Part I

The Key to Natural Weight Loss

1

The Liver Link

Is life worth living? It all depends on the liver.

—PHILOSOPHER WILLIAM JAMES

My client Barb, a nurse for twenty years, had been struggling with her weight for as long as she could remember. A chronic yo-yo dieter, she tried diet after diet with little success. Long hours, hospital cafeteria food, and a smoking habit didn't help, but the fact remained that while she could lose weight in the short term, the pounds would creep back. To say she was skeptical of any new diet was putting it mildly.

Barb came to me because she was experiencing low energy, joint pain, and indigestion. When her doctor couldn't find a cause, he sent her home with painkillers. But that didn't sit well with Barb; she knew there had to be a better way. During our hourlong visit, I explained to Barb that certain foods were contributing to her problem. I pointed out that the types of meat and fish, cheese, and diet snacks she ate, and the bagels and breakfast cereals she had for breakfast, were contributing to her symptoms. And while I was not recommending that Barb switch to a vegetarian diet (nor do I think this is the answer for everyone), I did recommend foods that would address the underlying cause—an overtaxed liver.

Four weeks after starting this diet, she returned to my office. She reported that she began to feel better almost overnight. Her skin looked better, and she felt calmer, more rested, and energized. But what surprised

her most was how she had lost weight—without even feeling hungry. "Everyone at work wants to try it," she said, "but when they asked me why it would help with weight loss, I didn't know quite how to explain it. What does my liver have to do with my weight?"

"Everything," I said. The liver is the secret to weight loss and health, and one of the most important missing pieces of the weight-loss puzzle. If you aren't eating foods that support liver function, you could be placing further burden on it and keeping yourself from losing weight.

Your Liver and Its Connection to Your Overall Health

Have you ever felt overworked, overburdened, and underappreciated? If your liver could talk, that's what it would say. The word "liver" is derived from the Old English word meaning "for life"—a name it surely deserves. As your body's main processing plant and an incredible multitasker, involved in over five hundred vital functions, your liver has more to do with well-being than you might think. This wedge-shaped organ, located under your ribs on your right side above the stomach, is your largest internal organ, weighing about 3 percent of your body's total weight. Almost all metabolic activities and body functions are dependent on the liver in some way, and that's why it's centrally located in our bodies, allowing it to easily communicate with our other body parts. It's also the only organ that can regenerate itself if damaged.

The liver's many functions include:

- Helping us metabolize the fats, protein, and carbohydrates we eat
- Creating proteins needed for healthy blood cells and the immune system
- Making cell membranes
- Producing hormones
- Facilitating the absorption of essential vitamins
- Filtering and breaking down all unwanted compounds produced during metabolism
- Removing chemicals and bacteria from blood

Although the liver is quite capable of doing its job, the diets we eat—not to mention the ever-increasing levels of chemicals in our environment—can push it to capacity. When this happens, the liver has to work overtime

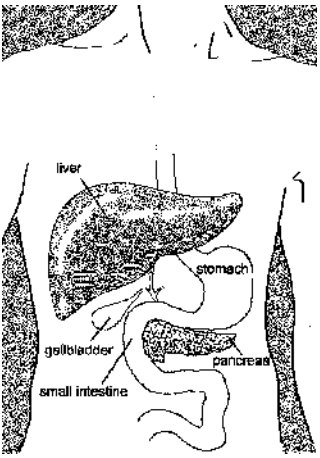
to detoxify the body, leaving it less able to carry out its many other roles—resulting in what is called an overburdened liver.

And because it is involved in the formation and breakdown of mood-affecting hormones and neurotransmitters (chemicals that help transmit messages between nerve cells), the liver also influences your emotions. If the liver isn't functioning well, these chemicals can be thrown out of balance, causing changes in our mood.

This connection between the liver and mood is well known and respected in many ancient medical traditions. In traditional Chinese medicine (TCM), it is believed that anger stems from stagnant liver energy, which can also cause conditions such as premenstrual syndrome, diabetes, headaches, muscle and joint pain, digestive problems, and vision disorders. In ayurveda, the traditional medicine of India, anger and aggression are also associated with the fire element and the liver. In France today, when someone is not feeling well, it's called *mal au foie*, or "sick in the liver."

Ancient cultures have also known for centuries that food affects liver health, which is why the prescribed treatment for the liver in TCM and ayurveda often centers around diet. Even in Germany today, it's not uncommon for physicians to recommend herbal liver remedies such as artichoke for people with high cholesterol and chronic ailments. In fact, artichoke is one of the top-selling herbs in Germany.

Wait a minute, you may be asking yourself. If the liver is so darned important, why do we hear so little about it? It's true that the liver's central role in health and weight loss has only recently been recognized and appreciated. Hepatology, the branch of medicine concerned with the functions and disorders of the liver, has only existed as a medical specialty for the last fifty years. And, as recently as twenty years ago, there were still relatively few treatments for liver disorders. One reason is that conventional lab tests often miss an overburdened liver in its early stages. Another is that symptoms tend to be nonspecific, such as fatigue—or they turn up in parts of the body you might not expect, such as the skin.



The liver and other internal organs.

One of the clear signs that the liver is overloaded is that it can't process fat properly but instead stores it. This condition, called fatty liver, is related to obesity and diabetes and can even lead to serious liver disease. Although liver diseases were once believed to affect only a very small number of people, in the past decade, studies have shown that one in four people have fatty liver. It's shocking, I know, but most liver problems are attributable to years of eating the wrong foods and our modern lifestyle, which leaves our poor livers struggling to keep up.

Certain risk factors can increase the likelihood of having a tired and toxic liver. The more factors you have, the greater your risk. Any of the following can complicate the problem.

- High fat or sugar intake
- Overly cutting back on carbohydrates
- Not getting enough protein
- Diets high in refined carbohydrates
- Consuming too few calories
- Not getting enough fiber
- Eating certain fish or seafood regularly
- Diets lacking in certain nutrients
- Eating too much bad fat and not enough good fat
- Not eating enough vegetables
- Drinking alcohol regularly
- Smoking cigarettes
- Relying on processed diet foods or fast food
- Certain prescription and nonprescription drugs
- Insulin resistance

Liver Self-Test: Is an Overworked Liver Sabotaging Your Weight?

While there is no single lab or diagnostic test to clearly and definitively diagnose an overburdened liver, there are some telltale signs that may indicate your liver has more than it can handle. Keep in mind that any of these symptoms on their own do not mean you have a serious liver problem. In fact, some of them may be signs of another issue altogether. If you experience persistent symptoms, however, or several of them in combination, I recommend bringing them to your doctor's attention.

The following are signs that indicate you may need to resuscitate your liver. Check the ones that apply to you.

Weight

- ☐ Excessive weight gain, especially around the abdomen
- ☐ Cravings for sweet, starchy, or fatty foods
- ☐ Constant hunger
- ☐ Difficulty losing weight

Energy

- ☐ Fatigue
- ☐ Feeling groggy in the morning
- ☐ Feeling the urge to lie down frequently

Digestion

- ☐ Constipation
- ☐ Heartburn
- ☐ Bad breath
- ☐ Abdominal bloating or gas
- ☐ Bitter taste in the mouth

Mental/Emotional

- ☐ Irritability or anger, tendency to fly off the handle
- ☐ Depression
- ☐ Negative thoughts
- ☐ Mood swings
- ☐ Poor concentration or brain "fog"
- ☐ Always feeling stressed

Pain

- ☐ Ache in the upper right abdomen
- ☐ Headaches related to tension or stress
- ☐ Joint pain

Hormonal

- ☐ Benign breast cysts
- ☐ Premenstrual syndrome with irritability
- ☐ Infertility

Skin

- ☐ Dark undereye circles
- ☐ Acne

- ☐ Skin rash
- ☐ Poor skin tone
- ☐ Spider veins
- ☐ Dark patches of skin pigmentation
- ☐ Itching
- ☐ Psoriasis
- ☐ Frequent bruising
- ☐ Hemorrhoids
- ☐ Premature aging

General

- ☐ Body odor
- ☐ Excess body heat or hot flushes
- ☐ Water retention
- ☐ Dry eyes
- ☐ Itchy, red eyes
- ☐ Weak tendons, ligaments, muscles
- ☐ Stools that float
- ☐ Light-colored stools

It's quite a list. But again, keep in mind that these are generalized symptoms and that you need not suffer all of them in order to experience real benefits from a liver-cleansing diet plan. And for most people, an overburdened liver can be healed and improved with the proper diet and care. You can take simple steps to restore your liver to a vital, optimally functioning dynamo—as early as today! Once you do, you'll not only begin to drop pounds and reverse the above symptoms but also will start to feel better overall.

But first things first. You're probably curious about how your liver can help you lose weight. Let's take a look at how your liver is connected to weight loss.

The Liver's Role in Weight Loss

Your Liver Regulates Blood Sugar

When we talk about insulin resistance, we tend to focus on the pancreas, and rightly so, since the pancreas produces insulin; the liver, however,

plays a major and often overlooked role in carbohydrate metabolism. The liver stores and releases glucose in order to control our blood sugar at all times; it also produces glucose from other nutrients. When we have more glucose than we need, the hormone insulin is released, which tells the liver to convert the excess glucose to glycogen, a form in which glucose can be stored. If you then skip lunch and your blood sugar dwindles, it's the liver's job to break down glycogen and convert it back to glucose for fuel.

When the liver gets overloaded—as is the case for many of us—your ability to properly control your blood sugar can become impaired. And if the liver isn't properly doing its job as a blood sugar regulator, it can lead to weight gain, cravings for sweets and starchy foods, fatigue, constant hunger, diabetes, inflammation, and premature aging.

Your Liver Makes and Burns Fat

The liver is the main site where the excess carbohydrates we eat are converted into fatty acids and ultimately, triglycerides, which are stored in fat cells. It is also the place where triglyceride fat, along with protein, can be broken down to provide an alternative source of energy when glucose is unavailable.

Your Liver Helps You Absorb Omega Fatty Acids

Your liver produces about a quart of bile each day from bile acids, cholesterol, bilirubin, electrolytes, and lecithin. Once released by the liver, most of this soupy, greenish-brown fluid travels through special ducts to the gallbladder, where it's stored and concentrated for when your body needs it to digest fats.

The role of bile in the body is to absorb dietary fat. Whenever we eat anything containing fat, such as nuts, meat, fish, or cookies, the presence of fat in the intestines triggers the release of bile from the gallbladder into the small intestine to help digest the fat. Bile acts like a detergent, breaking apart the large droplets of fat to smaller droplets so they can be absorbed. Bile also helps absorb vitamins A, D, E, and K, known as the fat-soluble vitamins, and helps with iron and vitamin B12 absorption and the conversion of beta-carotene to vitamin A.

Two types of fat, known collectively as the essential fatty acids (omega-3 and omega-6) because the body cannot produce them on its

own and needs to obtain them from food, have a critical role in weight loss. Omega-3 fats appear to help us:

- Raise our metabolic rate and burn fat. Omega-3 fats have also been found to reduce the size and number of fat cells, especially in the abdomen.
- Make cell membranes permeable and fluid so cells can properly communicate with one another
- Improve the sensitivity of hormones insulin and leptin
- Prevent gallstone formation during weight loss
- Reduce excess fat in the liver

Research shows that a certain kind of omega-6, called gamma linolenic acid, or GLA, also helps us shed pounds, by decreasing body fat, helping the body burn calories, and reducing the amount of calories consumed.

Most of us don't get enough omegas in our diets. To compound the problem, when we carry extra weight or go on a diet without simultaneously detoxing the liver, the all-important flow of bile slows down. Without enough bile flowing into the intestines, we are unable to absorb the essential fatty acids critical for weight loss and health. The result is weight gain, dry, scaly skin, brittle nails and hair, poor concentration and memory, and may eventually lead to insomnia, depression, heart disease, inflammation, and insulin resistance.

Your Liver Regulates Cholesterol

The liver controls how much cholesterol we have. Although many people think of cholesterol as something we get through our diet, in fact, our liver manufactures most of our cholesterol. It also makes the lipoproteins, including high-density lipoprotein (HDL), low-density lipoprotein (LDL), and very-low-density lipoprotein (VLDL), that transport cholesterol around the body.

Most people think of cholesterol as something they don't want too much of. While high cholesterol is a risk factor for heart disease, cholesterol is not all bad. It's an important and necessary component of all our cells. It's also the raw material used to make bile acids and steroid hormones, such as estrogen, progesterone, testosterone, dehydroepiandrosterone (DHEA), and cortisol, which help us maintain hormonal balance.

If there is an excess of cholesterol, it gets absorbed by bile, then excreted in the stools. But if there is too much cholesterol and not enough

bile acids and lecithin to keep bile fluid, bile can become too thick and form gallstones. In fact, gallstones are fairly common and often go undiagnosed in people who are overweight as well as in those trying to lose weight.

Your Liver Balances Key Weight-Loss Hormones

Another key function of the liver is to regulate the production and inactivation of many of the body's hormones, including estrogen and cortisol and the neurotransmitters serotonin and dopamine. If the liver isn't functioning at full tilt, there may be signs of hormonal imbalance.

Cortisol

One of the most important hormones involved in the stress response is the hormone cortisol. It is produced by the adrenal glands, two nut-size glands that sit on top of the kidneys. Elevated cortisol levels disrupt our body's balanced state, resulting in weight gain in the abdomen, constant hunger pangs and cravings, elevated blood sugar, widespread inflammation, fluid retention, muscle weakness, insulin resistance, and high blood pressure.

Case in point: my client Carol, a sales consultant, walked into my office one day and collapsed into a chair. "I hate my job," she said. "I sit in my office at the computer and on the phone all day working like crazy to make these sales, under constant pressure from my manager. Sometimes it almost feels like I'm going to have a heart attack. Plus, my neck and shoulders are so tense, they're killing me. I've gotten into a habit of keeping candy bars and crackers in my desk to snack on when I don't have time to get out for lunch. I know they're not good for me, but sometimes, in a day when everything seems to be going wrong, they're the only thing that's right. I know I should be more disciplined, but I don't have the mental energy to be vigilant. My willpower's shot."

Like Carol, many of us live with unremitting pressure. What's becoming increasingly apparent is that although our bodies can deal with short-lived stresses, many of us live with continual stress, and the sustained elevations in cortisol take a huge toll on our weight and our health. There are three ways chronic stress can affect your weight.

1. *Stubborn belly fat*. George Chrousos, M.D., at the National Institutes of Health, and Pamela Peeke, M.D., were among the first to research

the relationship between stress and abdominal fat. It turns out that stress causes a cascade of responses that encourages the body to store fat deep in the belly around the vital organs. Abdominal fat is very sensitive to cortisol and has a higher density of cortisol receptors. When they get turned on by stress, the belly becomes a virtual fat factory.

Why the abdomen? Fat here can be quickly converted to energy. Because the brain thinks that it and the body are under continual siege when stressed, abdominal fat stores can provide a quick source of energy during the long spell of stress. This hardwired response enabled our hunter-gatherer ancestors to survive when food was scarce by giving their bodies immediate access to this excess energy store. The problem is that nowadays it's primarily psychological stress that threatens us. When you are faced with looming deadlines, a domineering boss, money issues, marital problems, or emotional issues in the past or present, you don't need the extra abdominal fat.

A fascinating Yale study demonstrated that people who tend to get more stressed and release more cortisol also have more belly fat. Researchers looked at forty-one women who were overweight, half with abdominal fat and the other half with fat centered around their thighs. They gave the women six stressful tasks to do, including solving math problems under a time limit, making speeches, and solving puzzles. Their cortisol levels were then measured. The researchers found that the women with abdominal fat released more cortisol than the women who stored fat in their hips.

2. *Constant hunger*. Although temporary stress can sometimes take away our appetite, when we are chronically stressed, we become hungry. Again, it's a programmed physiological response that enabled the early humans to survive. Cortisol ensures that we have fuel in a form that can be quickly converted into blood sugar to give us energy and replenish the sugar we might burn. The preferred fuel? Carbohydrates. That's why when we are under stress, we crave junk food like sugar, muffins, cookies, cake, chocolate, and other sweets we know aren't good for us. And exactly how does cortisol turn on cravings? Neurobiologist Sara Leibowitz from Rockefeller University has found that cortisol turns on a hunger-promoting brain chemical called neuropeptide Y, which is produced in the hypothalamus, making us crave sweets and other carbohydrate-rich foods. Cortisol also appears to reduce levels of adiponectin, an appetite-suppressing hormone.

If the stress is chronic and involves nothing more than sitting at your desk, you don't need all this fuel. But cortisol still sends out its message, resulting in constant hunger pangs. The result: we eat more than we need and gain weight.

Elissa Epel, Ph.D., and colleagues at the University of California at San Francisco, demonstrated this connection between high cortisol and hunger and snacking when they found that women with high cortisol levels eat more food, particularly sweets. They gave fifty-nine women, with an average age of thirty-six, a challenging task to do but not enough time to complete it. Each woman's stress level was assessed by taking cortisol readings and asking her to rate her mood. Afterward, the women went to a quiet room and were allowed to read or listen to music. Snacks were placed in front of them, although they weren't pressured to eat. Women who were the most stressed and had the highest cortisol level snacked more, particularly on sweets. What does this mean for you? On the days you feel pressured and pressed for time, you'll most likely find yourself reaching for food. Until you address the stress, each day will be a battle to fight these temptations.

3. *Blood sugar rush*. When we are under chronic stress, the metabolic derangement that ensues inhibits the normal process of insulin release and sugar uptake, keeping sugar in the bloodstream longer than normal. Blood sugar levels remain elevated, which damages tissue and can lead to premature aging. To make matters worse, insulin further increases as it desperately tries to rein in blood sugar.

   Peter Vitaliano, Ph.D., and colleagues at the University of Washington, demonstrated the link between stress and diabetes. They compared forty-seven people who were caregivers for their spouses with Alzheimer's disease to seventy-seven people who were noncaregivers. As we'd expect, the researchers found that the caregivers felt more stress, depression, fear, and lack of control. But they also discovered that cortisol, glucose, and insulin levels were higher in the caregivers compared to the noncaregivers, putting them at a higher risk for developing diabetes.

   The role of chronic stress as a trigger may partially explain why diabetes rates are soaring in people at younger ages: the incidence of type 2 diabetes increased 33 percent between 1990 and 1998 in the United States, with a 76 percent jump in the incidence of diabetes in people in their thirties.

Serotonin

Involved in sleep, mood, and appetite, serotonin is our inner Zen master, keeping us calm and content. The liver and digestive tract are involved in making serotonin and breaking it down. If the liver is overloaded, it can't do this properly. Signs that serotonin is out of balance include the following.

- *Continuously eating or bingeing on sugar and other carbohydrates.* If you have low serotonin, you may unwittingly be reaching for carbohydrates as your body's way of trying to restore serotonin levels. In the early 1970s, in an MIT lab, neuroscientist Richard Wurtman and psychologist John Fernstrom were the first to discover that carbohydrate consumption triggered a biochemical chain of reactions resulting in higher serotonin levels. The foods we tend to reach for—cookies, muffins, chocolate, doughnuts, and other sweets—temporarily raise serotonin. We feel better, but it's short-lived. Eventually the effect wears off, serotonin levels fall, and the hunger returns. The result is weight gain.

  Study after study has linked low serotonin with increased appetite, overeating, and obesity in both animals and humans. Animals with low serotonin will continue to binge on food, even if they're given a warning cue to shock them or if they're actually given a shock. Nothing will stop an animal from bingeing if its brain senses that it's deprived of serotonin.

- *Poor body image.* Serotonin influences the way we perceive and think about ourselves. For instance, when serotonin levels start to fall, we may become unhappy with the way we look, no matter what size we are. We may look in the mirror and only see flaws. We might even start obsessing about food and everything we eat. Our mood may rapidly deteriorate. Self-esteem may also wane.

- *Obsessing about food.* When serotonin levels fall, a vicious cycle can be set in motion because the more we diet, the lower our serotonin levels drop, and the harder we try to diet. We become overly critical of ourselves, obsessed with thoughts or behaviors we can't seem to shut off. We scrutinize our eating habits and become

Telltale Signs of Low Serotonin Levels

If you feel yourself starting to get fixated on counting calories, carbohydrates, or eating in general while dieting, your serotonin levels may be dropping too low.

hypervigilant about our food intake, obsessed with calories, and unhealthily focused on attaining the perfect body. Our thoughts can also become rigid and inflexible. One common complaint I hear from clients is that they get so caught up in the "rights" and "wrongs" of the diet that when they break these self-imposed "rules," they feel that they've failed and decide to give up altogether. So if you've ever felt those diets you tried were literally messing with your head, you were right. It could have affected your serotonin levels.

- *Eating at night.* Depleted serotonin activates the urge to eat continuously in the evening. Someone with this pattern, called night-eating syndrome, might say, "I can't make it past seven p.m. I just start eating and can't stop." Or, "Every night I tell myself I'm not going to do it and the next thing you know I'm in the kitchen eating anything."

  Over one quarter of people who are overweight experience this pattern, which also includes not being hungry in the morning, worsening mood and depression as the evening progresses, and an inability to get a good night's sleep.

Signs of Balanced Serotonin Levels	Signs of Serotonin Imbalance
Minimal reliance on sweets	Sugar and carbohydrate cravings
Positive outlook	Depression
Pleasant, easygoing disposition	Irritable, argumentative, hostile disposition
Self-confidence	Low self-esteem
Falling asleep easily, waking up refreshed	Insomnia, difficulty falling asleep or staying asleep
Feeling content and optimistic	Excessive worrying, moodiness
Cooperative nature	Insistence on having things your way
Normal experience of pain	Heightened pain sensitivity

These factors may cause your serotonin levels to drop:

- Chronic stress
- An imbalance of bacteria in the intestines
- Eating too few carbohydrates
- Artificial sweeteners
- Cigarette smoking
- Perimenopause and menopause

- Birth control pills
- Alcohol abuse

Dopamine

The neurotransmitter dopamine maintains a balance with serotonin to regulate appetite. A groundbreaking study led by Gene-Jack Wang, M.D., of the Department of Energy's Brookhaven lab, first demonstrated the link between dopamine and obesity. The researchers used brain imaging to show that the more a person weighed, the less dopamine there was in his or her brain. Like serotonin, it can get depleted with chronic stress. These are two of the ways dopamine affects weight.

1. *Causes overeating.* Dr. Wang's study was the first in a line of research suggesting that overeating is caused by the brain's desperate attempt to increase dopamine and get that satisfaction. We crave foods that are particularly good at increasing our endorphins—chemicals that make us feel good—such as ice cream, cheese, pudding, cheesecake, and other high-fat dairy, doughnuts, cakes, pastries, cookies, and chocolates.
2. *Decreases motivation and the ability to stick with a diet.* When we lose our enthusiasm for managing our food intake via dieting, we can become discouraged and even depressed. We feel like we've failed. In truth, low dopamine levels may be what's making you lose your drive and abandon your goals. Dopamine plays a critical role in our ability to plan, persevere, and stay focused. People with dopamine depletion are easily distracted when they see food and often find themselves constantly daydreaming about what they're going to eat next.

Dopamine also plays into our ability to compare the energy requirements of different actions. It is the reason why you may go with the easiest food option, even when it means breaking with your diet. So when the choice is, "Should I wash and cut up some veggie sticks or should I crack open one of those vanilla puddings I keep for the kids?" a dopamine-depleted person will find it particularly difficult to resist the pudding.

Your Liver Maintains Muscle Tone

The more lean muscle you have, the more fat and calories you burn, because muscle burns more calories than fat. Having more muscle also means that more glucose is taken up and burned rather than stored and turned into fat.

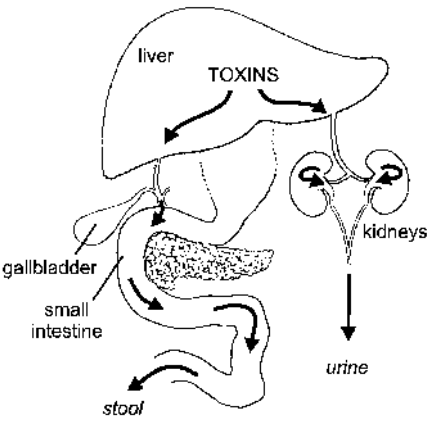
Muscle, just like skin, hair, teeth, and bones, is made up of protein, which in turn is composed of even smaller building blocks called amino acids. Our hormones, enzymes, and neurotransmitters are also made of protein. The liver has to assess what the body needs to make and then produce it. It breaks down old proteins and makes sure new ones are available.

Your Liver Gets Rid of Fattening Toxins

Your liver is truly the hardest-working kid on the block. In addition to all the functions I've described so far, almost everything that enters the body—everything we eat, breathe, or absorb through our skin—must be filtered and detoxified by the liver.

Put simply, the goal of liver detox is to convert toxins into a form that can easily be eliminated in stools or urine, preventing them from causing damage. Every minute, two quarts of unfiltered blood circulates to the liver via special blood vessels with small holes. These holes, called fenestrations, allow unwanted, potentially harmful substances to pass out of the bloodstream and into special liver cells that can dismantle these substances so they can be easily excreted from the body. Otherwise, they keep circulating and causing damage to our tissues and cells.

The process of detoxifying the liver is not unlike removing a stain from a shirt. The first step is to soak the shirt so that the stains will come out in the wash cycle. In step one of detox, unwanted substances are prepped so they can be excreted. A specialized enzyme system made up of fifty to one hundred enzymes, called cytochrome p450, alters the chemical structure to prepare these substances for elimination. Then comes the wash cycle, which lifts out the dirt and later drains it away during the spin cycle. Likewise, in step two of detox, liver cells attach a molecule to the unwanted substance that allows it to be flushed out of the body through urine (via the kidneys) or stools (via bile).



The liver's detoxification pathways.

I marvel at all the liver has to do. This role of the liver as detoxifier becomes critically important during weight loss. When we are exposed to toxins, such as mercury from fish or environmental pollutants, the body stores these toxins in fat cells. When those fat stores are broken down during weight loss—particularly rapid weight loss—the liver can be flooded with more toxins than it can handle, which in turn leaves it less able to maintain its other critical tasks. As you'll learn in the next chapter, this can interfere with our ability to lose weight. And because toxic overload affects every other system in the body as well, this can result in fatigue, allergies, inflammation, swollen glands, hormone imbalance, acne, headaches, an inability to digest and absorb foods, and other problems.

Now that you appreciate the liver's multitude of jobs, it's on to the next chapter, where we'll talk about the two concurrent blows to the liver that happen as a result of weight loss. In part III, you'll learn how to use the Inside Out Diet to prevent them and help you drop pounds, once and for all.