

Chapter 1

Having Your Diabetes and Eating, Too

In This Chapter

- ▶ Realizing that food is effective medicine for diabetes
 - ▶ Considering your essential role in preserving your health
 - ▶ Keeping your brain working for you
 - ▶ Impacting your health by how you choose to eat
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Hippocrates, sometimes called the father of modern medicine, once said “let food be thy medicine, and medicine be thy food.” When it comes to diabetes, Hippocrates was absolutely correct. It would be difficult to think of another serious medical condition that’s so intimately and immediately connected to food. Yes, there are drugs for diabetes — eight different classes of diabetes drugs, numerous formulations of insulin, drugs that help other drugs work better, and a few drugs that seem to benefit diabetes by accident — and diabetes drugs are extremely important. Without insulin, people with type 1 diabetes could not live. Putting your confidence in drugs alone is insufficient to keep diabetes from affecting your long-term health, and you don’t have to rely on advice that’s more than 2,300 years old to believe that.

The definitive 800-page resource book for diabetes-specialized healthcare professionals in the 21st century, *The Art and Science of Diabetes Self-Management Education* (American Association of Diabetes Educators) begins its chapter on diabetes drugs by reminding professionals and patients that, “*any pharmacologic treatment for type 2 diabetes is only a supplement to lifestyle changes.*” Lifestyle is more important than drugs when it comes to type 2 diabetes. How you choose to eat is the most important, and perhaps the most challenging, lifestyle issue that people with diabetes face, and is just as important for people with type 1 diabetes as for those with type 2. With diabetes, food really is medicine.

Chances are you already have at least a vague idea that what you eat is important to diabetes, and this book will give you the whole story on just how the food choices you make can work to preserve your long-term health. But knowing and doing are two different things, and it’s doing that really counts.

In this chapter you learn about your key role in your own health care, see how overcoming emotion and impulse can help you actually do what you know is best for your health, and get a five-point plan for adding healthy and active years to your life.

Accepting Your Role in Diabetes Management

Whether you have type 1 diabetes or type 2 diabetes, you share one crucial responsibility from your diagnosis going forward — doing your part. In simple terms, you must now become an active helper in your body's metabolism, and the better helper you become, the less likely you are to experience the damage that diabetes can do to your body.

Type 1 diabetes results when your capacity to produce insulin is lost. Type 2 diabetes is related more to your natural insulin being unable to do its job effectively. If you were a car and insulin was gasoline, type 1 diabetes is having an empty tank, and type 2 diabetes is more like lost efficiency from clogged fuel injectors. Managing type 1 diabetes requires constantly adding gasoline; type 2 diabetes requires that you get your fuel injectors to work better. The real story is a little more complicated.

Losing glucose homeostasis

Your body needs to keep a certain concentration of glucose circulating in your blood — a normal blood glucose level. Glucose is the favorite fuel of your trillions of cells, and some really important cells — your brain cells — can't get their energy from anything else. Glucose in your bloodstream is all about energy — it's delivered right to the doorstep of every cell that needs it.

Because glucose enters your blood after you eat carbohydrate foods, causing your blood glucose levels to rise, your body has a way to return those levels back to normal by storing the excess for later. The stored glucose can be released back into the blood when glucose levels drop between meals, keeping a constant supply available for your brain. This kind of balance in a biological system is called *homeostasis*.

The hormone responsible for escorting glucose into storage is insulin, and insulin is automatically released from special cells on your pancreas when blood glucose levels are going higher after eating. If insulin isn't available or isn't working properly, blood glucose can't be stored, and blood glucose levels remain high. High blood glucose levels not only upset glucose homeostasis, but begin to damage cells and tissue.

Chronic high blood glucose levels is diabetes — literally. It's important that you understand diabetes, and Chapters 2 and 3 include a more in-depth explanation. In the simplest terms, having diabetes means your blood glucose levels go up after eating and don't come down to normal levels in a normal amount of time.

Type 1 diabetes results when insulin production capacity is destroyed, and no insulin is available to facilitate glucose homeostasis. Type 2 diabetes begins when the cells that normally store excess glucose stop responding to insulin. So, even though insulin may be available, blood glucose levels remain high. The long-term damage caused by high blood glucose, in either case, can progress to very serious consequences like heart attack, stroke, vision loss, nerve damage, kidney failure, and more. These secondary conditions are called *complications of diabetes*, and avoiding these outcomes is one reason that lowering blood glucose levels is so important.

High glucose levels not only mean that excess glucose can't get into cells to be stockpiled, but glucose can't get into cells to properly fuel energy needs. That means your microscopic cells, like the muscle cells you need to move, don't have access to their favored fuel, and must turn to plan B or plan C for generating energy. Plan B and plan C are ordinarily temporary plans for times of shortage — generating energy without glucose is inefficient, and even produces toxic waste products. Diabetes upsets your entire energy balance.

Taking your place in glucose metabolism

Treating diabetes is not like treating an infected cut, where the problem goes away after a week or two. In fact, diabetes treatment is called *diabetes management*, hinting at a responsibility that requires continuous oversight. And, that's exactly what diabetes management is — continuous oversight. Managing diabetes is like managing a company, or a sports team, or a lawn, or anything else where the goal is to achieve and sustain a certain level of performance. The manager works to provide the best environment and materials for success, looks at performance indicators, sets priorities, makes adjustments to improve efficiency, tries to avoid disruptions, and always keeps a focus on surviving and prospering over the long term.

Effective management is a key to success in business, sports, lawn care, and diabetes. But, while the management responsibilities for businesses, sports teams, and even lawn care can be delegated to professional experts, the extraordinarily important job of managing your diabetes has suddenly fallen on you — diabetes self-management. Not only that, you've inherited responsibility for the equivalent of a business that's failing, a sports team with all its stars on injured reserve, and a lawn that's been overcome by weeds — and the stake is your long-term health.

Fortunately, if you're willing to take this responsibility seriously, there is a proven plan that can turn you into a successful manager of your body's

metabolism. And, as daunting as this might sound, with some dedication and practice you'll be managing your metabolism like a pro, and enjoying the rest of your life's activities even more than before. How's that? Well, like any good manager, success is a little bit of participating, but a whole lot of setting up a system where success is possible.

You can't actually fix your glucose metabolism. You can, however, provide the best environment and materials for success, look at performance indicators, set priorities, make adjustments to improve efficiency, try to avoid disruptions, and always keep a focus on surviving and prospering over the long term. That sort of management strategy lets your natural metabolism work as well as it possibly can, and that's effective diabetes self-management at its best. And, you can do it.

Eating a healthy diet and managing your carbohydrate consumption is essential to your long-term health with diabetes. Taking your medication as directed, exercising regularly, getting adequate rest, reducing stress, and not smoking also have important, sometimes critical, roles in your long-term health, but there's no separating diabetes health from food. Although you may think this challenging part of managing diabetes effectively mostly involves your pancreas, your stomach, or some other food related organ, you might be surprised.

Understanding Your Brain

Right between your ears is your incredible and mysterious brain, and your brain plays essential roles in managing diabetes. But, the different roles your brain plays in diabetes management aren't always in your best interests, and more often than you might imagine messages from your brain make managing diabetes more difficult.

On the surface, literally and anatomically, it's obvious that your brain helps you to understand diabetes, to remember what your healthcare team has advised you to do, to schedule your time, to decide what you're going to eat, and to comprehend what you read in this book. The part of your brain doing your thinking, the outer *cerebral cortex* layer, is an amazing problem solver that has never been duplicated biologically or electronically. Your thinking brain can evaluate hundreds of variables, look at issues from every direction, factor in previous experience, apply concepts that are only abstract, project future outcomes, and come to solidly logical conclusions. When your thinking brain is in charge, it's hard to go wrong. And, if things do go wrong, your thinking brain will figure out exactly why, and make sure the same thing doesn't go wrong again.

But, guess what? Your thinking brain isn't always in charge. At times, the well thought recommendations from your marvelous thinking brain get outvoted. At other times, your thinking brain takes too long to make decisions, allowing another part of your brain to beat it to the punch. There's nothing abnormal about this — in fact some completely illogical behaviors, like risking personal

safety to assist another person, make humans human. But recognizing how your thinking brain can be nullified in diabetes management can lead to more success — you can change the circumstances and give power back to that part of your brain best suited for management.

Seconding that emotion

It's easy to see how your thinking brain gets overruled if you think about emotions. Everyone makes emotional decisions, sometimes to feel a positive emotion, and sometimes to avoid a negative one. Emotional decisions are often completely conscious — you know the decision may not be completely logical, but you're willing to accept that. There's really no way to avoid some emotional decisions, and seeking or avoiding an emotion in a specific circumstance has an emotional benefit. An illogical decision now and then about diabetes is unavoidable.

It's when a particular pattern of emotional decision making becomes a way of life that problems can arise, and when diabetes is involved illogical emotional behavior can be dangerous. Chapter 10 gives you some important insight of how emotion and eating are tied together, but here are some common emotional patterns that really interfere with self-care:

- ✔ Anger and resentment are common, and completely understandable, among people with type 1 diabetes. Type 1 diabetes is a virtually random and completely life-changing event which happens suddenly, mostly to young and otherwise healthy individuals. And, the management responsibilities are more complex than with type 2 diabetes and are unending. But, when natural anger and resentment at fate turns into a defiant refusal to give in to the management responsibilities of type 1 diabetes, serious consequences can result. Anger and resentment are natural emotions — defiance is not.
- ✔ Guilt can play a similar role in type 2 diabetes because type 2 diabetes usually develops slowly, and in many cases could have been prevented. Guilt is anger, but directed at oneself rather than at fate. Guilt about type 2 diabetes can lead to thinking you deserve the worst diabetes can offer, and that emotion is incompatible with managing diabetes to preserve your health.
- ✔ Viewing illness as a personal weakness keeps people, more often men, from even acknowledging diabetes, or has them looking to challenge diabetes to a strength contest. Ironically, the greatest strength is acknowledging the reality of diabetes, and taking self-management responsibilities seriously.
- ✔ Misplaced selflessness is an emotional reaction more common among women. Managing diabetes effectively does require prioritizing your own health, and taking time for exercise or changing a family's eating patterns can take a back seat to what's perceived as caring for others.

These emotional patterns usually impact the whole range of diabetes management, not just eating. With some self-analysis, maybe helped by counseling, misdirected emotional responses to diabetes can be changed for the better. Ultimately, emotions are recognizable, but your brain also messes with your efforts to eat healthier in secret, unrecognizable ways. It takes some planning to outsmart your impulsive brain.

Exposing impulsive eating

If you're like most people, you probably have some digital photographs stored on your computer. To you, these photos are colorful and represent pleasant memories. But in computer language, your photos are just a series of black and white ones and zeros — it's a secret language, but looking at millions of ones and zeros won't stimulate any pleasant memories for you. Your body has a secret language, too — a chemical language. Although you don't consciously understand this chemical language any more than the ones and zeros on your computer, this chemical language stores vivid memories, especially about food, and you can understand those memories very, very well.

It's an amazing system that has helped humans survive the toughest times. For an overly simplistic explanation, consider that the part of your brain responsible for survival doesn't trust your thinking brain with some very important responsibilities. Your thinking brain could be so wrapped up evaluating something logically that it might forget to eat when food is available. And, in tough times, you have to grab food whenever you can. So this part of your brain gives you a fabulous chemical reward when you remember to eat — a chemical that brings a comforting feeling of well-being. It's a chemical reward that's so satisfying that you'll remember to eat no matter what your thinking brain is preoccupied with. And to make double sure you won't miss an eating opportunity, your brain gives you a little boost even if you think about food, or see a picture of food. Eventually, impulsive eating when food is available is second nature and completely unconscious. Most importantly, in the contest between your impulse to eat and your thinking brain, impulse usually wins.

This amazing biological system is, however, obsolete in a society where food is constantly available, and is running on overload when images of food surround you everywhere you look. It does not, however, have an off switch. Chapter 10 explains how being surrounded by food and food images triggers unhealthy impulses, and if managing diabetes effectively depends upon managing food effectively, impulsive eating is public enemy number one.

That's where meal planning comes in. Planning ahead puts your thinking brain in charge, and it's your thinking brain that understands how important what you eat today and tomorrow can be to your health ten years from now. Your thinking brain may not be good for making spur-of-the-moment decisions, but when you give it time, without standing in front of an open refrigerator or watching a waiter deliver food to the next table, you win.

That is precisely what makes diabetes meal planning so crucial. Taking emotion and impulse out of your eating decisions means better decisions, and better decisions about food can have a direct and immediate benefit to your health.

Deciding What to Eat

So, if you're going to put your logical brain in charge of planning your meals, it needs facts. A significant portion of this book is dedicated to giving you the nutrition facts your thinking brain wants to put in a spreadsheet, so a broad overview in this first chapter is only fair. One caution — your impulsive brain would rather be in charge of eating, and you may find yourself resistant to thinking about food in an analytical way. Just take a break, and remind yourself how important it is to understand healthy eating — don't believe that it isn't important.

Forgetting “diabetic diet”

Diabetic diet is a phrase you'll hear constantly, and what could be more discouraging than to imagine yourself sentenced to an eating plan that's so restrictive only people with diabetes have to subject themselves to it? The truth is almost the complete opposite. An eating plan that works for diabetes would be an appropriate eating plan for nearly anyone. It's a balanced eating plan with two clear objectives as follows:

- ✓ Help your body manage blood glucose levels as effectively as possible.
- ✓ Provide adequate nutrition with a focus on reducing recognized risks for heart disease.

Other medical conditions, including common *comorbidities* like celiac disease or complications caused by long-term poorly controlled diabetes, may lead to adding an emphasis to other dietary concerns, too. Without any pressing health issues other than diabetes, however, the story is pretty simple.

The specific focus for accomplishing those two objectives is managing carbohydrates and managing dietary fat. Be assured, however, that managing does not mean eliminating. An effective diabetes eating plan commonly recommends that 50 percent of daily calories come from carbohydrates, and 30 percent of daily calories come from fat. It won't shock you to learn that whole-grain pasta primavera with a little olive oil is a better option to satisfy this calorie distribution than a frosted donut. It may shock you to learn that pasta is allowed at all.

Forbidden pasta is only one of the inaccurate pieces of unsolicited advice you can get freely on line, from friends, or from perfect strangers. How about getting the real story? Chapters 12, 13, and 14 help you create your own eating plan, adopt popular and commercial diets for diabetes, and even eat healthy away from home. It's all about knowing what's most important.

Considering carbohydrates

Earlier in this chapter you read a short discussion of glucose homeostasis — glucose balance. Glucose is a sugar, and carbohydrates are made of glucose molecules bound together in chains. That is a drastic oversimplification — other sugars join glucose to form some carbohydrates, too, but glucose is the most prominent, and the most relevant, to diabetes.

Carbohydrates have a prominent role in this book, and Chapter 8 is devoted to understanding carbohydrates in your diet. Carbohydrates are sugars, starches, and fiber, and if you can digest them (some fiber you can't), glucose molecules are unchained and absorbed directly into your blood. The glucose in table sugar is indistinguishable from the glucose in potatoes or milk or an orange. That does not mean these foods are equivalent, but only that a glucose molecule is a glucose molecule.

Glucose is your body's favorite fuel and the only fuel your brain can use. When you eat carbohydrates, your blood glucose levels go higher, whether you have diabetes or not. High blood glucose levels stimulate insulin secretion; low blood glucose levels stimulate another hormone, glucagon. Insulin and glucagon work together to lower, or to raise, blood glucose so a normal level is maintained.

Insulin reduces high blood glucose levels by signaling muscle, fat, and liver cells to pull glucose into the cells, and pack it into a unique starch molecule called *glycogen* until it's needed for energy. As explained earlier in this chapter, diabetes results when sufficient insulin isn't available, or when cells don't respond normally to insulin. Your body can compensate for having no glucose available inside of cells for energy production, but only for a short time. The life expectancy of people with type 1 diabetes before treatment was available could be extended by starving them of carbohydrates, but not for long. Carbohydrate — glucose — is necessary.

Fortunately, injectable insulin is available for treating type 1 diabetes, and it works much like natural insulin to move glucose into cells. And, while type 2 diabetes is a loss of the natural response to insulin, it's not a total loss — glucose will still move into cells, albeit slowly. People with diabetes must eat carbohydrate foods to provide energy.

The amount of carbohydrate, the timing of carbohydrate consumption, and the quality of carbohydrate in the food can either help your body and medication manage blood glucose levels, or complicate the issue. If you eat a lot of carbohydrate at one time, and eat carbohydrate that is digested and absorbed into your blood quickly, blood glucose levels go up very quickly and can overtax your capacity to bring levels down. Even when injecting insulin doses matched to your carbohydrate intake, managing the amount, timing, and quality of carbohydrates pays off. Your personal diabetes meal plan will map this out for you.

So, what about sugar? In some ways, sugar is not much different than any other carbohydrate, and there's a common and dangerous misconception that to manage diabetes one only needs to avoid sugar. You now know that all carbohydrates raise blood glucose levels, and managing carbohydrates, rather than avoiding them, is the best strategy. But sugar does deserve some extra scrutiny. There's mounting evidence that too much sugar is unhealthy for anyone — if sugar causes metabolic disruptions in healthy people, it certainly should be consumed in serious moderation with diabetes. Also, sugar breaks down very quickly during digestion and spikes blood glucose levels — low blood glucose levels can be raised quickly with candy, for instance. Finally, sugar often comes in foods that offer no nutritional value — empty calories and carbohydrates. It's always best to eat carbohydrates that have secondary benefits.



Some of you realize that fruit and milk contain simple sugars — fruit even contains free glucose that can be absorbed directly. But Mother Nature has a way, and even though fruit raises blood glucose fairly quickly, the sugar from fruit, which is delivered with fiber and other nutrients, doesn't have the same long-term negative impact on health that refined sugars have.

Keeping your heart healthy

Most people know that diet can contribute to unhealthy cholesterol levels, and those unhealthy cholesterol levels raise the risk for heart disease. A heart healthy diet can do more than improve cholesterol levels, and a heart healthy diet is especially important for people with diabetes.

Heart health is so important to diabetes because diabetes itself raises the risk of heart attack or stroke two to four times higher than the risk for people without diabetes. Having high LDL cholesterol, high triglycerides, and high blood pressure along with diabetes multiplies the risk even more. High blood pressure, called hypertension, and diabetes together are double trouble for kidney function, too — the two leading causes of kidney failure working together. Heart disease, however, is by far the greatest threat to a person with diabetes.

Your eating habits can contribute to that risk or can work to reduce the threat. You probably know that saturated fat, and especially trans fat, contributes to heart disease, and a healthy diabetes eating plan emphasizes limiting saturated fat. Excess body weight, common among people with type 2 diabetes, is an independent risk factor for heart disease. But, eating a heart healthy diet is as much about what you should be including in your meals, as what you shouldn't. Consider the following:

- ✓ Soluble fiber, like the fiber in oats and beans, sweeps unhealthy LDL cholesterol from your system.
- ✓ The Dietary Approaches to Stop Hypertension (DASH) eating plan developed by the National Institutes of Health, which emphasizes eating whole grains, fruits and vegetables, and getting high levels of calcium,

magnesium, and potassium from food, can lower blood pressure within two weeks.

- ✓ Eating foods consistent with the Mediterranean diet, including fruits and vegetables, whole grains, fish, and olive oil, can reduce insulin resistance, reduce general inflammation, and reduce the risk of heart attack or stroke.
- ✓ People with diabetes seem to excrete vitamin B₁, thiamine, at a higher than normal level, and the lowered thiamine levels may contribute to the accelerated formation of blockages in arteries among people with diabetes. Whole grains are a source of thiamine.
- ✓ Plant compounds called *flavonoids*, found in green tea, cocoa, and citrus fruits, are antioxidants that improve cholesterol levels, and work to prevent the formation of plaques that can block arteries.

The list of how foods benefit heart health, and diabetes too, often by improving sensitivity to insulin, goes on and on, and in some cases it's clear the compounds can't come from supplements. There simply is no substitute for a balanced diet, rich in whole grains, fruits and vegetables, and healthy fats. You get specific information on how foods can directly benefit your health in several chapters later in the book. Most importantly, a healthy diabetes eating plan includes foods you are pleased to eat. In fact, if you've fallen into poor eating habits for the convenience, you will be amazed how satisfying real food will be to your tastes.

Doing It Yourself

If you're looking for an easy way out, there isn't one. Managing diabetes well is a commitment that has to be followed by action, but there aren't many commitments of your time and attention that could possibly have a bigger payoff. And, if you honestly look at where you invest your time and efforts now, you can surely justify that little more be devoted to your health — Chapter 11 is devoted to strategies that will keep you motivated. The life expectancy of people with diabetes is something like ten years shorter on average, but it's not diabetes itself that steals those years — it's indifference to self-management responsibilities. If doing diabetes management well every day can give you those ten years, and it can, then for every two days you attend to diabetes, you get one extra day of living in return if your diagnosis was at age 50. Nothing is guaranteed, of course, but even if your diagnosis was at an earlier age, the return on investment is unbeatable.

What's required of you to get such as deal? Here's the plan for success:

- ✓ See your doctor regularly, ask questions, get your lab work done when requested, and ask to see a registered dietitian and a certified diabetes educator for a personalized meal plan, and for continuing education. If your doctor doesn't take diabetes seriously, find another doctor.

- ✔ Take your medication as prescribed, and test your blood glucose often to see what's going on. If you have type 1 diabetes, that could mean four or five injections, and eight or ten blood glucose tests each day, but an insulin pump and continuous glucose monitor can make those much less burdensome. Insulin can be the best choice for type 2 diabetes as well — if your doctor suggests insulin, don't refuse without serious consideration.
- ✔ Make time for 150 minutes of moderate exercise, like walking, each week — only 30 minutes a day, five days a week, and the 30 minutes can be done in 10- or 15-minute segments.
- ✔ Stop smoking, get seven or eight hours of sleep each night, and find a way to reduce chronic stress (exercising will help immensely).
- ✔ Adopt healthy eating habits.

This book is dedicated to that last bullet, and changing old habits for new ones is always tricky. But, there should be no doubt that you can adopt new eating habits. Don't expect to become an expert in one week, and don't let imperfection discourage you. The target for evaluating effective blood glucose control is called A1C, and A1C measures your average blood glucose over a couple of months. Averages leave plenty of room for imperfection.

The chapters that follow review diabetes in more detail, explain the importance of nutrition, give you the in-depth story on carbohydrates, walk you through meal planning and shopping, discuss the pitfalls of eating out, and give you one week of meals and some marvelous recipes to start your collection.

Ultimately, nobody can actually do this for you. Everyone's different, and everyone starts from a different place. What's difficult for you will be a breeze for someone else. Diabetes self-management works, healthy eating works, and it can work for you.

Don't forget that help is available. Registered dietitians, certified diabetes educators, and supervised support groups can be a huge source of encouragement and positive feedback. The real burden with diabetes can be the feeling that nobody really understands. Don't let feelings like that fester — find the support you need.

