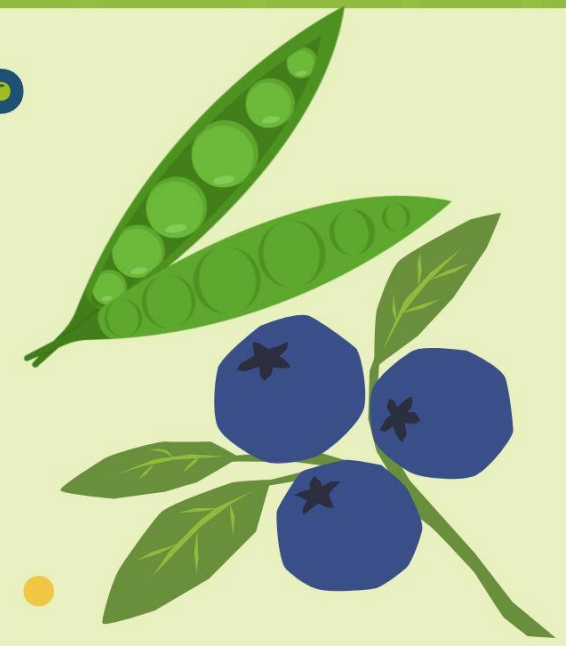


Low FODMAP:

Full, Gentle, Light + Simple Versions





Kate Scarlata MPH, RDN
For a Digestive Peace of Mind, LLC

Objectives

- Describe clinical IBS scenarios for which more flexible FODMAP interventions may be appropriate
- List the most likely FODMAP triggers in IBS based on current data
- Detail the pathophysiology of FODMAPs in the gut

Disclosures

- Verve market: stock options and paid consulting
- Fody foods + Epicured: stock options
- Tuut: paid consulting
- Ardelyx, Salix, Activia, QOL medical, Schar gluten free: speaking fees and sponsorship for events and podcast

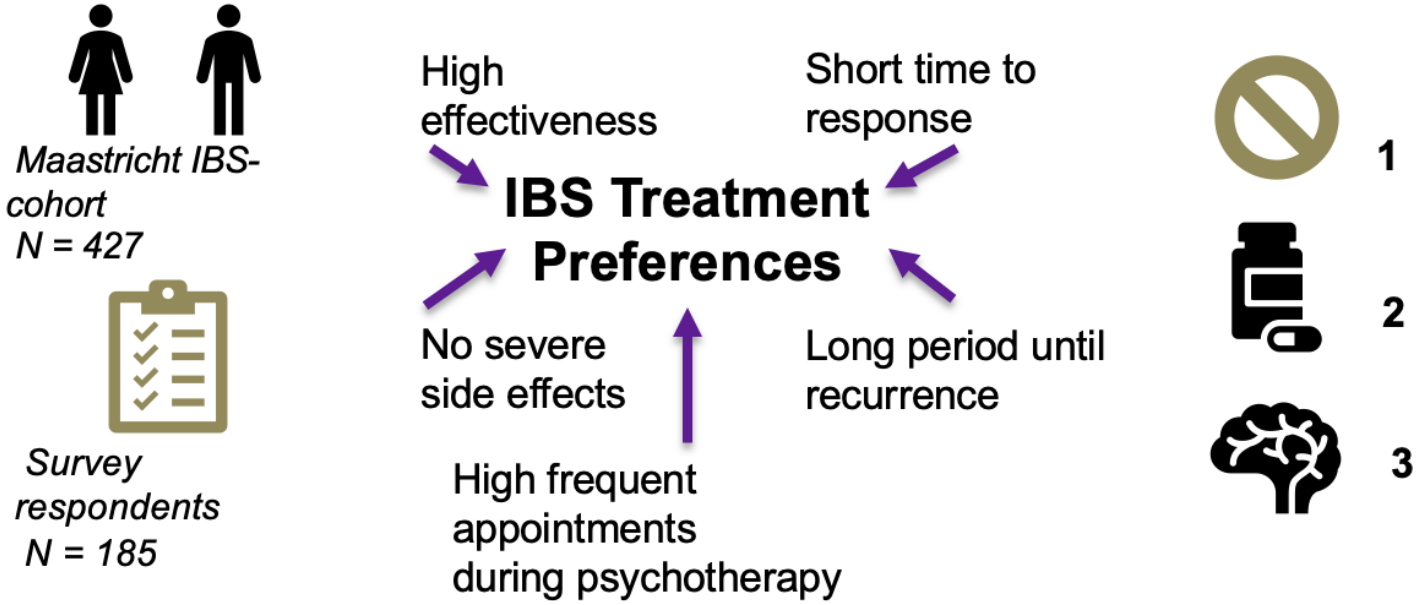
Nutrition for IBS: Most Desired Treatment

The most preferred treatment was dietary intervention (48.1%) followed by pharmacotherapy (29.2%) and psychotherapy (22.7%).

Clinical Gastroenterology and Hepatology 2022

Discrete Choice Experiment Reveals Strong Preference for Dietary Treatment Among Patients With Irritable Bowel Syndrome

Results discrete choice experiment (DCE)



Adapted from: Sturkenboom R et al. Clin Gastroenterol Hepatol. 2022;(11):2628-2637.

Food related symptoms & reduced food consumption - common in IBS



About 9/10 IBS patients:

- ✓ associate their intestinal distention and pain with food consumption.
- ✓ choose to eat less food to lessen post-eating discomfort.

Kasti A, Petsis K, Lambrinou S, Katsas K, Nikolaki M, Papanikolaou IS, Hatziagelaki E, Triantafyllou K. A Combination of Mediterranean and Low-FODMAP Diets for Managing IBS Symptoms? Ask Your Gut! Microorganisms. 2022 Mar 30;10(4):751.

2005

AP&T Alimentary Pharmacology and Therapeutics

Personal view: food for thought – western lifestyle and susceptibility to Crohn's disease. The FODMAP hypothesis

P. R. Gibson, S. J. Shepherd

First published: 09 June 2005 | https://doi.org/10.1111/j.1365-2036.2005.02506.x | VIEW METRICS

✉ *Prof. P. Gibson, Department of Gastroenterology, Box Hill Hospital, Box Hill, Victoria 3128, Australia.*

2014

Disordered eating practices in gastrointestinal disorders

R. Satherley, R. Howard, S. Higgs

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https://doi.org/10.1016/j.appet.2014.10.006 Get righ

Highlights

- Evidence of disordered eating patterns in GI disease was reviewed.
- The prevalence of disordered eating in gastrointestinal disease was 5.3–44.4%.
- This was associated with distress, symptom severity and dietary management.
- A conceptual model of disordered eating in GI disease was developed.

2015

Gastroenterology 2014;146:67–75

CLINICAL—ALIMENTARY TRACT

A Diet Low in FODMAPs Reduces Symptoms of Irritable Bowel Syndrome

Emma P. Halmos,[1,2] Victoria A. Power,[1] Susan J. Shepherd,[1] Peter R. Gibson,[1,2] and Jane G. Muir[1,2]

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See Covering the Cover synopsis on page 1; see editorial on page 10.

BACKGROUND & AIMS: A diet low in fermentable oligosaccharides, disaccharides, monosaccharides, and polyols (FODMAPs) often is used to manage functional gastrointestinal symptoms in patients with irritable bowel syndrome (IBS), yet there is limited evidence of its efficacy. compared with a normal Western diet. We investigated the effects of a diet low in FODMAPs, compared with an Australian diet, in a randomized, controlled, single-blind, cross-over trial of patients with IBS. **METHODS:** In a study of 30 patients with IBS and 8 healthy individuals (controls, matched for demographics and diet), we collected dietary data from subjects for 1 habitual week. Participants then randomly were assigned to groups that received 21 days of either a diet low in FODMAPs or a typical Australian diet, followed by a washout period of at least 21 days, before crossing over to the alternate diet. Daily symptoms were rated using a 0- to 100-mm visual analogue scale. Almost all food was provided during the interventional diet periods, with a goal of less than 0.5 g intake of FODMAPs per meal for the low-FODMAP diet. All stools were collected from days 17–21 and assessed for frequency, weight, water content, and King's Stool Chart rating. **RESULTS:** Subjects with IBS had lower overall gastrointestinal symptom scores (22.8; 95% confidence interval, 16.7–28.8 mm) while on a diet low in FODMAPs, compared with the Australian diet (44.9; 95% confidence interval, 36.6–53.1 mm; $P < .001$) and the subjects' habitual diet. Bloating, pain, and passage of wind also were reduced while IBS patients were on the low-FODMAP diet. Symptoms were minimal and unaltered by either diet among controls. Patients of all IBS subtypes had greater satisfaction with stool consistency while on the low-FODMAP diet, but diarrhea-predominant IBS was the only subtype with altered fecal frequency and King's Stool Chart scores. **CONCLUSIONS:** In a controlled, cross-over study of patients with IBS, a diet low in FODMAPs effectively reduced functional gastrointestinal symptoms. This high-quality evidence supports its use as a first-line therapy. Clinical Trial number: ACTRN12612001185853.

Keywords: Clinical Trial; Food Intolerance; Abdominal Pain; Short-Chain Carbohydrates.

Despite irritable bowel syndrome (IBS) being the most common gastrointestinal condition presenting to gastroenterologists, therapy has been unsatisfactory. The majority of patients note food as a trigger of symptoms.[1,2] Diet as a therapy, however, has not been a central platform for management, mainly because the evidence base for reduction or exclusion of specific foods such as wheat and dairy[3] has been poor.

A diet with increasing evidence of efficacy for the management of IBS is the low fermentable oligosaccharides, disaccharides, monosaccharides and polyols (FODMAP) diet.[4] FODMAPs[5] are poorly absorbed short-chain carbohydrates including fructose (in excess of glucose), lactose, polyols, fructans, and galacto-oligosaccharides. Although individually shown to contribute to IBS symptoms,[6–8] the concept of considering all of these sugars collectively as a treatment for IBS is relatively new.[9] The potential benefits of restricting a spectrum of FODMAPs in the diet was first shown in a retrospective study that showed that 74% of selected patients with both IBS and fructose malabsorption responded well to restriction of fructose and fructans (and polyols if the patients noted symptom induction) of 2–40 months' duration.[9] This then was followed up with a randomized, double-blinded, placebo-controlled, rechallenge trial using fructose and fructan, alone and in combination, in selected patients with IBS and fructose malabsorption who had responded to the diet.[10] Symptoms were induced in 4 of 5 study participants on the individual and combined FODMAP solutions compared with fewer than 1 in 5 with placebo (glucose). The symptoms were dose-dependent and fructose and fructans had additive effects.[10]

Understanding of FODMAPs encompasses mechanisms of action, being luminal distension from their osmotic

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0016-5085/$36.00
http://dx.doi.org/10.1053/j.gastro.2013.08.046

2016

ORIGINAL CONTRIBUTIONS: FUNCTIONAL GI DISORDERS

A Randomized Controlled Trial Comparing the Low FODMAP Diet vs. Modified NICE Guidelines in US Adults with IBS-D

Eswaran, Shanti L MD[1]; Chey, William D MD[1]; Han-Markey, Theresa MS, RD[2]; Ball, Sarah MPH, RD[3]; Jackson, Kenya BS[1]

Author Information

American Journal of Gastroenterology 111(12):p 1824-1832, December 2016. | *DOI:* 10.1038/ajg.2016.434

2019

JGH Journal of Gastroenterology and Hepatology

REVIEW

Controversies and reality of the FODMAP diet for patients with irritable bowel syndrome

Emma P Halmos and Peter R Gibson

Department of Gastroenterology, The Alfred Hospital, Monash University, Melbourne, Victoria, Australia

Abstract

Since its first trial showing evidence of efficacy for managing symptoms of irritable bowel syndrome, the fermentable oligosaccharides, disaccharides, monosaccharides, and polyols (FODMAP) diet has been gaining popularity but not without criticism. Application of the diet has changed from a rigid list of "allowed" and "not allowed" foods to a structured program of initial FODMAP restriction followed by food reintroduction and finally personalization so that patients are empowered to tailor their diet themselves to achieve good predictability of symptoms. Safety concerns of the diet have centered around its initial elimination leading to compromise of nutritional and psychological health, but careful patient assessment and management, preferably through a FODMAP-trained dietitian, will reduce the risk of such negative health outcomes. Most negative attention for the FODMAP diet has been the notion that it will ruin the microbiome. Controlled studies have indicated that reducing FODMAP intake has no effects on bacterial diversity but will reduce total bacterial abundance, and higher FODMAP intakes will increase health-promoting bacteria, supporting the concept of the full FODMAP program, including attaining a minimal "maintenance" level of FODMAP restriction. This review addresses all these concerns in detail and how to overcome them, including the use of a "FODMAP-gastic" diet, describing restriction of a select few foods very concentrated in FODMAPs. This version of the diet is commonly applied in practice by experienced FODMAP-trained dietitians but is not clearly described in literature. Careful direction and assessment of response or nonresponse will decrease the risks of over-restriction and under-restriction of diet.

Introduction

The understanding, diagnosis, and treatment of irritable bowel syndrome (IBS) has grown considerably over the past two decades. IBS is a chronic, nonfatal condition that wanes and wanes in its severity. Any dietary approach ideally would cure the condition, but this is not possible according to our current understanding of the multifactorial pathogenesis. As a palliative measure, it ideally should work in the longer term, be able to cope with the fluctuating severity, and have only minor interference with the quality of life of the patient. Of the dietary approaches proposed, evidence for efficacy is largely restricted to one diet, the fermentable oligosaccharides, disaccharides, monosaccharides, and polyols (FODMAP) diet. The emergence of a FODMAP diet as a treatment of IBS has been a game changer. Studies from around the globe have shown efficacy over placebo, and 50–87% of adult IBS sufferers benefit.[1–4] However, practical application of the diet requires good familiarity and some fitness in a heterogeneous IBS population. As the diet progresses to an individualized regimen, there are different paths upon which the maintenance phase can be reached, but these paths are not well documented. With increasing knowledge and application of a low-FODMAP diet comes many questions and controversies. This review will address the interpretation of the relevance of dietary FODMAPs in its uncertainties, particularly from the perspective of the delivery of the FODMAP diet.

The ideal dietary approach. Approaches to trialing and evaluating diets to treat IBS have involved elimination of specific whole food triggers, such as milk and wheat, "healthy eating" principles, or extreme diets, such as the "paleo" diet, which have vague rationales and are usually wrongly promoted as "healthy" instead of therapeutic. They also tend to be overly restrictive and recommended for ongoing application rather than defined timeframe of implementation. Moreover, they generally only have one format without defined opportunities for de-restriction. These issues build concerns around nutritional inadequacies and

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2025

Clinical Gastroenterology and Hepatology 2025;23:382–394

Is a Simplified, Less Restrictive Low FODMAP Diet Possible? Results From a Double-Blind, Pilot Randomized Controlled Trial

See editorial on page 222.

A low fermentable oligo-, mono-, di-saccharides, and polyols (FODMAPs) diet (LFD) is the most evidence-based dietary therapy for patients with irritable bowel syndrome (IBS).[1] However, the current step-down approach to the LFD has significant limitations including being costly, complex, time-consuming, and associated with reduced dietary intake of some micronutrients.[2,3] Recently, a step-up approach has been proposed that restricts only a limited number of FODMAPs initially, evaluating symptom response and restricting additional FODMAPs only if necessary.[4,5] In a double-blind trial, fructans and galacto-oligosaccharides were found to be the most likely FODMAP subgroups to trigger IBS symptoms.[6] To date, no study has compared the efficacy of a traditional LFD restriction phase with a more targeted or simplified restriction phase. In a double-blind, pilot-feasibility randomized controlled trial, we compared the efficacy of a 4-week FODMAP-simple restriction phase (eliminating solely fructans and galacto-ligosaccharides) and a traditional LFD restriction phase in patients with IBS with diarrhea (IBS-D) (ClinicalTrials.gov registration number NCT05811104).

Adults (18–65 years) meeting the Rome IV criteria for IBS-D were recruited at 2 centers. Exclusion criteria are listed in the Supplementary Material. Those with abdominal pain intensity scores of ≥5 during the 7-day baseline period (based on a weekly average of seven daily abdominal pain ratings) were randomized via computer generation in a 1:1 ratio to a traditional LFD or FODMAP-simple diet. Meals for the study were provided for the 4-week treatment period (Epicured, New York, NY). The details of meal plans, allocation concealment, and blinding are given in the Supplementary Material.

The primary outcome was the proportion of subjects meeting the Food and Drug Administration responder definition for abdominal pain intensity (ie, a ≥30% reduction in weekly average of daily abdominal pain intensity scores for 2 of the 4-week treatment period).[7] Secondary end points are listed in the Supplementary Material. Prespecified recorded 7-day food diaries pretreatment and posttreatment were analyzed via the Nutritional Data System for Research program. The primary analysis was a modified intention-to-treat (mITT) analysis and in addition, a per-protocol analysis was also performed.

Thirty-five subjects with IBS-D were enrolled: 19 were randomized to traditional LFD and 16 to FODMAP-simple. Three subjects had an interruption in their meal delivery because of logistical reasons and the remaining 32 were included in the mITT analysis. One subject did not care for the food (traditional LFD group). Five subjects withdrew in the traditional LFD group because of worsening abdominal symptoms (n = 3), nonadherence (n = 1), and diet being unacceptably restrictive (n = 1) and 2 patients in the FODMAP-simple group withdrew because of nausea and loss of appetite (n = 1 each). Thus, 24 subjects finished the study (10 in traditional LFD and 14 in the FODMAP-simple group) and were included in the per-protocol analysis. Baseline characteristics were similar between the 2 groups (data not shown).

Energy, nutrient, fiber, and gluten intake (as a surrogate of fructan intake) were similar between the 2 groups at baseline and the end of the treatment period. Although dietary FODMAP content was similar at baseline, as expected, the traditional LFD group had a lower daily intake of fructose and polyols at the end of the treatment period compared with the FODMAP-simple group (Supplementary Table 1).

Using an mITT analysis, 56.3% (9/16) of subjects in the traditional LFD group met the primary end point compared with 42.5% (10/16) in the FODMAP-simple group ($P = .71$). Moreover, per mITT analysis, the same percentage of subjects met responder end points for IBS symptom severity score (50-point and 100-point reduction) in both groups and the 2 groups were comparable for other secondary end points as well (Figure 1).

Supplementary Table 2 summarizes the per-protocol analysis for the 24 subjects who finished the study. Like mITT, per-protocol analysis showed no significant differences between the 2 groups except for a significantly greater mean decrease in IBS symptom severity score and a significantly higher proportion of 100-point IBS symptoms severity score responders in the traditional LFD group compared with the FODMAP-simple group ($P = .02$ and $.04$, respectively).

Abbreviations used in this paper: FODMAPs, fermentable oligo-, mono-, di-saccharides, and polyols; IBS, irritable bowel syndrome; IBS-D, diarrhea-predominant irritable bowel syndrome; LFD, low FODMAP diet; mITT, modified intention-to-treat.

Most current article

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1542-3565/$36.00
https://doi.org/10.1016/j.cgh.2024.04.031

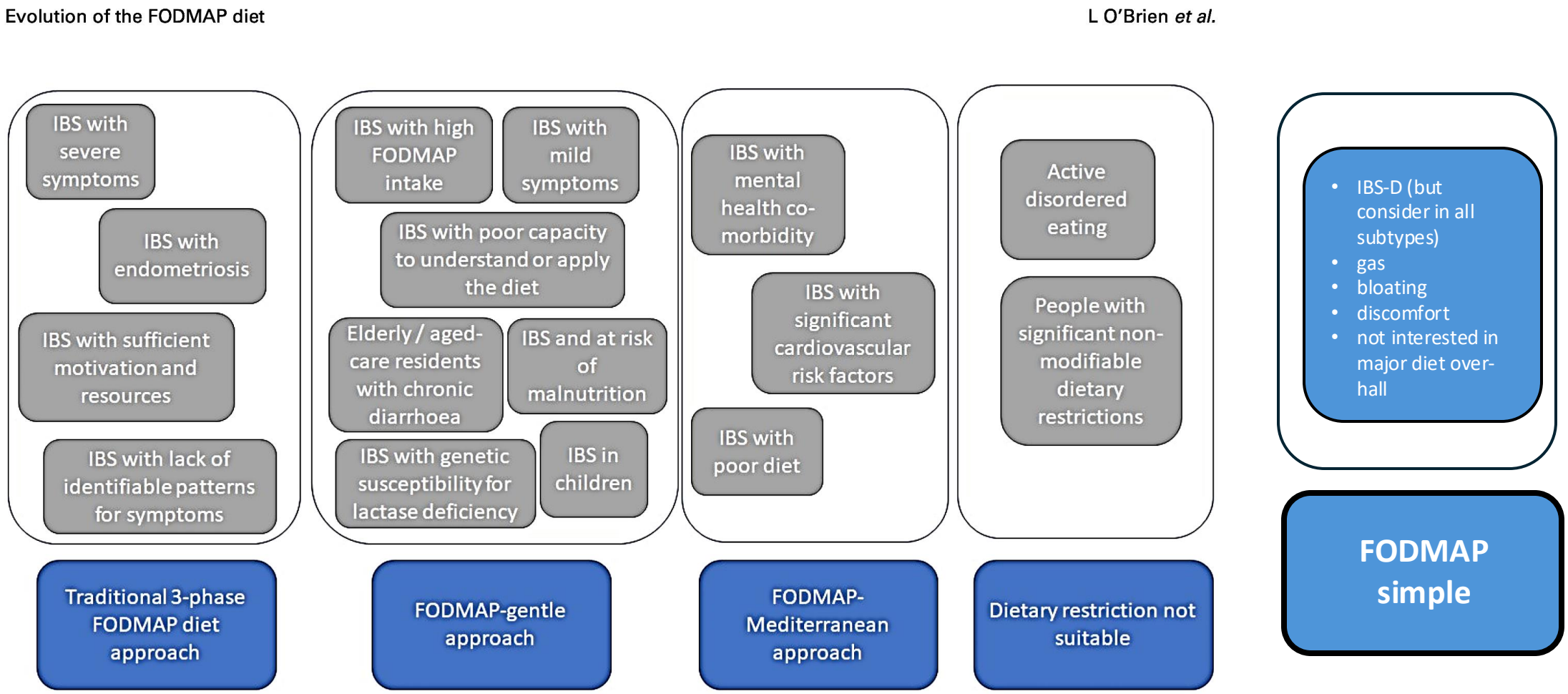
Diet for IBS

28 eligible RCTs in systematic review and meta-analysis: (comprising 2338 patients) of 11 different dietary interventions compared with 4 control interventions: 6 (low FODMAP diet, British Dietetic Association/National Institute for Health and Care Excellence [BDA/NICE] diet, lactose-reduced diet, starch-reduced and sucrose-reduced diet, a personalized diet, and a Mediterranean diet) were studied in more than one trial.

1. **Starch- and sucrose-reduced diet (SSRD)** showed the strongest overall results for improving global IBS symptoms and abdominal pain, although evidence came from only **two trials**.
2. **Low FODMAP diet** had the largest evidence base (**23–24 trials**) and consistently improved: Overall IBS symptoms, Abdominal pain, Bloating/distension, Bowel symptoms compared with the BDA/NICE diet
3. **BDA/NICE dietary advice** was beneficial but generally less effective than low FODMAP.
4. Because SSRD has limited supporting evidence, the **low FODMAP diet currently has the strongest and most reliable evidence base for IBS management**.

Cuffe MS, et al. Efficacy of dietary interventions in irritable bowel syndrome: a systematic review and network meta-analysis. *Lancet Gastroenterol Hepatol*. 2025;10(6):520-536.

Evolution, adaptation, and new applications of the FODMAP diet



O'Brien L, et al JGH Open. 2024 May 20;8(5):e13066, Singh P et al, *CGH* 2024

Adapting the FODMAP diet in irritable bowel syndrome (IBS) patient groups—ideal candidates and key considerations

	Ideal IBS candidates	Key considerations
Traditional three-phase FODMAP approach	Patients who • Have more severe symptoms • Lack of identifiable patterns for symptom generation with food [38] • Have sufficient motivation and resources to conduct the diet in full	• Current evidence best supports this approach • Dietitian-delivered education superior to booklet-delivered education [39] • More restrictive dietary adjustments required at outset as compared to FODMAP-gentle approach, but may be better able to identify specific food triggers and hence improve long-term success of the diet [40]
FODMAP-gentle approach	Patients who are • Eating large concentrations of FODMAPs • Mildly symptomatic • Children • Elderly • Nutritionally compromised • Following other dietary restrictions • At poor capacity to understand and/or apply the diet • Preferred to follow this approach	• Dietetic assessment of habitual diet will guide the choice of diet application • Robust trial evidence for the FODMAP-gentle diet is lacking • Traditional IBS dietary advice shares features of a FODMAP-gentle diet, with some evidence of efficacy for symptom management
Low-FODMAP Mediterranean diet	• Psychological symptoms (anxiety/depression) • Cardiovascular risk factors • Patients with poor-quality diets	• Time to prepare meals • Adequate financial resources • Access to Mediterranean foods

O'Brien L, et al JGH Open. 2024 May 20;8(5):e13066.

Low FODMAP diet in IBS

✓Most evidence-based dietary therapy in IBS (50-80% efficacy rate)

✓Superior to other diets in improving global IBS symptoms + abdominal pain/bloating

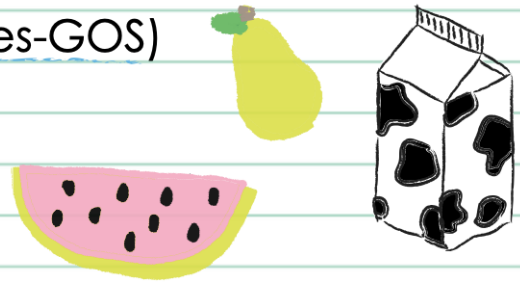
- Some limitations:
  - Restrictive (reduces wheat, lactose-rich dairy, many fruits/veg)
  - Can be time-consuming (label reading, meal prep)
  - Potential risk of long-term continuation of restriction phase and reduced intake (e.g. changes in gut microbiome, fiber intake, ?ARFID)

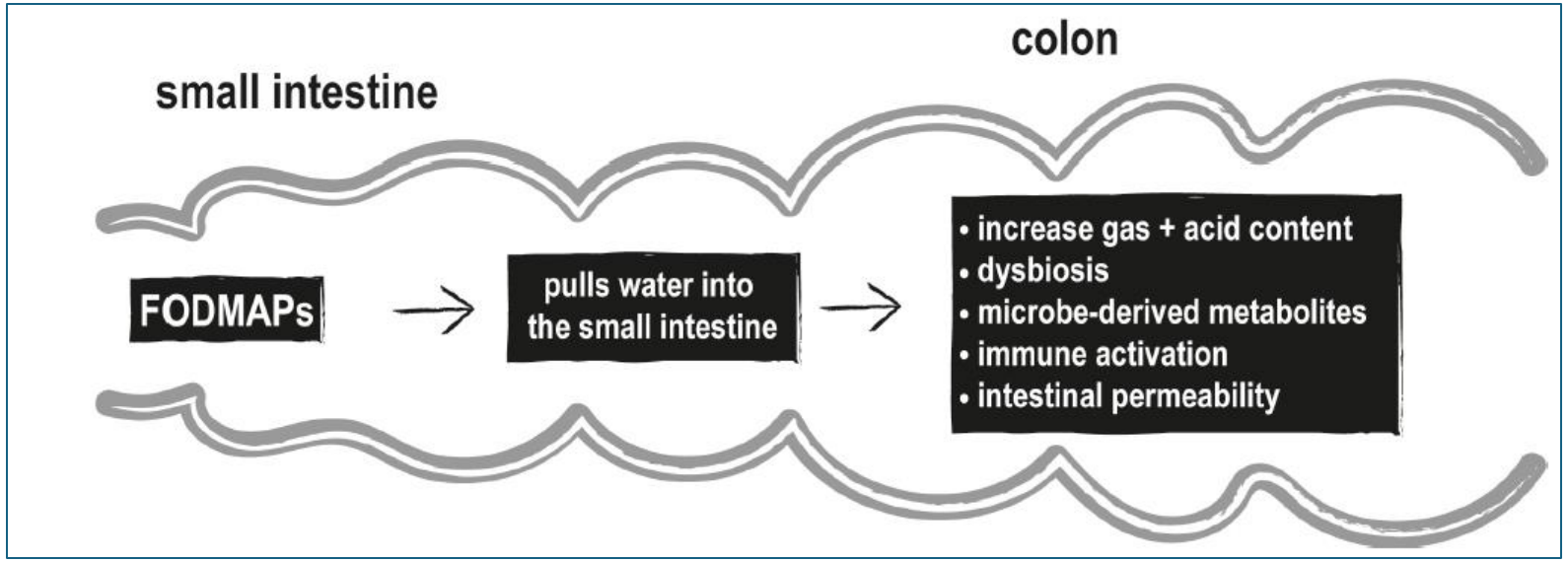
Black et al, Gut 2021
Wilson et al, PNS 2020
Eswaran et al, J Acad Nutr Diet, 2020

FODMAPs: What + How

FODMAPs is an acronym that stands for:

- **F** fermentable
- **O** oligosaccharides (fructans and galacto-oligosaccharides-GOS)
- **D** disaccharides (lactose, milk sugar)
- **M** monosaccharide (excess fructose)
- **A** and
- **P** polyols (sugar alcohols such as mannitol and sorbitol)

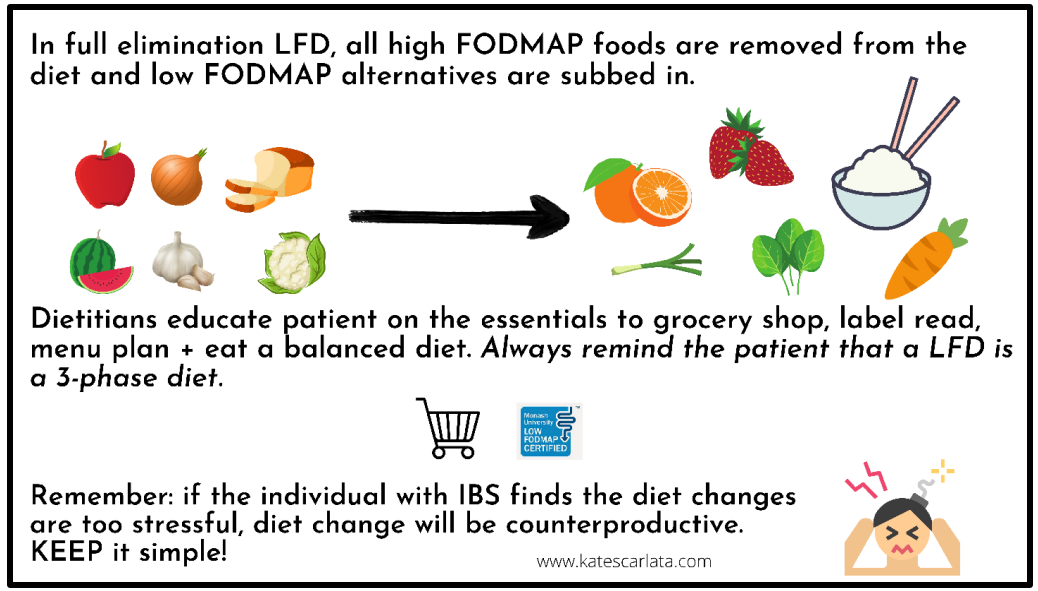




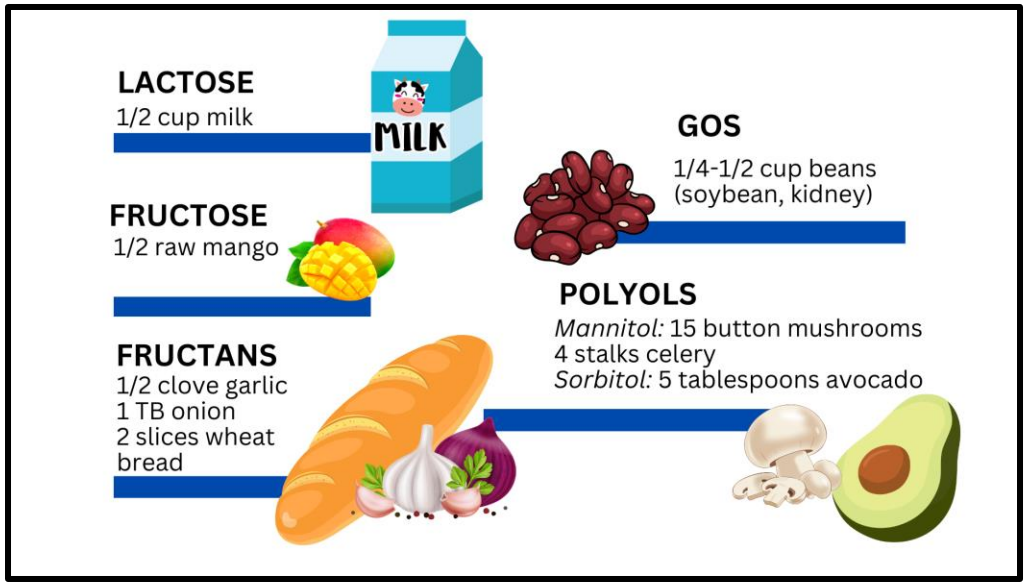
Singh P et al *JCI Insight.* 2021;6(22):e146529.

3 Phase Elimination diet

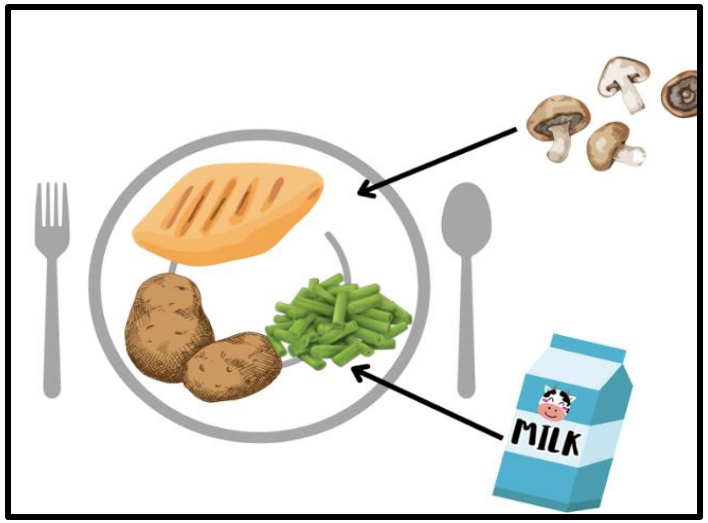
#1



#2



#3



FODMAP gentle

A FODMAP. gentle diet: the reduction of a few foods that are highly concentrated in FODMAPs and/or reduction of a few targeted FODMAP subtypes. Further dietary restriction is applied if necessary.

Journal of Gastroenterology and Hepatology

JGHF Journal of Gastroenterology and Hepatology Foundation

Review | Free Access

Controversies and reality of the FODMAP diet for patients with irritable bowel syndrome

Emma P Halmos, Peter R Gibson

First published: 08 March 2019 | https://doi.org/10.1111/jgh.14650 | VIEW METRICS

Declaration of conflict of interest: P. R. G. has published a book on food intolerances. There is no conflict of interest to declare for E. P. H. The Department of Gastroenterology has published an App on the Monash University Low FODMAP Diet; the proceeds of which partly go to the department but not to the individuals.
Author contribution: All authors wrote, revised, and approved the final version of the article.
Ethical approval: None.
Financial support: None.

No formal RCT, found beneficial in clinical practice

Fermentable oligosaccharides, disaccharides, monosaccharides, and polyols gentle

A FODMAP-gentle diet describes the reduction of a few foods that are highly concentrated in FODMAPs and/or reduction of a few targeted FODMAPs. Further dietary restriction is applied if necessary. Applying a "FODMAP-gentle" diet has some evidence of efficacy as suggested by Böhn *et al*., comparing a low-FODMAP diet with the National Institute for Health and Care Excellence guidelines. They added to the National Institute for Health and Care Excellence diet avoidance of "gas-producing foods,"28 which are all foods most concentrated in FODMAPs, such as milk, onion, legumes, polyol sweeteners, wheat bran, and prune juice.29 Table 2 describes this FODMAP-gentle diet based on our current knowledge of food composition.

Table 2. Description of a FODMAP-gentle diet

Food group	High FODMAP foods to restrict on a FODMAP-gentle diet
Grains	Wheat and rye
Vegetables	Onion, leek, cauliflower, and mushrooms
Fruit	Apple, pear, dried fruit, stone fruit, and watermelon
Dairy	Milk and yoghurt
Meat/alternatives	Legumes

FODMAP, fermentable oligosaccharides, disaccharides, monosaccharides, and polyols.

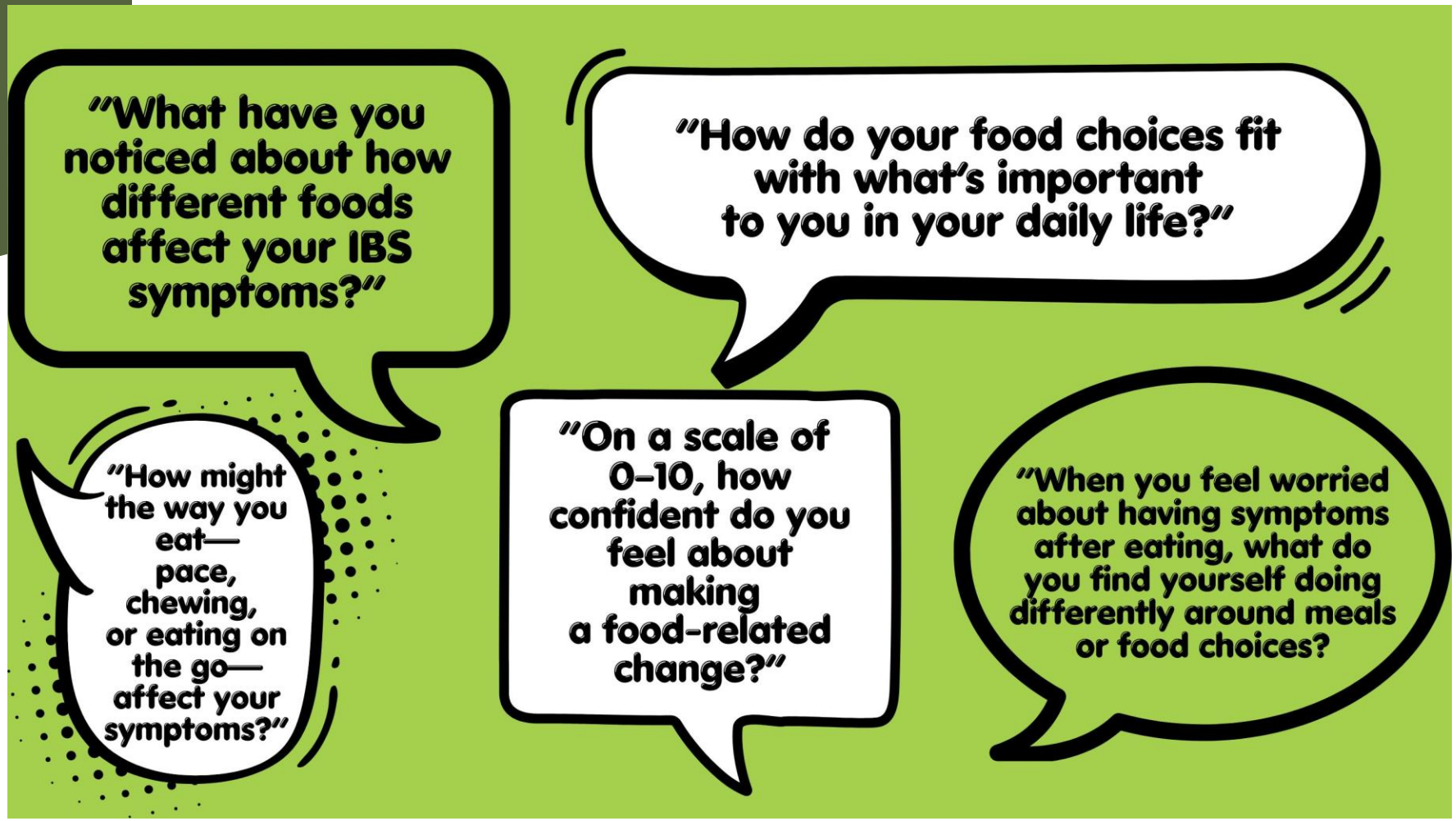
Halmos EP, et al *J Gastroenterol Hepatol*. 2019;34(7):1134-1142.

Case 1 FODMAP gentle case

- 20-year-old female, college student with high stress during school year
- IBS-D with *some* bloating noted especially with smoothies and sweet foods; feels worse over the weekend with > ETOH intake
- IBS-D diagnosis x 3 years, no other sig PMH, including no ED hx
- Labs (TSH, ferritin, B12, zinc, ttG-Ig A, total IgA) normal, EDG +colonoscopy at 19 normal
- No meds/supps except MVI

24-hour recall:
Breakfast: Large smoothie: **mango**, whey isolate protein powder, **honey**, and **apple juice**
Lunch: Salad: lettuce, tomato, tuna salad, **chickpeas**, lemon juice/olive oil dressing, 1 dinner roll, **apple** with peanut butter
Snack: **sugar free gummy bears**
Dinner: Chicken, Fish, or pasta with tomato sauce + Parmesan, Rice/Potato, zucchini. Broccoli, brownie/cookie for dessert
Weekends may involve pizza and some **"binge level drinking" –beer, rum cocktails**

Including a motivational interviewing lens w/ food triggers



Case 1 FODMAP gentle

- Primary symptoms diarrhea, she rates at a “4” on a zero to 10 scale, 10 being terrible
- Bloating at 2-3, only occasionally, which is accompanied with some discomfort
- Weight stable
- No red flags for ARFID based on NIAS
- Feels diet needs some tweaking and interested in nutritional approach

Case 1 FODMAP gentle approach

- “Cherry-picking” out high FODMAPs with >osmotic activity at **higher portions** as first step
- No need for major LFD education, rather discuss osmotic effect of certain carbs, and discuss easy and amenable substitutions.
- Based on diet recall, suggested:
  - Smoothie ingredients swap out mango for pineapple, blueberries vs apple, keep portion size small and add another option to breakfast: oats, toast w/eggs, nut butter
  - Instead of apple, consider orange, crackers + peanut butter
  - Regular gummy bears vs polyol rich option
  - Role of ETOH and diarrhea, less ETOH options, less rum, spritz type drinks
- Stress management (would it be helpful to talk to someone? + diaphragmatic breathing (easy RD education)

Reintroduction trials: All FODMAPs are not equal

- IBS subjects (Rome IV), n=21 (20 analyzed) who demonstrated symptom improvement on LFD after a 2- to 4-week open-label FODMAP elimination period were recruited to a 10-week blinded-phased FODMAP reintroduction phase of 7 days for each FODMAP Daily symptom severity (0-10 point numerical rating system) was recorded.
- Results:
  - Fructans & galacto-oligosaccharides (GOS) both were associated with worsened abdominal pain (P = .007 and P = .04, respectively). GOS were associated with an increase in bloating (P = 03).

➢ ***Conclusions:*** *Blinded reintroduction of fructans and galacto-oligosaccharides was associated with worsening abdominal pain and/or bloating*

Eswaran S, Jencks KJ, Singh P, Rifkin S, Han-Markey T, Chey WD. All FODMAPs Aren't Created Equal: Results of a Randomized Reintroduction Trial in Patients With Irritable Bowel Syndrome. *Clin Gastroenterol Hepatol*. 2025;23(2):351-358.e5.

FODMAP Quantities Administered Each Week of Reintroduction: Moderate for 3 Days, High for 4 Days (Eswaren S, et al)

FODMAP	Moderate dose (day 1-3)	High dose (day 4-7)
Lactose	10 g/ day	20g/day
Excess fructose	10.5 g/day	21 g/day
Polyol (sorbitol)	5 g/day	10g/day
FOS (fructans)	0.75 g/day	1.5 g/day
GOS (galacto-oligosaccharides	2 g/day	4 g/day

Eswaran S, et al *Clin Gastroenterol Hepatol*. 2025;23(2):351-358.e5.

FODMAPS are not equal



Gastroenterology 2024;167:333–342

FUNCTIONAL GI DISEASE

Efficacy and Findings of a Blinded Randomized Reintroduction Phase for the Low FODMAP Diet in Irritable Bowel Syndrome

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BACKGROUND & AIMS: The efficacy of a low fermentable oligo-, di-, monosaccharides and polyols (FODMAP) diet in irritable bowel syndrome (IBS) is well established. After the elimination period, a reintroduction phase aims to identify triggers. We studied the impact of a blinded reintroduction using FODMAP powders to objectively identify triggers and evaluated the effect on symptoms, quality of life, and psychosocial comorbidities. **METHODS:** Responders to a 6-week low FODMAP diet, defined by a drop in IBS symptom severity score (IBS-SSS) compared with baseline, entered a 9-week blinded randomized reintroduction phase with 6 FODMAP powders (fructans, fructose, galacto-oligosaccharides, lactose, mannitol, sorbitol) or control (glucose). A rise in IBS-SSS (≥50 points) defined a FODMAP trigger. Patients completed daily symptom diaries and questionnaires for quality of life and psychosocial comorbidities. **RESULTS:** In 117 recruited patients with IBS, IBS-SSS improved significantly after the elimination period compared with baseline (150 ± 116 vs 301 ± 97, $P < .0001$, 80% responders). Symptom recurrence was triggered in 85% of the FODMAP powders, by an average of 2.5 ± 2 FODMAPs/patient. The most prevalent triggers were fructans (56%) and mannitol (54%), followed by galacto-oligosaccharides, lactose, fructose, sorbitol, and glucose (respectively 35%, 28%, 27%, 23%, and 26%) with a significant increase in abdominal pain at day 1 for sorbitol/mannitol, day 2 for fructans/galacto-oligosaccharides, and day 3 for lactose. **CONCLUSION:** We confirmed the significant benefit of the low FODMAP diet in tertiary-care IBS. A blinded reintroduction revealed a personalized pattern of symptom recurrence, with fructans and mannitol as the most prevalent, and allows the most objective identification of individual FODMAP triggers. Ethical commission University hospital of Leuven reference number: s63629; Clinicaltrials.gov number: NCT04373304.

Keywords: Diet Therapy; FODMAP; Irritable Bowel Syndrome; Reintroduction.

The pathophysiology of irritable bowel syndrome (IBS) is only partially understood and is most likely multifactorial.[1] The classical pathophysiological model considers altered processing of gut-brain signals, psychological distress, motility disturbances, visceral hypersensitivity, and low-grade mucosal immune activation.[2] Several recent observations attribute a major role to the interplay between dietary triggers and gut microbiota in IBS symptom generation. Up to 90% of patients claim that certain foods contribute to their gastrointestinal symptoms.[3–5] In line with this concept, diet therapies are increasingly applied as a valid and effective treatment option.[6,7]

The low fermentable oligosaccharides, disaccharides, monosaccharides, and polyol (FODMAP) diet was specifically developed for the management of IBS. FODMAP is a collective term that includes fructose in excess of glucose; oligosaccharides including fructans/fructo-oligosaccharides, galacto-oligosaccharides (GOS); and sugar polyols (eg, sorbitol and mannitol), and lactose.[8] After ingestion, FODMAPs are poorly absorbed in the small intestine, are osmotically active, and can rapidly be fermented by the intestinal microbiota to induce symptoms through increased water and gas content in the bowel lumen.[9,10] The effect of FODMAPs on other pathophysiological mechanisms, as brain responses, intestinal permeability, and microbiota has recently been studied, but must be explored further.[11–14] Well-controlled studies have established the efficacy of this diet therapy in managing IBS symptoms.[15,16] The low FODMAP diet is complex, requires individualized explanation, follow-up, and careful item reintroduction by an experienced dietician.[16–18] Furthermore, it has been observed that patients following a low FODMAP diet exhibit high levels of long-term adherence and satisfaction.

Abbreviations used in this paper: **FODMAP, fermentable oligo-, di-, monosaccharides and polyols; GOS, galacto-oligosaccharides; IBS, irritable bowel syndrome; IBS-SSS, IBS symptom severity score; PHQ, Patient Health Questionnaire; VSI, Visceral Sensitivity Index; QoL, quality of life.**

Most current article

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- LFD responders (n=94, 77 analyzed)—complete 9-wk. blinded randomized reintroduction phase w/ 6 FODMAP powders (fructans, fructose, galacto-oligosaccharides [GOS], lactose, mannitol, sorbitol) or control (glucose).
- A rise in IBS-SSS (50 points) defined a FODMAP trigger.
- Patients completed daily symptom diaries & questionnaires for quality of life and psychosocial comorbidities
- The most common triggers: fructans (56%) & mannitol (54%), followed by GOS, lactose, fructose, sorbitol, and glucose (respectively 35%, 28%, 27%, 23%, and 26%)

Average of 2.5 FODMAP triggers per patient

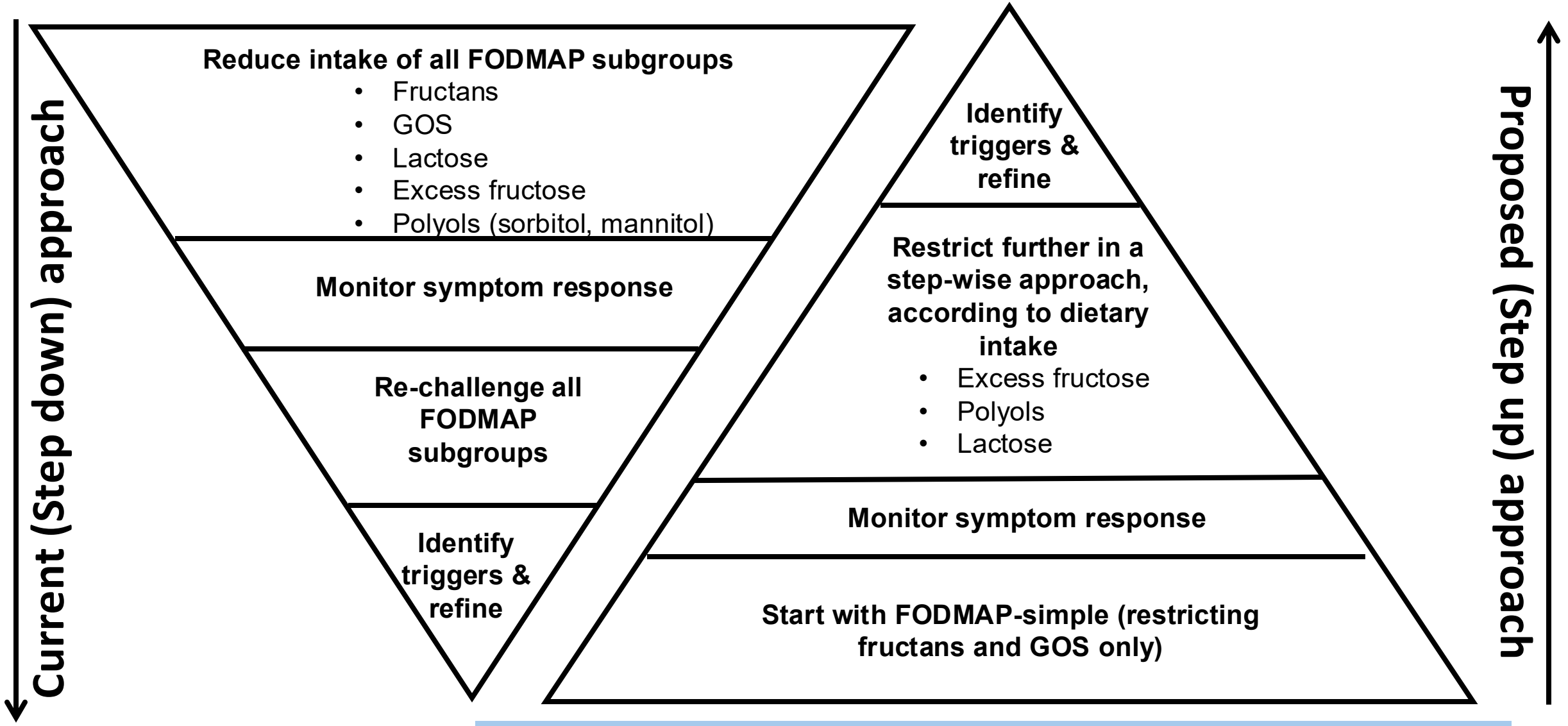
Van den Houte K, Colomier E, Routhiaux K, et al. Efficacy and Findings of a Blinded Randomized Reintroduction Phase for the Low FODMAP Diet in Irritable Bowel Syndrome. *Gastroenterology*. 2024;167(2):333-342.

Daily FODMAP subtypes and quantities tested (Van den Houte K et al.)

FODMAPs	Daily Dose
Fructans (FOS)	20 g/day
Excess fructose	60 g/day
GOS	12 g/day
Lactose	60 g/day
Mannitol	15 g/day
Sorbitol	15 g/day

Van den Houte et al. *Gastroenterology*. 2024;167(2):333-342.

Recent research: FODMAP-SIMPLE APPROACH

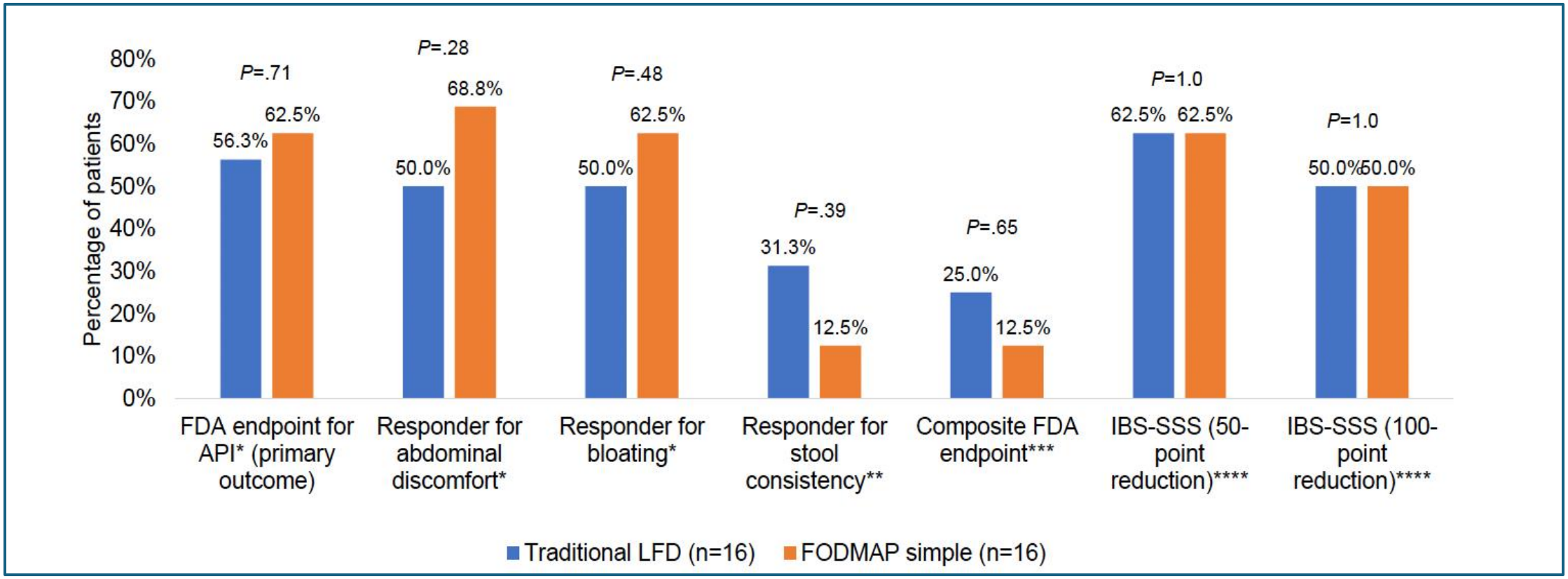


Singh P et al, *CGH* 2024

- ✓ FODMAP-simple improves symptoms in a majority of patients with IBS-D.
- ✓ FODMAP-simple is well tolerated.

A simplified LFD restriction is feasible & effective

- FODMAP-simple improves symptoms in a majority of patients with IBS-D.
- FODMAP-simple is better tolerated than traditional LFD (AE rate 12.5% vs.26.3%)



Singh P et al, *CGH* 2024

FODMAP lowering



Irritable bowel syndrome

OPEN ACCESS

Original research

Diet or medication in primary care patients with IBS: the DOMINO study - a randomised trial supported by the Belgian Health Care Knowledge Centre (KCE Trials Programme) and the Rome Foundation Research Institute

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► Additional supplemental material is published online only. To view, please visit the journal online (http://dx.doi.org/10.1136/gutjnl-2021-325821).

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ABSTRACT

Background In Europe, IBS is commonly treated with musculotropic spasmolytics (eg, otilonium bromide, OB). In tertiary care, a low fermentable oligosaccharides, disaccharides, monosaccharides and polyols (FODMAP) diet provides significant improvement. Yet, dietary treatment remains to be explored in primary care. We evaluated the effect of a smartphone FODMAP-lowering diet application versus OB on symptoms in primary care IBS.

Methods IBS patients, recruited by primary care physicians, were randomised to 8 weeks of OB (40 mg three times a day) or diet and followed for 24 weeks. We compared IBS Symptom Severity Score and the proportion of responders (improvement ≥50 points) in all patients and the subgroup fulfilling Rome IV criteria (Rome+). We also evaluated treatment efficacy, quality of life, anxiety, depression, somatic symptom severity (Patient Health Questionnaire (PHQ15, PHQ9)) and treatment adherence and analysed predictors of response.

Results 459 primary care IBS patients (41±15 years, 76% female, 70% Rome+) were randomised. The responder rate after 8 weeks was significantly higher with diet compared with OB (71% (155/218) vs 61% (133/217), p=0.03) and more pronounced in Rome+ (77% (118/153) vs 62% (98/158), p=0.004). Patients allocated to diet (199/212) were 94% adherent compared with 73% with OB (148/202) (p<0.001). The significantly higher response rate with diet was already observed after 4 weeks (62% (132/213) vs 51% (110/215), p=0.02) and a high symptom response persisted during follow-up. Predictors of response were female gender (OR=2.08, p=0.04) for diet and PHQ15 (OR=1.10, p=0.02) for OB.

Conclusion In primary care IBS patients, a FODMAP-lowering diet application was superior to a spasmolytic agent in improving IBS symptoms. A FODMAP-lowering diet should be considered the first-line treatment for IBS in primary care.

Significance of this study

What is already known on this subject?
⇒ The low fermentable oligosaccharides, disaccharides, monosaccharides and polyols (FODMAP) diet is efficacious for the treatment of IBS, as shown in tertiary care patients.
⇒ The complexity of the diet precludes its application in primary care IBS patients.
⇒ In primary care, pharmacological agents such as spasmolytics are most frequently used as first-line therapy.

What are the new findings?
⇒ In a controlled trial enrolling 470 newly diagnosed primary care IBS patients, a self-management FODMAP-lowering smartphone application was superior to standard medical therapy in alleviating IBS symptoms.
⇒ The superiority of the diet app was already present at 4 weeks and persisted at 8 and 16 weeks.
⇒ The diet app had a high acceptability and adherence rate.

How might it impact on clinical practice in the foreseeable future?
⇒ In primary care IBS patients, a self-management FODMAP-lowering smartphone application is the most effective initial therapeutic approach.

Trial registration number NCT04270487.

INTRODUCTION

IBS, defined by the Rome IV criteria as recurrent abdominal pain associated with a change in stool

- **Design: RCT n=459 IBS (70% met Rome IV)** comparing **8 weeks of a FODMAP-lowering diet app** versus **otilonium bromide (OB) 40 mg (anti-spasmotic) 3 x daily**, with **24-week follow-up**.
- **Primary outcome:** At 8 weeks, the diet achieved a higher responder rate (≥50-point improvement in IBS Symptom Severity Score) than OB (**71% vs 61%; p=0.03.**
- The diet showed earlier symptom improvement (by 4 weeks) and significantly better adherence than OB (**94% vs 73%; p<0.001**).
- **Conclusion:** A FODMAP-lowering diet was superior to anti-spasmotic for improving IBS symptoms.

Domino app

- A mobile application w/ instructions (French and Dutch).
- The design of the mobile application was based on the self-determination theory to stimulate a change in dietary behavior.
- No dietitian was involved in this process.
- The diet app is not a strict low FODMAP diet, but rather designed as a *FODMAP-lowering diet* in combination with dietary recommendations from the NICE/BDA guidelines for IBS.
- Small amount of FODMAPs were allowed and only some were advised to be avoided.
- 105 recipes for breakfast, lunch, snacks and dinner were provided. Additionally, the application included interactive tools allowing patients to create a weekly menu and shopping list.

DDW 2026: Domino app/FODMAP lowering

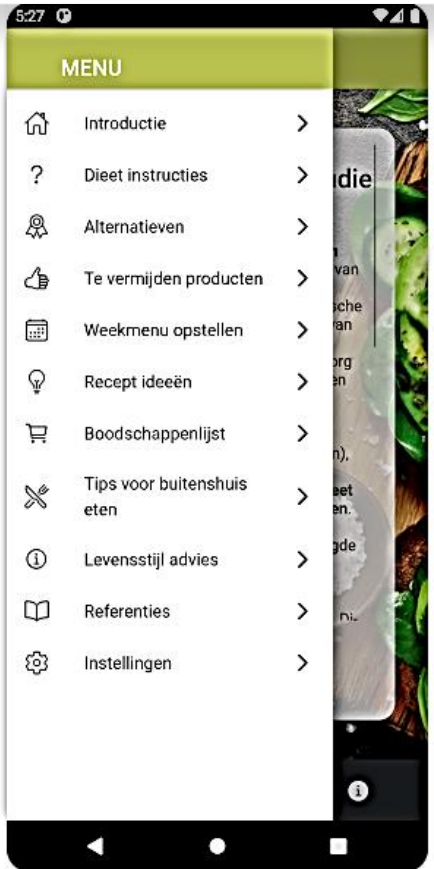
- 65 patients with IBS (77% female)
- Utilized Domino app LFD.
- Reduced IBS-SSS 270 -> 150 with a 78% responder rate of ≥50 points improvement.
- Sig reduction in abdominal pain duration + severity, bloating, flatulence and daily symptom impact
- Stool form showed improvement, less urgency
- FODMAP intake decreased from **16 g (9-25)-> 11 g (6-23)**
- QOL and psychosocial improved
- 18% “met” criteria for ARFID prior to study, decreased to 14% post diet.
- 5 patients developed new ARFID-like behaviors

DDW 2026 Routhiaux K
et al, #338 A FODMAP Gentle dietary approach: effects on ARFID and GI symptoms with IBS.

FODMAP-lowering

- The app created by Leuven/KCE Belgium group is used in diet trials.
- Purpose to support a simplified FODMAP reducing diet.
- Incorporates NICE guidelines too











Domino app results

	Baseline	Diet	p value
IBS symptoms			
Duration abdominal pain	39 (30-51)	14 (7-26)	< 0.0001
Severity abdominal pain	34 (23-44)	11 (6-25)	< 0.0001
Bloating	41 (25-53)	12 (7-24)	< 0.0001
Flatulence	40 (24-55)	14 (8-24)	< 0.0001
Daily symptom impact	33 (21-44)	11 (6-30)	< 0.0001
Stool diary			
Stool frequency	24 (16-32)	20 (16-28)	0.12
Stool consistency			
Hard stools	2 (0-5)	1 (0-5)	0.73
Normal stools	10 (6-14)	12 (9-16)	< 0.01
Soft stools	4 (1-7)	1 (0-2)	< 0.01
Stool urgency	2 (1-5)	1 (0-2)	< 0.01

Table 1. Comparison between IBS symptoms and stool pattern at baseline vs diet. IBS symptoms are scored on a 0-100 mm Likert scale. Stool frequency is reported as times per two weeks, and stool consistency is reported as days per Bristol Stool Scale (BSS) types over two weeks, categorized as hard (type 1 and 2), normal (type 3 ,4 and 5) or soft stools (type 6 and 7).

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et al, #338 A FODMAP Gentle dietary approach: effects on ARFID and GI symptoms with IBS.

Case 2 FODMAP simple: how I approach it

- 42 yo female, runner (training for marathon) with IBS-C, most problematic symptom is gas and bloating
- No overt eating disorder, but food choice is becoming more and more confusing and frustrating to patient
- No alarms signs, weight stable, labs normal (thyroid panel, B12, ferritin)
- Constipation better treated with linzess, on it now for 1 month

Case 2 Typical meal recall and lifestyle patterns

- Breakfast: **whole grain wheat** toast with peanut butter, **banana** and smoothie (mango, yogurt, honey)
- Lunch: **pizza or sandwich** and salad (romaine, **onion**, tomatoes, carrots, chickpeas and cheese with **ranch dressing**
- Dinner: Protein (fish, chicken, steak), baked potato, sauteed veggies (**zucchini**, carrots, eggplant) OR salad
- Snacks: **Fiber one** or **RX bars, Greek yogurt parfait (granola varies)**
- Dessert: **Watermelon**

Modify oligosaccharides but keep diet similar!

- Breakfast: **whole grain wheat** toast with peanut butter, **banana** and smoothie (mango, yogurt, honey)
- Lunch: **pizza** and salad (romaine, **onion**, tomatoes, carrots, chickpeas and cheese with **ranch dressing**
- Dinner: Protein (fish, chicken, steak), baked potato, sauteed veggies (**zucchini**, carrots, eggplant) OR salad
- Snack: **1-2 Fiber one bars** or **RX bars**
- Dessert: **Watermelon**

Higher oligosaccharides



- **Breakfast:** sourdough wheat bread, just ripe/green banana
- **Lunch:** Pizza on Schar crust, sensitive formula marinara, cheese, salad with no onion, and suitable dressing
- **Dinner:** all good, sub in summer squash for zucchini
- **Snacks:** 88 Acres dark chocolate sea salt + oat bars, similar cals/pro/fiber, Verify granola for chicory root or other fructans
- Dessert: apple + peanut butter, orange, fruit smoothie made with lower oligosaccharide-containing fruit

To lower oligosaccharides

RX BAR



Nutrition Facts

Serving size
1 bar (52g)

Calories per serving **180**

Amount/serving	% Daily Value*	Amount/serving	% Daily Value*
Total Fat 6g	**8%**	**Total Carbohydrate** 24g	**9%**
Saturated Fat 1g	**5%**	Dietary Fiber 6g	**21%**
Trans Fat 0g		Total Sugars 15g	
Cholesterol 0mg	**0%**	Incl. 0g Added Sugars	**0%**
Sodium 150mg	**7%**	**Protein** 12g	**21%**

Vitamin D 0% • Calcium 4% • Iron 6% • Potassium 8%

Dates, Egg Whites, Almonds, Cashews, Blueberries, Natural Flavors.
CONTAINS EGGS, ALMONDS AND CASHEWS.
May contain peanuts and other tree nuts.

- ✓ Great example of portion amounts in a product and FODMAP “status”.
- ✓ I would allow on FODMAP simple!

Fiber one bars

Ingredients

Chicory Root Extract, Whole Grain Oats, Corn Syrup, Semisweet Chocolate Chips (sugar, chocolate liquor, cocoa butter, soy lecithin, natural flavor), Rice Flour, Sugar, Vegetable Glycerin, Canola and/or Sunflower Oil, Palm and/or Palm Kernel Oil, Soy Lecithin, Maltodextrin, Tricalcium Phosphate, Cocoa Powder, Salt, Sugarcane Fiber, Cocoa Processed With Alkali, Fructose, Barley Malt Extract, Baking Soda, Cellulose Gum, Milk Powder, Natural Flavor. Vitamin E (mixed tocopherols) Added to Retain Freshness.

Case 2 FODMAP simple approach

- ✓Calorie/protein need to be met for training needs.
- ✓Reduction of oligosaccharides only, the most common trigger in IBS based on 2 reintroduction studies and are the most fermentative of all FODMAP subtypes
- ✓Consider trial of FODMAP simple x 2 weeks to assess benefit
- ✓Focus on simple substitutions!
- ✓Education around what foods to include/ substitutions (shallot/garlic infused oil, sensitive formula marinara, sourdough wheat bread/crackers)
- ✓Don’t forget constipation/IBS management tools too!
  - 2 green kiwifruit
  - Toileting stool (e.g. squatty potty)
  - Psyllium husk
  - Digestive enzymes (particularly when dining out/traveling)

FODMAP “simple”

THE “FODMAP SIMPLE” GROCERY GUIDE

Always read ingredient labels as manufacturers often change ingredients

PRODUCE

Alfalfa sprouts
Apple
Artichoke (canned)
Arugula
Asparagus
Avocado
Bamboo shoots
Banana (unripe/green)
Basil
Bay leaf
Bean sprouts
Beets (canned)
Bell peppers
Blackberries
Blueberries
Bok choy
Broccoli florets
Cabbage
Carrot
Cassava
Cauliflower
Celery
Celeriac
Cherries, fresh
Chili peppers
Chives
Collard greens
Corn
Coconut
Cranberries, fresh
Cucumber
Currants
Dragonfruit
Eggplant
Endive
Fennel bulb
Fig, fresh
Grapefruit
Grapes
Green beans
Guava
Kale
Kiwifruit
Kohlrabi
Leek (green only)
Lemon
Lettuce
Lime
Mango
Mustard greens
Mushrooms
Nectarine
Olives
Orange
Oregano
Papaya
Passionfruit
Parsley
Parsnip
Peach (clingstone)
Pear
Pineapple
Potato (white)
Radishes
Raspberries
Rhubarb
Rosemary
Rutabaga
Scallion (greens)
Snow peas
Spinach
Strawberries
Sugar snap peas
Swiss chard
Taro
Tarragon
Tomatillo
Tomatoes
Turnip
Squash (pattypan, yellow, spaghetti)
Water chestnuts

PROTEIN, NUTS + SEEDS

Beef, poultry, lamb, pork
Eggs
Fish/shellfish
Tempeh
Tofu, firm
Beans: fava, edamame
Nuts: Almond, Brazil, chestnut, peanut, pecan, macadamia, tigernut, walnuts
Seeds: chia, caraway, hemp, poppy, pumpkin, sesame

FATS

Olive oil + other vegetable oils
Garlic or shallot infused oil
Butter

DAIRY

Cow's milk*
Cream cheese*
Cheddar, Mozzarella, Swiss (without added onion/garlic)
Plain cottage cheese*
Ricotta cheese*
Plain yogurt* (without chicory root extract or inulin)
Sour cream*
Plain kefir* (without chicory root extract or inulin)
**Use lactose free products if experiencing lactose intolerance*

SNACKS

Plain torilla chips
GF pretzels (Snyder’s, Quinn)
Snack bars: check Fody, Go Macro + 88 Acres
Popcorn
Sourdough wheat crackers
Almond nut thin crackers (not smokehouse)
Justin’s mini dark chocolate peanut butte cups
Tate’s: GF chocolate chip cookies, GF ginger zinger, GF lemon cookies

BREAD/CEREALS

Wheat/spelt slow leavened sourdough
Schär GF: multigrain ciabatta, deli style seeded sourdough, hot dog bun
The Grain Escape GF: plain bagels, GF hamburger buns
Millet bread
Kellogg’s Crispex® + Rice Krispies®
Quinoa or Rice flakes
Oats

GRAINS/PASTA/PIZZA CRUST + BAKING SUPPLIES

Flour & grains: buckwheat, oat, rice, cassava, sorghum, teff, millet, quinoa, corn, oat, oat bran, rice bran
Schär GF: fusill, penne, spaghetti + pizza crust
GF pasta: quinoa/corn/rice
Rice (basmati, black, brown, jasmine, red)
Taco shells (corn)
Baking soda/powder
vanilla, almond extract
Dark chocolate chips
Sugar: brown, palm, white, powdered
Honey
Maple syrup
Stevia
GF flour blend: Bob’s Red Mill 1 to 1 baking flour, King Arthur’s GF Measure for Measure flour

CONDIMENTS

Mayonnaise
Mustard without onion/garlic
Soy sauce
Ketchup without onion/garlic (Fody brand)
Salad dressing without onion/garlic (Fody brand)
Jam: strawberrry, mixed berry, marmalade

GF=gluten free

DISCLAIMER: The information provided is not intended to provide medical advice or to diagnose medical diseases. It is strictly for informational purpose. Before undertaking any course of treatment or diet change seek the advice of your physician or health care provider. This handout does not replace their medical advice.

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Diet changes for IBS

- The goal of diet change in IBS is to help manage symptoms to allow for a fuller life. If diet change is too stressful or restrictive, this can contribute to risk of disordered eating, weight loss and/or lower food related quality of life.
- Stress with diet change=counterproductive given gut-brain dysregulation seen in IBS.
- Finding the right diet is a bit of art + science

What is in your toolbox?

- Medications/ supplements (e.g. peppermint oil, certain digestive enyzmes)
- Lifestyle change (sleep, stress management)
- Gentle exercise (yoga, Tai chi)
- Behavioral therapies

NUTRITION REVIEWS IN GASTROENTEROLOGY, SERIES #27

Neha D. Shah, MPH, RD, CNSC, CHES, Series Editor
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Gentler Solutions: Adapting the Low FODMAP Elimination Diet for Irritable Bowel Syndrome for Symptom Relief



Kate Scarlata

Irritable Bowel Syndrome (IBS) is a common gastrointestinal (GI) disorder marked by abdominal pain, bloating, and altered bowel habits. Dietary changes are key to managing symptoms, with the low-FODMAP diet being the most evidence-based approach. Its complexity and restrictiveness, however, can make adherence difficult without guidance from a registered dietitian (RD). Given rising concerns around food-related anxiety and disordered eating in IBS, a shift toward more flexible, individualized dietary strategies is emerging. More research is needed to confirm the long-term outcomes of these less restrictive approaches. This review aims to present the current state of scientific evidence on the use of the low-FODMAP diet for managing IBS, including its three-phase structure and possible application of less restrictive FODMAP diet versions. It also explores the key role of GI expert RDs in the practical implementation of diet therapy, including patient assessment for suitability.

Defining IBS: Symptoms, Prevalence, and Impact

Irritable bowel syndrome (IBS) is a multifactorial and commonly encountered GI disorder, classified as a disorder of gut-brain interaction (DGBI). The Rome IV criteria are used to diagnose IBS and includes presence of recurrent abdominal pain occurring at least once weekly in conjunction with disturbances in bowel habits, including changes in stool frequency and form for the past three months, in the absence of identifiable structural or known biomarkers. IBS occurs 2.5 times more in females than males and symptom onset must have occurred at least 6 months prior to diagnosis.[1,2]

Prevalence rates vary by country; a recent United States based survey study found that 6.1% met Rome IV IBS criteria,[3] while higher rates have been found in low- and middle-income countries, ranging from 6-44%.[4] The etiology of IBS has yet to be fully characterized but believed to involve GI motility changes, post-infectious reactivity,

Kate Scarlata, MPH, RDN, For a Digestive

Key Points:

- ✓ **Low FODMAP elimination= most evidence-based dietary treatment for IBS**.
- ✓ **Less restriction may be enough for many people, e.g. FODMAP simple** or modifying quantities of high FODMAP foods (FODMAP gentle)
- ✓ Before a full low-FODMAP diet, address basic dietary factors such as **large meals, caffeine, alcohol, and irregular eating patterns**.
- ✓ The LFD **elimination phase should be short (2–6 weeks)** and followed by systematic reintroduction to identify individual triggers.
- ✓ The goal is a **personalized, sustainable diet**, not lifelong avoidance of all FODMAPs.
- ✓ **Dietitian guidance** is recommended to maintain nutritional adequacy, reduce/identify food fear, and improve long-term success.

Maladaptive Eating Occurs in GI Pts

When diet changes put a patient at disordered eating and/or nutrient deficiency risk:

- ✓ Weight loss of 5% or more over 1 month
- ✓ Inadequate nutrient intake
- ✓ Elimination of food groups (not medically indicated) or all enjoyed foods
- ✓ Social interactions, mood, or activities of daily living negatively impacted by diet
- ✓ Negative effects of diet on mental and social health exceeds benefit of symptom management



- **23.4%** of patients with GI disease (n=691) displayed disordered eating patterns
- **2/3 IBS pts attribute foods as symptom trigger**
- **41-52%** of patients with eating disorders meet criteria have IBS.

What is your relationship with food?

Satherley et al, Appetite, 2015; 84:240-50, Sato Y, Fukudo S. Clin J Gastroenterol. 2015;8(5):255-63. Scarlata K, et al Clin Gastroenterol Hepatol. 2020 Mar;18(3):543-545

"How has fear of symptoms affected your relationship with food?"

"How do you determine whether a particular food is causing your symptoms?"

"How does concern about symptoms affect how much you eat?"

Growing Awareness of ED/Disordered Eating in GI

IBS

ADVANCES IN IBS

Current Developments in the Treatment of Irritable Bowel Syndrome

Section Editor: William D. Chey, MD

Irritable Bowel Syndrome, Disordered Eating, and Eating Disorders



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G&H What is the difference between disordered eating and an eating disorder?

KH Disordered eating occurs when individuals regularly engage in eating patterns that do not follow the cultural norm—for example, skipping meals, limiting foods, or following a restrictive diet (eg, Paleo or ketogenic). Disordered eating is often seen in irritable bowel syndrome (IBS) as a way to avoid or prevent symptoms. For example, patients may skip meals at work or school to avoid bloating, abdominal pain, or diarrhea. The difference between disordered eating and an eating disorder is the severity of behaviors, motivation driving the behavior (eg, body dysmorphia), and the negative medical or psychosocial impairment. Disordered eating behaviors can be self-driven dietary restrictions to control their symptoms, and clinicians will often prescribe restrictive diets as therapy for their patients' conditions. Although dietary restriction is generally appropriate and not associated with harmful consequences, the restrictive practices that are implemented (either by the patient or through prescribed therapy) can progress and place individuals at risk for development of disordered eating patterns. These patterns can lead to pathologies such as weight loss, inadequate nutrition, and significant psychosocial impairment.

G&H How prevalent are disordered eating habits among patients with IBS compared with the general population?

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NARRATIVE REVIEWS

Charles J. Kahi, Section Editor

A Call to Action: Unraveling the Nuance of Adapted Eating Behaviors in Individuals With Gastrointestinal Conditions

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The primary aim of this expert narrative review is to unravel the complexities of feeding and eating disorders in the gastroenterology practice setting. We aim to critically assess current assessment screening tools for eating and feeding disorders to gain a comprehensive understanding of how these tools may be misconstrued in the context of gastrointestinal conditions. Additionally, our objective is to highlight the potential for over-pathologizing and under-pathologizing eating behavior in this patient population. Further, we address the potential risk factors that gastroenterology clinicians should be aware of when assessing for disordered eating risk reduction. We hope to elucidate the "gray area" related to eating behaviors in patients with known physiological food intolerance such as FODMAP-related immune activation in irritable bowel syndrome and gluten-related reactions in celiac disease in the gut and beyond, that prompt behaviors that are deemed maladaptive in healthy individuals but may be at times adaptive responses in gastrointestinal conditions.

Keywords: Avoidant Restrictive Food Intake Disorder; Disordered Eating; FODMAP; Food-related Symptoms; Nutrition.

Feeding and eating disorders (EDs) are mental health conditions that impact both physical and psychosocial well-being. Disorders in this category include anorexia nervosa, bulimia nervosa, binge eating disorder, avoidant restrictive food intake disorder (ARFID), pica, and rumination disorder[1] (See Table 1 for details describing these conditions).

In contrast, the term disordered eating (DE) describes irregular eating behaviors, such as frequent dieting, skipping meals, rigid rituals around food, or eating from a narrow range of foods, that cause some impairment but do not meet diagnostic criteria for an ED.[2] DE may be driven by body image overvaluation, dissatisfaction, or dysmorphia or by aversive emotional and physiological reactions to food itself or the immediate aftermath of eating. In this manuscript, we will broadly refer to EDs and DE as "body-image focused" or not to distinguish these 2 clusters. Although DE may not meet the criteria for the clinical diagnosis of an ED, identification of DE is important both because DE itself can be psychosocially and/or medically impairing and increases risk for developing an ED.[3,4]

The primary aim of this expert narrative review is to provide recommendations for gastroenterology (GI) clinicians and researchers on how to properly identify and discuss EDs and DE in their GI patients. Although this expert narrative review does not follow the structured protocols of systematic reviews or traditional narrative reviews, it drew upon the authors' comprehensive knowledge of key studies, seminal works, and recent advancements. This approach allowed for a thorough and insightful discussion, drawing on the breadth and depth of our professional knowledge.

This paper aims to shed light on the potential for over- and under-pathologizing eating behavior in this patient population, provide potential risk factors GI clinicians can apply for DE risk reduction, and critically assess current screening tools for ED and DE with a focus on how these tools may be misinterpreted in the context of GI conditions. We hope to elucidate the "gray area" related to eating behaviors in patients with known physiological food intolerance such as fermentable oligosaccharides, disaccharides, monosaccharides, and polyols (FODMAP)-related immune activation in irritable bowel syndrome (IBS), gluten-related reactions in celiac disease (CeD) in the gut and beyond, that prompt behaviors that are deemed maladaptive in healthy individuals but may be at times adaptive responses in GI conditions.

Gastroenterologist as Dietitian

Physicians receive minimal nutrition education throughout their medical training. In 1985, the National

Abbreviations used in this paper: ARFID, avoidant restrictive food intake disorder; CeD, celiac disease; DE, disordered eating; ED, eating disorder; EDE-Q, Eating Disorder Examination Questionnaire; FODMAP, fermentable oligosaccharides, disaccharides, monosaccharides, and polyols; GI, gastroenterology; IBS, irritable bowel syndrome; NIAS, Nine-Item ARFID Screen; RD, registered dietician; SWFL, Satisfaction With Food-related Life.

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Prevalence and Characteristics of Avoidant/Restrictive Food Intake Disorder in Adult Neurogastroenterology Patients

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BACKGROUND & AIMS: **Avoidant/restrictive food intake disorder (ARFID) is a feeding and eating disorder that is characterized by avoidant or restrictive eating not primarily motivated by body shape or weight concerns. We aimed to determine the frequency of ARFID symptoms and study its characteristics and associated gastrointestinal symptoms.**

METHODS: **We conducted a retrospective review of charts from 410 consecutive referrals (ages, 18–90 y; 73.0% female) to a tertiary care center for neurogastroenterology examination, from January through December 2016. Blinded coders (n = 4) applied Diagnostic and Statistical Manual of Mental Disorders, 5th edition, criteria for ARFID, with substantial diagnostic agreement ($\kappa = 0.66$).**

RESULTS: **Twenty-six cases (6.3%) met the full criteria for ARFID and 71 cases (17.3%) had clinically significant avoidant or restrictive eating behaviors with insufficient information for a definitive diagnosis of ARFID. Of patients with ARFID symptoms (n = 97), 90 patients (92.8%) cited fear of gastrointestinal symptoms as motivation for their avoidant or restrictive eating. A series of binary logistic regressions showed that the likelihood of having ARFID symptoms increased significantly in patients with eating- or weight-related complaints (odds ratio [OR], 5.09; 95% CI, 2.54–10.21); with dyspepsia, nausea, or vomiting (OR, 3.59; 95% CI, 2.04–6.32); with abdominal pain (OR, 4.72; 95% CI, 1.87–11.81); or with lower GI diagnoses (OR, 2.40; 95% CI, 1.34-4.32).**

CONCLUSIONS: **In a retrospective study of patients undergoing neurogastroenterology examinations, we found ARFID symptoms to be related most frequently to fear of gastrointestinal symptoms. Patients undergoing neurogastroenterology or motility examinations should be evaluated for symptoms of ARFID, particularly when providers consider dietary interventions.**

Keywords: Nutrition; Functional Gastrointestinal Disorder; Disorders of Gut–Brain Interaction; Psychogastroenterology.

There has been growing interest in[1–3] and debate about[4] avoidant/restrictive food intake disorder (ARFID) among patients with gastrointestinal disorders, particularly disorders of gut–brain interaction (DGBI; formerly *functional gastrointestinal disorders*). ARFID and DGBI symptoms overlap, making it difficult to determine if an ARFID diagnosis is warranted in addition to (or instead of) a DGBI. Research is needed to determine how commonly ARFID occurs among adults with DGBI symptoms and how ARFID and DGBI symptoms relate.

ARFID is a relatively new diagnosis added to the "Feeding and Eating Disorders" section of the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5).[5] ARFID is characterized by feeding and eating disturbance that results in failure to meet nutritional needs leading to low weight, nutritional deficiency, dependence on supplemental feedings, and/or psychosocial impairment.[5] With ARFID, avoidant and restrictive eating is not primarily motivated by concerns about body shape/weight, which typify other eating disorders (eg, anorexia nervosa, bulimia nervosa). Instead, individuals with ARFID have 1, 2, or 3 prototypic motivations for avoidant and restrictive eating (Table 1).[5,6]

[b]Authors share co-senior authorship.

Abbreviations used in this paper: ARFID, avoidant/restrictive food intake disorder; BMI, body mass index; DGBI, disorder of gut–brain interaction; DSM-5, Diagnostic and Statistical Manual of Mental Disorders, 5th edition; OR, odds ratio.

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REVIEW

WILEY

Narrative review: Risk of eating disorders and nutritional deficiencies with dietary therapies for irritable bowel syndrome

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Listen to the podcast here.

Abstract

Background and Aims: Dietary treatments are growing in popularity as interventions for chronic digestive conditions. Patients with irritable bowel syndrome (IBS) often change their eating behaviors to mitigate symptoms. This can occur under the direction of their physician, a dietitian, or be self-directed. Poorly implemented and monitored diet treatments occur frequently with considerable risks for negative consequences. We aim to review the literature related to dietary treatments and risks associated with nutritional deficiencies and disordered eating.

Methods: Searches were conducted from June to December 2020 on PubMed, MEDLINE, EMBASE, DARE and the Cochrane Database of Systematic Reviews using relevant keywords based on the Patient, Intervention, Comparator and Outcome (PICO) format. Studies included both adult and pediatric populations. Results are synthesized into a narrative review.

Results: While dietary approaches are efficacious in many research studies, their translation to clinical practice has been less clear. Patients with IBS are at risk for nutritional deficiencies, disordered eating, increased anxiety, and decreases in quality of life in both adult and pediatric groups.

Conclusions: Physicians prescribing dietary treatment for IBS should be aware of nutritional and psychological risks and implement mitigation measures. These include using a combination of brief, validated questionnaires and clinical history, and collaboration with registered dietitians and/or psychologists. Recommendations for clinical decisions are provided.

KEYWORDS
diet, feeding and eating disorders, irritable bowel syndrome, quality of life

1 | INTRODUCTION

Elimination diets are growing in popularity and are increasingly utilized for gastrointestinal conditions including celiac disease,[1] eosinophilic esophagitis (EoE),[2] inflammatory bowel disease (IBD),[3] and more recently, for disorders of gut-brain interaction (DGBIs), formerly known as functional gastrointestinal disorders.[4] A large number of patients with DGBIs, including irritable bowel syndrome (IBS), change eating habits based on specific beliefs about how food impacts symptoms, especially during episodes of heightened symptoms.[5–7] Upward of 60% of patients with gastrointestinal disorders eat a restrictive diet.[8] The literature on the benefits of elimination diet therapies is growing.[9] However, the way diets are implemented in clinical trials is not always how they are implemented

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The Prevalence and Burden of Avoidant/Restrictive Food Intake Disorder (ARFID) Symptoms in Adults with Disorders of Gut-Brain Interaction: A Population-Based Study

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Abstract

Background & Aims: Individuals with disorders of gut-brain interaction (DGBI) may experience avoidant/restrictive food intake disorder (ARFID) symptoms. However, extant findings have been limited to specialist neurogastroenterology clinics. We assessed the association between DGBI and ARFID within the adult general population.

Methods: A population-based Internet survey with pre-defined demographic quotas was conducted across the UK and USA in 2023. The survey included the Rome IV diagnostic questionnaire for DGBI, the Nine-Item ARFID Screen (NIAS), and questions regarding demographics, body mass index, non-gastrointestinal somatic symptoms, anxiety and depression, quality of life and healthcare use.

Results: 4002 adults (median age 46 [range 18–91] years, 50% female) completed the survey, of whom 1704 (42.6%) had symptoms compatible with at least one DGBI.

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Contributions: IA and OSP conceived the study; all authors contributed to the study design and its conduct. All authors analyzed the data and wrote the manuscript.

Transparency statement: Data available on reasonable request

Ethical approval: Before data collection started, the study was reviewed by the Institutional Review Board (IRB) at the University of North Carolina (Chapel Hill, NC, USA), and the University of Sheffield (Sheffield, UK). It was deemed IRB exempt because all study participants were anonymous to the investigators. All authors had access to the study data and reviewed and approved the final manuscript.

Conflict on interests: RF, GB, OSP and IA declare no relevant conflict of interests. HBM receives royalties from Oxford University Press for their book *Cognitive Behavioral Therapy for Rumination Syndrome*. HBM receives royalties from Cambridge University Press for her forthcoming book on functional bowel disorders.

Screen for disordered eating and ED!

Conversation starters for eating behaviors in the clinic visit[a]	
SCOFF Questionnaire	**Additional questions to facilitate discussion of eating behaviors in a clinic visit**
(1) Do you make yourself sick because you feel uncomfortably full? (2) Do you worry you have lost control over how much you eat? (3) Have you recently lost more than 1 stone (14 lb) during a 3-mo period? (4) Do you believe yourself to be fat when others say you are too thin? (5) Would you say that food dominates your life? Scoring: each positive response to these questions yields a score of 1; a score of 2 or greater indicates an increased risk of ED behavior	(1) Does eating make you anxious? (2) How has your appetite been? (3) Do you ever skip meals as a way to avoid symptoms? (4) Do you feel full after a couple bites? (5) What time in the day do you typically have your first meal? (6) Do you eat a variety of foods or are you limited to certain things? (7) What kinds of beverages are you consuming throughout the day? (8) Do you spend much of your day thinking about food-related decision and meal planning? (9) Have you ever been diagnosed with an eating disorder? (10) I am afraid to eat outside my home (11) I enjoy going out for meals as much as I did before my diagnosis (12) I will only eat food that I have prepared myself (13) I have a lack of variety in my diet
[a]Keep in mind that adjustments in conversation starters may need to be made based on patient's eating behaviors and beliefs.	

Figure 4. The multidisciplanary team approach for disordered eating in patients with gastrointestinal (GI) conditions.

Eating Disorder	Symptoms
Anorexia Nervosa (AN)	Restriction of energy intake relative to requirements leading to a significant low body weight in the context of age, sex, developmental trajectory, and physical health. An intense fear of gaining weight or becoming fat or persistent behavior that interferes with weight gain is a key presentation.
Bulimia Nervosa (BN)	Eating, within any 2-hour period, an amount of food that is definitively larger than what most individuals would eat in a similar period under similar circumstances AND feeling that one cannot stop eating or control what or how much one is eating. May use self-induced vomiting; misuse of laxatives, diuretics, or other medications; fasting or excessive exercise.
Binge Eating Disorder (BED)	Recurrent discrete periods of time (e.g., 2 hours) where the person eats a larger amount of food than most people would eat AND a feeling that one cannot stop eating or control what or how much. Can include eating much more rapidly than normal, eating until feeling uncomfortably full, eating large amounts of food when not feeling physically hungry, eating alone because of embarrassment, feeling disgusted with oneself, depressed, or very guilty after overeating.
Avoidant Restrictive Food Intake Disorder (ARFID)	Changes in eating behaviors may include being a "picky" eater or limiting one's diet to only a certain set of foods, not being interested in eating, or avoiding eating or certain foods due to fear of aversive consequences (e.g., digestive upset). This is associated with nutritional deficiencies, weight loss, use of dietary/caloric supplements, and marked psychosocial impairment.

Some conversation starters

Introductory Statement "I ask all of my patients with ongoing GI symptoms a few questions about their relationship with food and their body, because this can affect their symptoms."

Questions	Flags for Disordered Eating
Do you have a history of an eating disorder or disordered eating	History with/without treatment with other disordered eating flags History of disordered eating behaviors in the past 12 months
Can you describe how bloating feels to you?	Confusing normal postprandial fullness with visible distention Inflexibility around increasing food variety/intake for fear of bloating without distention
Do you follow any food rules?	Unwillingness to challenge food rules Presence of continued, voluntary dietary restriction without improvement in symptoms
Do you avoid eating certain foods and for what purpose?	Body image Weight control Morality ("good/bad, "healthy/junk", "clean") Palatability/texture
How do you feel about your body currently?	Dissatisfaction with body/body parts Frequent use of scales or mirrors Body image impacts nutritional intake

GI & Hepatology News (AGA newspaper) July 2026. Eating disorders in the gastroenterology clinic
Overlapping GI symptoms can obscure eating disorders, making early recognition essential.
BY BETH ROSEN MS, RD, CDN, CSDH , JORDAN SHAPIRO, MD, MS

Summary

- ✓ Patients are interested in nutrition as a therapeutic intervention for IBS
- ✓ Eating triggers sx in IBS patients
- ✓ Diet therapy for IBS is still in infancy
- ✓ LFD (3 phase) helped “set the stage” to our understanding of diet in IBS + has best efficacy data to date
- ✓ GI patients are higher risk for disordered eating: diet therapy should not be considered “without risk”
  - ✓ Digestive enzymes, Behavioral Tx
- ✓ Work with GI RD when possible: find experts AGA (myaga.gastro.org—find health care professional, select dietitian)

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The Gut Health Podcast

