



# 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, includ-

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

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### **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 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, 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 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

# 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](http://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 root causes. In fact, many functional-

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, naturopaths, osteopaths, chiropractors,



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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.”

Think of disease as a giant weed

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 inflammation and heal Louis Messina’s

# TWO PATHS

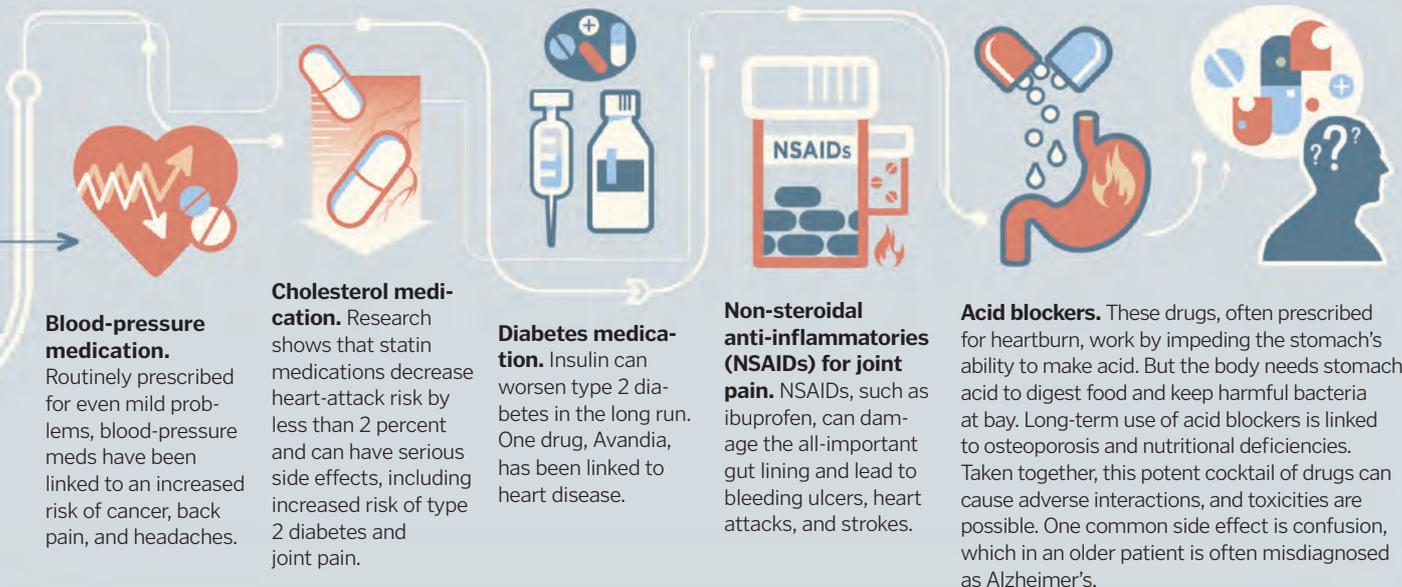


## **Meet our hypothetical patient.**

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.

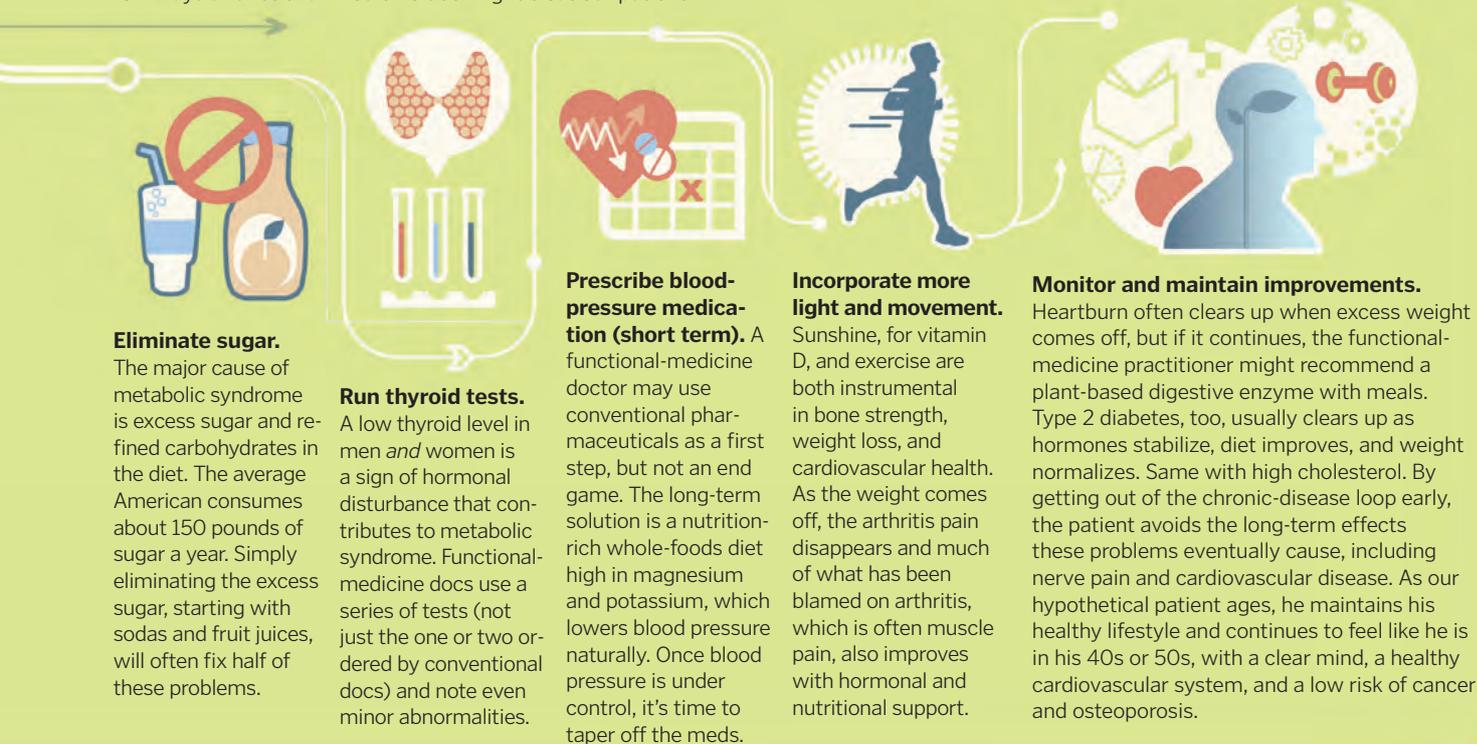
## Conventional-Medicine Approach

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.



## 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.



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.”

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### WEB EXTRA!

For a roundup of all of *Experience Life*’s functional-medicine coverage, visit [ELmag.com/fmextras](http://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 mannitol, 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 Hormone:

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 overactive 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 environment can enter the body through air, water, and food. Once inside, they can cause a host of ills. This urine test requires the patient 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)