

LEARNING MADE EASY



Gut Health

for
dummies[®]

A Wiley Brand



Eat for optimal gut health,
supporting overall health

—
Understand the science of
gut health and the microbiome

—
Demystify digestive
symptoms

Kristina Campbell, MSc

Science writer and gut health
ambassador



Gut Health

by Kristina Campbell, MSc

for
dummies[®]
A Wiley Brand

Gut Health For Dummies®

Published by: **John Wiley & Sons, Inc.**, 111 River Street, Hoboken, NJ 07030-5774, www.wiley.com

Copyright © 2024 by John Wiley & Sons, Inc., Hoboken, New Jersey

Published simultaneously in Canada

No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, scanning or otherwise, except as permitted under Sections 107 or 108 of the 1976 United States Copyright Act, without the prior written permission of the Publisher. Requests to the Publisher for permission should be addressed to the Permissions Department, John Wiley & Sons, Inc., 111 River Street, Hoboken, NJ 07030, (201) 748-6011, fax (201) 748-6008, or online at www.wiley.com/go/permissions.

Trademarks: Wiley, For Dummies, the Dummies Man logo, Dummies.com, Making Everything Easier, and related trade dress are trademarks or registered trademarks of John Wiley & Sons, Inc., and may not be used without written permission. All other trademarks are the property of their respective owners. John Wiley & Sons, Inc., is not associated with any product or vendor mentioned in this book.

LIMIT OF LIABILITY/DISCLAIMER OF WARRANTY: WHILE THE PUBLISHER AND AUTHORS HAVE USED THEIR BEST EFFORTS IN PREPARING THIS WORK, THEY MAKE NO REPRESENTATIONS OR WARRANTIES WITH RESPECT TO THE ACCURACY OR COMPLETENESS OF THE CONTENTS OF THIS WORK AND SPECIFICALLY DISCLAIM ALL WARRANTIES, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NO WARRANTY MAY BE CREATED OR EXTENDED BY SALES REPRESENTATIVES, WRITTEN SALES MATERIALS OR PROMOTIONAL STATEMENTS FOR THIS WORK. THE FACT THAT AN ORGANIZATION, WEBSITE, OR PRODUCT IS REFERRED TO IN THIS WORK AS A CITATION AND/OR POTENTIAL SOURCE OF FURTHER INFORMATION DOES NOT MEAN THAT THE PUBLISHER AND AUTHORS ENDORSE THE INFORMATION OR SERVICES THE ORGANIZATION, WEBSITE, OR PRODUCT MAY PROVIDE OR RECOMMENDATIONS IT MAY MAKE. THIS WORK IS SOLD WITH THE UNDERSTANDING THAT THE PUBLISHER IS NOT ENGAGED IN RENDERING PROFESSIONAL SERVICES. THE ADVICE AND STRATEGIES CONTAINED HEREIN MAY NOT BE SUITABLE FOR YOUR SITUATION. YOU SHOULD CONSULT WITH A SPECIALIST WHERE APPROPRIATE. FURTHER, READERS SHOULD BE AWARE THAT WEBSITES LISTED IN THIS WORK MAY HAVE CHANGED OR DISAPPEARED BETWEEN WHEN THIS WORK WAS WRITTEN AND WHEN IT IS READ. NEITHER THE PUBLISHER NOR AUTHORS SHALL BE LIABLE FOR ANY LOSS OF PROFIT OR ANY OTHER COMMERCIAL DAMAGES, INCLUDING BUT NOT LIMITED TO SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR OTHER DAMAGES.

For general information on our other products and services, please contact our Customer Care Department within the U.S. at 877-762-2974, outside the U.S. at 317-572-3993, or fax 317-572-4002. For technical support, please visit <https://hub.wiley.com/community/support/dummies>.

Wiley publishes in a variety of print and electronic formats and by print-on-demand. Some material included with standard print versions of this book may not be included in e-books or in print-on-demand. For more information about Wiley products, visit www.wiley.com.

Library of Congress Control Number: 2024931600

ISBN: 978-1-394-22658-0 (pbk); ISBN 978-1-394-22660-3 (ebk); ISBN 978-1-394-22659-7 (ebk)

Contents at a Glance

Introduction	1
Part 1: Understanding Why Gut Health Is Important	7
CHAPTER 1: No Healthy Gut, No Health Glory	9
CHAPTER 2: Grasping How the Digestive System Works	19
CHAPTER 3: Getting to Know Your Gut's Ecosystem of Microbes	33
CHAPTER 4: Discovering What Influences Gut Health	55
CHAPTER 5: Connecting the Dots from Gut Health to Overall Health	73
Part 2: Restoring Your Gut Health	99
CHAPTER 6: Demystifying Digestive Symptoms	101
CHAPTER 7: Understanding Digestive Diagnoses	115
CHAPTER 8: Empowering Yourself without a Diagnosis	135
CHAPTER 9: Navigating Life with Digestive Symptoms	145
Part 3: Optimizing Your Gut Health	159
CHAPTER 10: Eating for Good Gut Health	161
CHAPTER 11: Adjusting Your Lifestyle For Long-Term Gut Health	201
CHAPTER 12: Becoming Savvy with Gut Health Science	219
Part 4: Nourishing Yourself and Your Gut	231
CHAPTER 13: Nourishing Soups & Salads	233
CHAPTER 14: Gut-Friendly Main Courses	245
CHAPTER 15: Sustaining Sides & Snacks	257
CHAPTER 16: Digestive-Friendly Desserts	269
Part 5: Supporting Health through the Gut at Times in Life	281
CHAPTER 17: Paying Attention to Gut Health in Pregnancy, Birth, and Infancy	283
CHAPTER 18: Fostering Good Gut Health in Children and Teens	303
CHAPTER 19: Maintaining Gut Health in Older Age	317
Part 6: The Part of Tens	325
CHAPTER 20: Ten Foods for Better Gut Health	327
CHAPTER 21: Ten Myths about Gut Health Debunked	337
Index	347

Recipes at a Glance

Soups

☺ Buckwheat Noodle Miso Soup	238
Chicken Barley Soup	236
☺ Double Pea Soup	239
Italian White Bean Soup	235
Kale Sausage Soup	237

Salads

☺ Greek Quinoa Salad	244
☺ Mexican Lentil Salad	242
☺ Summer Watermelon Salad	243
Tangy Tuna and White Bean Salad	241

Main Courses

☺ Butternut Cheesy Mac	248
Crispy-Topped Halibut	255
☺ Easy Chickpea Feta Bake	251
☺ Fantastic Veggie Frittata	249
Mediterranean Tomato Almond Chicken	254
☺ Quick 'n Tasty Veggie Curry	250
☺ Roasted Vegetable Ratatouille	247
Rustic Noodles and Cabbage	256
☺ Savory Miso Noodle Bowls	252

Sides

☺ Balsamic Glazed Mushrooms	259
☺ Classic Creamed Spinach	260
☺ Mediterranean Baked Rice	262
☺ Tangy Jicama Sticks	263
☺ Zucchini with Parmesan	261

Snacks

☺ Cannellini and Parsley Dip	266
☺ Kimchi Pancakes	267
☺ Miso Snack Mix	265
☺ Spiced Chickpeas	268

Desserts

🍌 Banana Oat Muffins	271
🍌 Beanie Brownies with Chocolate Kefir Icing	277
🍌 Cardamom Oat Cookies	276
🍌 Cranberry Breakfast Cake	274
🍌 Orange Kefir Cake	272
🍌 Peanut Butter Oat Cookies	278
🍌 Pumpkin Spice Baked Apples	279
🍌 Rhubarb Cake	273

Table of Contents

INTRODUCTION	1
About This Book	2
Foolish Assumptions	4
Icons Used in This Book	4
Beyond the Book	5
Where to Go from Here	5
PART 1: UNDERSTANDING WHY GUT HEALTH IS IMPORTANT	7
CHAPTER 1: No Healthy Gut, No Health Glory	9
Defining Gut Health	9
Discovering the meaning of gut health	10
Identifying components of gut health	11
Why gut health matters more than ever	12
Picturing Your Gut	13
Understanding how your gut works	13
Meeting the microbes	13
Linking gut health to how you feel	14
Managing Your Gut Health	14
Identifying symptoms	14
Recognizing possible diagnoses	15
Making dietary and other lifestyle changes	15
Staying proactive about gut health throughout life	16
CHAPTER 2: Grasping How the Digestive System Works	19
Keeping the Outside from Coming Inside	20
Reviewing the Parts of the Digestive Tract and How They Work	22
The mouth and oropharynx	24
The esophagus	24
The stomach	25
The small intestine	25
The large intestine and anus	26
Recognizing the Essentials about Gut Function	28
Getting to know your gut's nervous system	28
Understanding gut motility	28
Delving into gut chemistry	30
Knowing about immune system interactions	31

CHAPTER 3:	Getting to Know Your Gut's Ecosystem of Microbes	33
	Meeting Your Gut Microbiome	34
	Getting acquainted with your gut's inhabitants	34
	Getting acquainted with the microbes	35
	Identifying what's in your gut	36
	Exploring the microbes in your digestive tract	39
	Determining what microorganisms can do	40
	Finding Out What Your Gut Microbiome Does for You	41
	Fortifying your gut barrier	41
	Keeping your immune system on a leash	43
	Making vitamins	44
	Transforming your food	45
	Modifying your medicines	46
	Pulling the strings of your metabolism	46
	Guiding your development	47
	Understanding How You Get Your Unique Gut Microbiome	48
	Microbes influencing you before birth?	49
	Bathing in microbes at birth	49
	Identifying early-life influences	50
	Tracking microbes as you age	51
	Considering the genetic connection	51
	Aiming For Diversity and Resilience of Your Gut Microbiome	51
	Recognizing diversity in the gut ecosystem	52
	Knowing what makes a resilient gut community	53
CHAPTER 4:	Discovering What Influences Gut Health	55
	Eyeing How Medications Alter Your Gut	57
	Antibiotics	58
	Chemotherapy and radiation therapy	60
	Metformin	61
	Nonsteroidal anti-inflammatory drugs	61
	Proton pump inhibitors	62
	Linking Eating Habits to Gut Health	63
	Your daily bread — The foods you eat	63
	Patterns prevail — The balance in your diet	65
	Connecting Exercise and Fitness to Gut Health	66
	Working out	66
	Achieving fitness	67
	Seeing How Your Brain Influences Your Gut	67
	Coping with worry — a stressed gut	67
	Monitoring mood	68

Tying Sleep Habits to Gut Health	68
Sleeping enough	68
Sleeping well	69
Dealing with jet lag	69
Exploring How Infections Alter Your Gut	69
Experiencing sudden sickness due to infectious diarrhea	70
Wreaking havoc — stealthy microbes	70
Influencing Gut Health — Other Factors at Play	71
Looking at geography: Where in the world?	71
Going wild: How nature impacts gut health	72
Investigating house and home	72

CHAPTER 5: Connecting the Dots from Gut Health to Overall Health

Seeing How the Gut Connects with Other Organ Systems	74
Gut-skin axis	74
Gut-lung axis	75
Gut-brain axis	75
Gut-liver axis	77
Gut-kidney axis	78
Researching the Gut and What May Cause Diseases	78
Examining the missing microbes hypothesis	79
Looking to the gut for the cause of diseases	81
Linking the Gut to Specific Diseases and Conditions	81
Allergies	82
Alzheimer's disease	82
Amyotrophic lateral sclerosis	83
Anorexia nervosa	83
Anxiety	84
Arthritis	84
Asthma	85
Atopic dermatitis	85
Autism spectrum disorder	86
Cancer	87
Cardiovascular disease	87
Celiac disease	87
Chronic kidney disease	88
Clostridioides difficile infection	88
Depression	89
Diabetes, type 1	89
Diabetes, type 2	89
Fatty liver disease	90
Graft-versus-host disease	90
HIV infection	91

Inflammatory bowel disease	91
Irritable bowel syndrome	92
Multiple sclerosis	92
Necrotizing enterocolitis	93
Obesity	93
Parkinson's disease	94
Severe acute malnutrition	94
Systemic lupus erythematosus	95
Preventing Disease through the Gut	95
Aiming to prevent disease by maintaining gut health	96
Important times of life for paying attention to gut health	97

PART 2: RESTORING YOUR GUT HEALTH 99

CHAPTER 6: Demystifying Digestive Symptoms 101

Understanding Who Gets Digestive Symptoms	102
Occasional symptoms	102
Symptoms as part of digestive disease	103
Clarifying Specific Digestive Symptoms	103
Abdominal pain or discomfort	104
Bloating and distension	105
Constipation	106
Diarrhea	106
Gas and burping	107
Gastrointestinal bleeding	108
Heartburn	109
Incontinence	110
Nausea	110
Regurgitation	110
Small intestinal bacterial overgrowth	111
Swallowing difficulties	111
Vomiting	112
Identifying Charlatan Conditions	112
<i>Candida</i> overgrowth	112
Dysbiosis	113
Leaky gut syndrome	114

CHAPTER 7: Understanding Digestive Diagnoses 115

Diagnosing Digestive Disorders	116
Identifying who makes the diagnosis	116
Digging into your medical history	117
Detailing symptoms	118
Undergoing a physical examination	118
Taking tests	118
Putting the information together	121

Looking At the Major Digestive Disorders	122
Celiac disease	122
<i>Clostridioides difficile</i> infection	122
Colorectal cancer	122
Crohn's disease	123
Diverticular disease	123
Functional dyspepsia	123
Gallbladder disease	123
Gastroesophageal reflux disease	124
Gastroparesis	124
Irritable bowel syndrome	124
Lactose intolerance	124
Peptic ulcers	125
Ulcerative colitis	125
Embracing Your Diagnosis	125
Coming to terms with your condition	125
Arming yourself with scientific knowledge	126
Identifying the Types of Interventions for Digestive Disorders	127
Taking medications	127
Changing what you eat — dietary interventions	128
Taking dietary supplements	131
Exercising	132
Seeking out acupuncture	132
Undergoing the knife — surgery	133
Getting a fecal transplant	133
CHAPTER 8: Empowering Yourself without a Diagnosis	135
Progressing toward Health	136
Taking symptom management into your own hands	137
Deciding on and implementing interventions	139
Staying Hopeful	143
Talking about gut health	143
Finding community	144
Keeping a gut health journal	144
CHAPTER 9: Navigating Life with Digestive Symptoms	145
Managing Your Digestive Symptoms	146
Coping at home	147
Minimizing digestive issues in public	148
Visiting others' homes	149
Eating out and socializing without worry	150
Enjoying travel	151
Managing in the workplace	152
Navigating dating and intimacy	152

Taking Advantage of Technology	153
Specialized apps	154
Other technology	155
Getting Support	155
Disclosing digestive symptoms	155
Providing support	156
PART 3: OPTIMIZING YOUR GUT HEALTH	159
CHAPTER 10: Eating for Good Gut Health	161
Covering the Nutrition Basics	162
Carbs, protein, and fats, oh my	162
Vitamins and minerals	164
You Are What Your Gut Microbes Eat	165
Avoiding the fat-sugar combo	166
Finding a better diet pattern — The Mediterranean diet	167
Being cautious with restrictive diets	168
Discovering the Principles of Gut-Friendly Diets	169
Diet principle No. 1 — Focusing on fiber	170
Diet principle No. 2 — Making it fermented	172
Diet principle No. 3 — The more microbes, the merrier	176
Diet principle No. 4 — Balancing fats	179
Diet principle No. 5 — Saying adios to additives	181
Navigating the Biotics	184
Clarifying some confusion around biotics	184
Probiotics — Beneficial live microbes	186
Prebiotics — Food for beneficial microbes	190
Synbiotics — A perfect pairing	193
Postbiotics — Nonliving beneficial microbes	195
Getting Personal with Diet	196
Responding to foods	196
Aiming for a diet that protects	197
Arming Yourself with Practical Tips for a Gut-Friendly Diet	198
Equipping and organizing your kitchen	198
Planning ahead	198
Being realistic about time and costs	199
Dealing with picky eating	200
CHAPTER 11: Adjusting Your Lifestyle For Long-Term Gut Health	201
Improving Your Sleep Habits	202
Striving for better sleep duration	203
Focusing on better-quality sleep	205
Timing your sleep — a gut in sync	206

Exercising on a Regular Basis	207
Finding the right-sized exercise	208
Creating your exercise regimen	209
Managing Stress	210
Dealing with brief stressful moments	210
Coping with chronic stress	212
Going Outside	214
Bathing in nature	215
Getting your hands dirty	215
Looking at Other Lifestyle Factors	216
Adjusting when you eat	216
Taking precautions against infection	217
Knowing the impact of medical interventions	218
CHAPTER 12: Becoming Savvy with Gut Health Science	219
Seeking Science-Based Information on Gut Health	220
Evaluating online information	220
Looking to AI for answers	221
Scrutinizing the science	222
Understanding science news	223
Making Sure You Don't Waste Your Money on Bogus Products and Tests	224
Understanding the basic principles	224
Approaching anecdotes with caution	225
Looking for clues on the label	226
Finding the supporting evidence	227
Hearing from experts	229
Scrutinizing the company	229
Judging how well a product or test works	230
PART 4: NOURISHING YOURSELF AND YOUR GUT	231
CHAPTER 13: Nourishing Soups & Salads	233
Making Gut-Healthy Soups	234
Assembling Salads for a Well-Fed Gut	240
CHAPTER 14: Gut-Friendly Main Courses	245
Satisfying Your Gut with Plant-Based Meals	246
Enjoying Meat and Fish in a Gut-Happy Dish	253
CHAPTER 15: Sustaining Sides & Snacks	257
Supporting Gut Microbes with Sides	258
Making Some Gut-Lovin' Snacks	264

CHAPTER 16: Digestive-Friendly Desserts	269
Baking Muffins and Cakes to Feed Your Gut Microbes	270
Creating Cookies and Other Treats for Delightful Digestion	275
 PART 5: SUPPORTING HEALTH THROUGH THE GUT AT TIMES IN LIFE	281
 CHAPTER 17: Paying Attention to Gut Health in Pregnancy, Birth, and Infancy	283
Supporting Gut Health during Pregnancy	284
Understanding how the gut changes during pregnancy	285
Managing digestive symptoms	287
Eating for trillions plus two	289
Supplementing with biotics	290
Managing chronic stress	291
Using antibiotics wisely	291
Controlling infections	292
Comprehending How Events at Birth Influence the Gut	293
Considering birth mode	294
Grappling with antibiotics at birth	296
Looking at gestational age and preterm status	296
Developing a Healthy Gut in the First Three Months of Life	298
Supporting the infant gut through diet	299
Making use of probiotics	300
 CHAPTER 18: Fostering Good Gut Health in Children and Teens	303
Cultivating Good Gut Health through the First Year of Life	304
Making a healthy transition to solid foods	305
Managing antibiotics in year one	306
Getting exposure to safe diverse microbes	307
Nurturing Gut Health in Childhood	308
Knowing what constitutes normal gut development	309
Establishing good dietary habits for life	310
Enjoying some good ol' fashioned dirt	311
Mitigating childhood adversity	312
Encouraging Good Gut Health in Teens	313
Supporting teens to make good diet choices	314
Getting a dose of nature	315

CHAPTER 19: Maintaining Gut Health in Older Age	317
Finding Out How to Maintain a Healthy Gut in Older Age.	318
Identifying what causes changes in the gut microbiota as you age.	319
Paying attention to diet	320
Managing medications	321
Discovering the Secrets of Gut Health and Longevity	322
Diminishing calories	323
Attending to psychosocial factors	324
 PART 6: THE PART OF TENS	 325
CHAPTER 20: Ten Foods for Better Gut Health	327
Onions	328
Garlic	329
Leeks	330
Jerusalem Artichokes	330
Dandelion Greens	331
Yogurt	332
Kefir	333
Kimchi	333
Sauerkraut	334
Fermented Pickles	335
 CHAPTER 21: Ten Myths about Gut Health Debunked	 337
All Beneficial Microorganisms Are Probiotics	338
Fermented Foods Are Good Sources of Probiotics	339
Probiotics Add Healthy Bacteria to Your Gut Microbiome	340
Different Probiotics Are Interchangeable	340
Multiple Strains Are More Effective Than Single Strains	341
You Shouldn't Take Probiotics While Taking Antibiotics	342
Probiotics Aren't Regulated	343
Prebiotics and Fiber Are the Same	344
Postbiotics Are Metabolites Produced by Bacteria in Your Gut	345
Gut Microbiome Tests Can Give You Information to Shape Your Diet	345
 INDEX	 347

Introduction

I can't convey how exciting it's been to watch gut health gradually emerge into the mainstream. Over a decade ago when I was experiencing debilitating gut symptoms every day, digestion was kept very hush-hush. The science was just starting to emerge, and useful science-based resources were almost nonexistent. When I started writing about gut health and the microbiome, most people who knew me were perplexed. More than once I took an editor's call in a coffee shop and the people at the next table — overhearing me talk about digestion — discreetly moved to another location.

But somewhere along the line, gut health went big. Maybe it was the incredible advancements in gut microbiome science or the publication of popular books on the digestive system, such as Giulia Enders' *Gut*. Maybe it was the fact that fecal matter became established as a lifesaving cure for recurrent *Clostridioides difficile* infection. Now gut health is everywhere — in popular books, on social media, in blogs, in newspapers and online articles, and in documentary films — and now in this book, *Gut Health For Dummies*.

Whether you're here out of desperation to rid yourself of symptoms or you're a fan of GutTok or other gut health content on social media, you've come to the right place. This book gives a solid scientific grounding in everything related to the gut — and this exciting journey shines a light on some dark and twisty corners of your body, with lots of surprising facts along the way. If you become squeamish at any time during this journey, just put down the book, pour yourself a tall glass of water, and remind yourself that what goes in must come out in one way or another. Appreciate that the gut is an incredible, complex system that enables you to be who you are as a human.

Gut health is getting more exposure at just the right time — because more and more people are experiencing digestive health problems that affect their lives. According to the American Gastroenterological Association, up to 70 million people in the United States have a gastrointestinal disease that interferes with their quality of life. And digestive problems have gotten in the way of desired activities for 40 percent of people at some point. In Canada, the incidence of digestive disease is even higher than in the United States — more than 50 percent of people are affected by symptoms. Despite these high numbers, many people delay seeking medical advice for gut-related issues. I hope this book brings clarity about your

gut health experiences so you feel confident seeking the care you need — and take proactive steps to avoid gut health problems for many years into the future.

About This Book

Gut Health For Dummies isn't like the other gut health books on bookshelves. Most books about gut health purport to have the one-and-only solution to fix your gut health, whether it's a six-step plan, a restrictive diet, or an expensive array of supplements. The problem with those approaches is that they don't have adequate scientific support: They may have worked well for some person at a particular time, but they're not shown to work reliably. And they're often short-sighted, treating diet as the only thing that matters for gut health. (Spoiler alert: This book identifies many different aspects of your lifestyle that converge to shape your gut health.)

I suffered through years of digestive symptoms without a diagnosis and eventually found relief by changing multiple aspects of my lifestyle, which I share throughout this book. Now, I'm passionate about understanding the science and knowing how to apply it in real life, so everything I report in these pages is based on genuine scientific findings and expert opinion, without hyping any individual findings. Because I make a living working with scientists in this field, I take great care to ensure that everything I say is appropriate and evidence-based according to what they'd expect.

Here I give you the knowledge to tell what claims and information are scientifically backed — so you can understand which products are likely to work versus which ones are relying on more of a wish and a prayer. When you're able to evaluate products with a critical eye, you're not at the mercy of whichever company has the biggest marketing budget. I aim to create the resource that I never had when I suffered from my own gut health issues and felt bombarded by all kinds of confusing and expensive products, all claiming to cure what ailed me. Now with the increased popularity of gut health, the market is even more saturated with products purporting to fix your gut. However, I understand that daily decisions are complex, so if you end up deciding, because of a friend's recommendation or a social media influencer, that you want to try consuming a product with no scientific proof that it works, that's your choice. I only hope you'll be able to navigate your way through the world of gut health with awareness and better confidence.

In true *Dummies* style, the information in this book is presented in a clear, concise format with practical tips throughout. I capture the latest scientific thinking and translate it into everyday actions that represent the best-known ways to take care of your gut throughout your life.

This book extensively covers the microbiome of your gut. Your digestive tract microbiome is really several different microbiomes in different locations. Yet the microbiome of the colon is by far the most frequently studied because of the ease of collecting samples. (I mean, everyone deposits samples of this microbiome regularly into the toilet.) So, the term “gut microbiome” in scientific papers most often refers to the colonic, or fecal, microbiome. Throughout this book, therefore, gut microbiome refers to the colonic microbiome unless otherwise specified.

Sources of information about gut health often use dysbiosis to refer to a disrupted or abnormal gut microbiome. Dysbiosis can look a million different ways, even for a single disease. It can’t even be defined as an imbalance between good and bad bacteria in the microbial ecosystem because the concepts of “good” and “bad” simply don’t apply to microorganisms. For these reasons, dysbiosis has fallen out of favor in the scientific community, and I avoid it as well in this book. I tend to use the general terms “difference” or “disturbance” when talking about gut microbiome alterations associated with poorer health, lest people think dysbiosis is something that can be specifically defined and diagnosed.

The recipes in this book are complete, but they may not spell out every detail of prepping and cooking the food. For example, certain steps and techniques in cooking are standard no matter what you’re preparing. In addition, I require specific types of ingredients and also want to make sure that you adhere to a few of my other cooking preferences. Take a quick look at the following list for points that apply to all the recipes:

- » Fruits and vegetables are washed under cold running water before using.
- » Pepper is freshly ground pepper. Invest in a pepper mill and give it a few cranks when you want pepper bursting with flavor.
- » Fresh herbs are specified in many of the recipes for their bright, authentic flavor. But you can still make a recipe if you don’t plan to use these by substituting dry herbs, using one-third the amount of fresh.
- » Dairy products are low-fat.
- » Eggs are large unless otherwise indicated.
- » Olive oil is extra-virgin unless otherwise indicated.
- » All onions are sweet unless otherwise indicated.
- » Water is filtered water.
- » All temperatures are Fahrenheit.
- » Keep pots uncovered unless I tell you to put on the lid.
- » 🍅 This tomato icon indicates that the recipe is vegetarian.

Foolish Assumptions

When writing this book, I make the following assumptions about you:

- » You've heard about gut health but may not be familiar with the scientific jargon, so I define new terms as they're introduced.
- » You're suffering from digestive symptoms and you're open to seeking medical help and taking advantage of the interventions that have the best scientific support.
- » Even if you don't have regular digestive symptoms, you're also interested in leveraging the best science to maintain your gut health and overall wellness.

Icons Used in This Book

Throughout this book you'll see the following icons to draw your attention to certain paragraphs.



TIP

When you see this icon, it flags practical advice for putting gut health science into practice.



REMEMBER

This icon highlights key points that help you gain a better understanding of gut health in general.



TECHNICAL
STUFF

This icon indicates more detailed (nonessential) information for people who want to level up their knowledge.



WARNING

This icon alerts you about what to watch out for if you want to avoid gut health problems.



SCIENTIST
SAYS

This icon shows where a leading scientist weighs in specially for this book to bring you the latest knowledge in the field.

Beyond the Book

I hope you continue your gut health journey even after you read the last page of this book. For more information, you can check out the book's accompanying Cheat Sheet — go to www.dummies.com and search for “Gut Health For Dummies Cheat Sheet.”

This book is also available as an audiobook — check it out on your favorite audiobook platform.

If you want to share any feedback with me, contact me through my website: www.bykriscampbell.com.

Where to Go from Here

This book is designed so you can jump in and start reading anywhere you want. If you prefer a refresher on the digestive tract and how it works, Chapter 2 is the ideal place to start. But if you have a clear memory of those eighth-grade lessons on the digestive tract and need to get up to speed on the microbes living there, start at Chapter 3.

For symptom SOS, jump right in at Chapter 6, or if you're lucky enough not to suffer from major digestive symptoms, you can skip to Chapter 10, which covers how to optimize your diet for gut health. Chapters 13 to 16 have some recipes to try out for supporting your gut if you're a generally healthy person.

If you're not sure where to begin, flip through the table of contents or index and find a topic that piques your interest.

1 Understanding Why Gut Health Is Important

IN THIS PART . . .

Explore the emerging meaning of gut health and how it's different from digestive health.

Delve into the workings of the digestive system and how it achieves a fine balance between letting in what nourishes you and keeping out harmful substances.

Get a handle on the microorganisms that make their home in the digestive tract and examine what their surprisingly important roles are in maintaining your health.

Find out about the factors in your lifestyle that influence the gut microorganisms and gut health overall.

Discover the connections that scientists are making between your gut health and various diseases — not only digestive diseases, but also metabolic conditions, brain conditions, and more.

IN THIS CHAPTER

- » Exploring what gut health means and why it's so important
- » Visualizing your digestive system and how the parts work together
- » Recognizing approaches to managing your gut health

Chapter **1**

No Healthy Gut, No Health Glory

If your body is a temple, your gut is its grand, elaborate foyer. The gut serves as a point of entry for food, medicines, and other substances — and that's where the action begins, but not everything makes it past this entrance hall. Some substances get sent out another door promptly, and others discard layers or become transformed before gaining access to other parts of the body through the gut barrier. The digestive system is your body's primary interface with the outside environment, so it's an area that's not outside you, and not fully inside you either.

Just as managing visitors through the foyer helps keep order in the rest of the building, keeping your gut in good working order is essential for your body's overall health. This chapter dives into what gut health is, then gives an overview of what the digestive tract looks like and how it functions. Finally, this chapter covers the essentials of managing your gut health if you have symptoms or if you want to optimize an already healthy gut.

Defining Gut Health

Decades ago, the term “gut health” didn't even exist. And 10 years ago when I was starting to write about this field, people I interviewed told me the first thing that came to mind when they heard the word “gut” was a protruding belly (as in the

phrase “beer gut”). But starting around 2014 I began to hear about gut health more and more, and now, gut health is a term people use all the time — in blogs, in the media, in ads, and elsewhere.

Gut health, however, is often used without necessarily having a clear definition. This section clarifies what gut health is so you can use this definition as you navigate this book.

Discovering the meaning of gut health

So far, scientists haven’t agreed on a definition of gut health. Some proposals for the meaning of this term are as follows:

- » Absence of a diagnosed digestive disease
- » Lack of any digestive symptoms
- » Optimal gut structure and function (including the configuration of the gut microbes)

None of these proposals, however, seem to capture the connotations of gut health today and why it’s such a popular topic. Clearly many people (myself included, at one time) who are free of diagnosed digestive disease still don’t have a healthy gut. And as for using digestive symptoms as the gold standard: Some signs of an unhealthy gut, such as gut barrier permeability or mild inflammation, may not result in symptoms but are nonetheless undesired and linked with health problems later on. Even optimal gut structure and function isn’t a definition of gut health that adequately accounts for why the concept is suddenly resonating with millions around the world.



REMEMBER

Because of the general public’s growing awareness of the latest science on the gut microbiome and how digestive health relates to other body systems, gut health has come to mean something more like a state of well-being, both mental and physical, that’s enabled by what happens in the gut. Whereas the term “digestive health” narrowly refers to the digestive tract and how it functions, *gut health* extends to general wellness from the inside out. Because the gut is the body’s crossroads of digestion, immunity, and metabolic health, overall health and well-being can’t be achieved without a healthy gut. In other words, without gut health there’s no (overall) health glory.

Dietary intake is an important concept intertwined with gut health. The popular conceptualization of gut health appears to signal a new awareness about how people’s diets lead to measurable and direct consequences for physical and mental health. Diet, exercise, and other lifestyle factors were previously seen as having

vague and long-term health benefits. But now scientists have found that these factors have almost immediate effects on your gut microbes, which are part of the mechanisms for broader health effects throughout the body. Clearly eating a single donut isn't going to shorten a person's lifespan, but donuts (with their high fat and sugar content) pressure the gut microbes in a certain way so that a habit of eating donuts maintains undesirable changes in the gut, which may take years to become visible through the rest of the body and have negative health consequences.

The current meaning of gut health, then, encompasses the optimal structure and function of the gut — with the acknowledgement that it may have the capacity to promote wellness or prevent illness, especially through what you eat.

Identifying components of gut health

Unfortunately, no hard and fast measures exist to confirm you have a healthy gut — and in fact the medical community is much more skilled at defining an unhealthy gut than a healthy gut. However, a healthy gut is generally associated with some specific outcomes:

- » Having fewer sick days
- » Not requiring a restrictive diet
- » Not needing medications for digestive health or other conditions



REMEMBER

As for assessing gut health more precisely, five parameters may be relevant:

- » **Digestive function:** Whether nutrients are broken down and absorbed properly
- » **Digestive tract structure:** Whether the parts of the digestive tract are structurally intact, with no observable damage from inflammation or other injury
- » **Motility:** If materials are moving through the digestive tract appropriately and at the right speed
- » **Gut microbiota characteristics:** Whether the gut microbial composition and function is appropriate (even though a normal gut microbiota hasn't yet been defined)
- » **Gut-brain axis function:** Whether the communication channels between the gut and the brain support both gut and brain health

Scientists may one day come up with a precise list of how to measure each of these parameters to set a standard for a healthy gut, but until then, gut health is more of a judgment call. It includes conscious efforts to maintain health by using knowledge about what affects the digestive tract and its resident microorganisms, as discussed in Chapter 4 as well as Part 5.

Why gut health matters more than ever

Chronic (also called *noncommunicable*) diseases such as heart disease, cancer, respiratory disease, and diabetes, have become a global health emergency. The World Health Organization (WHO) says chronic diseases are responsible for 74 percent of deaths each year. A recent analysis estimated that, in U.S. adults older than 50, the number with a chronic disease will nearly double between 2020 and 2050 — and healthcare systems are poorly prepared to handle the increasing burden of these diseases.

But an opportunity exists to prove these predictions wrong and reverse the chronic disease trend. Importantly, the following preventable factors contribute to the risk of dying from a chronic disease:

- » Smoking
- » Physical inactivity
- » Harmful use of alcohol
- » Unbalanced diets
- » Air pollution

At least three of these factors — inactivity, alcohol, and dietary intake — are now known to have direct connections to health through the gut. Not to mention, scientists are uncovering connections between gut health and chronic diseases themselves as I explain in Chapter 5. Gut health can provide powerful day-to-day motivation to improve habits that have a direct effect on how likely you are to die from a chronic disease — and can perhaps even prevent chronic disease from occurring in the first place. Thus, gut health is at the center of a prevention revolution, empowering people to take charge of their health through diet and other aspects of their lifestyle.



REMEMBER

From this perspective, gut health is one the keys to unlocking better health and longer, healthier lives. The current popularity of gut health is a positive sign that chronic diseases in your families and communities don't have to match up with the latest bleak projections.