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Psychological Considerations in the Dietary Management of Patients With DGBI

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In this article, an expert team of 2 gastro-psychologists, a dietician, and an academic gastroenterologist provides insights into the psychological and social implications of evidence-based and “popular” dietary interventions in disorders of gut-brain interaction (DGBI). We focus on practical approaches for evaluating a patient’s appropriateness for a dietary intervention, considering the nutritional, psychological, behavioral, and social context in which a patient may find themselves managing their DGBI with dietary intervention. We also discuss how to identify risk factors for and symptoms of avoidant/restrictive food intake disorder, a growing concern in the DGBI population.

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INTRODUCTION

Dietary interventions for the management of symptoms associated with disorders of gut-brain interaction (DGBI) are increasingly prescribed as part of integrated care (1), with varying levels of evidence or scientific premise (see review in this edition) (2). For example, gluten-free and lactose-free diets are commonly recommended for patients with irritable bowel syndrome (IBS) (2), despite limited understanding of the role these foods play in the pathogenesis or maintenance of DGBI symptoms, especially over the long term. The low fermentable oligosaccharides, disaccharides, monosaccharides and polyols (FODMAP) diet may have a stronger scientific premise in DGBI (specifically for IBS) (3–5) but without properly designed meal planning, and a plan for food reintroduction could be harmful over the long term (6,7). Several “popular diets” have also been adopted by patients with DGBI that involve significant food restriction with little or no scientific justification and could worsen symptoms (e.g., excess fructose consumption in the Whole 30 diet) or other health outcomes (e.g., higher saturated fat intake in “the Plant Paradox” diet) (8,9).

Patient-provider collaboration around the choice of dietary intervention is critical to the proper uptake and safety of any dietary intervention—these may include a patient’s expectations for risks and benefits because they relate to symptom improvement, quality of life and emotional well-being, as well as agreement on the anticipated duration of the diet and any follow-up requirements. Whenever possible, a registered dietitian (RD) should be included as part of the patient’s care team. Health psychologists may also be helpful in assisting the care team in the choice of dietary intervention, improving adherence and supporting lifestyle change, as well as identifying disordered eating behaviors, eating disorders, or other contraindications to restrictive dietary interventions.

In this article, we provide insights into the psychological and social implications of evidence-based and popular dietary interventions in DGBI. We focus on practical approaches for evaluating a patient’s appropriateness for a dietary intervention, considering the

nutritional, psychological, behavioral, and social context in which a patient may find themselves managing their DGBI with dietary intervention (Figure 1). Below, we delineate practical approaches for (i) managing patient expectations around the role of food allergy and motility testing, (ii) evaluating the scientific premise for food elimination or restriction with the patient’s psychological and nutritional risks and benefits in mind, (iii) recognizing risk for disordered eating, and (iv) developing a pathway for low-resource patients to access safe dietary interventions when appropriate.

Managing patient expectations around the role of food allergy and motility testing to inform dietary intervention choice

The psychological and nutritional impact of GI testing is an important consideration when evaluating patients with GI symptoms. This is particularly relevant when considering food allergy testing. Previous studies have shown that a diagnosis of a food allergy is associated with increased food anxiety, social isolation, and decreased quality of life (10–13). Thus, it is important to focus on evidence-based allergy testing methods and educate patients about the pitfalls of other testing methods.

For example, oral food challenge, skin prick testing, and serum Immunoglobulin E (IgE) testing are the gold standard methods of food allergy testing when food allergy symptoms are present. Serum Immunoglobulin G (IgG) testing and commercially available food sensitivity panels are increasing in popularity but should be approached with extreme caution because of the lack of clinical relevance and the negative impact a positive result may have on dietary restriction and quality of life. Serum IgG testing and antigen leukocyte antibody test are not recommended to diagnose food allergies, hypersensitivities, or intolerances because of low test specificity and poor reproducibility (14). Although a positive serum IgG or antigen leukocyte antibody test does not indicate a food allergy or sensitivity, patients often interpret the test result as an allergy, which can subsequently result in labeling those foods as unsafe and harmful and drive the implementation of unnecessary food restrictions. Thus,

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Clinical pearl #1: registered dietitians—experts in nutrition assessment and execution of medically indicated nutrition care plans

Registered dietitian nutritionists (RDNs) are nutrition content experts who are nationally and locally licensed to deliver medical nutrition therapy to individuals with medical conditions including IBS and DGBI. By way of training, RDNs complete a minimum of a bachelor's degree at an accredited university or college and course work approved by the Accreditation Council for Education in Nutrition and Dietetics of the Academy of Nutrition and Dietetics (AND), and beginning in 2024, RDNs will be required to complete a graduate degree. Additional advanced areas of practice and certification for RDNs are unique to this field. Currently, in many states, RDNs are the only nutrition professionals who are licensed to provide nutrition care plans. In contrast to RDNs, a nutrition professional who is a nutritionist may have limited experience with DGBI and nutrition assessment. Recent partnerships with American Gastroenterological Association (AGA) and the AND deliver nutritionally evidence-based content to gastrointestinal (GI) clinicians across GI disease spectrum. Several certification projects exist for RDN to be specifically trained in medical diets such as the low FODMAP diet (e.g., Monash University FODMAP and IBS training).

routine food allergy testing in the absence of true allergy symptoms is not recommended. Evaluation of food sensitivities or intolerances by using any method is not recommended for managing patients' DGBI symptoms; however, guided dietary therapy to identify food triggers is recommended. We offer some example terminology to aid providers in discussing food allergy tests with patients in Table 1.

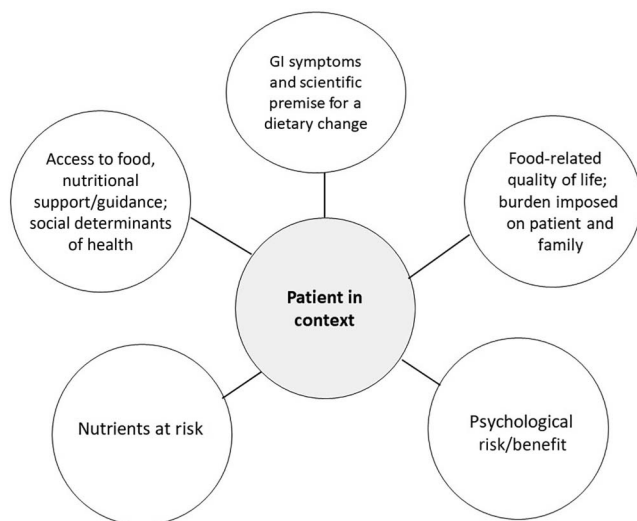


Figure 1. Shared decision-making around diet requires an understanding of the patient in the biopsychosocial context. The nutritional needs of a patient with DGBI, along with the specific symptoms being targeted, must always be considered when recommending a dietary intervention for a patient with DGBI. However, the psychological and quality-of-life risks and benefits as well as social determinants of health including access to food and nutritional support must not be separated from the shared decision-making process. DGBI, degrees of expert guidance.

GI-associated tests to evaluate DGBI symptoms as they relate to eating behavior can also have negative psychological and dietary impact, regardless if the test is normal or abnormal. Abnormal testing can result in rash dietary changes (e.g., gastric emptying study resulting in recommendation of implementing a restrictive gastroparesis diet). Alternatively, the psychological impact of negative testing should also be appreciated. Negative testing can result in disappointment and frustration because of a lack of identified etiology for the patient's suffering and symptoms. The frustrations of multiple normal test results are also amplified in the DGBI population secondary to the paucity of diagnostic testing available for motility and functional disorders because many DGBI diagnoses occur *after* negative tests evaluating for other diagnoses. It is important for providers to set expectations regarding what a positive or negative test result will mean and reassure patients that their symptoms will continue to be treated, regardless of test results.

Evaluating the scientific premise for food elimination or restriction with the patient's psychological and nutritional risks and benefits in mind

It is crucial to weigh the benefits of dietary interventions in the context of (i) nutrients and calories at risk, (ii) the time frame or duration of the dietary intervention, and (iii) the behavioral risk factors, social implications (e.g., access, cost, and cultural practices), and the impact of the diet on quality of life. These considerations to patients who are already following a diet that you would like them to liberate, or for patients who are asking about a diet they could follow for immediate symptom relief. Table 2 defines and highlights possible risks associated with popular diets that may be commonly self-initiated by patients (Table 2) and evidence-based diets that may be either self-initiated by patients or medically prescribed (Table 3) to treat DGBI.

Nutrients and calories at risk. Dietary restriction is usually associated with nutrient deficiencies that should be monitored and potentially supplemented—for example, several nutrients are at risk in a gluten-free diet, including folic acid, B6, thiamin, riboflavin, niacin, iron, and dietary fiber—these may need to be assessed quarterly and supplemented as appropriate if the patient is on the long-term diet. Similarly, calories are often decreased in restrictive diets, increasing risk for malnutrition and, in some cases, an eating disorder (15,16). Weight loss is not an intended outcome with diets for DGBI and should also be monitored (Table 4). The low-histamine diet has not been evaluated in DGBI but limits protein intake as well as fruits and vegetables, posing other health risks and malnutrition. Diets where nutrients and calories are potentially lower risk may include the Mediterranean diet, which is also widely accessible and has long-term health benefits outside of GI (17).

Time frame. Several diets are empirically supported for DGBIs (primarily the low FODMAP diet for IBS) but are not intended to be followed indefinitely. It is important to communicate with your patient about the time frame in which you are expecting them to begin reintroducing foods and liberate their diet. For example, a gluten-free diet may be tried empirically for 4–6 weeks with a motivated, low-risk patient with the expectation that if symptoms are not significantly improved, the patient would reintroduce gluten as part of a balanced diet. Another example is the low FODMAP diet, in which the initial restrictive phase is

Table 1. Psychological considerations for food allergy and sensitivity testing

Test	Description	Anticipated impact on patient diet	Expectations for positive or negative test results	Helpful phrases
Oral food challenge	Gold standard for food allergy testing in the setting of true food allergy symptoms.	Foods identified as true allergies should be avoided.	Positive test suggests true allergy if allergy symptoms are present and can help exclude true food allergy if negative.	“This test is recommended to evaluate for food allergies. However, it is not as helpful to evaluate food sensitivities. For food sensitivity evaluation, guided dietary interventions are often very effective.”
Skin prick test	Indicates the presence of IgE antibody. 90% sensitivity and 50% specificity (i.e., 50% false positives) (37). Not appropriate to evaluate food sensitivities.	Foods identified as true allergies should be avoided.	Positive test suggests true allergy if allergy symptoms are present and can help exclude true food allergy if negative.	
Serum IgE testing	Alternative for oral food challenge in the setting of allergy symptoms. Quantifies amount of IgE to specific allergens. Not appropriate to evaluate food sensitivities.	Foods identified as true allergies should be avoided.	Positive test suggests true allergy if allergy symptoms are present, and a negative test can help exclude true food allergy.	
Serum IgG testing	Quantified amount of IgG to specific food allergens. Little utility to diagnose food hypersensitivities and intolerances due to low test specificity.	Patients should <i>NOT</i> avoid foods based on IgG testing alone, particularly if true food allergy symptoms are not present.	Positive test does <i>NOT</i> indicate true allergy, particularly in the absence of true allergy symptoms.	“We are still working to understand the role of testing for food sensitivities and intolerances. We know patients with DGBI commonly experience food sensitivities, but we are not yet at the point in our science where these tests are better than what we can offer with a guided dietary intervention. Our approach is to move you from assessment to treatment, with the goal of improving your GI symptoms.”
ALCAT	Evaluates the response of leukocytes when exposed to food extracts. Little utility to diagnose food hypersensitivities and intolerances due to low test specificity and poor reproducibility.	Patients should <i>NOT</i> avoid foods based on ALCAT testing alone, particularly if true food allergy symptoms are not present.	Positive test does <i>NOT</i> indicate true allergy, particularly in the absence of true allergy symptoms.	

ALCAT, Antigen Leukocyte Antibody Test; DGBI, degrees of expert guidance; GI, gastrointestinal. Entire table adapted from Birch K, Pearson-Shaver AL. Allergy Testing. StatPearls. Treasure Island, FL, 2021.

intended for only 4–6 weeks, with a reintroduction period also short, between 3 and 6 months. Again, the patient and provider must agree that ultimately, the shared goal is the least restrictive diet that manages their symptoms.

Behavioral and psychosocial risk. One of the most significant behavioral considerations in dietary intervention is the impact of food selection and diet on quality of life. Poor food-related quality of life in individuals with IBS has been associated with higher levels of food avoidance (including the use of elimination diets) (18) and diminished nutrient quality (19,20). Furthermore, based on data in patients with celiac disease, a gluten-free diet may put some patients at risk for greater anxiety and somatization (21).

It is important to consider a patient’s goals and lifestyle to determine whether the impact on emotional and psychological well-being is justified by the likely improvement in symptoms. For example, some common diets, such as the specific carbohydrate diet, impose significant patient emotional and financial burden and call for fanatical adherence, using terms such as “legal and illegal” foods—all this despite not outperforming more liberal diets such as the Mediterranean diet in disorders such as Crohn’s disease (22). Balanced diet recommendations (e.g., Mediterranean diet and NICE guidelines) have actually shown similar outcomes to the low FODMAP diet and have higher patient acceptability (23–25). More worrisome is a patient who already reports worry about the negative consequences of eating certain

foods or amounts, avoids eating-related situations, avoids foods that they want to be able to eat, or find it difficult to be flexible with eating (e.g., avoid eating before driving) may be particularly negatively affected by a restricted diet, or worse, at risk for developing an eating disorder.

Recognizing risk for disordered eating: behavioral and nutritional assessment before and after prescribing a dietary intervention

There is increasing recognition of the importance of screening for and preventing the development of maladaptive dietary restriction in patients with DGBI. In particular, a subset of patients may have dietary restriction (reduced volume, frequency, and/or variety) that crosses the eating disorder threshold as avoidant/restrictive food intake disorder (ARFID) (26,27) (Figure 2). Diet approaches for DGBI may in fact be a risk factor for ARFID, with one study showing that patients with DGBI with a history of using a diet were more than 3 times as likely to have ARFID symptoms (16).

Dietary restriction in ARFID is motivated by 1 or more reasons that is not related to body image—fear of aversive consequences (e.g., abdominal pain and diarrhea), lack of interest in eating/low appetite, and/or sensory sensitivity (e.g., taste, texture, and smell) (28). To be diagnosed with ARFID, patients must have psychosocial (e.g., difficulty with social eating) and/or medical (e.g., weight loss and nutrient deficiency) consequences of dietary

Table 2. Psychological and nutritional considerations for popular diets commonly self-initiated by patients with DGBI

Diet	Targeted foods	Allowed foods	Behavioral considerations	Nutrients at risk	Recommended time frame	Nutritional risk grade
Dairy-free (DF)	Cow's milk and all dairy by products: ghee, butter, yogurt, milk, and cheese.	Vegan dairy alternatives such as soy, hemp, nut and coconut yogurts, cheeses, and liquid milk alternatives.	Dairy-free is often combined with gluten-free when patients initiate diet change. Often lactose, not dairy proteins are triggers for GI symptoms in DGBI. This level of restriction is more extensive than many GI patients require for symptom improvement. Because dairy protein and gluten are in many food staples, avoidance requires significant lifestyle change.	B vitamins including folic acid, iodine, B6, thiamin, and riboflavin. In addition, protein, calcium, vitamin D, and vitamin A.	Can be short-term proof of concept (4–6 wk) or lifelong. Quarterly meeting with dietitian recommended to assess nutrient adequacy. Supplemental calcium and vitamin D and fortified foods are encouraged.	Moderate
Autoimmune protocol diet (AIP)	Eliminates gluten, dairy, eggs, soy, nightshades, and grains; initially recommended for IBD but more popularly used among patients with DGBI seeking to reduce inflammation.	Lean proteins, produce, nuts and seeds, healthy fats, and other mammalian milks such as goat-derived and sheep-derived products.	Advocated for use in autoimmune conditions. Limited outcomes data on indications and efficacy. Necessity to rely on home-cooked meals with little flexibility because of the number and breath of food group avoidance increasing risk of ARFID.	Calories, fiber, B vitamins, trace minerals including magnesium and zinc, and vitamin D. Fortified dairy products are a major source of protein, calcium, and vitamin D in the American diet for adults and children. More modest dietary alterations such as limiting lactose can conserve nutrient density and reduce behavioral risk associated with food group avoidance.	Intended to be short term for 4–6 wk with gradual reintroduction of food groups and amounts to evaluate tolerance. Needs to be performed under direction of a dietitian to ensure adequate nutrition.	High
Specific Carbohydrate Diet (SCD)	Grain-free diet restricting the use of foods containing disaccharides and polysaccharides including some fruits, dairy, legumes, potatoes, and nuts initially.	Proteins, fats and butter, highly fermented yogurt, fruits and some soaked and processed legumes, and tree nuts.	Largely used to treat IBD vs DGBI, but patients with DGBI may seek out. Advocates call for fanatical adherence with the use of “legal” and “illegal” foods. Does not seem to outperform a Mediterranean style of eating to treat IBD. High risk for ARFID because of the sweeping nature of food group restriction and the number of food rules to properly execute.	Folate, thiamin, B6, vitamin D, vitamins A & D, calcium, fiber, and calories. Whole grains help provide quality nutrients and calories. Removing grains requires substantial calorie shuffling to meet needs. Careful work with GI dietitians to ensure key macronutrient and micronutrient needs are met.	Recommended short time frame to manage symptoms. Long-term safety and efficacy of grain-free diet not been studied in DGBI.	High
Elemental	Removal of all solid foods. Prescribed, liquid elemental formula used for 100% oral enteral nutrition which can be consumed orally or through enteral feeding tube.	100% oral enteral nutrition delivered by specialized, hydrolyzed amino acid-based formula.	Elemental formulas have good proximal bowel absorption and can be used in patients with IBS with SIBO. Not routinely recommended and requires close medical and nutritional supervision. Widely advocated in popular media over medical centers. Currently, no transition diet. All liquid diets can have physical and emotional side effects because of the removal of solid foods and out-of-pocket payment for specialized elemental formula.	Greater than 1L formula needed to meet dietary reference intakes for micronutrients. Variability among brands where routine fortification of essential vitamins, minerals, and electrolytes is not mandated. Both macronutrient and micronutrient needs should be managed by registered dietitians.	Intended for short-term use: 4–6 wk and in cases of severe malabsorption or food allergies. No data on safety or efficacy in DGBI or in SIBO as therapeutic diet options.	Exceptional

Table 2. (continued)

Diet	Targeted foods	Allowed foods	Behavioral considerations	Nutrients at risk	Recommended time frame	Nutritional risk grade
The Plant Paradox	Removal of foods rich in lecithin, a protein found in plant-based foods and whole grains boasting improved absorption and reduced inflammation. Avoidance of grains, legumes, nuts & seeds, as well as nightshades recommended.	Protein, wild game and fish, healthy fats, low-lactose dairy made from sheep or goat or A2 milk, coconut fats, small amounts of berries, and nonstarchy vegetables.	Diet can be very low in carbohydrates and severely limits food groups. There are several layers of food rules with this protocol. Improvement in symptoms may be due to restricting carbohydrates, fiber or fructans, and other behavioral factors such as weight loss. High risk for restricted eating and ARFID because of the sweeping nature of food group restriction and the number of food rules to properly execute.	B vitamins, fiber, calories, calcium, and vitamin D. In addition, exposure to higher levels of saturated fat intake because of favorable consumption of red meat and high-fat foods. Risk of overt dietary restriction.	This approach is billed as lifestyle change with supplements intended to improve digestion of lectins with progressive addition of some foods.	High
Whole 30	Grain-free, dairy-free, sugar-free, preservative-free, and alcohol-free diet. Follow for 30 days with targeted food reintroduction to test for “triggers” and reset body clock.	Protein, fats (both plant and animal), unlimited fruits, vegetables, and roots. Mostly homemade foods included.	“Rules” of diet support strict adherence for 30 days or participants start over. Diet quality likely improves, but diet can be rich in fructose and saturated fat. Caution with IBS. No clinical trials evaluating outcomes or food-related quality of life in GI patients.	B vitamins (given restriction of whole grains), calcium, vitamin D, carbohydrates, and calories. Potentially excess fructose exacerbating some patients with DGBI.	Typical intervention is 30 days with slow addition of dairy products and grains reintroduced into diet. Diet not recommended for patients with DBGI over other evidence-based approaches.	Moderate-high
Low-histamine diet	Limiting foods which are rich in histamine such as fermented foods, canned meats and fish, spinach, avocado, and dried fruits.	Fresh meats, poultry, fish, gluten-free grains, pasteurized, nonaged dairy, and fresh fruits and vegetables. Pickled and fermented foods are typically avoided.	Specific foods within each food group are limited so may not be appropriate for those with limited diet or limited resources for fresh food. Low FODMAP diet may also reduce histamine and difficult to discern if major driver of histamine response is food or metabolome.	Not systematically evaluated however can result in reduced protein intake and limited fruits and vegetables. Given reduced gluten, B vitamins and iron are potentially at risk depending on dietary balance.	Short term for 4–6 wk. Recommended to be completed under the direction of GI dietitian to ensure nutrient substitution vs restriction and is not feasible long term.	Moderate

This table describes a selection of diets currently popularized as diets to control GI symptoms or overall health. These diets do not have evidence based for DGBI, and we recommend high caution around their use. However, popular diets may be commonly self-initiated by patients and thus are important for the GI provider to be aware of. ARFID, avoidant/restrictive food intake disorder; DGBI, disorders of gut-brain interaction; GI, gastrointestinal; IBD, inflammatory bowel diseases; IBS, irritable bowel syndrome; SIBO, small intestinal bacterial overgrowth.

Table 3. Psychological and nutritional considerations for evidence-based diets that are medically prescribed for or self-initiated by patients with DGBI

Medically prescribed or self-initiated diets						
Diet	Targeted foods	Allowed foods	Behavioral considerations	Nutrients at risk	Recommended time frame	Nutritional risk grade
Low FODMAP	Fermentable carbohydrates: lactose-rich dairy, high-fructose fruits and corn syrup, and fructans including wheat, onions, garlic, and legumes, as well as polyol-rich foods.	Protein-rich foods, moderate fructose and fruits and vegetables, low lactose dairy, gluten-free grains, and precise amounts of some legumes and nuts.	Substitution diet vs elimination diet with emphasis on 3 phases: elimination, reintroduction, and personalization. Reported efficacy under the direction of trained dietitian.	Calcium, vitamin D, fiber, and total calories without properly designed meal plans.	Initial phase of the diet recommended for 4–6 wk. Reintroduction can last 3–6 additional months. Goal is to have the least restrictive and most effective dietary pattern when finished with systematic reintroduction. Known efficacy for IBS performed under the direction of GI dietitian.	Moderate
Gluten-free (GF)	Gluten-containing grains: wheat, barley, rye, and conventionally processed oats.	Gluten-free grains and carbohydrates including root vegetables, rice, corn meal, teff, millet, amaranth among other nonwheat grains, pulses, and seeds.	In DGBI, reduced fructan load vs exclusive avoidance may be the adequate level of restriction to increase hypervigilance around eating.	Gluten-containing grains in the United States are fortified with iron and B vitamins while many gluten-free versions are not. Using fortified foods and monitored supplement use is advised.	Can be short-term proof of concept (4–6 wk) or lifelong. Meeting with dietitians quarterly is recommended to assess nutrient adequacy and possibility of liberalization in the context of DGBI.	Moderate
Mediterranean Diet	Limited in saturated fats, refined carbohydrates, beef, excess sugars, and processed foods.	Focus on plant-based fats and protein. Intentional increase in fruits, vegetables, whole grains, legumes, and seeds. Antioxidant content of diet high because of well-balanced nutrient and fiber matrix with suggested limits on processed foods and added sugars.	Widely accessible food options. The Mediterranean style of eating also benefits other chronic diseases such as cardiovascular disease, mental health, and diabetes allowing for a total wellness approach. Patients would benefit from working with dietitians to help execute meal planning and lifestyle changes.	Limited nutrient risk with balanced, plant-based Mediterranean style of eating. If dairy consumption is low, additional vitamin D is likely beneficial from fortified foods or monitored supplements. Ensure adequate calories, protein, and variety.	Meant as lifestyle change with focus on healthy dietary patterns.	Limited
National Institute for Health and Clinical Excellence (UK NICE GUIDELINES)	Scheduled meals with adequate healthy foods and fiber. Focus on limiting fructose by limiting portions of fruits to 3 servings/day and limiting resistant starch and wheat bran vs gluten.	Wide variety of foods and no foods are disallowed. Focus on eating behaviors and types of foods consumed with limits versus avoidance.	Limited risk given the recommendation to focus on dose of trigger foods versus avoidance. Patients often benefit from working with dietitians to help implement diet and lifestyle modifications.	Little risk for nutrient imbalance. Public health resources emphasize balanced, fiber-rich foods. General wellness and healthy lifestyle advice for patients with IBS. Ensure adequate calories, protein, and variety.	Recommendations suggest identifying patterns and thresholds for some trigger foods such as resistance starch and fructose. Consistent with general health and lifestyle recommendations and can be implemented lifelong.	Limited

The diet with the most evidence exists for the low FODMAP for IBS, but emerging evidence suggests traditional dietary advice delivers comparable results with the low FODMAP diet. (e.g., NICE guidelines). Gluten-free diets have some evidence for IBS but do not outperform the low FODMAP diet. Diet approaches such as the NICE guidelines and the Mediterranean diet are less restrictive, allowing easier implementation with lower nutritional and behavioral risks. However, research on diets for DGBI other than IBS is extremely limited.

DGBI, disorders of gut-brain interaction; GI, gastrointestinal; IBS, irritable bowel syndrome.

Table 4. Behavioral and nutritional assessment examples to consider before and after prescribing a dietary intervention for patients with DGBI

Consideration	Example assessment question(s)	Red flags ^b
Quality-of-life impact	Do eating or food decisions get in the way of your ability to live the life you would like to?	Patient reports worry about the negative consequences of eating certain foods or amounts that leads them to avoid eating-related situations, avoid many food types that they want to be able to eat, or develop eating inflexibility (e.g., avoid eating before driving).
Eating-related distress	How much time, mental energy, and effort do you spend around eating and food choices?	Patient reports desire to spend less time thinking about and preparing food and/or thinking about food/eating takes away from concentrating on tasks they are engaged in (e.g., conversations, reading, and work).
Weight suppression ^a	Have you lost weight as a result of your GI symptoms? [If yes: what was your usual weight range prior to losing weight? Have you had difficulty gaining weight as a result of your GI symptoms?]	Unintentional body weight loss of <ul style="list-style-type: none"> • 5% over 1 mo • 7.5% over 3 months • 10% over 6 month
Dietary restriction	Over the past month, could you give me an example of what a typical day of eating has looked like for you—starting off with the time you first eat and an example and then going throughout the day?	Dietary restriction for frequency (e.g., >6 waking hours without eating) and/or caloric intake that is associated with any: <ul style="list-style-type: none"> • Medical consequences: <ul style="list-style-type: none"> ◦ weight loss ◦ difficulty gaining weight ◦ nutrient deficiencies ◦ dependence on nutritional supplements ◦ other physical markers potentially associated with poor nutrition (e.g., fatigue) • Quality-of-life impairments (e.g., social eating difficulty)
Food avoidance	<p>Before dietary prescription</p> <p>Over the past month, have you avoided certain foods or had difficulty eating enough, for example, because of worry about having negative physical symptoms or forgetting to eat? Or because of strict rules about what foods you should and should not eat?</p> <p>After dietary prescription</p> <p>Have you been able to reintroduce most of the foods you tried eliminating?</p>	<p>Patient reports any of the following:</p> <ul style="list-style-type: none"> • Lack of diet diversity (e.g., only eating a few foods) • Elimination of food groups without substitution of replacement foods • Restrictive eating behaviors including only eating home-cooked food • Relying on liquid supplementation • Self-directed diet changes without clear symptom benefit <p>Decreased food intake variety that is associated with any:</p> <ul style="list-style-type: none"> • Medical consequences: <ul style="list-style-type: none"> ◦ weight loss ◦ difficulty gaining weight ◦ nutrient deficiencies ◦ dependence on nutritional supplements ◦ other physical markers potentially associated with poor nutrition (e.g., fatigue) • Quality-of-life impairments (e.g., social eating difficulty)

These assessment markers presume that structural causes for dietary limitations have been ruled out. If any red flag is present, providers should consider a diet with limited risk (Table 3) or refrain from diet prescription.

DGBI, disorders of gut-brain interaction; GI, gastrointestinal.

^aEven if the patient's current weight is in the "normal" range for their age/sex, it is not necessarily a marker of health. Significant weight loss can have detrimental consequences including bone mineral density loss. When available, the patient's weight graphs in the medical chart can be used; this is especially important in the pediatric setting.

^bNoted red flag recommendations for adults.

restriction (26,29). Symptoms of ARFID have been reported in 13%–40% of patients with disorders of gut-brain interaction (19,27), with rates as high as 48% in IBS specifically (27). The most common motivation for ARFID restriction has been a fear of GI symptoms and occurs in individuals of all ages (30).

To identify the presence of problematic dietary restriction, we recommend providers to screen before and after dietary prescription for psychosocial and medical impacts of dietary restriction (Table 4).

There are emerging self-report survey screening options for ARFID (31), but these have not yet been validated to detect ARFID in DGBI. There are no validated methods for ARFID prevention in patients with DGBI. However, before dietary prescription, providers can talk with their patients about the rates of ARFID in DGBI, how dietary restrictions are temporary (when applicable), and that the end goal is for the patient to have a nutritionally balanced diet and a flexible relationship with food.

Clinical pearl #2: managing the patient interested in or on a fad diet

Below are some red flags for fad (or popular) diets that include strict and dogmatic approaches to limiting whole food groups to improve symptoms. See Table 4 for additional guidance.

1. Popular diets (Table 2) can overpromise physiologic benefits and may involve sophisticated rituals related to eating and cooking. Often there is theoretical evidence without studies showing safety and efficacy.
2. Patients with DGBI are often interested in integrating both conventional medical care and complementary approaches such as herbal therapies, dietary modifications, and other supplements.
3. Social media personalities who experienced “amazing results” can be powerful influencers for patients wanting relief. Undoubtedly, popular diets can drive both physical and psychological harm to patients because of the perception that stricter adherence equals better results. This subsequently sets the stage for problematic cognitive/emotional (e.g., guilt or fear around eating) and behavioral (e.g., binge eating or social eating avoidance) outcomes, which negatively affect functioning and/or nutritional status.
4. Patients will often seek approval and/or guidance from medical providers on their approach. Clinicians can steer patients away from the more dangerous elements of popular diets by validating the role of food intolerances in DGBI and by reassuring that less restrictive, evidence-based approaches have been well studied and do produce favorable results in many.
5. Involving a dietitian allows the focus to be on what patients *can* eat versus what they “cannot.” The nutritional goal is always to provide the least restrictive and most varied diet modification which minimizes symptoms and optimizes diet quality.
6. Dismissive counseling or shaming patients for exploring alternatives jeopardizes dynamic communication between patient and provider.

Other eating disorders are also relevant when selecting a dietary approach for DGBI. Some patients may have a history of an eating disorder and are recovered—strict elimination diets are typically contraindicated as a risk for relapse (9). Other patients may have current cognitive (e.g., significant body image disturbance) and/or behavioral (e.g., binge eating, self-induced vomiting, and excessive exercise) manifestations of eating disorders beyond dietary restriction—elimination diets are also typically contraindicated in these cases (9). Importantly, eating disorders affect individuals of all demographics and weight status (not just those with a low weight) (32). Because the psychological effects of some dietary prescriptions for IBS can detrimentally perpetuate an eating disorder, we recommend that screening for current eating disorder symptoms should be considered for all patients with DGBI. Notably, the presence of current eating disorder symptoms does not preclude the use of dietary interventions for DGBI symptoms—modified dietary prescriptions (e.g., FODMAP “light”) can be made—and the inclusion of a multidisciplinary team is crucial (e.g., dietician monitoring + psychologist providing evidence-based eating disorder treatment). More information on assessment and treatment guidelines for eating disorders can be found in the Academy for Eating Disorders Medical Care Standards (33). A recommended short screening option is the SCOFF (34), which can be administered through clinician questioning or as a survey.

For comprehensive guidelines on identifying and managing ARFID and other eating disorders, see the work of Lemly et al. (35) and the Academy for Eating Disorders guidelines (36).

Developing a pathway for low-resource patients to access safe dietary interventions when appropriate

Although the importance of a RD in the oversight of dietary interventions, particularly those who involve dietary restriction, cannot be overstated, we recognize that access to such services is often limited. Many patients also choose to follow dietary interventions on their own, with little guidance from professionals. Before recommending more sophisticated forms of nutritional therapy, clinicians need to consider the food environment including access to food and specialty foods as well as willingness and ability to cook. Religious and personal food practices such as

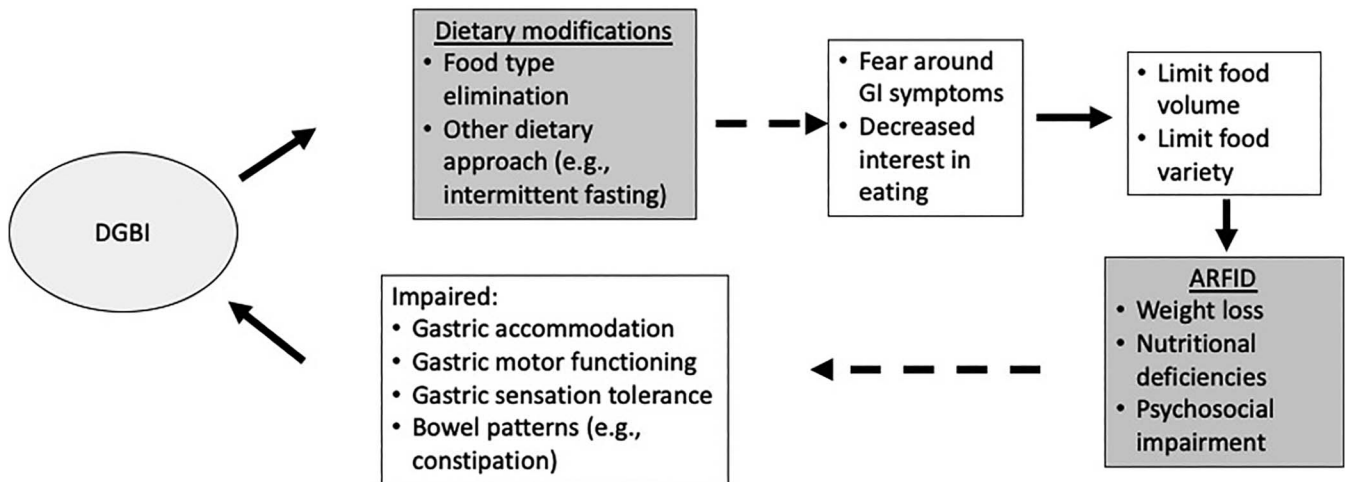


Figure 2. Interaction between degrees of expert guidance, restrictive diets, and avoidant/restrictive food intake disorder.

vegetarianism may affect the level of dietary advice recommended. Adequate nutrition coverage for medical nutrition therapy in DGBI may influence whether patients ultimately work with a dietitian. With a recent partnership between the American Gastroenterological Association (AGA) and the AND practice group, dietitians in GI disorders aim to provide GI disease-specific information for GI clinicians and a network of GI-trained RD for clinical and research needs. In addition, GI providers looking to integrate a RD with limited GI experience can sponsor specialized training through one of these resources.

CONCLUSION

In this brief report, we described some of the psychological considerations influencing the choice of dietary interventions in the management of DGBI, emphasizing the importance of the gastroenterology provider in helping patients make informed decisions that consider not only nutritional and behavioral risk but also quality of life.

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CONFLICTS OF INTEREST

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Study Highlights

WHAT IS KNOWN

- ✓ Dietary interventions are commonly used in the management of disorders of gut-brain interaction with varying degrees of expert guidance (DGBI).
- ✓ Maladaptive eating behaviors and eating disorders, including avoidant/restrictive food intake disorder, are common among patients with DGBI.

WHAT IS NEW HERE

- ✓ Dietary interventions and food allergy testing should be considered in the context of psychological risk factors.
- ✓ Practical recommendations for the gastrointestinal provider around identifying risk and managing expectations for patients with DGBI on or interested in dietary intervention.

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