

PART I

The Food-Mood Connection

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How Food Affects Your Mood

Angie never had enough time to do everything she wanted to accomplish, and she always felt anxious and impatient. If she had to wait in line at the bank or the supermarket, she quickly got irritated and complained about the service. Angie routinely skipped meals and, when overly hungry, she drove through fast-food restaurants and practically inhaled her meals in the car. Then, after a few minutes, she usually felt so fuzzy and tired that she wanted to take a nap.

Jessica never felt right doing just one thing at a time. While driving, she also talked on her cell phone, sipped a soft drink, opened mail, or searched for a better song on her radio or CD player. Was she multitasking? No. She was addicted to impulsive behavior and couldn't focus on only one thing. It often got her into trouble. At work, her boss complained that she was always too distracted to complete tasks, and during the previous year, she had been in two fender benders because she wasn't paying attention to traffic.

Josh felt totally stressed by work. Every day he grabbed a cup of coffee on his way to the shop and later lived on candy bars, cans of soda pop,

and burgers and fries. To try to keep up with his service calls, he drove too fast and regularly ran yellow and red lights, scaring and irking other drivers. At home, he was always irritable, and his wife and four-year-old daughter learned to give him plenty of space.

We've all known people like Angie, Jessica, and Josh (I'll come back to them later in the book). Their minds are in a jumble, and their moods and behavior disturb everyone around them. Sometimes we want to react to them, but most of the time we just want to get away as fast as possible.

If we look into the mirror, we just might admit that we have a little bit of Angie, Jessica, and Josh inside us, perhaps more than we would like. Sure, day-to-day stresses, a difficult boss, or an unhappy marriage can bring out the worst in anyone's behavior. But when life's daily activities bring out the dark sides of our personalities, it's time to think about changing before we hurt ourselves, our relationships, and the people around us.

Why do so many people have bad moods?

As I mentioned in the introduction, a big part of the reason is that eating bad—that is, unhealthful—foods often sets the stage for bad moods.

You're probably shaking your head and still wondering: how could food possibly affect mood?

Your brain is a biochemical thinking machine, and all of the biochemical building blocks of your brain eventually are affected by what you eat. Even the genes you inherited from your parents are influenced by what you put into your mouth. When you combine poor nutrition with stress—and who doesn't feel stressed these days?—normal brain activity, moods, and behavior get skewed. You probably know from experience that you're more likely to overreact to a situation when you're hungry than when you've just eaten.

How Blood Sugar Affects Your Mood

To make my point about how food affects mood, I often ask people how they feel after they eat and how they feel when they're hungry. Think about how your body and mind feel after you've eaten a meal or when

you've skipped a meal. It may be very different from how you feel at other times.

Here are a couple of examples of how food affects mood.

After you eat lunch or dinner, odds are that you feel tired, your thinking becomes fuzzy, and your ability to concentrate decreases. Though common, these symptoms are not normal. So, what's happening? Your brain depends on a steady supply of blood sugar, or glucose, and the ideal amount of glucose falls within a fairly narrow range. When you eat too much food in one sitting or eat foods that contain too much sugar or sugarlike carbs—say, one slice of pizza too many—your blood sugar rises too high. When that happens, your brain fuzzes out, you get drowsy, and you naturally want to take a nap. It's a little like having your body and brain circuits overloaded with too many sugars.

The opposite—low blood sugar—isn't good, either. When glucose falls below the normal range, you get hungry. Then, if you don't eat within a reasonable amount of time, your glucose drops even lower. Without enough fuel for your brain, your mental activity actually shifts to a more primitive and less sociable level. You're likely to become impatient, irritable, and aggressive and may react to other people in anger. You might also feel physically tired, shaky, and weak. In ancient times, low blood sugar was a sign that it was time to hunt or gather food. Today, low glucose is particularly bad if you're stressed out and can't eat for a while, such as when you're stuck in traffic during the late-afternoon rush hour.

Your blood sugar normally fluctuates a little during the course of a day. But when you eat the wrong kinds of foods—particularly foods high in sugars and sugarlike carbs—your blood sugar swings can be extreme and frequent. People who experience these blood sugar swings sense when they're feeling a little weak or when their mood is about to go south, and, out of habit, they often reach for a soft drink or a candy bar to quickly raise their glucose. But candy bars and energy bars are only temporary fixes, and they actually make blood sugar swings even worse.

Whenever you have bad or down moods, they can affect your outward behavior. An angry comment or outburst can cause hurt feelings, start an argument, or even trigger a physical brawl. Often, the effect snowballs.

You know how frustrating it is when someone cuts you off in traffic or doesn't let you easily merge onto the freeway. When people are mean to you, you may want to vent your anger at the nearest innocent driver.

It's no coincidence that we see so many bad moods during the morning and the afternoon commute. Traffic congestion is stressful. In the morning, that stress may be compounded by a breakfast of coffee and sugary foods, leading to blood sugar swings. In the afternoon, people are again tired and hungry, and their neuronutrient levels are declining.

Quick Tip

A Better Fix for Blood Sugar Swings

Instead of a soft drink or a sugary snack, eat some unsalted mixed nuts or a slice of deli turkey and cheese.

These foods help to stabilize blood sugar. It's also good to start your day with protein, such as eggs or a couple of slices of deli turkey.

Take the Mood Quiz

This five-part quiz will help you assess your moods and some of the dietary and nondietary factors that affect your moods and behavior. Circle either "Y" for yes or "N" for no. Answer the questions honestly, and use a separate piece of paper if you don't want other people to see your answers.

How Stressed Are You?

- | | |
|---|-----|
| I feel like I have too much to do at work. | Y/N |
| I feel like I have too much to do at home. | Y/N |
| I feel like people ask me to do too many things. | Y/N |
| I often wonder how I'm going to get everything done. | Y/N |
| When I'm driving, I often get impatient with and annoyed by slow drivers. | Y/N |
| When I'm in a hurry, I often run yellow and red lights. | Y/N |
| Sometimes I do things that scare the hell out of me. | Y/N |
| I often use my cell phone while driving. | Y/N |

I've gotten at least one speeding ticket or caused a car accident in the past year.	Y/N
I really get annoyed with people who are slow in line.	Y/N
I don't have the time to do everything I need to do.	Y/N
Sometimes I just want to scream in frustration.	Y/N
There are times when I realize I'm jumpy and jittery.	Y/N
I don't get as much sleep as I should.	Y/N
Some of my relationships, such as with my spouse, friends, and coworkers, are not as good as they used to be.	Y/N

Explanation: A certain degree of stress in today's world is normal. If you circled yes for any of these questions, you're under some stress. If you've circled yes to more than a few of the questions, you're under a lot of stress! Constant stress takes a toll on your neurotransmitters, neuronutrients, eating habits, and physical health. As you read this book, incorporate my recommendations for reducing or buffering your stresses.

What Are Your Moods Like?

People have said that I'm moody.	Y/N
People have said that I have difficulty in relationships.	Y/N
I feel tense or anxious a lot of the time.	Y/N
I often feel down or depressed.	Y/N
I hate doing nothing because I tend to get bored and fidget.	Y/N
I usually respond immediately to e-mails or text messages.	Y/N
I always answer my cell phone, regardless of where I am.	Y/N
I get irritated by people who are slow.	Y/N
A lot of people rub me the wrong way.	Y/N
I get annoyed, pissed off, or angry at least once a week.	Y/N
I like destroying things or watching things get destroyed or wrecked.	Y/N
I've unintentionally scared the hell out of other people.	Y/N

I drink more than normal amounts of alcohol or use illegal drugs at least once a day. Y/N

Explanation: We all have our moments because life can be trying. If you circled yes for at least two of these questions, though, it's a sign that you're often in a bad mood or you have frequent mood swings. As you read this book, pay special attention to the supplements and the eating habits that can improve your moods. They will make you more fun to live with—and will make it easier for you to live with yourself.

What Are Your Eating Habits Like?

I usually skip breakfast or just have some coffee. Y/N

I like convenience foods because I don't have time to eat a regular meal. Y/N

My usual breakfast includes a breakfast bar, an energy bar, cereal, or something sweet. Y/N

I eat at fast-food restaurants (e.g., McDonald's or Burger King) at least twice a week. Y/N

A lot of the foods I eat at home come in a box, a bottle, or a jar. Y/N

I drink sugary (nondiet) soft drinks on a regular basis. Y/N

I drink more than two cups of coffee on most days. Y/N

I like eating fries. Y/N

I really enjoy and eat a lot of bread, pasta, or pizza. Y/N

I usually crave something sweet between meals or often have other types of food cravings. Y/N

I usually eat my meals quickly and don't linger over them. Y/N

I tend to feel tired after eating. Y/N

Explanation: These questions provide clues to your overall eating habits. If you've answered yes to any of them, your eating habits are not as healthy as they could be. Many of these eating habits set you up for a diabetes-like blood sugar pattern, which can increase fuzzy thinking and mood swings.

What's the Rest of Your Life Like?

- | | |
|---|-----|
| I don't have enough time to unwind. | Y/N |
| I think about work on my days off and when I'm on vacation. | Y/N |
| I feel like I need to check work-related e-mail or voice mail on weekends or when I'm on vacation. | Y/N |
| I don't exercise regularly. | Y/N |
| I don't have many hobbies, and I don't do much aside from work other than maybe watch sports on television or go out drinking with friends. | Y/N |
| It has been a while since I've had a good hearty laugh with my friends or significant other. | Y/N |
| I don't have any close friends I can really open up with and talk about how I feel inside. | Y/N |

Explanation: Answering yes to at least one of these questions suggests that you may be too preoccupied with work or your life isn't balanced enough to offset stresses. When you don't have a variety of interesting activities in your life, you are more likely to have mood and physical problems related to too much stress. If you've answered yes to two or more questions, your overall lifestyle may set the stage for mood and behavior problems.

How Do You Feel Physically?

- | | |
|---|-----|
| I usually have trouble getting up in the morning. | Y/N |
| I often have headaches, heartburn, or an upset stomach. | Y/N |
| I am overweight and at least some of the weight is around my belly. | Y/N |
| I take at least one prescription medicine each day for a chronic health problem. | Y/N |
| I've been diagnosed with high cholesterol, triglycerides, or blood pressure. | Y/N |
| I don't have a lot of energy, and I often feel like I have to push myself to get things done. | Y/N |

I am usually very tired by the time I get to bed. Y/N

I keep waking up and have trouble getting a good night's sleep. Y/N

Explanation: Answering yes to two or more of these questions suggests that your eating habits are not ideal and may be pushing you toward a diabetes-like blood sugar pattern. Elevated blood fats and blood pressure, as well as a lack of energy, are often signs of blood sugar problems. Even if your mood is relatively stable now, you may eventually develop mood problems.

The Bigger Picture

I don't mean to suggest that nutrition is the only factor influencing our moods. To the contrary, our eating habits and other types of behavior result from a complex interplay of nutrition, genetics, upbringing, psychological makeup, stresses, society, and the people around us.

Stresses at work or at home burn up (through increased chemical reactions) many mood-calming neurotransmitters and neuronutrients at a faster-than-normal rate. Furthermore, when we feel stressed, good eating habits are usually the first thing we sacrifice. That's because stress distracts us from eating healthy foods and eating at regular times. We'll hold off on lunch or even skip it. The irony is that when we need more neuronutrients to buffer stress, we actually end up consuming less.

It's also important to understand that our moods are affected by many other nutritional factors besides blood sugar levels. Virtually every vitamin and mineral has an impact on our brain function, but some nutrients have particularly powerful effects. Low levels of these important neuronutrients reduce the brain's production of mood-enhancing neurotransmitters.

Nutrition, Health, and Mood

One difficulty in the field of nutrition is that many consequences of poor eating habits take years to appear. People won't get fat or have a heart attack after eating just one fast-food meal, so they (doctors included)

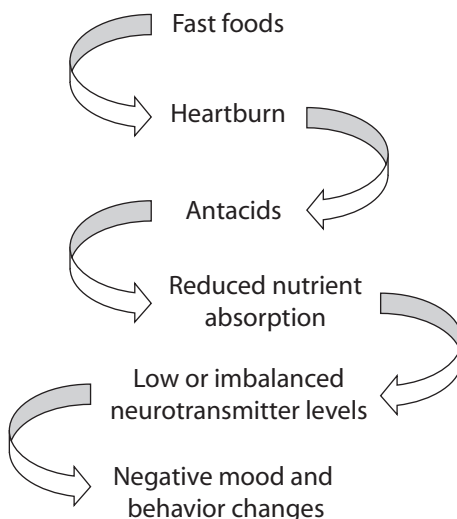
don't always see a clear cause-and-effect relationship between unhealthy foods and illness.

It's a different story, though, when it comes to nutrition and mood. That's because *the first signs of nutritional deficiencies and imbalances are usually altered moods and behavior*. Yet we rarely pay attention to how food affects our moods and thinking.

This connection between nutrition and mood has been demonstrated by many scientists, including the late Nobel laureate Linus Pauling, Ph.D., and David Benton, Ph.D., a psychology professor at the University of Wales, Swansea. Benton conducted a variety of experiments on his students, who seemed to be in generally good physical and mental health. He found that their moods improved substantially after they began taking a daily high-potency multivitamin supplement.

Other researchers, including William Walsh, Ph.D., of the Pfeiffer Treatment Center in Warrenville, Illinois, and Bernard Gesch, Ph.D., of Oxford University, England, have consistently found that vitamin supplements can even reduce aggressive and violent criminal behavior. If vitamins and good eating habits can improve the most serious mood and behavior problems, imagine how they could help you cope with

The Fast-Food Junk-Food Cascade



run-of-the-mill stresses of modern life, such as a hectic schedule, traffic jams, and Machiavellian office politics.

I'll describe more of this fascinating research in later chapters. The point I want to make, however, is that merely taking a high-potency multivitamin supplement can greatly improve the moods of many—perhaps most—people.

Which Types of Mood Problems May Be Food-Related?

Many mood and behavioral problems are actually connected to each other. Sometimes the differences are only in degree, such as the progression from irritability to anger. I've organized some of the most common mood and behavioral issues into related groups.

- *Anger disorders* include irritability, crankiness, resentment, brooding, rudeness, aggressiveness, road rage, juvenile delinquency, and criminal violence.
- *Impulsive and distractible disorders* include rash behavior, some types of irrational behavior, excessive multitasking, some types of addiction, and adult attention-deficit hyperactivity disorder (ADHD).
- *Anxiety disorders* include tension, jumpiness, worry, fear, panic attacks, post-traumatic stress disorders, and obsessive-compulsive behavior (such as repeated and unnecessary checking).
- *Depression-related disorders* include down days, various intensities of depression, and bipolar (manic-depressive) disorder.
- *Fatigue, tiredness, and mental fuzziness* include regular feelings of tiredness and mental fatigue, difficulty concentrating (especially after eating), poor memory, feeling spacey, and overeating.

The Canary in the Mine . . . and in the Mind

Recognizing that you or someone close to you regularly has bad moods is a lot like paying attention to the “canary in the mine.” Years ago, miners took canaries deep into mines because the birds were particularly sensitive to poison gas. If a canary died, it was a warning for the miners to immediately evacuate.

Many doctors understand that certain mood or personality traits are strongly associated with a person's physical health. For example, people who are depressed are more likely than nondepressed individuals to develop heart disease or cancer, and quick-tempered men are more likely than others to drop dead from sudden heart attacks. Yet the relationship between mood and physical illness is far more intriguing and interesting.

Unhealthy changes in mood and behavior are often the canary in the mind. The nutritional deficiencies and imbalances that produce mood and behavior problems sow the seeds for physical diseases, such as heart disease and cancer, years later. This shouldn't be all that surprising because the same nutrient-rich or nutrient-weak blood that flows through the brain also flows through the rest of the body. The difference is that the brain is very sensitive to poor nutrition, whereas it takes years for poor nutrition to affect the heart and other organs.

Nutritional Deficiencies Are Common

I've suggested that large numbers of people are poorly nourished, and you may wonder whether the situation is really that bad. After all, we've often been told that our country is the best-fed nation in the world.

Unfortunately, the situation is far worse than most people realize. Part of the reason is our growing consumption of fast foods, convenience foods, soft drinks, and other junk foods, which are typically high in sugars and sugarlike carbs and low in protein, fiber, and vitamins. At the very least, junk foods displace healthier and more nutritious foods that contain lots of neuronutrients; however, junk foods also interfere with how the body uses essential nutrients.

We've been told that nutritional deficiencies are prevalent in developing and poor nations, and we believe that they are rare in modern Western nations. The truth is that nutritional deficiencies and imbalances are relatively common in the United States, and they set the stage for a variety of physical and psychological problems. Although Canadians and Western Europeans are, as a whole, healthier than Americans, they increasingly suffer the same fate of modern malnutrition. The cause, in large part, is related to the worldwide distribution and consumption of

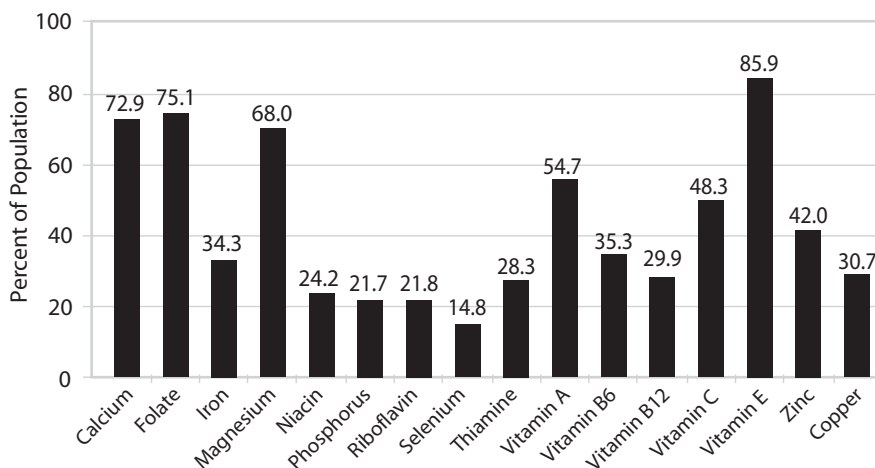
American junk foods, from soft drinks to burgers and fries. Such convenience foods displace more nutritious foods.

In the United States, three-fourths of Americans do not consume the extremely minute yet required daily amount of folic acid, a key B vitamin that is involved in maintaining good moods. Similarly, almost half of us don't get enough vitamin C, about one-third don't consume enough vitamin B6, and almost a third don't have enough vitamin B12 in their diets. All of these vitamins are essential neuronutrients.

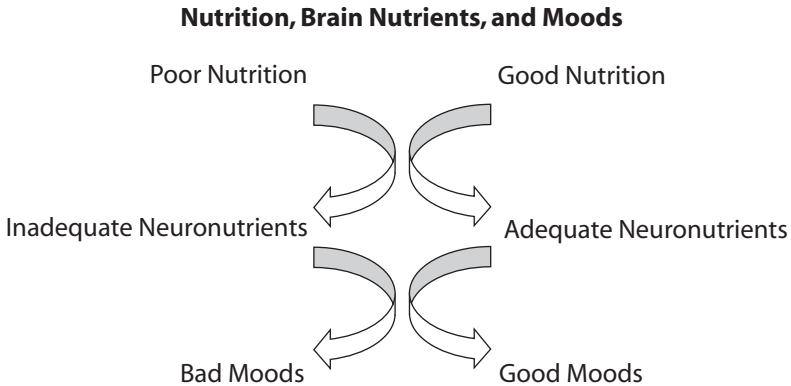
The graph below, compiled from data on a U.S. Department of Agriculture Web site, reflects the percentages of people who do *not* consume the minimum amounts of vitamins and minerals recommended by the government. Because the government's standards are cautious and conservative, however, there's good reason to believe that the percentages of people with deficiencies are even higher.

Still other factors take a toll on our neuronutrients. Most over-the-counter and prescription drugs either reduce the absorption of nutrients or interfere with how the body uses them, thus increasing the likelihood of multiple vitamin and mineral deficiencies. Some of these drugs are taken routinely by millions of people. Antacids and related drugs (such as Prilosec) for the treatment of heartburn and gastric reflux impede the absorption of vitamin C and the B vitamins. So do oral antibiotics, and

Percentage of Americans Not Consuming the Recommended Intakes of Nutrients



their effects on B-vitamin absorption can last months and years after a two-week regimen. Oral contraceptives, analgesics, and cholesterol-lowering drugs also hinder a variety of normal biochemical processes that impact both the brain and the body. All of these drugs further compromise our neuronutrients. Side effects are often a result of how certain drugs prevent nutrients from working normally.



When you add the neuronutrient-robbing effect of our day-to-day stresses, it's easy to believe that millions of people are literally running on fumes, nutritionally speaking. For a variety of reasons, such as genetics or upbringing, a few people are more likely than others to be the canaries—more prone to having road rage, being involved in high-speed car chases, “going postal,” and committing other irrational and senseless acts. Worse, as more people suffer from deteriorating nutritional health, still greater numbers of people are negatively affected—hence, the increase in bad moods.

The situation may sound grim, but most of this book focuses on what you, as an individual, can do to change it.

Our Amazing Neurotransmitters

Our moods, thoughts, and memories are ultimately based on the chemistry of the brain. This isn't meant to belittle the importance of your feelings, your thoughts, or your uniqueness as a human being. Your feelings are as real as the book you're holding, your computer, or your car. My

point is simply that the workings of your brain are the result of chemical reactions shaped by your diet, your genetics, and your experiences. For example, your experiences influence your brain chemistry, and your brain chemistry affects your moods and reactions.

Everything we experience modifies the brain's chemistry, recording an impression and usually prompting a reaction. If you're in love, brain chemicals create a sense of euphoria similar to a drug-induced high. In contrast, the rapid heartbeat and fear you experience when you see flashing police lights results from a near-instant rush of adrenaline, a powerful hormone and neurotransmitter.

Remember, all of our neurotransmitters are influenced by what we eat. They depend on vitamins, minerals, protein, healthy fats, and a small amount of high-quality carbohydrates.

How Are Men and Women Different in Their Moods and Behavior?

Men and women have obvious biological differences. Our moods and behavior are hardwired by our biology and genetics, and are soft-wired

How Angie Learned to Settle Down

Angie, whom you read about at the beginning of this chapter, was always anxious and impatient. She regularly skipped meals and ended up driving through fast-food restaurants to eat just as her blood sugar was crashing. Then she usually felt fuzzy brained and wanted to take a nap.

She eventually sought the advice of a nutritionally oriented physician for her bouts of fatigue. He and his nutritionist recommended better meal planning, more protein and fresh vegetables, and supplements containing B vitamins, magnesium, and L-theanine.

Her response to eating more protein—a rotisserie chicken and steamed vegetables on the first day—was nothing short of dramatic. She slept more soundly and woke up feeling alert and energetic. By eating two scrambled eggs for breakfast, she was able to sustain her mental clarity and energy through early afternoon. Several months later, Angie's sister described her as a new person.

by our upbringing and socialization. The result is a mix of patterns attributed to our sex and individual traits. Following are some common differences between men's and women's moods and behavior. Please understand that these general patterns do not universally apply to all men or women.

- Men are more likely than women to express anger through physically aggressive behavior. Women get angry, but they are more likely to express it as sarcasm or passive-aggressive behavior.
- Women are more likely to express sadness and depression because it is socially acceptable for women to talk about their feelings. Men have difficulty expressing sadness and depression because they were usually raised without learning how to express their emotions.
- Men are more likely than women to feel depressed because of anxieties, such as worries about work, relationships, sexual performance, and appearance.
- Women are more likely to deal with depression by overeating. Men are more likely to deal with depression by drinking alcohol.
- Men are more likely to become withdrawn when wrestling with anxiety or depression. They are less likely than women to talk about their emotions and to seek professional help.
- Women are more likely to seek professional help, such as psychological counseling. Men have a higher rate of suicide, partly because they internalize (rather than express) their feelings.
- Men are less likely than women to be aware of their relationship-dependency needs.
- Women's moods are more likely to be influenced by some aspects of their biology, such as menstrual periods, pregnancy, postpregnancy, and menopause.

The many stresses in our lives lead to neuronutrient and neurotransmitter imbalances, which set the stage for chronic mood problems. But how many of us really think about the price we pay for all this stress? The next chapter looks at some of these stresses and how they blind us to their health consequences.

