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THE LOW FODMAP DIET AS A TREATMENT FOR IRRITABLE BOWEL SYNDROME: A NEW APPROACH

Heidi Staudacher
Dietitian
Guy's and St Thomas' NHS Foundation Trust and King's College London

Dr Miranda Lomer
Dietitian
Guy's and St Thomas' NHS Foundation Trust and King's College London

Heidi is a Research Dietitian with a special interest in functional bowel disorders.

Miranda is a Consultant Dietitian in Gastroenterology with a special interest in the dietary management of functional bowel disorders and inflammatory bowel disease.

Irritable bowel syndrome (IBS) is a common debilitating condition that affects up to 20 percent of the Western world, with approximately two thirds of affected individuals being female (1-3). It has a major impact on quality of life (4) and contributes significantly to the healthcare burden in the UK (5). It is characterised by abdominal pain or discomfort and a change in bowel habit, as defined by the Rome III criteria (3).

IBS is only one of the many functional bowel disorders. Others include functional bloating and functional diarrhoea. Symptoms are due to a change in the function of the gastrointestinal tract, but are not due to any physiological abnormality. Functional symptoms present in people without any other gastrointestinal conditions, but are also common in people with coeliac disease or inflammatory bowel disease (IBD).

The predominant underlying causes of functional symptoms are not fully understood, but appear to be related to hypersensitivity of the bowel, altered microbiota and upregulation of the immune system. Psychological factors are also considered to contribute to symptoms. Treatments such as stool bulking agents, anti-diarrhoeals, anti-spasmodics and low dose anti-depressants are often prescribed and input from psychologists and hypnotherapists may be of benefit.

Individuals with IBS are often interested in altering their diet to manage symptoms. Dietary management of functional symptoms has generally focused on adjusting dietary fibre content, restricting caffeine and alcohol and avoiding lactose. National Institute for Health and Clinical Excellence (NICE) IBS guidelines for primary care (6) provide some general dietary advice which is useful in approximately half of IBS patients seeing a dietitian (7). However, there is a lack of good quality, randomised controlled evidence that these strategies are effective (8,9).

SHORT-CHAIN CARBOHYDRATES

Recently, a specific therapeutic dietary approach for managing IBS has been developed that involves restriction of a group of poorly absorbed short-chain carbohydrates called fermentable oligo-, di-, mono-saccharides and polyols (FODMAPs). A low FODMAP diet has been shown to be highly effective in treating the symptoms of IBS, with approximately 75 percent of patients who are prescribed the diet reporting a sustained symptom response (10). Recently the success of the low FODMAP diet has also been demonstrated in the UK (7).

Various studies show that these FODMAP sugars are considerable triggers of gastrointestinal symptoms individually or in combination in patients with IBS (10-15). FODMAP restriction is effective in reducing symptoms because these sugars are 1) osmotically active, drawing fluid into the small bowel (16) and therefore having a laxative effect, and 2) highly fermentable by colonic bacteria which leads to increase in hydrogen and methane gas production (17). These physiological effects induce symptoms in people susceptible to functional bowel symptoms. Restriction of FODMAPs reduces these effects with consequent improvement in symptoms.

THE LOW FODMAP DIET

The low FODMAP diet involves avoidance of various foods that are high in FODMAPs (Figure 1) (18-21). Fructans and galacto-oligosaccharides, which are poorly absorbed due to a lack of hydrolases, and polyols which are too large for simple diffusion, should be avoided. Fructans are widely distributed in the diet and are found naturally in wheat and rye as well as various fruit and vegetables. They can also be added as 'prebiotics' to foods (e.g. oligofructose, inulin). Pulses are high in galacto-oligosaccharides and polyols are found in various fruits and vegetables and are commonly added as

sweetening agents (e.g. sorbitol) to sugar-free gums and sugar-free mints.

Figure 1

Examples of foods high in FODMAPs
High fructan
Wheat Rye Onion Garlic
Excess fructose
Mango
High polyol
Apricot Plum Sugar-free gums and sugar-free mints
High GOS
Baked beans Kidney beans Lentils
High lactose
Cow and goats' milk

Fructose and lactose are poorly absorbed in a proportion of people with functional gut disorders (45 percent and 25 percent respectively) (22) and should be avoided if it is clinically suspected that these are problematic or if breath test results indicate malabsorption. Fructose is poorly absorbed when in excess of glucose and is commonly added as a sweetener to various manufactured foods. Excess fructose is found naturally in honey and some fruits. Lactose is present in milk and dairy products and is recommended to be avoided when consumed in amounts greater than 4.0g lactose per portion.

The low FODMAP diet has only been evaluated as a dietitian-led dietary approach (23). The dietitian should obtain a medical history, gastrointestinal symptom assessment, including duration and severity, and take a full diet history. The patient is then taught about how FODMAPs can cause symptoms and the low FODMAP diet is detailed in a step-by-step process. The dietitian should individualise the diet for each patient, providing suitable alternatives for foods they need to avoid. Menu plans, information on food label reading for hidden FODMAPs, eating out and recipe adaptation should be provided.

Patients will often have many questions and require reassurance. For successful implementation of the low FODMAP diet, initial appointments usually need an hour. Group education sessions are also useful for teaching on the low FODMAP diet due to its complexity and have been implemented successfully in Australia.

Compliance to the diet is high, with 77 percent of patients following the diet most of the time (10). For patients who may struggle with certain aspects of the dietary restriction, skilled dietitians are able to individualise the diet accordingly. It is likely that the more strictly the diet is followed the quicker the symptom response will be, but most patients take between two to eight weeks to improve. A systematic reintroduction of high FODMAP foods is then conducted in order to determine which FODMAPs are tolerated and what amount can be included in the diet in the long term.

The low FODMAP diet offers patients with IBS an effective dietary treatment option for management of symptoms. Further research is warranted to assess the safety and nutritional adequacy of the diet and the FODMAP composition of foods in the UK.

Further information on low FODMAP dietetic resources and a low FODMAP course for dietitians is available from www.kcl.ac.uk/fodmaps

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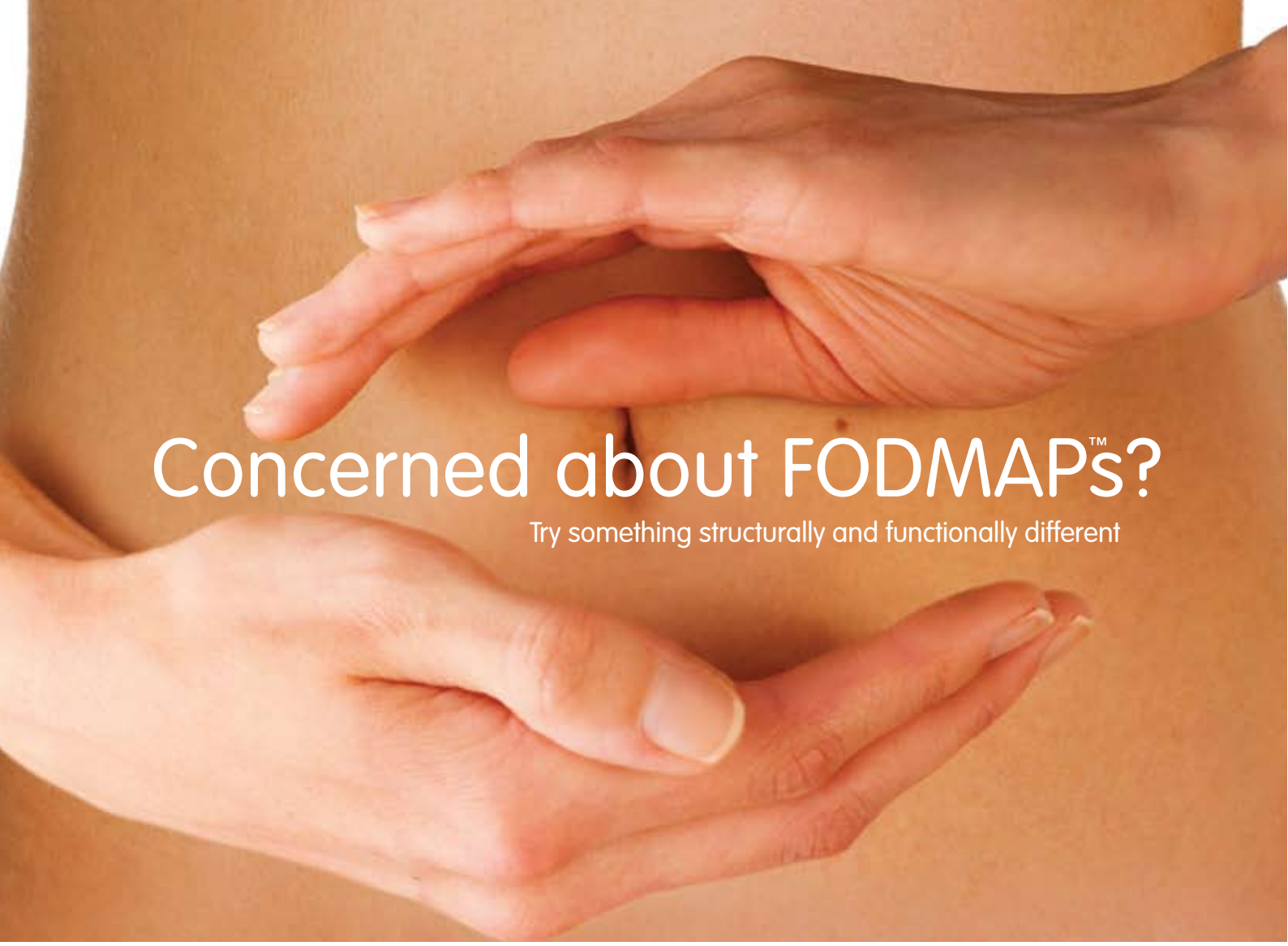

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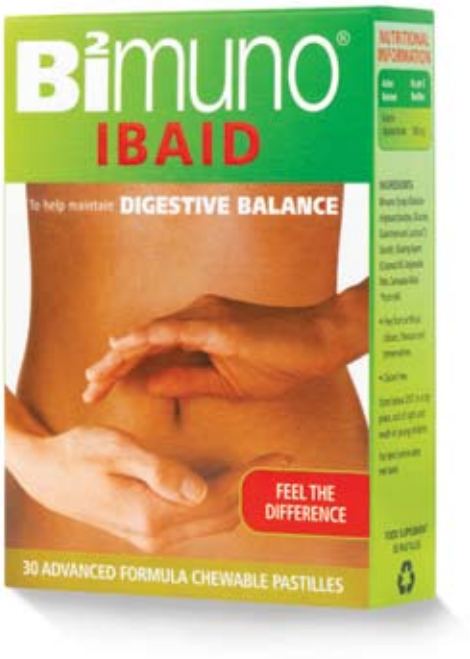

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Questions relating to: *The low FODMAP diet as a treatment for irritable bowel syndrome: a new approach.*
Type your answers below and then **print for your records.** Alternatively print and complete answers by hand.

Q.1	What appear to be the predominant underlying causes of IBS?
A	
Q.2	Dietary management of functional symptoms has generally focussed on what?
A	
Q.3	What are FODMAPs?
A	
Q.4	Give two examples of foods high in FODMAPS in each of these three groups: high fructan, high polyol, high GOS.
A	
Q.5	FODMAP sugars are triggers of gastrointestinal symptoms. Describe the two main reasons why restricting these sugars reduces IBS symptoms.
A	
Q.6	Why should fructans and polyols be avoided in the low FODMAP diet?
A	
Q.7	An excess of fructose is found in which foods?
A	
Q.8	Lactose is recommended to be avoided in amounts greater than how many grams per portion?
A	
Q.9	What is the step-by-step approach for a dietitian when providing a patient with a low FODMAP diet?
A	

Please type extra notes here . . .