

THE COMPLETE

Low

FODMAP

Scientifically  
proven to relieve  
symptoms

Diet

THE REVOLUTIONARY PLAN FOR MANAGING  
SYMPTOMS IN **IBS, Crohn's disease, coeliac  
disease** AND **other digestive disorders**



**DR SUE SHEPHERD** and **DR PETER GIBSON**

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# ABOUT THE BOOK

Medically proven and based on cutting-edge research, *The Complete Low-FODMAP Diet* shows you how to avoid symptoms of IBS while enjoying great-tasting food. You'll learn why FODMAPS, the fermentable short-chain sugars found in some foods, could be at the root of your IBS and how simple changes to your diet could make a big difference to how you feel. Includes how to:

- Identify and avoid problem foods
- Adapt your diet to manage symptoms
- Make delicious meals from low-FODMAP ingredients
- Plan for every occasion, including special events and travel

## ABOUT THE AUTHORS

**SUE SHEPHERD, PhD**, an Advanced Accredited Practising Dietitian and Accredited Nutritionist, specialises in the treatment of dietary intolerances. She has a Bachelor of Applied Science in Health Promotion, a Masters in Nutrition and Dietetics and a PhD for her research into the low-FODMAP diet, coeliac disease and irritable bowel syndrome. Sue, who has coeliac disease herself, lives and breathes gluten-free and low-FODMAP. For creating the low-FODMAP diet, a world-first scientifically proven diet for people with IBS, she was awarded the Telstra Australian Business-woman of the year, State Finalist (Victoria) award and the Gastroenterological Society of Australia's Young Investigator Award. She is the author of numerous peer-reviewed international medical journal publications, and is an invited speaker at international medical conferences as she is recognised internationally as an expert dietitian in the field of IBS and coeliac disease. She has authored ten cookbooks for people with coeliac disease, FODMAP intolerance and irritable bowel syndrome, and runs Australia's largest dietitian private practice specialising in gastrointestinal nutrition called Shepherd Works ([www.shepherdworks.com.au](http://www.shepherdworks.com.au)), where Sue and her team of expert dietitians treat people with these conditions, including overseas consultations via Skype. She is the consultant dietitian on medical international advisory committees for gastrointestinal conditions, is on the editorial committee for Australia's leading health magazine, *Healthy Food Guide*, regularly consults to the

media, and was the resident dietitian on a national television programme. Sue is now a Senior Lecturer and Senior Researcher at the Department of Dietetics and Human Nutrition at La Trobe University in Melbourne, Australia, where she heads this department's research into FODMAPs. She also has a line of low-FODMAP food products.

**PETER GIBSON, MD**, is Professor of Gastro-enterology, Monash University and Director of the Department of Gastroenterology at the Alfred Hospital, Melbourne. He was formerly Professor of Medicine and Head of the Eastern Health Clinical School and Executive Clinical Director of Specialty Medicine and Director of Gastroenterology and Hepatology for Eastern Health. After completing his medical degree with first-class honours, he pursued training in gastro-enterology at Melbourne's Alfred Hospital and the John Radcliffe Hospital in Oxford, UK. In 1985 he was awarded an MD for his work on immunology and the bowel. After three years as a Research Fellow at the Australian National University, he joined the Department of Medicine at the University of Melbourne and the Royal Melbourne Hospital, where he was later Deputy Director of Gastroenterology. In 2001 he moved to Box Hill Hospital and in 2011 to the Alfred Hospital. A past president of the Gastroenterological Society of Australia, Peter has a long-standing interest in the influence of diet on bowel health. He has an international reputation as both a physician and researcher for such conditions as inflammatory bowel disease, coeliac disease and irritable bowel syndrome. He was recently awarded the Distinguished Research Prize by the Gastroenterological Society of Australia. Peter now leads a Monash University research team of dietitians, scientists and clinicians who are continuing to refine and extend our knowledge of the low-FODMAP diet

THE COMPLETE

# LOW FODMAP Diet

The revolutionary plan for managing symptoms in  
IBS, Crohn's disease, coeliac disease and other  
digestive disorders

**DR SUE SHEPHERD** and **DR PETER GIBSON**

**Vermilion**  
LONDON



# FOREWORD

**DURING MY MEDICAL** training in gastro-enterology at the University of Michigan from 1990 to 1993, I learned about irritable bowel syndrome or IBS, a common condition defined by the presence of symptoms including abdominal pain or discomfort, bloating and altered bowel habits. I was struck by research reporting that roughly one in ten people suffered from symptoms of IBS and that it was one of the most common causes of work absenteeism. As I gained experience caring for patients with IBS, the level of suffering they endured became more and more apparent.

Despite evidence that up to two thirds of IBS sufferers associated eating a meal with onset or aggravation of their IBS symptoms, the prevailing 'wisdom' at that time was that food played little role in IBS. Rather, most doctors believed that IBS was caused by abnormal activity and sensitivity in the gastrointestinal (GI) tract, with significant contributions from psychological factors like depression and anxiety. At the time of my training, doctors received little to no formal training in the role of diet and nutrition in the management of gastrointestinal disorders such as IBS. We routinely told patients to eat smaller meals, reduce intake of fatty or greasy foods, and eat more fibre. These recommendations were the standard of care for IBS sufferers well into the new century. Unfortunately, both patients and physicians have grown increasingly frustrated with the inconsistent results yielded by these recommendations. Despite



this, little has changed in regard to physicians' training in nutrition and diet. The difficulties in obtaining helpful dietary advice from physicians and other medical providers and the growing interest in more holistic approaches to the management of IBS have led many patients to take matters into their own hands, self-imposing highly restrictive and potentially dangerous diets. A number of 'exclusion' diets for IBS have received attention over the years but very few have been based upon a clear scientific rationale or found to be effective in high-quality clinical research studies.

The low-FODMAP diet has managed to break this mould and, in so doing, is gradually changing the way that patients and physicians view the role of diet in the management of IBS. I remember first reading about fermentable oligosaccharides, disaccharides, monosaccharides, and polyols, or FODMAPs, in a research paper published by Sue Shepherd and Peter Gibson in 2005. I was intrigued by the FODMAP concept because it made scientific and practical sense. I am quite proud to say that the University of Michigan was one of the first major US medical centres to adopt the low-FODMAP diet as a routine part of treating our patients with IBS. Initial discussions with our physicians and dieticians were typically met with palpable skepticism ('it's way too restrictive,' 'it's too complicated,' 'patients will never do it,' 'just another fad diet,' 'I don't believe it will work'). However, as patients returned with story after story of remarkable improvement, this scepticism was quickly replaced by enthusiasm and praise. Concurrent with the gradual adoption of the low-FODMAP approach has been a dramatic shift in the behaviour of our providers from viewing the low-FODMAP diet as a 'rescue' strategy intended only for those that had failed all

other therapies to now viewing the diet as an *evidence-based, first-line* treatment strategy.

I have no doubt that patients and medical providers will benefit from the easy-to-understand, practical information provided in *The Complete Low-FODMAP Diet*. The availability of this useful resource will help affected patients and interested medical providers to better understand and incorporate the low-FODMAP diet into their lives in a safe, medically responsible and tasty way.

Bon appétit!

**WILLIAM D. CHEY, MD, AGAF, FACG, FACP, RFF**, is Professor of Medicine, Director of the GI Physiology Laboratory, and Co-Director of the Michigan Bowel Control Program at the University of Michigan. He also runs a clinical research group, serves as Co-editor-in-Chief of the American Journal of Gastroenterology, and is on the Board of Trustees of the American College of Gastroenterology and the Board of Directors of the Rome Foundation and Advisory Board of the International Foundation for Functional Gastrointestinal Disorders (IFFGD).

# INTRODUCTION

**ACROSS THE WORLD**, one in ten people suffer from irritable bowel syndrome (IBS) – a chronic condition whose symptoms include abdominal pain and bloating, excessive gas, and diarrhoea or constipation or both, often on a daily basis. While doctors are good at diagnosing it, they don't have much of a track record in fixing the problem.

If you have IBS or suffer from one or more food intolerances or other persistent digestive trouble and are sick of feeling unwell, then this is the book for you. The low-FODMAP diet is the first programme scientifically proven to relieve the symptoms of IBS, and it can also help with other digestive conditions, including Crohn's disease, ulcerative colitis, and coeliac disease (alongside a fully gluten-free diet). The program has transformed the lives of many people and could work for you, too.

FODMAP is the collective abbreviation for a group of fermentable, poorly absorbed short-chain carbohydrates that provide fast food for bowel bacteria and may cause digestive discomfort. **FODMAP** stands for **F**ermentable **O**ligosaccharides, **D**isaccharides, **M**onosaccharides, **A**nd **P**olyols.

If this seems too wordy to get your head around, remember that *saccharide* is simply another word for sugar. Oligosaccharides, disaccharides, and monosaccharides are carbohydrates made up of sugar molecules, and polyols are what we call sugar alcohols, sugar molecules with an alcohol side-chain.

We will describe FODMAPs and the low-FODMAP diet in greater detail later in this book. We'll tell you which foods are safe, which foods you can eat in moderation and which foods you may need to restrict completely – and we'll help you adjust to a personalised low-FODMAP diet that accommodates your individual food intolerances and preferences. For now, here are some key points about the diet:

- It has been scientifically proven.
- It provides all the nutrients you need.
- It can help you stay symptom-free in the long term – some people have lived symptom-free on their individualised diet for months and even years.
- It won't cure your IBS, but it will help to prevent triggering your symptoms.

If you have been troubled by IBS in the past, we feel confident that you will find great relief in following the low-FODMAP diet outlined in this book. Once you're up and running, you might need to keep referring to the book as you go, but with time the diet will become second nature to you. Soon you'll simply feel better than you ever did, without having to put too much effort into the 'how'. And using the recipes in this book will help make your process of adaptation to the diet much smoother.

Sincere best wishes for good health.

*Dr Sue Shepherd and Dr Peter Gibson*



PART ONE

**All About  
the Low-  
FODMAP Diet**





**How Food Can  
Trigger Gut  
Symptoms**

CHAPTER

ONE



# THE HUMAN GUT

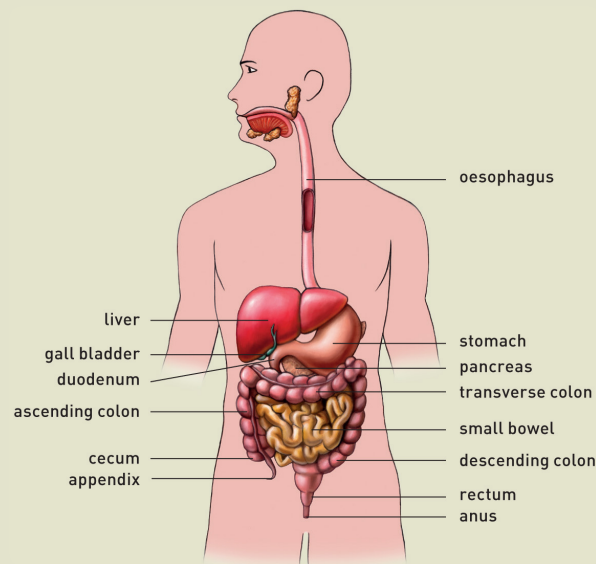
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In order to understand the various disorders and symptoms related to the foods we eat, it is helpful first to understand the gut, its structure (anatomy), and how it works. The gut is also known as the gastrointestinal tract, the digestive tract or the alimentary tract. The main job of the gut is to take in food, break it down so that energy and nutrients can be extracted and then expel the remaining waste. In the process, the gut also has to protect the body from exposure to things that are toxic or not good for it in other ways.

It is easiest to think of the gut as a hollow tube that runs from the mouth to the anus. This long tube, which averages about six metres, is made up of many layers and divided into various parts, each of which performs a specialised function. After you swallow your food, it enters the *oesophagus*, which pushes the food down into your *stomach*, where food is liquefied and sterilised, and digestion begins. The semidigested food then passes into the *small intestine* or *small bowel*, where food is broken down into its simple building blocks (sugars, amino acids and fatty acids) and the nutrients are absorbed. The small intestine has three sections with different roles in breaking down food and absorbing nutrients: the *duodenum*, the *ileum* and the *jejunum*.

The leftovers then move into the *large intestine* or *large bowel*, where salts and water are reabsorbed as the contents pass slowly around the several components of the large bowel: the *cecum*, the *ascending colon*, the *transverse colon*, the

*descending colon*, and the *rectum*. The contents are packaged into stools that are then excreted via the *anus*.



While some *intestinal bacteria* are present in the small bowel, the large bowel contains vast numbers of them. These bacteria feast on undigested or indigestible food, producing short-chain fatty acids that nourish the lining of the large bowel and gas that contributes to flatulence.

The whole process of mixing and moving contents around the gut is controlled by a complex of nerves in the wall of the gut known as the *enteric nervous system* (ENS) or 'gut brain'. The ENS senses what is going into the gut and controls its motility (i.e., muscle activity and its coordination). Although the ENS is connected to and can be influenced by the brain (and vice versa), it can function without these connections, using its own networks of neurons (nerves). The brain can influence both our perception of what is happening in the gut and also the activity, or 'tuning', of the ENS. The interaction between the brain and gut is different for each individual and can depend on factors such as state of mind, surrounding environment, the presence

or absence of distractions and past experiences, as well as the gut's sensitivity to stimuli. For more on the human gut and the ENS, see the comprehensive information on this book's website, [www.thelowfodmapdiet.com](http://www.thelowfodmapdiet.com).

This book focuses on a diet-based management plan for irritable bowel syndrome and other digestive conditions. But before we get to that, we would like to describe some important information about digestion and conditions that can cause digestive symptoms.

## Gut reactions to food

As you can see, digestion is a complex process that involves many parts working in harmony. When one or more parts of the gut is 'out of tune', negative reactions may result. The terms *food allergy*, *food hypersensitivity* and *food intolerance* are often used interchangeably and quite incorrectly. There are two very different types of adverse reaction to food:

1. ***Immunological reactions.*** These are reactions to a protein in the food and involve the immune system. This type of reaction, often called a *food allergy* or *food hypersensitivity*, is quite uncommon (affecting about one in fifty people). These reactions are always reproducible, reliable responses to particular foods that occur even after consuming only a small amount of the food.
2. ***Non-immunological reactions.*** These reactions do not involve the immune system and are usually referred to as *food intolerances*. They are very common (affecting about

one in five people). These reactions can vary and depend on the amount consumed, timing of the meal and other meals consumed in that day.

## COELIAC DISEASE

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### WHAT IS IT?

Coeliac disease is an extreme example of food hypersensitivity. It is the result of an immune reaction to gluten that severely injures the body, and has been called an autoimmune disease (because the body turns on itself). Gluten is the main protein in wheat, rye and barley. Some people with coeliac also react to avenin, the protein in oats. When people with coeliac disease eat foods containing gluten, the lining of their bowel is damaged by the white blood cells of their immune system (not by antibodies as in a food allergy).

### SYMPTOMS

These range from none at all to nausea, flatulence, bloating, altered bowel habits (constipation or diarrhoea or a combination of both), fatigue of varying severity and even skin rashes and liver or neurological problems. It can cause vitamin and mineral deficiencies (particularly of iron, folic acid, zinc and vitamin D) and can also cause malnutrition through weight loss and loss of muscle mass (although this is less common these days).

### DIAGNOSIS

The diagnosis of coeliac disease is through blood tests to measure certain types of antibodies that occur only in people with coeliac disease. If blood tests are positive, then an upper GI endoscopy (an examination of the upper gut using an endoscope) is performed and tissue samples are taken from the duodenum (the beginning of the small bowel). The samples are examined to see if the bowel lining is damaged in the pattern typical of coeliac disease.

Before the tests, patients are asked to consume foods that contain gluten (e.g., the equivalent of four slices of bread per day) for at least six weeks. If the tests are negative (normal) but you have been following a gluten-free diet, neither you nor your doctor will be any the wiser about whether you have coeliac disease, and you will need to undergo the tests again. It is *essential* to have these tests before you start a gluten-free diet.

## **TREATMENT**

The only way to treat coeliac disease is with a gluten-free diet for life: no wheat, rye, barley and products derived from them, ever. Some people react to oats and need to restrict these, too. Oats tend to be contaminated with gluten-containing grains, so even those who need not avoid oats entirely should consume only certified gluten-free oats. Eating gluten-free usually requires a major change in diet, but as a rule, the gut symptoms, fatigue and other problems disappear over time and the bowel slowly heals. Many complications can occur if coeliac disease is not recognised and treated, including thinning of the bones (osteoporosis), infertility, miscarriage, liver disease and even lymphoma, a cancer of the lymph nodes. This is why it is so important to investigate the cause of gut

symptoms. About one in twenty people diagnosed with irritable bowel syndrome has coeliac disease. A gluten-free diet is usually a very effective treatment for IBS symptoms for those who have coeliac disease. If you are diagnosed with coeliac disease and suffer from gut symptoms despite following a strict gluten-free diet, talk to a registered dietitian about whether the low-FODMAP diet would help you.

## FOOD HYPERSENSITIVITIES

Food hypersensitivities, including food allergies, are immune reactions to a specific component in a food (called an allergen), which is almost always a protein. Symptoms include hives, asthma, a runny nose and mouth-swelling. The foods that most commonly cause adverse reactions are shellfish, eggs, fish, milk, tree nuts and peanuts, sesame seeds, soy, wheat, rye, barley and oats. With food allergies, the body reacts to the allergen by producing an antibody to it or with other immune responses. The symptoms experienced depend on the immunological reaction within the body.

### Food allergies

In a true food allergy, the body makes antibodies known as immunoglobulin E (IgE). When the antibodies and the allergen meet, it triggers the release of histamine and other defensive chemicals into the body. These chemicals can cause reactions in the mouth, gut, skin, lungs, heart and blood vessels. Symptoms can include itching, burning and swelling of the mouth, runny nose, skin rash, diarrhoea and abdominal cramps, breathing difficulties, vomiting and nausea. In severe cases they can be life