

FUNCTIONAL MEDICINE

A Science Whose Time Has Come

Frustrated with impersonal, ineffective, symptom-centric medical approaches, a growing number of patients are searching for better solutions. And they are finding them in the field of functional medicine, **a radical new model for how to practice medicine and treat chronic disease.**

BY CATHERINE GUTHRIE

A few years ago, Louis Messina was in pain. Despite being on a variety of big-gun drugs to control his psoriatic arthritis, an autoimmune disease that attacks the joints, he still suffered from constant pain and swelling throughout his body. He walked with a limp because his left knee had arthritis-induced tissue damage; the big-toe joint on his right foot was similarly destroyed; and in the mornings, he would awake to find his hands balled up into fists. (They would unclench only after he submerged them in warm water for several minutes.)

“Morning stiffness may sound like a minor problem, but it’s a big thing,” Messina says. “If you can’t open your hands up in the morning, you really can’t do much. You can’t brush your teeth, or wash your face, or shave.”

Nor can you perform surgery. At the time, Messina was in his early 50s and putting in 60 to 80 hours weekly as chief of vascular surgery at the renowned University of California, San Francisco School of Medicine.

“I was quite incapacitated,” he recalls. “It was at the point where I couldn’t really make rounds with the residents in the mornings because I wasn’t able to easily walk up and down the stairs.”

Frustrated and thinking about early retirement, Messina made an appointment with Mark Hyman, MD, the medical director and founder of the UltraWellness Center in Lenox, Mass., and a leading expert in functional medicine. “I had never even heard of functional medicine,” Messina says. “I went on the recommendation of a friend of mine and, frankly, because my wife wanted me to go.”

Hyman took a detailed medical history, asking Messina very specific questions about his diet, lifestyle, early childhood illnesses, stresses, and recent health challenges, which included reflux, migraines, and more. Then he ordered a battery of tests to deepen his understanding of Messina’s overall health. (To get an idea of some of the tests Hyman ordered, see “Basic Tests Used in Functional Medicine” on page 68.)

The results showed a variety of underlying gut problems, such as yeast

overgrowth, a leaky gut, and allergies or sensitivities to many foods, including gluten. Tests also revealed low levels of vitamin D and magnesium; hypothyroidism; and prediabetes.

“He had all kinds of problems,” says Hyman. “But once we treated his poor, inflammatory diet and his underlying gut issues, which generated significant inflammation throughout his body, all of those problems went away.”

For Messina, who up until this point had been offered only surgery or drugs (which cost more than \$30,000 annually and had serious side effects), it was an unprecedented medical experience.

“The rheumatologist that I had been seeing before Dr. Hyman still can’t believe it. She’s never seen anything like it,” he says. “My arthritis, my pain and swelling, it’s all gone. I now go faster on the stairs than my residents.”

Messina’s experience, while notably rare in conventional medicine, is actually quite characteristic of functional medicine, an increasingly popular healthcare model. Its claim to fame: seeing the big picture, treating the whole patient, and recognizing and treating the root of disease, as opposed to just the most visible symptoms.

Some folks have the mistaken idea that functional medicine is simply-lifestyle-based medicine, but it is a systems-oriented, science-based approach that involves taking a patient's biochemistry, physiology, genetics, and environmental exposures into account when looking for the cause of a specific medical issue or set of symptoms.

Practitioners in the hyperspecialized, overbooked world of conventional medicine, says Hyman, sometimes don't have the time or inclination to adopt this wider perspective. In Messina's case, doctors had focused only on suppressing the inflammation — which was just a symptom — as opposed to digging deep and investigating what was causing that inflammation.

"Most doctors aren't trained to think about the underlying causes of disease, such as toxins, allergens, microbes, nutrition, and stress," says Hyman, who is chairman of the Institute for Functional Medicine (IFM). "Conventional medicine is the medicine of *what* — what disease do

or condition. And often the drug has side effects.

Over the past 70 years, this medication-centered mindset and the industry behind it have saved millions of lives, especially when it comes to infectious diseases, such as malaria and polio.

Conventional medicine is also adept at handling acute trauma. "If you go to the emergency room with a heart attack or a broken leg, the doctors who treat you will know exactly what to do," says Victor Sierpina, MD, a family physician at the University of Texas Medical Branch whose practice is informed by functional-medicine principles.

Where conventional medicine can fall short, though, is in the early identification and long-term management of chronic illness, including the kinds of digestive, metabolic, hormonal, and cardiovascular disorders in which many functional-medicine doctors specialize.

Conditions like obesity, type 2 diabetes, and cancer are characterized by a series of complex, multilayered symptoms that take years to develop and can affect every biological system,

two adults (133 million Americans) has at least one chronic condition such as heart disease, type 2 diabetes, cancer, or arthritis. Chronic illness is now also linked to seven out of every 10 deaths in the United States.

"I came out of conventional medical-school training and was in practice for two years, during which time I'd look at my schedule [at the end of the day] and agonize over the fact that I didn't help half the people on it," says David Jones, MD, president of the IFM.

"I was seeing the effects of treating chronic problems with medications meant for acute illness," he recalls, "and the side effects left many of my patients feeling worse than they did before they saw me. My main treatments at that time were pharmacological and didn't address the underlying causes of my patients' real day-to-day issues."

Most experts acknowledge the current system is failing people with chronic illness. Even James Madara, MD, executive vice president and chief executive officer of the American Medical Association (AMA), agrees that traditional medicine education needs an overhaul.

"The structure of medical-school curriculum hasn't changed in more than half a century, yet, in the last 25 years, patients' needs have changed completely," he says. "Today, for every one person admitted to the hospital, 300 more are seen as outpatients, most with chronic conditions. Caring for this new population requires an entirely different mindset."

Say, for instance, that you suffer from migraines. An appointment with a typical conventional doctor would likely be brief and end with a prescription for pharmaceuticals.

In contrast, with a functional-medicine practitioner, you fill out an extensive questionnaire about possible triggers of the migraines, including your diet; your digestive and elimination patterns; your sleep and stress levels; and your exercise and lifestyle choices, like smoking and alcohol use. A functional-medicine doc will then order a variety of tests to explore any issues the health history turned up.

"You need to explore what is giving



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you have, what drug should I give you. Functional medicine considers the diagnosis, of course, but it also seeks to answer the question *why*."

An Epidemic of Chronic Illness

Matching a drug to a disease is a big part of the typical physician's job. It works like this: You get sick. You go to the doctor. The doctor runs tests or recognizes your symptoms. You're given a prescription to take to the drugstore. Sometimes the drug works wonders. Often, it doesn't — particularly over the long haul, and particularly if what you are dealing with is a chronic disease

including circulation, immunity, and hormonal and neurological health. By the time most people are diagnosed with a persistent condition, they need a full-scale intervention, not a 15-minute appointment and a symptom-suppressing prescription.

In 2011, the United States spent nearly 18 percent of its total gross domestic product on healthcare. And experts predict the cost of treating chronic illnesses alone could eventually bankrupt the nation.

That belief is based in part on the data: The Centers for Disease Control and Prevention estimates that one in

Functional Medicine FAQs

What's the biggest difference between conventional and functional medicine?

Conventional medical schools train doctors to diagnose a disease and then assign a drug or surgery to correct it, says Kristi Hughes, ND, a naturopathic physician who practices functional medicine. For instance, many patients with heart disease have narrowing of the arteries that supply blood to the heart. A common approach is to insert stents in the arteries to prop them open and maintain blood flow.

The same issue, if approached by someone trained in functional medicine, would likely instigate a conversation with the patient about what environmental, genetic, and lifestyle factors may be contributing to a narrowing of the arteries. After all, numerous functions — poor diet, inactivity, hormonal imbalances, chronic inflammation — can have an impact on blood flow to the heart.

The conventional-medicine approach, says Hughes, “is doomed to fail in an era of chronic disease like the one we are in today. Rather, physicians must strive to identify and treat the underlying causes of illness, engage patients in a therapeutic partnership to co-create a plan for health and healing, and support behavior changes through empowering and educating patients on wellness care.”

What's the difference between functional and integrative medicine?

The difference between functional medicine and

integrative medicine is subtle but meaningful. While all functional medicine is integrative (meaning it's open to integrating both conventional and alternative methods), not all integrative healthcare practices are functional.

An integrative doctor may be a family practitioner with an interest in Chinese medicine or an osteopath who incorporates homeopathy into his practice. That's fine, but it's not functional medicine, says David Jones, MD, president of the Institute for Functional Medicine (IFM), who likens the distinction to your computer: Functional medicine would be the operating system running in the background, while integrative approaches, like acupuncture and homeopathy, are like specific apps running in the foreground without an operating system connecting them.

Why haven't I heard of functional medicine?

The short answer is, you will. The long answer is that altering the course of conventional medicine is like turning a big ship: It takes a while. Functional medicine started in the early 1990s as the brainstorm of a few doctors frustrated with a medical system that expected them to treat chronic disease with pills and surgeries. Now, functional medicine has its own epicenter, the IFM. So far, more than 100,000 practitioners from 73 countries have been introduced to the principles and practices of functional medicine. Faculties from 30 percent of all medical schools in the United States

have enrolled in continuing-education courses. One of the group's goals is to incorporate functional medicine into medical-school curricula so that the next generation of doctors will be able to treat chronic diseases successfully.

To that end, the University of Miami worked with the IFM to come up with a dedicated functional-medicine and clinical-nutrition curriculum for doctors in the IFM program, which is in its third year of use. And IFM graduated its first class of certified functional-medicine practitioners recently.

How does one become a functional-medicine practitioner?

Functional medicine is not a standalone degree. Think of it more as a postgrad certification. Physicians, osteopaths, chiropractors, nurses, naturopaths, nutritionists, and others can attend functional-medicine courses to build on their training and as part of the larger continuing-education requirements needed to keep their licenses up to date.

A five-day introductory course in functional medicine is the first step. Here, professionals learn the underlying philosophies, diagnostic systems, and protocols for identifying and treating the root causes of disease. Then practitioners can attend specialized three-day seminars on topics such as cardiology, immunology, gastroenterology, hormonal balance, detoxification, and energy regulation.

How much does it cost to see a functional-medicine professional?

In addition to lab costs and follow-up appointments, expect to pay \$200 to \$400 for an initial consult. Be forewarned: Even if you can find a practitioner who takes your health insurance plan (some functional-medicine practitioners do not), the out-of-pocket expenses for supplements and tests can sometimes be prohibitive.

Most major health-insurance companies won't pay for lab tests above and beyond a standard protocol. For instance, they'll often cover basic blood work, such as white blood cell counts, cholesterol levels, or blood-glucose levels, but not a stool test for parasites or urine test for hormone levels. (See “Basic Tests Used in Functional Medicine,” page 68, for common tests and prices.) While a functional approach may cost more up front, many patients find it well worth the money — both because they get better results, and because they avoid the side effects and quality-of-life sacrifices associated with many conventional pharmaceutical and surgical interventions.

How do I find a functional-medicine doctor?

Start by searching the IFM's website (www.functionalmedicine.org), but note that the site merely provides an unvetted list of practitioners who have completed the five-day introductory course. So, once you find practitioners near you, be sure to check out their websites for more info.

rise to those migraines,” says Hyman. “Conventional neurologists will diagnose you with a migraine based on your symptoms, but they don’t investigate the causes of those migraines.”

And, there are a variety of causes. For example, explains Hyman, one of his patients had migraines due to bacterial overgrowth in her small intestine. Another patient, who had been to the top headache clinics in the world, turned out to have a simple magnesium deficiency. Another had a gluten sensitivity that triggered her migraines. And yet another patient, who was approaching 40 and always experienced migraines right before her period, turned out to have an estrogen-progesterone imbalance.

Most neurologists don’t have the right model for treating these people, Hyman says, because they are treating only a symptom — pain — and not the

Think of disease as a giant weed sprouting out of the body’s soil, Bland says. “What’s above ground is easier to see and, in many ways, easier to treat. But unless you dig down and uproot the weed, you’ll never contain it; you’ll only stunt its growth.”

In 1990, Bland asked a group of medical experts to brainstorm a better way. Ultimately, the group laid down the foundations of functional medicine. The experts felt that catching the early warning signs of chronic illness would be best for patients as well as the healthcare system. They decided that employing extensive intake questionnaires and listening to patients’ stories could provide important clues.

Soon after, Bland and his wife, Susan, founded the IFM and began offering introductory courses in functional medicine. To enroll, an applicant had to be a graduate of an accredited healthcare program: Doctors, nurses,



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root causes. In fact, many functional-medicine docs believe that drugs used to treat migraines can actually lower your pain threshold over time, resulting in even more uncomfortable headaches.

Jeffrey Bland, PhD, who is widely considered one of functional medicine’s leading pioneers, explains it this way: “Functional-medicine practitioners spend time with their patients and listen to their histories because they are looking at the interactions among genetic, environmental, and lifestyle factors that can influence long-term health and complex, chronic disease.”

The Foundations of Functional Medicine

Bland launched the functional-medicine movement about 30 years ago after he grew frustrated with what he calls “fragmented, organ-based specialty care.”

naturopaths, osteopaths, chiropractors, and nutritionists could all participate.

Today, more than 100,000 healthcare practitioners have been introduced to the principles and practices of functional medicine, and the organization’s membership is expanding by 30 percent a year. The IFM is developing courses on functional medicine that will be taught in medical schools around the country.

“Functional medicine isn’t ‘airy fairy,’” says Bland. “The method is grounded in science, and we use the best drugs available, if needed,” he says. But, when appropriate, practitioners also advise patients about nutrition, exercise, and reduction of toxic exposure. “This is simply about using the right tool for the right job,” he says.

A Step in a New Direction

The tools that Hyman used to reduce

TWO PATHS

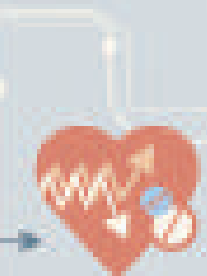


Meet our hypothetical patient.

In his 50s, he is struggling with high blood pressure, high cholesterol, heartburn, joint pain, and type 2 diabetes — an all-too-typical list of issues. So, how would he fare at a typical conventional doctor’s office versus a functional-medicine doctor’s office? Here are some key differences.

Conventional-Medicine Approach

When it comes to acute trauma, like a broken leg, or infectious diseases, such as malaria, conventional medicine is incomparable. Not so when it comes to the epidemic of chronic disease. “The structure of medical-school curriculum hasn’t changed in more than half a century,” says the American Medical Association’s James Madara, MD. “Caring for this new population requires an entirely different mindset.” Confronted with our hypothetical patient’s set of symptoms, many conventional docs would certainly consider lifestyle-based solutions. But their primary treatment would most likely be a drug-centered approach, breaking the larger problem into individual components and treating each issue with a separate medication. This strategy is accepted and supported by health-insurance and pharmaceutical companies.



Blood-pressure medication.

Routinely prescribed for even mild problems, blood-pressure meds have been linked to an increased risk of cancer, back pain, and headaches.



Cholesterol medication.

Research shows that statin medications decrease heart-attack risk by less than 2 percent and can have serious side effects, including increased risk of type 2 diabetes and joint pain.



Diabetes medication.

Insulin can worsen type 2 diabetes in the long run. One drug, Avandia, has been linked to heart disease.



Non-steroidal anti-inflammatories (NSAIDs) for joint pain.

NSAIDs, such as ibuprofen, can damage the all-important gut lining and lead to bleeding ulcers, heart attacks, and strokes.



Acid blockers. These drugs, often prescribed for heartburn, work by impeding the stomach’s ability to make acid. But the body needs stomach acid to digest food and keep harmful bacteria at bay. Long-term use of acid blockers is linked to osteoporosis and nutritional deficiencies. Taken together, this potent cocktail of drugs can cause adverse interactions, and toxicities are possible. One common side effect is confusion, which in an older patient is often misdiagnosed as Alzheimer’s.



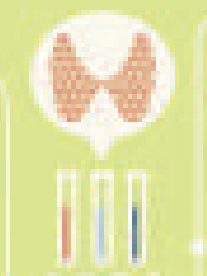
Functional-Medicine Approach

The typical functional-medicine practitioner would probably recognize that the combination of high blood pressure, high cholesterol, weight gain, type 2 diabetes, and heartburn all share a single root cause: metabolic syndrome, one of the most common causes of heart attacks today. After taking an extensive health history, the functional-medicine practitioner would likely order laboratory analysis to create a personalized framework for diagnosis and treatment. Clearly, the course of action depends on what the testing turns up, but here are a few ways a functional-medicine doc might treat our patient.



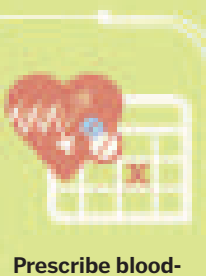
Eliminate sugar.

The major cause of metabolic syndrome is excess sugar and refined carbohydrates in the diet. The average American consumes about 150 pounds of sugar a year. Simply eliminating the excess sugar, starting with sodas and fruit juices, will often fix half of these problems.



Run thyroid tests.

A low thyroid level in men *and* women is a sign of hormonal disturbance that contributes to metabolic syndrome. Functional-medicine docs use a series of tests (not just the one or two ordered by conventional docs) and note even minor abnormalities.



Prescribe blood-pressure medication (short term).

A functional-medicine doctor may use conventional pharmaceuticals as a first step, but not an end game. The long-term solution is a nutrition-rich whole-foods diet high in magnesium and potassium, which lowers blood pressure naturally. Once blood pressure is under control, it’s time to taper off the meds.



Incorporate more light and movement.

Sunshine, for vitamin D, and exercise are both instrumental in bone strength, weight loss, and cardiovascular health. As the weight comes off, the arthritis pain disappears and much of what has been blamed on arthritis, which is often muscle pain, also improves with hormonal and nutritional support.



Monitor and maintain improvements.

Heartburn often clears up when excess weight comes off, but if it continues, the functional-medicine practitioner might recommend a plant-based digestive enzyme with meals. Type 2 diabetes, too, usually clears up as hormones stabilize, diet improves, and weight normalizes. Same with high cholesterol. By getting out of the chronic-disease loop early, the patient avoids the long-term effects these problems eventually cause, including nerve pain and cardiovascular disease. As our hypothetical patient ages, he maintains his healthy lifestyle and continues to feel like he is in his 40s or 50s, with a clear mind, a healthy cardiovascular system, and a low risk of cancer and osteoporosis.

inflammation and heal Louis Messina's gut (what Hyman refers to as "the inner tube of life") included supplements to amp up certain nutrients and probiotics in his system; daily meditation practice; and, perhaps most important, a diet that eliminated problem foods, such as gluten, dairy, yeast, and sugar, and prioritized whole foods.

Messina's daily diet now includes lots of veggies, healthy fats, high-quality proteins, and a variety of anti-inflammatory spices and herbs. He no longer needs medication to treat his arthritis. "I enjoy this way of eating. I immediately took to it because I became aware of how good it made me feel," Messina says. "I used to have traditional meals, like cereal for breakfast, and I would always have an upset stomach 20 to 30 minutes later."

A few years ago, Messina was exhausted, in great pain, and on the fast track to early retirement. Today, he is symptom-free, physically fit, and unendingly grateful that functional medicine has allowed him to take charge of his own health.

It is these kinds of turnarounds that fuel the emerging popularity of functional medicine. Sometime in the last 50 years, most physicians lost their ability to see the big picture, which is addressing patient health concerns individually. Today's conventional focus, says Hyman, is on identifying the disease, naming it, making a diagnosis, then applying drugs and procedures to reduce the symptom profile. Functional medicine turns this entire way of thinking on its head. Instead of seeing patients through the lens of a disease, says Hyman, "functional medicine teaches practitioners how to connect the dots." 🗎

WEB EXTRA!
For a roundup of all of *Experience Life's* functional-medicine coverage, visit ELmag.com/fmextras; and check out Dr. Oz's recent show on the topic (<http://j.mp/19vuATg>).

BASIC TESTS

Used in Functional Medicine

Testing allows doctors to gain a perspective on how well the body is doing its job. Just as a mechanic might hook your car up to a diagnostic computer to get more information, a medical doctor will peer at your blood, urine, and sometimes even stool to get more data points to plot a plan of action. A functional-medicine workup will often include the basics (cholesterol screening, lipid panel, white blood cell count), plus several more tests.

Most functional-medicine practitioners use a handful of labs that are usually considered out-of-network by insurance companies. The upshot? Patients must pay up front and in full. Afterward, however, you can submit a claim to your insurance company in hopes of full or partial coverage. According to the Internal Revenue Service, a health savings account may be used to pay for lab fees if they are considered part of medical care. So, if your functional-medicine practitioner is a licensed physician, you might go this route.

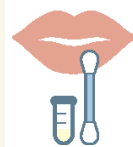
Prices below are approximate (costs can vary greatly between clinicians), but they are in the ballpark. Here's what to expect:



IgG ELISA Food Antibodies:

This blood test assesses IgG antibodies for 87 combined foods, including gluten. The aim is to pinpoint food allergies and sensitivities that may be disrupting digestion

and opening the door to autoimmune disorders and other inflammatory diseases. (Cost: \$200)



Saliva Hormone Testing:

This test measures levels of the hormones progesterone, testosterone, and estradiol over 28 days. The aim is to look for imbalances

that cause fertility problems as well as disruptions in mood, sleep, and appetite. (Cost: \$200)



Organic Acids Test:

Organic acids are urinary markers of metabolism. This urine test looks at issues related to mitochondria, B-vitamin deficiency, detoxification, and more. (Cost: \$300)



Intestinal Permeability Assessment:

This urine test measures whether or not the lining of the small intestine is too permeable, thereby allowing toxins into the bloodstream, or, conversely, has decreased permeability, causing malnutrition and malabsorption. Patients drink a substance made up of two nonmetabolized sugars, lactulose and man- nitol, and then submit a urine sample. This information is assessed to see how much of the substance passed through the small intestine and how much leached through the mucosal barrier. (Cost: \$130)



Thyroid-Stimulating Hor- mone:

The pituitary gland secretes thyroid-stimulating hormones (TSH for short) to help the body regulate — you guessed it — the thyroid. Many people suffer from either overac- tive or underactive thyroid. This blood test

will give your provider a sense of your overall hormonal health. (Cost: \$200)



Urine Toxic-Metals Test:

Heavy metals in the environ- ment can enter the body through air, water, and food.

Once inside, they can cause a host of ills. This urine test requires the pa- tient to drink a chelating agent (a substance that binds to heavy metals and moves them out of the body through urine). Over a six- to 24-hour period, urine is collected and sent to the lab to be screened for lead, mercury, cadmium, and other heavy metals. (Cost: \$160)



Digestive Stool Analysis:

Used primarily to identify gastrointestinal disorders, such as irritable bowel syndrome and inflammatory bowel disease, this test also reveals the

health of the gut's ecology (good and bad bacteria levels). The analysis detects yeast, parasites, and toxins that cause antibiotic-associated diarrhea. (Cost: \$425)

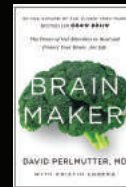


HEALTHY GUT

A NEUROLOGIST
EXPLAINS
**THE POWER
OF YOUR
MICROBIOME**
TO HEAL AND
PROTECT
YOUR BRAIN.

By DAVID PERLMUTTER, MD, FACN, ABIHM

HEALTHY BRAIN



David Perlmutter, MD, FACN, ABIHM, is a board-certified neurologist and fellow of the American College of Nutrition, and an associate professor at the University of Miami's Miller School of Medicine. He is the author of the No. 1 *New York Times* bestseller *Grain Brain* and *Brain Maker: The Power of Gut Microbes to Heal and Protect Your Brain — for Life*, from which this article is adapted.

YOUR BRAIN'S HEALTH

is dictated by what goes on in your gut. That's right: What's taking place in your intestines affects not only your brain's daily functions, but also determines your risk for a number of neurological conditions in the future.

Your intestinal organisms, or microbiome, participate in a wide variety of bodily systems, including immunity, detoxification, inflammation, neurotransmitter and vitamin production, nutrient absorption, whether you feel hungry or full, and how you utilize carbohydrates and fat. All of these processes factor into whether you experience chronic health problems like allergies, asthma, ADHD, cancer, type 2 diabetes, or dementia.

What you might not know is that your microbiome also affects your mood, your libido, and even your perceptions of the world and the clarity of your thoughts. A dysfunctional microbiome could be at the root of your headaches, anxiety, inability to concentrate, or even negative outlook on life.

Put simply, nearly everything about our health — how we feel both physically *and* emotionally — can hinge on the state of our microbiome. In fact, the connection between gut flora and the brain is so important that in 2014 the National Institute of Mental Health spent more than \$1 million on a research program to study this relationship.

In my work as a neurologist, I've discovered that no other system in the body is more sensitive to changes in gut bacteria than the central nervous system. What's more — and this is the good news

— I have seen dramatic turn-arounds in brain-related conditions with simple dietary modifications and, on occasion, with more-aggressive techniques to reestablish a healthy microbiome.

If you're wondering how to care for your own microbiome in a way that can change your brain for the better, check out my new book, *Brain Maker*. Here are some of the details of that program.

MEET YOUR SECOND BRAIN

Understanding just how closely the gut and the brain are related is essential.

Think of the last time you felt sick to your stomach because you were anxious, scared, or over-the-moon elated. Scientists are learning that this intimate relationship between the gut and the brain is bidirectional: Just as your brain can send butterflies to your stomach, your gut can relay its state of calm or alarm to the brain.

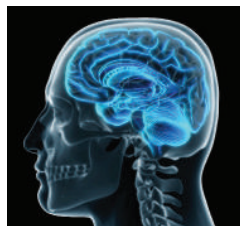
The vagus nerve, the longest of 12 cranial nerves, is the primary channel between millions

of nerve cells in our intestinal nervous system (sometimes called the enteric nervous system) and our central nervous system, which comprises the brain and spinal cord. "Vagus" is Latin for "wanderer," an apt name for this nerve that runs outside the brain and through the digestive system. The vagus extends from the brain stem to the abdomen, directing many bodily processes that don't require thought, like heart rate and digestion.

At the same time, the bacteria in the gut directly affect the function of the cells along the vagus nerve. And some of the gut's nerve cells and microbes release neurotransmitters that speak to the brain in its own language. The neurons in the gut are so innumerable that many scientists are now calling them the "second brain." This second brain not only regulates muscle function, immune cells, and hormones, but also manufactures an estimated 80 to 90 percent of serotonin (the "feel-good" neurotransmitter).

This means the gut's brain makes more serotonin — the master happiness molecule — than the brain in your head. Many neurologists and psychiatrists are now realizing that this may be one reason antidepressants are often less effective in treating depression than proper dietary changes.

There are other chemicals manufactured in the gut that are also critical for the nervous system. GABA is an amino acid produced by gut bacteria that calms nerve activity by inhibiting transmissions



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and normalizing brain waves, helping return the nervous system to a steadier state after it's been excited by stress. Glutamate, a neurotransmitter also produced by gut bacteria, is involved in cognition, learning, and memory. It is abundant in a healthy brain. A slew of neurological challenges — including anxiety, behavioral issues, depression, and Alzheimer's — have been attributed to a lack of GABA and glutamate.

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LEAKY GUT, LEAKY BRAIN

You may have heard about the perils of a leaky gut, where the protective junctions in the intestinal lining become compromised. This is a response to a variety of factors, including pathogenic bacteria, some medications, stress, environmental toxins, elevated blood sugar, and potentially gut-irritating food ingredients like gluten.

Once the intestinal barrier is compromised, undigested food particles leak into the bloodstream, where they elicit an immune response. This can create systemic inflammation.

When your intestinal barrier is compromised, you become susceptible — due to that increased inflammation — to a spectrum of health challenges, including arthritis, eczema, allergies, and even autism, Alzheimer's, and Parkinson's. (For more on leaky gut syndrome, see ELmag.com/leakygut.)

Still, the problems of a leaky gut become even more monumental in light of new science that shows how loss of gut integrity can lead to a “leaky” brain.

We've long assumed that somehow the brain was insulated from what goes on in the rest of the body. You've heard about the highly protective, fortified portal keeping bad things out of the brain — the blood-brain barrier. We used to think of this barrier as an impenetrable wall.

It has now become clear that many substances threaten its integrity. And once the brain's barrier is compromised, various molecules that may spell trouble — including proteins, viruses, and bacteria — can get inside it.

For an example of how dangerous this can be, look at how the lipopolysaccharide (LPS) molecule behaves once it gets outside the gut.

LPS makes up the protective outer membrane of a class of bacteria that typically represents 50 to 70 percent of our intestinal flora. We've long known that LPS induces a violent inflammatory response in animals if it finds its way into the bloodstream. It's so violent that it's also termed an endotoxin, a toxin that comes from within the bacterial cell.

In one critically important

also the greatest challenge to the microbiome and brain. Food matters enormously, trumping other factors in our lives that we may not be entirely able to control.

As I described in my previous book, *Grain Brain*, the two key mechanisms that lead to brain degeneration are chronic inflammation and the action of free radicals, which are byproducts of inflammation that cause the



The problems of a leaky gut become even more monumental in light of new science that shows how loss of gut integrity can lead to a “leaky” brain.

study on LPS, researchers at Texas Christian University showed that injections of LPS into lab animals' bodies (not brains) led to overwhelming learning deficits, demonstrating that LPS was able to cross the blood-brain barrier.

In addition, the animals developed elevated levels of the protein beta-amyloid in their hippocampi, the brain's memory center. (Beta-amyloid is strongly implicated in Alzheimer's.)

Other studies have implicated LPS in memory problems and decreased production of BDNF (brain-derived neurotrophic factor), a protein that is critical for the growth of new brain cells.

This is powerful information that once again speaks to the gut-brain connection and the impact of inflammation, gut permeability, and the critical importance of a healthy gut to a healthy brain.

FOOD MATTERS

Perhaps the most significant factor related to the health of the microbiome — and thus, the brain — is the food we eat. It is

body to “rust.” (For an excerpt from *Grain Brain*, see ELmag.com/grainbrain.)

Brain Maker takes a new look at these mechanisms to understand how they are influenced by gut bacteria and overall gut health. My recommendations are designed to treat and prevent brain disorders; alleviate moodiness, anxiety, and depression; bolster the immune system and reduce autoimmunity; and improve metabolic disorders, including type 2 diabetes and obesity, which factor into long-term brain health.

The idea that food is the most important variable in human health is not news. But our new understanding of the connection between what you eat and how it affects your microbiome, and your brain, is exciting.

You can change the state of your microbiome — and the fate of your health — through dietary changes, opening the door for better health in general, and improved brain function in particular. My plan, outlined on the following pages, can help you get started.

5 WAYS TO BOOST YOUR BRAIN THROUGH YOUR GUT

I am frequently asked how long it takes to rehabilitate a dysfunctional or underperforming microbiome.

Research shows that significant changes in the array of gut bacteria can take place in as little as six days after instituting a new dietary protocol, like the one I present in my book (the highlights of which I'm sharing here). But everyone is different; your Brain Maker rehab will depend on the current state of your



1. EAT FOODS RICH IN PROBIOTICS

Probiotics are live bacteria and yeast that support good digestive health. Long before probiotics became available in supplement form, the health benefits of fermented, probiotic-rich foods like kimchi, sauerkraut, and yogurt were well recognized. The Chinese were fermenting cabbage 6,000 years ago.

The type of fermentation that makes most foods rich in beneficial bacteria is called lactic-acid fermentation. In this process, good bacteria convert sugar molecules in food into lactic acid, and, in doing so, the good bacteria multiply. This lactic acid, in turn, protects the fermented food from being invaded by pathogenic bacteria because it creates an environment with a low pH. This kills off harmful bacteria, which has a higher pH.

While supplements are helpful, there's still no better way to consume bifidobacteria and lactobacilli (some of the most important healthy bacteria in the gut) than to get them from food sources, which are easiest for the body to use.

These probiotic bacteria help maintain the integrity of the gut lining; serve as natural antibiotics, antivirals, and antifungals; regulate immunity; and control inflammation. They even improve nutrient absorption.

These are some of the best food sources for probiotics (for more ideas, visit ELmag.com/probiotics):

- **LIVE-CULTURE YOGURT:** Check the label to make sure your yogurt contains live cultures, and avoid products that are heavily sweetened. Coconut yogurt is an excellent alternative for people who are sensitive to dairy.
- **KEFIR:** A fermented-milk product that has a more liquid texture than yogurt.
- **KOMBUCHA TEA:** A tart, fizzy, fermented black tea.
- **KIMCHI:** Spicy, fermented vegetables that are Korean in origin. Kimchi is one of the best probiotic foods you can add to your diet.
- **SAUERKRAUT:** Real, fermented sauerkraut (instead of cabbage soaked in vinegar) fuels healthy gut bacteria and contains choline, a chemical needed for proper transmission of nerve impulses from the brain through the nervous system. You can make your own real sauerkraut at home or find it in the refrigerated section of grocery stores.
- **PICKLES:** The most basic and beloved probiotic. As with sauerkraut, choose real, brined pickles that have been refrigerated.

2. GO LOWER-CARB; EMBRACE HIGH-QUALITY FATS

A diet that keeps your blood sugar balanced keeps your gut bacteria balanced. A diet high in rich sources of fiber from whole vegetables and fruits feeds good gut bacteria and produces the right balance of short-chain fatty acids to keep the intestinal lining in check. A diet that's intrinsically anti-inflammatory is good for the brain.

Diets high in sugar and low in fiber fuel unwanted bacteria and increase the chances of intestinal permeability, mitochondrial damage, a compromised immune system, and widespread inflammation that can reach the brain. It's a vicious cycle; all of these further disrupt our protective microbial balance.

We've been taught to demonize saturated fat. But coronary artery disease — a leading cause of heart attacks — may have more to do with inflammation than high cholesterol. And a great deal of research shows that when cholesterol levels are low, the brain simply doesn't work well.

Studies of deceased patients with Alzheimer's found significantly reduced amounts of fats in their cerebrospinal fluid compared with controls. People with low cholesterol are at much greater risk for neurological problems, including depression and dementia.

I have a host of recipes in my book, but here's the cheat sheet: Make your main entrée mostly fibrous vegetables and fruits that grow above ground, with protein as a side dish. Far too often people think that a low-carb diet is all about eating copious amounts of meat. Much to the contrary, an ideal plate in the Brain Maker protocol is a sizeable portion of vegetables (two-thirds of your plate) and about 3 to 4 ounces of protein. You'll get your fats from those naturally found in the protein, from butter and olive oil used to prepare the dish, and from nuts and seeds.

3. ENJOY CHOCOLATE, COFFEE, WINE, AND TEA

You can rejoice in the fact that, as far as your brain's health is concerned, you can embrace chocolate, coffee, and wine in moderation, and tea to your heart's desire.

Research abounds concerning dark chocolate's benefits. In one study, Italian researchers demonstrated that in elderly individuals suffering mild cognitive impairment, those who consumed the highest level of flavonols (one category of polyphenols) from cocoa and chocolate showed heightened cognitive function.

Other studies have shown that consuming flavonols leads to improved blood flow to the brain, which is typically diminished in dementia patients.

Like chocolate, coffee supports a healthy balance of gut flora and exhibits anti-inflammatory and antioxidant properties. Coffee and chocolate also stimulate a specific gene pathway called the Nrf2 pathway. When triggered, it causes the body to make higher levels of protective antioxidants, while reducing inflammation and enhancing detoxification. Other Nrf2 activators are green tea, turmeric, and resveratrol, a compound in red wine.

On that note, Spanish researchers have found that LPS levels, a marker for both inflammation and intestinal permeability, were dramatically reduced in individuals who consumed red wine in moderation (one to two glasses per day).

Polyphenols found in black tea are now being explored for their ability to positively influence gut microbial diversity. They've been shown to increase bifidobacteria, which help stabilize gut permeability. Green tea has also been shown to increase bifidobacteria and to lower levels of potentially harmful bacteria species.

4. CONSUME FOODS RICH IN PREBIOTICS

Prebiotics are food-borne fuel for the beneficial bacteria that live in the gut, and they occur naturally in raw garlic, cooked and raw onions, leeks, chicory, Jerusalem artichokes, and jicama. Estimates suggest that for every 100 grams of prebiotic carbohydrates we consume, a full 30 grams of good gut bacteria are produced.

Prebiotics have many additional benefits, including the ability to reduce inflammation in inflammatory-bowel disorders, enhance mineral absorption, and promote a sense of satiety. Animals given prebiotics produce less ghrelin, the hormone that signals the brain that it's time to eat.

5. DRINK FILTERED WATER

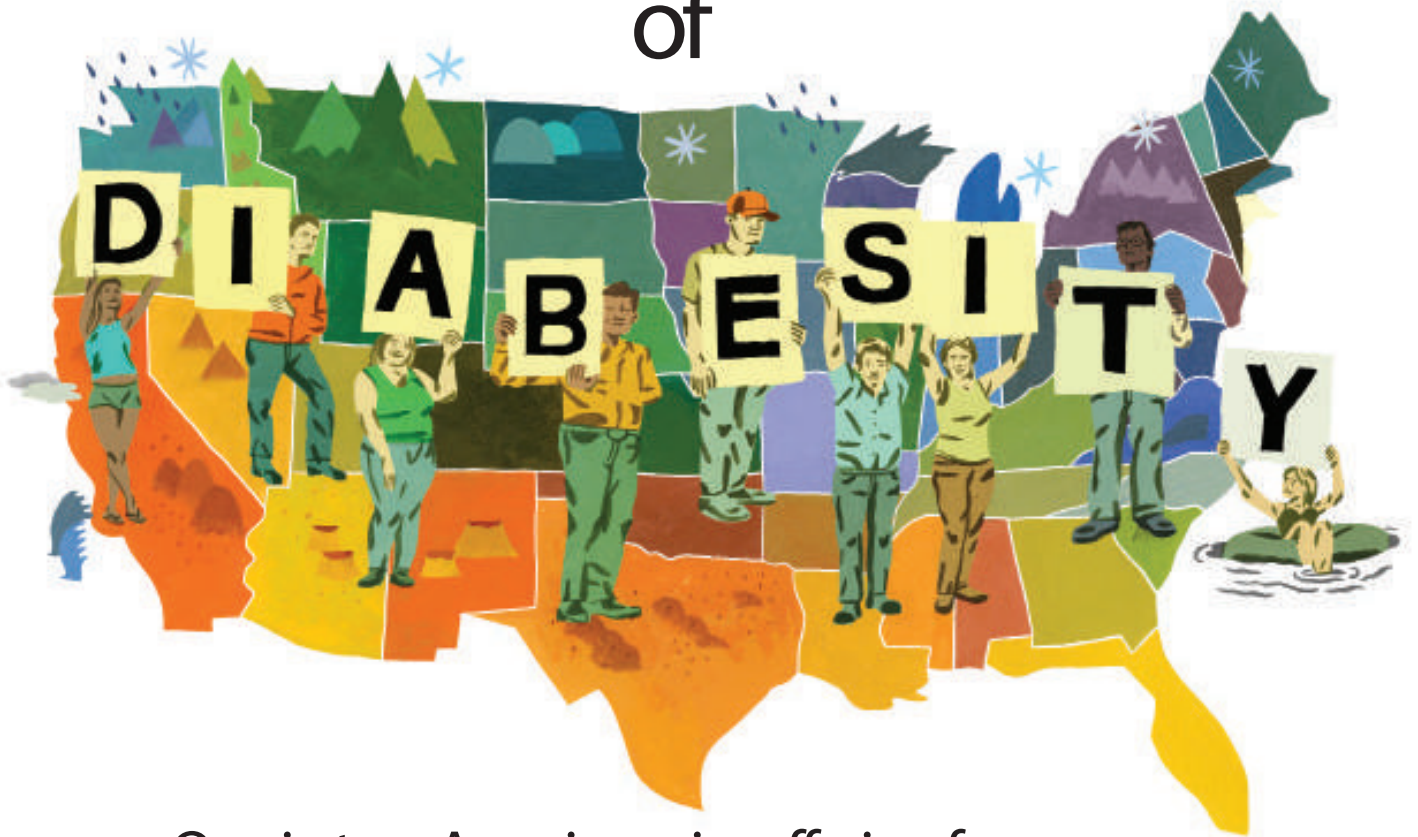
Consuming plenty of water is important to intestinal health, but it's critical that the water doesn't contain gut-busting chemicals like chlorine. Environmental toxins can disrupt the microbiome and disturb brain physiology.

I recommend using a household water filter. There are a variety of home water-treatment technologies available, from simple filtration pitchers to under-sink units with a separate spigot. Make sure the filter you buy removes chlorine as well as other contaminants, and be sure to maintain and change it regularly.

Finally, ditch plastic water bottles and choose reusable bottles made from stainless steel or glass instead. ♻️

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The United States of



One in two Americans is suffering from
a hidden epidemic, and most of them don't even know it. **Why?**

Because most doctors are not trained to treat
the single biggest chronic disease in America.
The good news? Diabetesity can be **prevented,**
treated and **reversed.**

Here's how.

By MARK HYMAN, MD

It is no secret

that we are in the middle of an explosive epidemic of obesity and type 2 diabetes, or what I call “diabetesity.” As a physician, scientist, educator and citizen, I have been motivated to find a comprehensive solution. That is what spurred me to write my new book, *The Blood Sugar Solution: The UltraHealthy Program for Losing Weight, Preventing Disease, and Feeling Great Now!* (Little, Brown and Company, 2012).

What I’ve discovered in my more than 20 years of seeing patients is that whether you are suffering from a little extra weight around the middle or you have been diagnosed with insulin resistance, pre-diabetes, metabolic syndrome, Syndrome X or even type 2 diabetes, all of these conditions are basically the same thing — just with varying degrees of severity.

A new word, “diabetesity,” describes this continuum of metabolic imbalance and disease that ranges all the way from mild blood-sugar imbalance to insulin resistance to full-blown diabetes. So, yes, if you have diabetes, you have diabetesity. But you don’t have to be a diabetic — or even have symptoms — to be suffering from diabetesity.

Nearly all people who are overweight (almost 70 percent of Americans) already have “pre-diabetesity,” which, in short, is an earlier stage of diabetesity that carries with it significant risks of disease and death. And, although the word diabetesity is made up of the concepts of obesity and diabetes, even those who aren’t overweight can have this problem. These are the “skinny fat” people. They are “under lean” (not enough muscle) instead of “overweight” and often carry a little extra weight around the middle.

Diabetesity is a leading cause of most chronic disease in the 21st century. Specifically, those with diabetesity are at an increased risk of heart disease, stroke, dementia, cancer, high blood pressure, blindness and kidney failure.

Unfortunately, most people who are suffering from diabetesity have no idea that they are suffering from a deadly condition — or that this condition is 100 percent reversible. That’s because, currently, there are no national screening recommendations, no treatment guidelines, no approved medications,

and no reimbursement to healthcare providers for diagnosing and treating anything other than full-blown diabetes.

Think about that: Doctors are not expected, trained or paid to diagnose and treat the single biggest chronic disease in America — a disease that, along with smoking, causes nearly all the major healthcare burdens of the 21st century.

So this is a very real and very serious problem — not just for those who suffer from diabetesity, but for our communities, our economy, our entire society.

Given all of this, one would think the burning questions on everyone’s mind would be: Why is this happening? What has caused this diabetesity epidemic? Why are our current approaches to treating the problem failing so miserably? And what new approaches could we take that would more effectively treat the problem?

In fact, not nearly enough people are asking those questions. But if you’re interested, keep reading: I’ll answer them here.

Insulin Resistance:

The Real Cause of Diabetesity

While there are some predisposing genes, type 2 diabetes is almost entirely induced by environmental and lifestyle factors. Therefore, a search for the diabetes gene and the magic-bullet drug or gene therapy to treat it will lead us nowhere. While understanding our genes can help us personalize our approach to metabolism and weight loss, it can also shift our focus away from the most important target: the modifiable lifestyle and environmental factors that are driving this epidemic.

Take one of the most important lifestyle factors: nutrition and how you eat. When your diet is full of empty calories and an abundance of quickly absorbed sugars, liquid calories (sodas, juices, sports drinks or vitamin waters), and refined or starchy carbohydrates (bread, pasta, rice and potatoes), your cells slowly become numb to the effects of insulin,

and need more and more of it to balance your blood-sugar levels. This problem is known as insulin resistance.

A high insulin level is the first sign of trouble. The higher your insulin levels are, the worse your insulin resistance.

Hypoglycemia, or low blood sugar, is often an early symptom of insulin resistance. If you skip meals or eat too much sugar or too many refined carbs, you will experience swings in blood sugar that make you feel anxious, irritable and tired, and that can even cause palpitations and panic attacks. Stuffing down a big cinnamon bun or swigging a 20-ounce soda will cause big spikes in sugar and insulin and a quick surge in energy, followed by the inevitable crash as your blood sugar plummets.

Eventually your cells become so resistant to insulin that your blood sugar stays up and your pancreas can't produce enough insulin to fight against the high blood sugar and get a message through your numb cells. That's when you cross the line to diabetes.

The problem? Most doctors don't catch diabetes in the early stages because they never test insulin levels. Instead, doctors typically measure a person's fasting blood sugar — the level of glucose present in a blood sample drawn a minimum of eight hours after the last meal.

A recent study showed that anyone with a fasting blood sugar of over 87 mg/dl was at increased risk of diabetes. Yet most doctors are not concerned until the blood sugar is over 110 mg/dl or, worse, 126 mg/dl, the level that technically signals diabetes.

Unfortunately, diagnosing problems with insulin resistance and blood-sugar control at this point occurs too late in the game. In fact, your blood sugar is the last thing to go up. Your insulin spikes first, and despite being the simplest way to detect problems early, doctors rarely order the two-hour glucose tolerance test, which measures not only glucose but also insulin levels at fasting, and one and two hours after a sugar drink — a much more effective way to catch problems before the onset of disease.

Insulin resistance is the single most important phenomenon that leads to rapid and premature aging and all its resultant diseases. High levels of insulin, the fat-storage hormone, tell your body to lose muscle and gain weight around the belly, and you become more apple-shaped over time. High insulin levels also drive inflammation and oxidative

High insulin levels

drive inflammation, high blood pressure, high cholesterol, poor sex drive, infertility, and increased risk of cancer, Alzheimer's and depression.

stress, and myriad downstream effects including high blood pressure; high cholesterol; poor sex drive, infertility; and increased risk of cancer, Alzheimer's and depression.

I recommend early testing for anyone who has a family history of type 2 diabetes, belly fat or increased waist size, or abnormal cholesterol. Don't wait until your sugar is high. By then, too much damage has been done. Even if you have perfectly normal blood sugar, you may still be sitting on this time-bomb disease called diabetes, which prevents you from losing weight and living a long, healthy life.

Keep in mind: Insulin resistance is the major cause of aging and death in the developed (and most of the developing) world.

Lifestyle Measures (Not Drugs) Are the Cure

Most of us are taught that diabetes is not reversible and that we are destined

to suffer progressive decline. We also believe that it is nearly impossible to treat obesity or to be able to maintain long-term weight loss. We think that the only treatment options are to limit the consequences and reduce the complications. But my clinical experience tells me none of this is true.

Although the statistics are grave, diabetes can be prevented, treated and reversed. New and better drugs or procedures are not the solution, though. Blockbuster drugs like Avandia fail in their promise and often cause harm. Gastric bypass surgery has increased from 10,000 to 200,000 per year in the last decade. But how many of the 1.7 billion overweight citizens of the world can undergo gastric bypass? And how many of those will gain back most of the weight they lost?

Our current problem-solving tools, methods of diagnosis and ways of treating patients are still based on 19th- and 20th-century ideas about the origins of disease. They overlook the complex web of biology, as well as the social, political and economic conditions at the root of our current chronic-disease epidemic.

Chronic disease results from imbalances in our biology that occur as a result of the interactions between our genes and our environment. To reverse it, we first must focus on the causes (poor diet, stress, toxins, microbes, infections) that disturb our whole system. We must work with the network of our biological systems that become imbalanced because of the effects of the environment in which we live. We must use a new map to navigate chronic disease, one that is based on a new model of treating chronic illness.

This map is called "functional medicine." It is a way of treating the causes, not just the risk factors; of treating the whole system, not just the symptoms; of creating health, not just treating disease.

In fact, if you focus on creating health rather than just treating disease, many diseases — even complex ones like diabetes — often take care of themselves. Simply put, disease goes away as a side effect of getting healthy.

7 Steps to Treating Diabetes

I often joke that I am a “wholistic” doctor because I take care of patients with a “whole list” of problems. Typically, when someone has multiple complaints, they are told by their doctor, “We can only deal with one problem at this visit.” Or they get referred out to a half-dozen different specialists — one for the skin rash, one for joint pain, one for reflux, one for migraines and so on. No one asks, “How is everything connected?” It’s no wonder that the average Medicare patient has six doctors and is on five medications.

The trick is to see the connections. When we are out of balance, illness occurs, whether it’s weight gain, diabetes, heart disease, cancer or anything that may be on your “whole list.” The key is not to treat each thing separately, but to look for and treat the fundamental underlying causes.

To heal from diabetes, or overcome any of the other chronic illnesses you suffer from, you must rebalance the seven key systems in your body that are at the root of health and illness.

Here’s a quick look at each of those key biological systems and how they contribute to diabetes. (My book includes more detailed information, plus quizzes and recommendations that will help you develop a personalized self-care plan.)

No. 1: Boost Nutrition



The main driving factor of our diabetes epidemic is our nutrient-poor, calorie-rich, low-fiber, high-sugar Standard American Diet. It has led to a nation of overfed but undernourished people. In fact, there are so few nutrients in our diet that we now have an epidemic of nutritional deficiencies that promote the development of diabetes, including vitamin D, magnesium, chromium, zinc and antioxidant deficiencies. Whole, real fresh food that you cook yourself is the most potent medicine you can use to prevent, treat and reverse diabetes.

No. 2: Regulate Your Hormones

Although my book is mostly focused on the hormone insulin, balancing all of your hormones, including sex hormones, adrenal or stress hormones, and thyroid hormones, is important if you want to heal. They are all interconnected; they interact with one another like a big musical symphony. When this symphony is playing out of tune, problems arise.

To overcome diabetes, you must identify and treat thyroid imbalances that control your metabolism, overactive stress hormones that worsen insulin resistance and blood sugar, and insulin imbalance and its harmful effects on your sex hormones.



No. 3: Reduce Inflammation

Anything that causes inflammation will, in turn, cause insulin resistance. And anything that causes insulin resistance will cause inflammation. This dangerous spiral is at the root of so many of our 21st-century chronic maladies. Sugar, refined carbohydrates, trans fats, too many inflammatory omega-6 fats from processed plant oils (like soybean or corn oil), artificial sweeteners, hidden food allergies and sensitivities, chronic infections, imbalances in gut bacteria, environmental toxins, stress, and a sedentary lifestyle all promote inflammation. Of course, which of these factors is the source of inflammation for you is a key question, and the answer is different for everyone. Locating and addressing each of the sources of inflammation in your life is essential not only for overcoming diabetes, but also for addressing virtually every other health-related issue.



No. 4: Improve Digestion

New evidence points to an unexpected source of metabolic problems and diabetes — a toxic digestive system. Our diet has changed dramatically in the last 10,000 years, and even more so in the last 100 years, with the industrialization of our food supply. This highly processed, high-sugar, high-fat, low-fiber diet has substantially altered the bacteria that historically grew in our digestive tracts, and the change has been linked to weight gain and diabetes. Many other modern inventions — including antibiotics, acid blockers, anti-inflammatory medication, aspirin and steroids — injure the gut, alter our gut flora and lead to systemic inflammation. What we in functional medicine call the 4R program works very well: Remove the bad bugs, drugs and food allergens; Replace needed enzymes, fiber and prebiotics; Reinoculate your gut with good bacteria or probiotics; and, finally, Repair the gut lining with omega-3 fats, zinc, glutamine, quercetin and other healing nutrients.

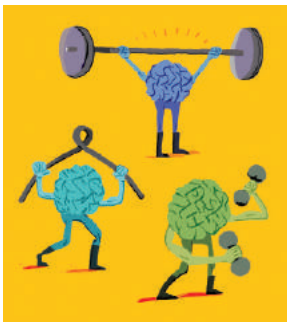


No. 5: Maximize Detoxification

Over the last few years, scientists have uncovered an unexpected fact: Environmental toxins make you fat and cause diabetes. We have found that environmental toxins interfere with blood sugar and cholesterol metabolism, and cause insulin resistance. One of the key mechanisms that leads to insulin resistance and diabetes is when toxins block the function of very important receptors on the nuclei of your cells, receptors that are critical for optimal insulin function and blood-sugar control. Scientists have shown that toxins cause increases in glucose, cholesterol and fatty liver, and slow down your thyroid function. They also may cause an increase in appetite and problems with brain signals that control hunger. This is no longer something that can be ignored: Toxins make you fat and cause diabetes, and they must be addressed in any treatment program for diabetes.



No. 6: Enhance Energy Metabolism



Our metabolism directly affects our risk for diabetes. Metabolism turns calories and oxygen into the energy that fuels every cell in our bodies. This energy is made in little factories in our cells called mitochondria. When your mitochondria are not working properly, you suffer all the symptoms of low energy: fatigue, slow metabolism, weight gain, memory loss, pain, rapid aging and more. People with diabetes don't produce energy in their mitochondria as well as healthy people do. Often the cause of damage to our mitochondria is something we call "oxidative stress." We are familiar with the process — it is seen as rust on a car, wrinkles on your face, an apple that turns brown in the air. But you can wrinkle on the inside, too. The good news is that there are ways to enhance and optimize mitochondrial function, boost energy production, and reduce oxidative stress. The even better news is that doing these things can reverse diabetes and insulin resistance.

No. 7: Sooth Your Mind

Stress makes you fat and contributes to the development of diabetes. When I worked in the emergency room, I frequently saw patients with high blood sugar. These people were not diabetic. Acute stress had caused their blood sugar to skyrocket. Doctors have long known there is a relationship between stress and blood sugar. What we now understand is that, in the face of chronic stress, our levels of insulin, cortisol and inflammatory compounds all increase. This drives the relentless metabolic dysfunction that leads to weight gain, insulin resistance, and, ultimately, diabetes. Thus, managing stress — whether through relaxation therapies, meditation, yoga, massage, exercise, laughing or much more — is a critical component of obesity and diabetes treatment.



Do You Have Diabetes?

Let's see if you have diabetes or are at risk for it. If you answer yes to any of these questions, you may already have diabetes or are headed in that direction.

- Do you have a family history of diabetes, heart disease, or obesity?
- Are you of nonwhite ancestry (African, Asian, Native American, Pacific Islander, Hispanic, Indian, Middle Eastern)?
- Are you overweight (BMI or body mass index over 25)?
- Do you have extra belly fat? (Is your waist circumference greater than 35 inches for women or greater than 40 inches for men?)
- Do you have sugar and refined carbohydrate cravings?
- Do you have trouble losing weight on a low-fat diet?
- Has your doctor told you your blood sugar is a little high (greater than 100mg/dl) or have you actually been diagnosed with insulin resistance, pre-diabetes or diabetes?
- Do you have high levels of triglycerides (over 100 mg/dl) or low HDL (good) cholesterol (< 50 mg/dl)?
- Do you have heart disease?
- Do you have high blood pressure?
- Are you inactive (less than 30 minutes of exercise four times a week)?
- Have you had gestational diabetes or polycystic ovarian syndrome?
- Do you suffer from infertility, low sex drive or sexual dysfunction?

5 Myths

About Obesity and Diabetes That Keep Us Sick

Myth No. 1:

Diabetes is genetic.

Although we've been led to believe that type 2 diabetes is a genetic disorder, it is almost entirely brought on by environmental and lifestyle factors. From 1983 to 2008, the number of people in the world with diabetes increased seven-fold, from 35 million to 240 million (and I actually believe this is a serious underestimate). This could not happen with a purely genetic or inherited disorder. Genes change only 0.2 percent every 20,000 years — but our environment has changed more in the last 100 years than in all of previous human history.

Myth No. 2:

Diabetes is not reversible.

Diabetes, especially if it is caught early and treated aggressively with lifestyle changes and occasionally with medications, is absolutely reversible. The problem is that most conventional doctors do not catch diabetes early enough because they focus on fasting blood-sugar levels instead of insulin levels.

Myth No. 3:

Pre-diabetes isn't a problem until it turns into full-blown diabetes.

One of the most important ideas in my book is that pre-diabetes is not "pre" anything. It is a deadly disease driving our biggest killers — heart attacks, cancers, dementia and more. Simply put, pre-diabetes is an earlier stage of diabetes that carries with it nearly all the risks of diabetes.

Myth No. 4:

If you start taking insulin, there is no going back.

Insulin treatment in diabetes is a slippery slope, because increased insulin dosage often leads to increased weight gain, higher blood pressure and elevated cholesterol. Remember, insulin is a fat-storage hormone that also drives appetite and inflammation. Blood sugar improves, but overall risk of heart disease does not. That is why insulin should be the last resort in managing diabetes. And if you have to be on insulin, get on the lowest dose possible. The good

news is that, with aggressive lifestyle intervention and dietary change, you can, under your doctor's supervision, reverse diabetes and stop insulin therapy.

Myth No. 5:

Lowering blood sugar with medication prevents death and heart attacks in diabetics.

Avandia, the world's No. 1 diabetes drug, contributed to 47,000 incidences of heart attacks, stroke, heart failure or death in the first 10 years of its use. We have to give up on the hope that a magic pill will fix our problems. Recent large trials in the New England Journal of Medicine have confirmed that by treating risk factors with drugs, we may not only be ineffective in preventing heart attacks, diabetes and death, but we may also be creating harm by ignoring the root causes of disease. When applied correctly, lifestyle-based changes are often the best medicine, and they are the only thing that will get us started on the road to reversing this global health crisis.

Take Back Our Health

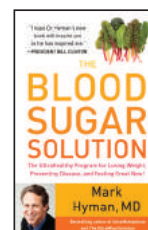
Health is a human right that is neglected and undervalued. It's time to take it back.

No single change will help us take back our health. Pharmaceutical companies continually promise the next breakthrough on diabetes, obesity and heart disease, yet we inevitably end up disappointed. Likewise, the food and diet industry constantly peddles quick fixes — just eat this one thing or do this one super exercise and your problems and pounds will melt away — but there will never be one quick fix.

It is the hundreds of little choices we make every day that will transform our collective health. By making choices as individuals, families and communi-

ties, we can force change. Demand for healthier food, for example, has convinced Walmart to offer organic products. It's that kind of collective pressure that both forces change in large swaths of the economy (including food growers and producers) and reduces the toxic burden on the environment.

Through our collective action we can help create change at the local and national levels. Please join me at www.takebackourhealth.org to join the movement and follow me on Twitter @markhymanmd and on Facebook at [facebook.com/drmarkhyman](https://www.facebook.com/drmarkhyman) to learn more about how we can and must get healthy together. ☘



Mark Hyman, MD, is the medical director and founder of The UltraWellness Center in Lenox, Mass., and a leading expert in functional medicine.

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The Empowered Patient

Medical appointments can be intimidating. Here's how to get the support you need from a doctor who makes you a partner in your own care.

By JON SPAYDE

Most medical consultations have unnervingly high stakes. The anxiety you feel as you sit in the consulting room can be enough to make you queasy.

You want answers from your doctor that will clarify your situation, but will you understand what your practitioner says? And if you don't, will you be able to ask the right questions? If you decide to do research ahead of time, how will your doctor respond to the information that you — the non-MD — gathered on your own? How do you make the most of the limited time most doctors have to see you?

Finally, what if you're told your condition is chronic, incurable — there's nothing to be done? Should you get a second opinion?

According to Shilpa Saxena, MD, becoming a more empowered patient begins with understanding the kind of care you want — and seeking out the practitioner who can best meet your particular needs.

EXPERT SOURCE

Shilpa P. Saxena, MD, a board-certified family-practice physician, is the founder and director of the SevaMed Institute in Tampa, Fla. Their motto is "Patients Powered by Knowledge."

CHALLENGES to OVERCOME

- **Wrong-doctor syndrome.** Saxena believes that most of the problems we encounter in the consulting room result from a mismatch between our desires and our doctor's orientation and expertise. (For example, an emergency-room doctor can splint your broken arm but might not be the best one to consult about your physical-therapy plan.)
- **Expecting the worst.** "Many people assume that everything they are going to hear from their doctor will be difficult, painful, or negative in some other way," says Saxena. But if you have a practitioner who is well suited to your needs, you will get a good deal of helpful and encouraging information — even when the news is less than ideal.
- **Diploma intimidation.** All those framed certificates and diplomas on the wall are supposed to reassure you that your doctor knows what she or he is doing. But they can also make you feel unqualified to even ask questions.
- **Time poverty.** Physician visits have gotten shorter and more rushed over the past decade. This can leave you feeling like you don't have enough time to explain your condition, much less get all the detailed information you want from your doc.
- **Fear of judgment.** You may worry that if you come prepared with information that you've gleaned on your own — or if you ask too many questions about your condition and treatment options — your doctor will dismiss you as difficult.

STRATEGIES for SUCCESS

■ **Explore your options.** “We’re usually pretty careful when we choose advisers for investments, car care, or whatever,” says Saxena. “But when it comes to a doctor, we may simply pick the one with an office closest to our work.”

■ **Know your needs.** Would you do best with a doctor who has more time for consultation? One with a holistic perspective? One who is a good advocate with various specialists to help you manage a chronic condition? “Finding the right doctor in the first place enables and supports your empowerment,” she notes.

■ **Forge a partnership.** Saxena encourages patients to approach their doctors as partners, rather than authorities. If you’ve chosen a skillful provider who’s a good match, he or she is more likely to feel comfortable with input from you. This includes information you’ve gathered online, which he or she should be able to corroborate or correct. “Naturally, a doctor who doesn’t believe in the holistic approach may resist you if you ask for it,” she says. “But if your healthcare provider is never interested in your contribution, rethink who you’re working with.”

■ **Inform yourself.** Saxena recommends gathering information about your condition or complaint before talking with your doctor so that you can have a

thoughtful exchange and ask proactive questions about your treatment options. But be selective about your sources — not all information is created equal. See “Sharing Internet Health Information With Your Doctor,” below, for how to find reliable health information online.

■ **Cultivate calm.** “When you’re in a state of high anxiety,” says Saxena, “your ability to remember things like medical suggestions and procedures is greatly diminished.” Arrive a little early, so you aren’t rushing, she advises, “and do some simple deep-breathing exercises while you wait for your appointment.”

■ **Write a succinct timeline.** Saxena recommends writing out a one-page timeline that details the relevant factors and symptoms prompting your visit. She says providing a written account of how you’ve been feeling, along with symptoms in the chronological order they appeared, “will save 10 minutes of medical-history-taking.”

■ **Take along a companion.** Saxena suggests asking a friend or relative along to any appointment that might involve an exchange of detailed information. “Having a second set of ears is a smart idea,” she says, “and a good doctor will appreciate it, as long as there’s no disruption of the primary relationship between you

and that doctor.” Ask your companion to take notes like a court reporter — a lot of detail and no opinions. This will prove most helpful to you later on.

■ **Ask four questions about any treatment.** When a doctor suggests a particular treatment, whether it’s a drug or a diet plan, Saxena recommends asking four questions: How many times have you done or prescribed this? How often does it work? What are the most serious side effects I might expect? How soon will I likely see positive results?

■ **Don’t take no for an answer.** If a doctor tells you there’s nothing that can be done for a condition, says Saxena, that’s a good time to seek other opinions. “I’m the sort of physician who believes that there is always something more that can help, even if we’re talking about palliative care for stage 4 cancer,” she says. “Ask your doctor if there is someone he or she could recommend who might have a different angle on your condition, or who practices a different form of healing.” Or if your doc’s not helpful, do some research on your own. Ask friends, family, and experts for further suggestions. 🗣️

Jon Spayde is an *Experience Life* contributing editor.

MORE RESOURCES



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By Elizabeth Cohen

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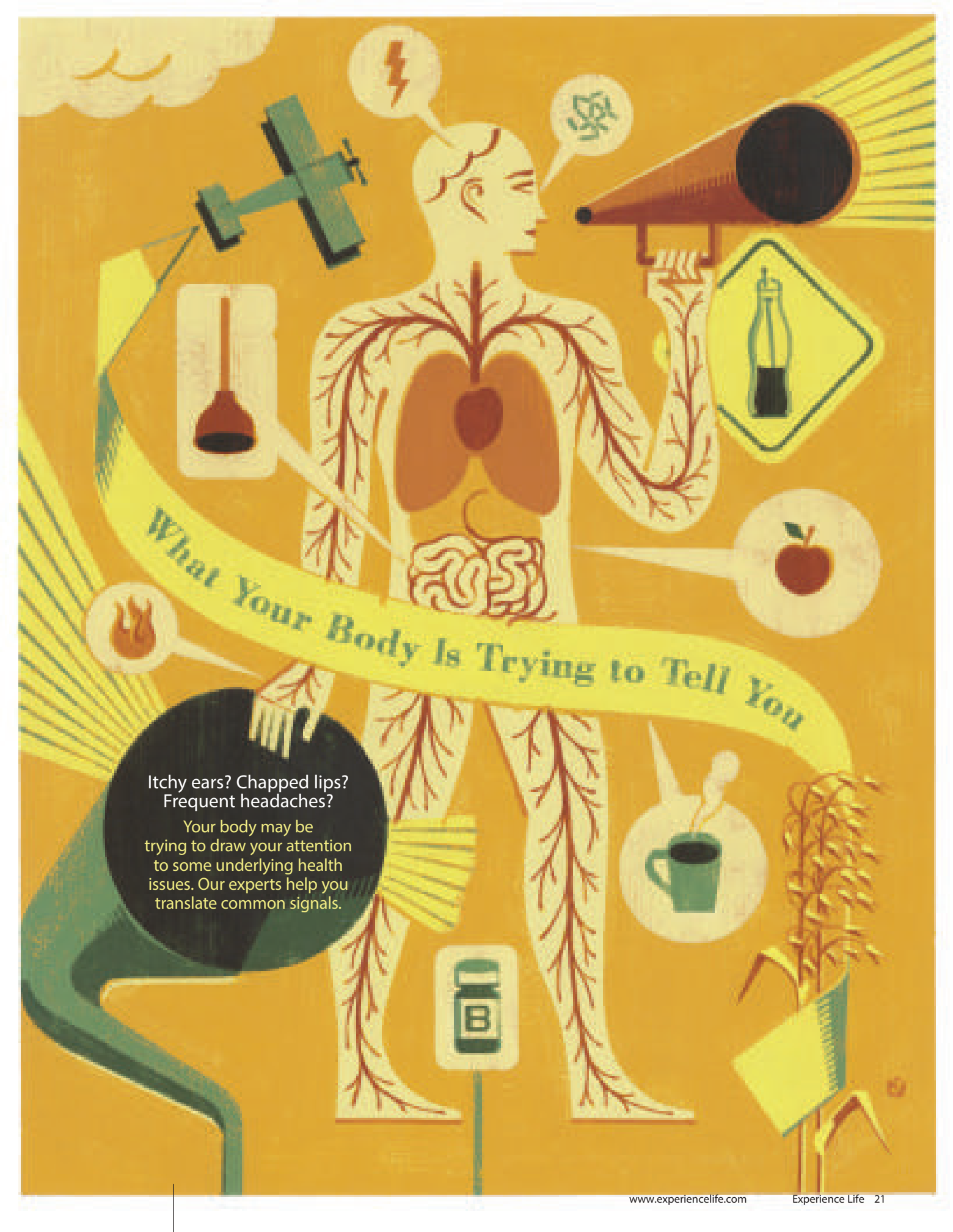
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A concise exploration of the challenges many doctors have with online medical information, plus suggestions for choosing reliable sources.



Itchy ears? Chapped lips?
Frequent headaches?

Your body may be trying to draw your attention to some underlying health issues. Our experts help you translate common signals.

The body is a magnificent machine. When things go awry, it generally doesn't just shut down without warning, like an incandescent light bulb popping its filament. Instead it sends us little signals (think of them as gentle biological taps on the shoulder) letting us know that something is amiss. "Physical signs and symptoms are ways your body tries to alert you to deeper imbalances," says Elson M. Haas, MD, a San Rafael, Calif., physician with a natural-medicine approach and author of *Staying Healthy with Nutrition* (Celestial Arts, 2006). "Taking the time to decipher the body's codes is always better than simply popping a pill and hoping the symptoms just go away. Ideally, we want to get to the causes of problems, not just suppress the end result of ill health."

But interpreting the body's quirky Morse code requires a deep level of body awareness that, like any skill, takes time and practice to perfect. To that end, we recruited a handful of the country's leading integrative health practitioners to help identify nine of the most common conditions underlying frequent, and sometimes mysterious, symptoms. Read on to clue into your body's messages.



One likely signal: Itchy ears, throat or mucus membranes

Background: The average American downs nearly 150 pounds of sugar and high-fructose corn syrup a year, according to the United States Department of Agriculture. And if you're eating anywhere near that much sugar, you may have more than just a sweet tooth — your body may be hosting an unhealthy overgrowth of *Candida albicans*. A small amount of this common, yeastlike fungus living in the gut is OK when its numbers are kept in check by healthy flora. But when an intestinal imbalance allows it to run amok, it acts like kudzu, colonizing everything in its path. Among its favorite environs are the body's warm, dark nooks and crannies, such as between the toes, under the breasts and, yes, in the ears. As it infiltrates, it irritates and inflames the skin, leading to the telltale signs of itching and redness.

Other signals: Mood swings, fatigue, weak immune system, weight gain, frequent yeast infections

How to respond: If you think you have candida overgrowth, the quickest fix is to starve the little buggers. *Candida* flourish in the presence of both refined and unrefined sugar, such as fresh fruit, dried fruit and fruit juice. Cutting off their food supply can bring their numbers back to a healthy level. They also love refined flour products and anything fermented, such as alcohol and soy, so if you have a serious overgrowth, you may need to cut out all of the above for a number of consecutive weeks.

For more info, see our article "Kicking Candida" (January/February 2004) in the archives at experiencelife.com.



One likely signal: Headaches

Background: Artificial sweeteners, particularly aspartame (found in Nutrasweet and Equal), can trigger headaches, even migraines. At highest risk are people with a genetic disorder called phenylketonuria (or PKU for short); they lack the enzyme needed to metabolize a substance (phenylalanine) that is created when the body breaks down aspartame. But even those without the genetic disorder may find that drinking diet soda results in brain fog or headache. Why? Animal studies have shown aspartame to be a potent neurotoxin, at least in young rats. "I'm concerned about whether aspartame might cause nerve damage in humans, as well — or at least disrupt the nerve signaling that enables the brain to register satiety," says Sharon Fowler, MPH, a faculty associate at the University of Texas Health Science Center at San Antonio who studies the health effects of artificial sweetener use. One of the prime suspects is the methanol in aspartame, which is broken down into formaldehyde, a known carcinogen. People who are sensitive to formaldehyde may experience headaches after ingesting aspartame.

Other signals: Intense cravings for sweet or salty foods, inability to focus, irritability

How to respond: When the urge for diet soda strikes, Kathie Swift, MS, RD, LDN, chief nutrition adviser for the online-based sites MyFoodMyHealth and My Foundation Diet, suggests drinking sparkling water flavored with a splash of 100 percent fruit juice and a squeeze of lime.

For more info, see our article "Poor Substitutes" (Dec. 2007) in the archives at experiencelife.com.



What your body may be trying to tell you:

One likely signal: Chapped lips

Background: Lips are a reflection of the health and hydration of the entire body. "If you are well hydrated, then your lips will be well hydrated," says Elizabeth Lipski, PhD, clinical nutritionist and author of *Digestive Wellness* (McGraw-Hill, 2004). Less water in the body means less moisture for the skin — the body's largest organ. The delicate tissue of the lips is extra sensitive to drought. "If you are constantly using lip balm or lip gloss to sooth chapped lips, it's a sign you need to drink up," says Lipski.

Other signals: Headaches, infrequent urination, dark yellow or smelly urine, dry skin, slow turgor (meaning that if you pinch the skin on the back of your hand, it doesn't

snap right back into place). Although the aging process slows turgor down somewhat, even in older adults it still should return to normal within a second or two.

How to respond: Drinking eight 8-ounce glasses of water a day can be intimidating, says Swift, so if you're not able to quaff that amount, you can still get hydrated by sipping herbal tea and working additional servings of fruits and vegetables into your daily diet.

"The transition to a more whole-foods diet puts us on autopilot to get more water because they are naturally high in moisture," says Swift. And, make sure to include whole foods that are rich in essential fatty acids, such as nuts and seeds, avocados, and anchovies and sardines, which help maintain healthy cell membranes and hold in moisture.

For more info, see the articles "All About Hydration" (June 2004) and "How to Hydrate" (December 2007) in our archives at experiencelifemag.com.

When traffic is backed up, toxins from the bowel leach back into the body and can cause a multitude of inflammation-based health problems.



What your body may be trying to tell you:

One likely signal: Constipation

Background: Constipation is the clearest indicator of the body's need for more fiber. "Our hunter-gatherer ancestors ate up to 100 grams of fiber a day and had an average stool weight of 2 pounds," says Mark Hyman, MD, the editor of *Alternative Therapies in Health and Medicine* and author of *The UltraSimple Diet* (Pocket Books, 2007).

"Today, the average American eats less than 8 grams of fiber a day, and the average bowel movement is a puny 4 ounces." That's a problem, he says, because the bowels are key to the body's elimination process. When traffic is backed up, toxins from the bowel leach back into the body and can cause a multitude of inflammation-based health problems in everything from your digestion and skin to your heart and brain. They can also disrupt hormonal balance and immunity. The bottom line, Hyman says: "If stools are hard and hard to pass, you've got a problem."

Other signals: Frequent hunger pangs, energy slumps, digestive trouble, skin problems, inflammatory conditions

How to respond: Eat more legumes, vegetables, fruits and whole grains. All are chock-full of fiber and other nutrients, making them natural go-to foods. Getting the recommended 35 to 40 grams of fiber a day not only improves bowel health, but it also lowers the risk of diabetes and heart disease, says Andrew Weil, MD, director of the Arizona Center for Integrative Medicine of the College of Medicine at the University of Arizona in Tucson.

If you want other ways to sneak extra roughage into your day, Swift suggests sprinkling rice-bran fiber on salads or oatmeal. She likes rice-bran fiber because it's gluten-free and has been shown to help eliminate toxins, such as PCBs. Another one of her favorite fiber boosters is a seasoning she makes out of crushed pumpkin seeds, ground flax meal, sesame seeds, kelp flakes and sea salt — basically, a riff on gomasio, which is used as a salt alternative in Japanese cuisine. Put it in a wrap, sprinkle over brown rice or use to garnish soups, she says. "The nuts, seeds and ocean veggies are a nutrient- and fiber-licious powerhouse." (Keep it in the fridge to lengthen its lifespan.)

For more info, see our article "Fiber: Why It Matters More Than You Think" (April 2010) in the archives at experiencelifemag.com.

What your body may be trying to tell you:



One likely signal: Eczema

Background: First a little background about food intolerances. When the body doesn't tolerate a food well, ingesting that food creates a chronic, low-level irritation or inflammation in the gut. Over time, with regular exposure, the irritation worsens and creates fissures in the spaces between the cells. (Picture the walls of the gut, once tightly knitted together, looking more like an old afghan.) These holes allow bacteria and their toxins, as well as incompletely digested proteins and fats, to "leak" out of the gut and into the bloodstream. Called leaky gut syndrome (or increased intestinal permeability), this condition sets the stage for myriad health problems, including rashes and skin problems, like eczema.

The skin is the body's largest elimination organ, notes Lipski, so it's not surprising that it comes under assault when toxins careen through the bloodstream. "A skin rash or eczema is a sign that the body is trying to slough out these toxins," she says. "It's trying to eliminate the problem the best way it knows how."

Other signals: Gas, bloating, fatigue, sinus congestion, foggy thinking

How to respond: An elimination diet is the best way to pinpoint the offending food. "Start with one or two foods you suspect," says Swift, who prefers to call this the "illumination diet" because its focus is on "illuminating your health."

Don't know where to start? Foods that are most likely to wreak havoc on the gut include wheat and gluten-containing products, dairy products, sugar, soy, eggs, corn and yeast. If you're uber-motivated, take Haas's advice and go off what he calls "the big five" for a week: wheat, dairy, sugar, caffeine and alcohol. "It's not easy to do," he admits, "but you're guaranteed to learn a lot about your body's signals."

You might also consider keeping a food journal. Spend a week or two writing down what you eat and how your body feels in the minutes, hours and days afterward (e.g., an hour after you eat dairy, you feel bloated). "It's about pattern and symptom recognition and connecting the dots," says Swift, which in turn helps you decide which foods to eliminate first.

For more info, see our article "False Fat" (March/April 2003) in the archives at experiencelifemag.com.

"A skin rash or eczema is a sign that the body is trying to slough out these toxins."

What your body may be trying to tell you:



One likely signal: Cracks at the corners of the mouth

Background: "You see nutritional deficiencies first in those tissues that turn over the quickest, such as the tongue and lips," says Lipski. Studies show that cracks or sores that appear at the corners of the mouth (a.k.a. cheilitis) may be a sign that your body isn't getting enough B vitamins. "Deficiencies of one or more of the B vitamins may occur fairly easily," notes Haas, "especially with diets that include substantial amounts of refined and processed food, sugar or alcohol."

Other signals: Anemia, low energy, fatigue, skin problems, dark circles under the eyes

How to respond: Your best bet is eating a whole-foods diet and prioritizing foods high in B vitamins. The richest dietary source of B vitamins is found in brewer's

yeast or nutritional yeast (although, if you have candida issues, you'll want to skip those). Other solid picks include wheat germ, whole grains, legumes, egg yolks, sweet potatoes, salmon, red meat, liver and poultry.

Taking a good B-complex vitamin supplement can also be helpful (particularly if you're a vegetarian). Under the care of a nutritionally inclined health professional, you may also be prescribed a supplement for a specific B vitamin (or even given a vitamin B-12 shot) to help correct a significant deficiency. But be careful mixing up your own B-vitamin cocktails. When taken in excess and out of balance with other Bs, certain B vitamins can wind up leaching nutrients out of your system. That's why emphasizing B-rich foods should be your first priority.

For more info, see the "Vitamins and Minerals" section of our article "Comfort Food for Your Brain" (November 2009) in the archives at experiencelifemag.com.



What your body may be trying to tell you:

One likely signal: Fatigue

Background: “Caffeine goes to an already low energy bank account and tries to lend it a little extra energy for the short term,” says Haas. “But it’s getting that energy from your own stores, meaning you have less and less on reserve, leaving you less able to generate your own energy on an ongoing basis.”

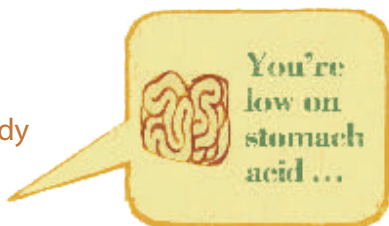
Caffeine works by stimulating the central nervous system. Specifically, the chemical gooses the adrenal glands into releasing hormones — namely cortisol and adrenaline — that tell the body to go faster. The short-term result can be increased focus and better hand-eye coordination. But overdo caffeine on a regular basis and, eventually, the central nervous system runs out of gas. “If you don’t restore yourself with sleep, nutrients and relaxation, you’ll quickly get into a cycle of whipping a weakened horse,” says Haas.

Other signals: Jitters, agitation, insomnia, heartbeat irregularities, frequent urination

How to respond: Weil advises limiting your daily dose of caffeine to less than 300 milligrams (mg). As a reference, a 12-ounce cup of Starbucks brewed coffee packs 260 mg of caffeine, while a 12-ounce Americano (two shots of the coffee chain’s espresso added to hot water) contains 150 mg. A 12-ounce cup of black tea, on the other hand, contains roughly 100 mg and green tea only 50 mg. “If you’re going to indulge,” advises Swift, “think about the quality of the source. Are you drinking green tea or a chemical-laden energy drink? What’s a healthy amount for you? Most people know what amount their system can handle,” she says. In the meantime, support your adrenal glands with B vitamins (especially B5/pantothenic acid), vitamin C and licorice. Also, fuel up on healthy, whole foods that boost and maintain your energy.

For more info, see our article “Eating for Energy” (June 2007) in the archives at experiencelifemag.com.

“If you don’t restore yourself with sleep, nutrients and relaxation, you’ll quickly get into a cycle of whipping a weakened horse.”



What your body may be trying to tell you:

One likely signal: Burping and indigestion

Background: If you’re low on stomach acid, your body won’t digest foods efficiently, especially dense foods like fats and proteins. When food sits in the stomach, so does the air you naturally swallow when you eat. The air has only two options — get pushed down the digestive tract with food or catch the next flight up the esophagus and out the mouth. The longer food loiters in the stomach, the more likely you’ll burp.

Other signals: Gastric reflux, weak immune system, cracked fingernails, chronic infections, gas

How to respond: Boost the first phase of digestion by becoming a more “sensory-based eater,” says Swift. “That means enjoy the sight and smell of the meal before you dig in so that your gut has time to release digestive factors, such as hydrochloric acid, in anticipation of a meal.” Then, eat more mindfully. Chew your

food so that it’s easier for the gut to digest, especially proteins and fats.

If you still feel like your food sits in your stomach like a rock, Haas recommends trying digestive enzymes, which can help you better digest your food. For example, he says, you might try a product called betaine hydrochloride with pepsin (a time-released protein digestant), found at health-food stores.

Hydrochloric acid is the main ingredient in stomach acid. By taking it as a supplement, you’re basically giving your stomach a head start, especially with proteins and fats, which are the hardest food stuffs to digest, meaning they require more stomach acids than carbs. After you begin eating a meal with protein and fat, for instance, take one capsule. See how you feel after a couple of meals. If you feel OK, you can try two capsules and gradually increase to three or four. If you have any sensation of burning or acid indigestion, cut back to a level where you didn’t experience any negative side effects.

For more info, see the article “Functional Wellness, Part 3: Digestive Health” (September 2008) in our archives at experiencelifemag.com.



What your body may be trying to tell you:

One likely signal: Frequent colds

Background: The immune system's command center is housed inside the gut. "An ecological imbalance of organisms in the gut means the body can't defend itself against unfriendly microbes," says Swift. "The result is we get sick a lot." Ironically, says Hyman, it's often medicine, such as antibiotics, that wipe out the gut's supply of good bacteria. "When we wipe them out again and again with antibiotics and then eat a poor diet, it's a disaster for the gut." That, in turn, can spell trouble for the rest of the body.

Other signals: Intestinal gas, bloating, loose stools or constipation, vaginal yeast infections, urinary tract infections, skin rash, athlete's foot, nail fungus

How to respond: The experts agree that one of the easiest (and most delicious) ways to restore the gut's healthy flora is to eat more foods rich in good bacteria, such as

miso, sauerkraut, kombucha (a fermented Japanese tea), yogurt that contains live bacteria, and kefir (a fermented milk drink). "The gut houses 5 pounds of beneficial bacteria," notes Haas. "We have to feed this stuff"

If you think your gut needs more than food can deliver, Weil recommends taking a daily probiotic that contains Lactobacillus GG or Bacillus coagulans (BC-30).

For more info, see our article "Good Bacteria Welcome" (July 2007) in the archives at experiencelifemag.com.

Although many of the body's messages can be decoded with a little guesswork and a lot of active listening, it's important to remember that some of these same symptoms can be signs of more serious illnesses. If, after a couple of weeks of self-care, things don't improve or resolve, it's best to consult a healthcare professional.

"A chronic ache or pain is an invitation to stop and take a look at your life," says Lipski. "Your body is telling you it's time to make a change. Respect its request and odds are you'll be heading off a greater health issue down the pike."

Catherine Guthrie is a freelance writer based in Bloomington, Ind.

More Than One Way to Heal



A multipronged approach to healthcare — seeking advice from both alternative medicine practitioners as well as Western doctors — can help you decode your body's warning signals before they cascade into something more serious.

Western medicine has many strengths: stamping out infections; treating emergencies, like heart attacks; and swooping in with trauma care after an accident or disaster. But when a condition is hard to diagnose, or is chronic or nagging, like poor digestion, insomnia or general fatigue, going outside the doctor's office may be your best bet.

"Most medical-school curriculum focuses on acute care and doesn't adequately train for chronic health issues — which constitute the most common troubles for most of the patients they see," says Elizabeth Lipski, PhD, CCN, and author of *Digestive Wellness* (McGraw-Hill, 2004).

As both a medical doctor and a naturopath, Elson M. Haas has a foot in each world. He tends to agree with Lipski's take, and he also sees

limitations in the way that Western medical practitioners typically try to snuff out the body's attempts to heal.

"Many symptoms, such as sinus congestion, allergies and excess mucus, are ways it's trying to rid itself of excess toxins," he says. "Western medicine tries to control these symptoms, by suppressing the fever or drying up the congestion, instead of supporting the body's natural means of elimination and detoxification."

Alternative practitioners come in many forms. In addition to your primary care physician, consider seeing a chiropractor or osteopath if your condition is skeletal; a Traditional Chinese Medicine practitioner for hormone imbalances; or a naturopath for overall wellness, digestive, immunity and dietary advice. All of these modalities have regulating organizations that provide lists of qualified practitioners.

Learn more about integrative healthcare options by reading our article "Not Your Average Patient" (May 2009) in the archives at experiencelifemag.com.