

LEARNING MADE EASY



Diabetes & Keeping Fit

for
dummies[®]
A Wiley Brand

Ease into a fitness routine that works for you

Supercharge your diet, your energy, and your health

Get and stay fit at any age or any stage of life

Dr. Sheri R. Colberg

 **American
Diabetes
Association.**

Diabetes & Keeping Fit

for
dummies[®]
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by Dr. Sheri R. Colberg



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Diabetes & Keeping Fit For Dummies®

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Introduction

Although ending up with a chronic disease that you're likely to have to deal with for the rest of your life is never pleasant, the thing about diabetes (or prediabetes, for that matter) is that it's at least a manageable condition. You can keep on top of your blood glucose (sugar in blood) and keep it as near normal as possible, regardless of which type you have. In doing so, you greatly lower your chances of having to deal with any additional health complications arising from having diabetes. You can't say that about many chronic health issues.

Diabetes & Keeping Fit For Dummies doesn't necessarily contain any groundbreaking techniques to conquer diabetes once and for all. In fact, it may not contain anything that seems that new to you. What it does offer, though, is everything you need to know to not only lengthen your life with diabetes or prediabetes but also live well in a healthy body with a sharp mind until the end of your life, all from the world's leading expert on the topic of diabetes and exercise.

Living a long life is one thing; living it well is something else completely. Really, what's the point of living long if you can't live well and feel your best every day of your life?

About This Book

Diabetes & Keeping Fit For Dummies tries to give you all the tools you need in your lifestyle toolbox to live long and well with any type of diabetes or prediabetes. It provides an overview of the types of diabetes, what makes you more likely to get one type or another, and why your health can benefit so much from managing it and your diabetes simultaneously. Sometimes that involves using the right medications for your diabetes.

You really need to know the basics about how being active affects your body and your blood glucose, why you want to avoid glucose extremes (and how to do it), and how to set up a fitness program that works for you. And, of course, you need to understand how your food choices impact your health and your ability to be active.

Really, there are no wrong activities for someone who wants to get keep fit with diabetes. The right activities for you basically mean anything you can get yourself to do regularly. But some specific options are recommended more than others when you have diabetes, and this book tells you what you need to know about doing those. You should aim to boost your endurance, pump up your strength, find your balance, flex all your joints, and mix it all up to keep it fun and impactful — not too much to ask.

You keep fit at any age (young, old, or in between) or with any health complication typical with diabetes. If you're overweight, no problem. If you're female and/or an athlete, it's more complicated, but I've got you covered.

You now have no reason to consider *exercise* a four-letter word anymore.

Foolish Assumptions

If you bought this book — or even if you got it as a gift and actually opened it to start reading — I can only assume that you're at least a little bit interested in seeing whether you can get more fit. In writing it, I assume that at least one of the following situations applies to you as a unique individual:

- » You're a complete fitness novice who needs all the help you can get, and you're actually willing to read this book to find out how.
- » You know you should be more physically active, but maybe you're lacking the motivation to get active and stay active.
- » You're up off the couch already, but you want to know more about which activities are best for you.
- » Being active is hard for you given the health issues you're dealing with, and you want some help getting as fit as you can just to be healthier or to lose a few pounds in the process.
- » You're an athletic person already, but you hope to pick up some new trick that will make you a better athlete or allow you to easily try a new activity.

Icons Used in This Book

Throughout this book, I use a number of icons in the margins that are intended to grab your attention and help you get more out of your keeping-fit-with-diabetes journey:



TIP

This icon highlights info that helps you better understand a concept or put it into action to save time or frustration. These paragraphs are worth flagging or writing down to help you get fit and stay active. If you do nothing else with this book, read all the time-saving and stress-reducing tips found in each chapter to get moving more.



REMEMBER

This icon points out any information that is worth remembering about getting fit with diabetes — even if you remember nothing else (and you may not!).



WARNING

When you see the Warning icon, take it seriously. These items can truly cause you harm on your fitness journey if you ignore them.



TECHNICAL
STUFF

The Technical Stuff icon lets you know that these paragraphs include nonessential details about certain concepts or the research behind what is known about them. You can skip them if you want to (along with the shaded sidebars), but try reading a few of them as you go through the book, especially if you like to know the why and how about stuff.

Beyond the Book

To access the free online Cheat Sheet that accompanies this book, go to dummies.com and search for this book title. This Cheat Sheet contains articles on various issues related to diabetes nutrition and fitness.

Check out more information about being active with diabetes on my website called Diabetes Motion, which you can access online at www.diabetesmotion.com. It's a free resource, and its blogs and other posts can keep you updated on any new stuff coming out in diabetes fitness.

Another of my websites, Diabetes Motion Academy (www.dmacademy.com), is mostly targeted to fitness professionals and health coaches, but it has some free PDFs you can download that show you additional resistance and flexibility exercises that you can try as part of its fitness resources.

Finally, I've shared a wealth of knowledge over the years on my own website and blogs that you can access for some free advice on just about any topic. Find me online at www.shericolberg.com, and feel free to drop me a line with any questions you have.

Where to Go from Here

You don't have to start at the beginning of this book and read through the chapters in order. If you know enough about the type of diabetes or prediabetes you have and just want to dive deeper into the good stuff, skip the first chapter. If you know a lot about diabetes medications already or just don't want to find out anything else, move on to another topic without looking back.

If you're interested in doing a certain type of activity like balance training or cross-training, just jump straight into the chapter that deals with it. The same goes if you have a certain health issue or need help with taking your training up a notch. Even if you're already a pro on a particular topic, though, you may want to skim through it to see whether anything new has popped up.

If you aren't quite sure where you want to go with your fitness and are willing to invest a little time in your long-term health, just start at the beginning of the book and make your way through it in the usual way — one chapter at a time. You may be surprised at how things have changed in the diabetes world in the past few years.

1

Getting Started with Diabetes

IN THIS PART . . .

Get the basics on diabetes, including the different types, diagnosis and treatment, and importance of keeping fit to manage it and your health.

Understand how diet and exercise can affect diabetes and why physical activity can help insulin work better.

Discover the various types of diabetes medications and find out how exercise can affect you if you use insulin.

IN THIS CHAPTER

- » Picking up the basics about diabetes risk, blood glucose, and insulin
- » Defining the types of diabetes (including prediabetes)
- » Identifying diabetes symptoms and getting a proper diagnosis
- » Working with a blood glucose meter or a continuous monitor
- » Recognizing the important links between fitness and diabetes management

Chapter **1**

Getting an Overview of Diabetes

One in three Americans currently has diabetes or prediabetes; that's over 100 million people in the United States alone. This isn't a small health issue, and it's not likely to go away anytime soon. But what do you really know about diabetes, other than it involves having extra "sugar" in your blood? How do you know whether you have type 1, type 2, or prediabetes? What's the difference?

In this chapter, you find out what makes someone develop diabetes and the types, along with how each is diagnosed. I also explain why a blood glucose meter can become your new best friend and how to get the most information you can out of it.

Knowing Your Risks for Diabetes

What's your risk for getting diabetes? It has gone up substantially in the past few decades. In fact, anyone born in the United States from the year 2000 forward has a one-in-three chance of developing diabetes during his or her lifetime, and the incidence is closer to 50 percent if you're part of a minority group (like African Americans, Hispanics, or Native Americans).

More than 29 million Americans — close to 10 percent of the population — are estimated to already have diabetes, and this number is growing rapidly. Over a quarter of them don't even know they have it. Add in prediabetes, and the number goes up to over 100 million Americans, or one person out of every three.



WARNING

Everyone knows someone who has diabetes, so why worry about it? Because high blood glucose levels can be deadly. Having poorly managed diabetes can rob years from your life, and the shorter time you do have may be lived in much poorer health. Ignorance isn't bliss; ignoring diabetes and not attempting to prevent or manage its possible health consequences isn't the way to go if you want to live long and well.

Worldwide, this disease causes more than 3.2 million deaths per year, or 6 deaths every minute. Many more deaths are likely related to health problems caused by diabetes that are attributed to some other direct cause, such as a heart attack or a stroke, even though diabetes lead to those events. Unfortunately, poorly managed blood glucose can cause problems with almost every part of your body, including your heart, blood vessels, brain, kidneys, nerves, muscles, and bones. It can even lead to impotence and hearing loss.

Okay, so far this section has been depressing. Here's some good news: Most diabetes-related health problems are preventable. You simply need to get more physically active and follow a more healthful diet. If your health care provider prescribes medications, taking those may also help prevent future health issues. The combination of these improved lifestyle choices helps lower your blood glucose and prevent systemic inflammation that leads to heart disease, nerve damage, and other health complications when not thwarted.



REMEMBER

Well-managed diabetes can be the cause of nothing — that is, no health problems.

Understanding the Culprits: Glucose and Insulin

The human body has to manage its own blood glucose, which it does quite effectively in most people most of the time. You have to have enough glucose in your

blood; it's required for your brain and your nerves to function properly. The amount in blood is regulated by a hormone called insulin. The following sections explain how these two components work.



TIP

Think of glucose and insulin as the actor and the director in a performance. The insulin (director) tells the glucose (actor) where to go and what to do to get the best showing out of it. It takes the two coordinating their roles to get the show done.

Glucose is the actor

When people talk about “blood sugar,” they mean *blood glucose*, the primary sugar in your bloodstream that fuels the brain, nerves, muscles, and other cells around the body. Having too little in your blood can kill you. Unfortunately, so can having too much, especially over the long haul.

Normally, your body digests the food you eat and breaks it down into more easily absorbed molecules, of which glucose is one. It's a simple sugar that comes mostly from the carbohydrates you eat.

Blood glucose can come from different sources, but you get it mostly from your food and drinks (although your liver makes some, too). Foods rich in carbohydrates (such as grains, milk, fruit and fruit juice, starchy vegetables, most desserts, and sugary drinks) are released as glucose in your bloodstream after your body digests them. Blood glucose levels normally increase slightly after eating, even if you don't have diabetes. Your brain, nervous system, and active muscles use some of that glucose right away, although all cells in the body use glucose at some point. When everything is working right, the body stores away the rest for later.



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When your blood glucose levels are higher (such as after a meal), extra glucose usually gets packed away and stored in the liver and muscles as *glycogen*. When your blood glucose is low, *glucagon* (a hormone made by the pancreas) is released and signals the liver to let out some of its stored glycogen as blood glucose. When you're active, your muscles also use some of the glycogen stored in them as fuel, but the glucose coming from muscle glycogen stores stays in the muscle and doesn't raise your blood glucose. Using up the glycogen in your muscles by exercising gives your body a place to easily store more carbohydrates after you eat the next time, reducing the amount of excess glucose flowing around in your blood, potentially causing inflammation and damage.

Insulin is the director

When your body is working normally, your blood glucose goes up after you eat a meal, and your pancreas senses this increase and releases a hormone called *insulin*

to help lower it. Insulin works by binding to its receptors on cells in muscle and fat, the primary places where the body can store glucose for later use.

Two separate, but related, aspects of diabetes are associated with your body's insulin. One is how effectively insulin works. If you have type 2 diabetes or prediabetes, insulin may be abundant, but it doesn't work well to lower blood glucose — that is, you have *insulin resistance*. People with other types of diabetes can become insulin resistant as well. The second is the amount of insulin that is available. Persons with type 1 diabetes make little or no insulin; people with prediabetes and type 2 diabetes have an inadequate amount of insulin produced to meet their needs.

Insulin is a hormone made by the pancreas that, when released into the bloodstream, works to allow blood glucose to enter your cells that are insulin sensitive, primarily muscle, fat, and liver cells. Some of it gets used as a fuel by those cells, but the rest is stored in these tissues for later use. During rest, insulin works to make sure that glucose leaves the blood and goes into the cells, which keeps your blood glucose from going too high or staying that way after eating. Unfortunately, excess blood glucose that can't enter cells for any reason can cause damage to your body over time.

The other aspect is how much insulin the pancreas produces. You can be deficient in insulin, meaning that you simply don't make much. People with various types of diabetes can also have this issue. In that case, they may need to take medications to stimulate the pancreas to produce more, take insulin to supplement their supply, or use other medications that lower blood glucose other ways. In either case, your blood glucose may rise too high at various times, such as after you eat, when you're stressed out, if you're ill, and when you exercise vigorously.

Regardless of whether you have insulin that doesn't work well or too little of it overall, exercise can help your body use insulin more effectively. Weight loss can also help. Being more sensitive to the insulin you do have means that less insulin can lower blood glucose more. In people who have insulin resistance, improving the action of insulin may even reverse the course of their disease.



REMEMBER

When overweight people with type 2 diabetes lose just 7 percent of their body weight, their insulin action increases by 57 percent.

Even if you don't have diabetes, you may still be insulin resistant. Being overweight, staying sedentary, and eating a poor diet can all lead to insulin resistance, in which case your body will need more insulin to get the job done. If you're insulin resistant, you can take steps to improve your insulin action that will benefit your overall health.