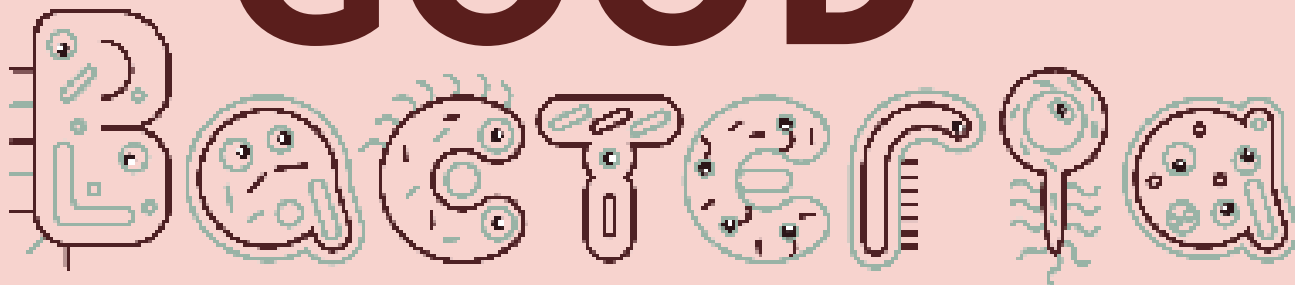


GOOD



AND WHY THEY IMPACT OUR WELL-BEING IN A MAJOR WAY

New research into the microbiome—the trillions of tiny “bugs” hosted by your body that help you stay healthy and happy—is changing the way science approaches everything from depression to heart health

By **LIZ KRIEGER**

Illustrations by **WHAT JACK DREW**



OUR BODIES ARE TEEMING with good bacteria, which hang out mostly in the intestines but also in other nooks and crannies. Think of them as having two main jobs: to safeguard your health by crowding out the relatively few “bad” bacteria, and to digest foods that your body can’t otherwise break down. You pick up these critters from your daily interactions with the world—things you touch deposit microbes on your skin or in your eyes, and bacteria in foods

you eat take up residence in your gut. You also were gifted certain healthy bacteria as you were being born or via your mother’s breast milk, and these become a key part of your total microbiome.

While this field of research is relatively new, and scientists don’t have all the answers, read on to find out what we do know—and what you can do to keep this army of flora working to make sure everything in your body is running smoothly.



explore the wonders of **YOUR MICROBIOME**

Some findings are preliminary, but here are a few leads scientists are chasing down about the ways in which these bugs work in your body.

MOOD MANAGEMENT

There is a strong link between your gut flora and your mood, which doctors are starting to figure out. Scientists have found potentially striking links between anxiety and depression and gut bacteria, notes Martin Kriegel, M.D., Ph.D., associate professor adjunct of immunobiology at the Yale School of Medicine. In one preliminary study, when anxious mice were given gut bacteria from mice who were not anxious, they experienced less anxiety as well as changes in their brain chemistry. In another small study, 40 people with depression were divided into two groups; at the end of eight weeks, the group given probiotics experienced a decrease in depression compared with the people who took a placebo.

SMOOTH DIGESTION

Intestinal conditions like irritable bowel syndrome (IBS) and inflammatory bowel disease (IBD), as well as symptoms like bloating and cramps, have been linked with an imbalance in the gut microbiome—certain microbes produce a lot of gas and other chemicals linked to inflammation, which contribute to the symptoms of intestinal discomfort.

A HEALTHY IMMUNE SYSTEM

About 70% of your immune system lives in your gut—these bacteria guard against pathogens and inflammation. And there's increasing

evidence of links between your body's bacteria and autoimmune conditions like rheumatoid arthritis, multiple sclerosis and lupus, says Samantha Nazareth, M.D., a gastroenterologist in New York City. When there is a shift or imbalance in our gut bacteria—or even the presence of a certain strain, in some cases—the body thinks it's being invaded, which can trigger these disorders, says Dr. Kriegel.

WEIGHT CONTROL

People with a rich variety of gut bacteria were less likely to be obese, according to a study in the journal *Nature*. In animal studies, some mice transplanted with the microbiome from obese humans promptly gained weight, while the mice who received a thin person's microbiome stayed lean. It could be that the gut microbiome is able to influence weight through the bugs' ability to extract energy from food as well as their interaction with our appetite/satiety hormones and their role with the immune system, says Dr. Nazareth. On the upside, exercise seems to enhance gut bacteria.

HEART HEALTH

One study found that certain gut microbiome characteristics were associated with “good” HDL cholesterol and triglycerides. And the bacteria lactobacilli (found in fermented milk products) may help reduce cholesterol.

BACTERIA IN THE CAFETERIA

The best way to get better bugs? Eat them—and nourish the ones already in your gut. You'll want to take in probiotics (foods that contain good bacteria) and prebiotics (fibrous foods that bacteria feed on), says Jaclyn London, M.S., R.D., nutrition director of the Good Housekeeping Institute. Here are just a few of London's picks:

PROBIOTICS



KIMCHI



SAUERKRAUT



GREEK YOGURT

PREBIOTICS



ARTICHOKES



BANANAS



ASPARAGUS

WHERE *the* BUGS ARE

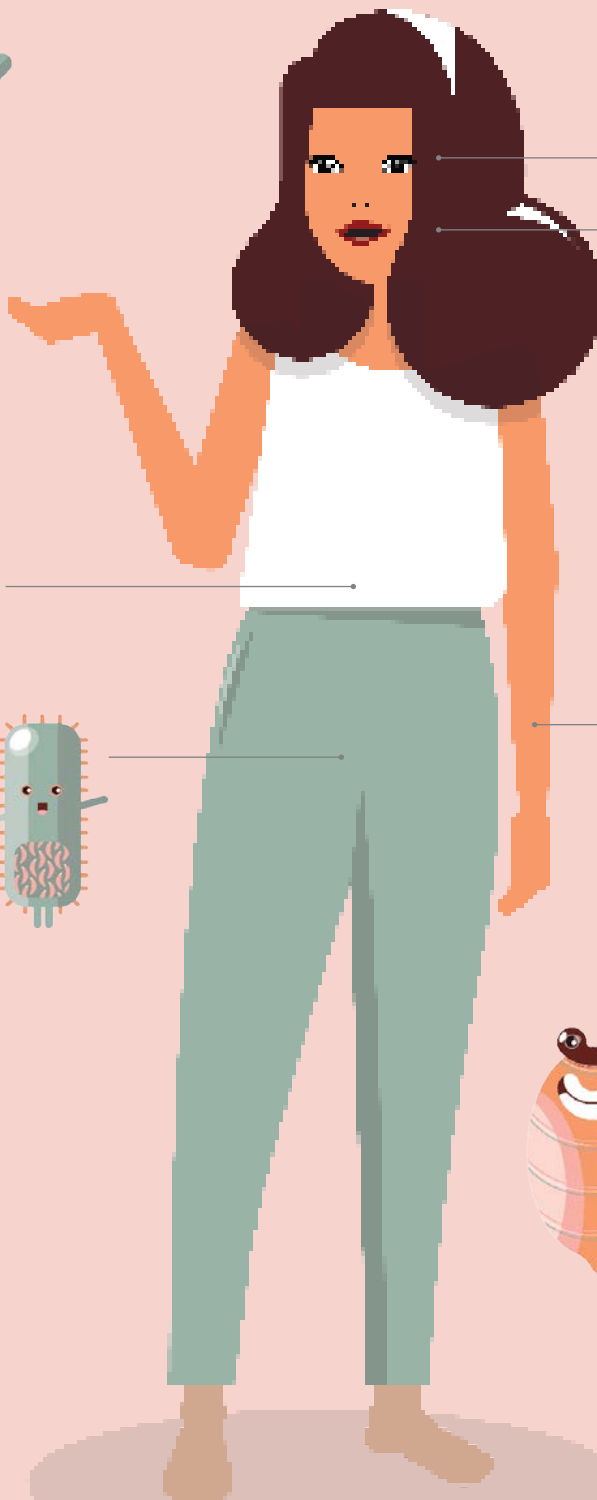
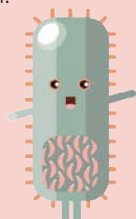


GUT

Your large intestine contains about 100 trillion microbes, which help break down food, train the immune system and produce mood-regulating neurotransmitters, says Dr. Nazareth. Researchers are learning that issues with your specific bacteria profile (say, you don't have enough diversity or have abnormal levels of specific strains) may be linked with a range of health problems such as digestive, mood or autoimmune disorders, says Dr. Kriegel.

VAGINA

The lactobacilli strains love this area, says Yale ob/gyn Mary Jane Minkin, M.D.—they help keep things acidic, and “acid in the vagina is good, not bad.” But when estrogen declines and the vagina becomes dry, good bacteria can die off, setting the stage for infection, whether yeast or another kind. Steer clear of douches, says Dr. Minkin, and in case of dryness (or if you've taken an oral antibiotic, which can kill off good bacteria), she recommends an OTC moisturizing and acidifying gel, such as RepHresh, to help prevent overgrowth of the bad guys.



EYES

The bacteria on the surface of your eyes defend against eye infections, says Dr. Nazareth. Research has also found a potential link between an imbalanced gut microbiome and an autoimmune disorder called Sjögren's syndrome that's characterized by dry eyes and mouth.



MOUTH

Your kisser is a microbial hot spot, with about 10 billion bugs inside. Bad ones can cause cavities and gum disease, and certain strains have been linked to heart disease and rheumatoid arthritis. Stay on top of brushing, flossing and checkups to evict as many bad bacteria as possible.



SKIN

About a trillion microbes are camping out here, mostly helping to keep skin irritation from other bugs at bay, but also blocking eczema, psoriasis and acne. “If the good bacteria are not sufficient, and bad bacteria flourish—both on the surface of the skin and within your gut—this overgrowth may trigger various inflammatory conditions,” says Rachel Nazarian, M.D., a dermatologist in New York City.