfpc.ca). Archived articles are available on the ACFP website: [www.acfp.ca](http://www.acfp.ca).