

THE GUT IS A COMPLEX, INDIVIDUALIZED STRUCTURE THAT AFFECTS MORE THAN OUR TUMMIES.

INTRODUCTION

THE POWER OF A HEALTHY GUT

The balance of bacteria and other bugs in your GI system impacts your health in surprising ways. Experts are still unraveling the microbiome's full potential.

BY LISA LOMBARDI

INSIDE YOUR GUT RIGHT NOW there are literally trillions of bacteria, viruses, fungi, and other microorganisms doing their thing. It may sound gross, but this brew of bugs—officially known as the microbiome—plays a surprisingly important role in your overall health.

By simply treating your gut right, you are helping your body in a whole slew of ways. “A healthy gut is really the key to a healthy body and mind,” says Samantha Cassetty, MS, RD, a nutrition expert with a virtual-counseling practice based in New York City. “An unhealthy gut may influence your risk of excess body weight, type 2 diabetes, heart disease, mood disorders, and autoimmune conditions like rheumatoid arthritis.”

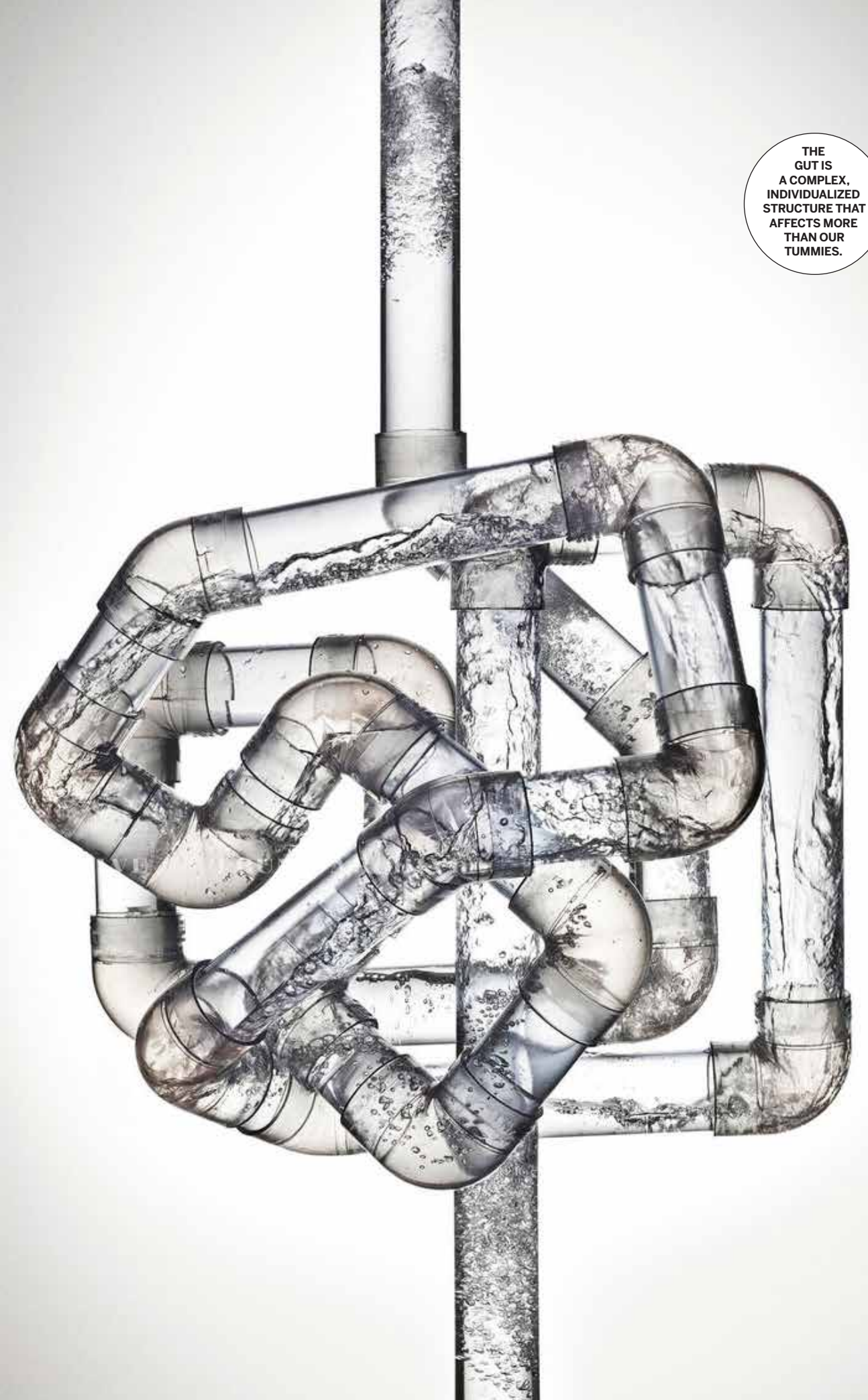
While everyone's microbiome is unique (“like fingerprints,” says Cassetty), healthy microbiomes have a few basics in common. They have diverse strains of bacteria (so there isn't an overgrowth of one type),

higher levels of health-promoting bacteria and other microbes, and lower levels of the unfavorable ones.

When the delicate balance gets thrown off, “bad” strains of microbes multiply. And some experts believe that this shift may lead to a so-called leaky gut. According to this still-controversial theory, out-of-control bacteria and other microbes get into the bloodstream, where they travel around you and trigger inflammation throughout your body.

So what causes bad bugs to take charge? A few common habits may give them the upper hand. For one thing, subsisting on a steady stream of takeout and processed foods does your gut no favors. “A Western diet that's low in fiber and high in sugar, heavily processed foods, and meat protein leads to unfavorable shifts in the microbiome that promote inflammation,” explains Cassetty.

Some meds also throw your flora out of whack. Antibiotics and antacids are particularly disruptive



to gut health. While antibiotics kill the bacteria that are making you sick, they also remove beneficial bacteria, and this can lead to an imbalance. That's why experts recommend avoiding unnecessary rounds of antibiotics and taking probiotics whenever you do need to be on these meds.

Our obsession with germ-free homes and Purell at the ready may also be harming our microbiome. According to a scientific theory called the hygiene hypothesis, growing up in overly sterilized environments deprives our bodies of the opportunity to get exposed to germs and build tougher immune systems in the process.

How we come into the world also leaves its mark on our microbiome. A large 2019 study published in the journal *Nature* added to the evidence that babies born via C-section don't have the same healthy gut bacteria as babies born through the vaginal canal. The research discovered that the vaginal-birth newborns got most of their bacteria from their mothers, while the cesarean infants got the bulk of their bacteria from hospital pathogens. Not surprisingly, the hospital bugs were less than ideal.

This study adds to other research suggesting that a vaginal birth gives children at least a temporary advantage in the gut-health department. "When newborns don't pass through the vaginal canal, they miss the natural immunity that comes from direct contact with bacteria that is necessary to kick-start immune response," says Lawrence Hoberman, MD, a gastroenterologist based in San Antonio who was not involved with this research. Cesarean babies who aren't breastfed may be particularly vulnerable to an unhealthy gut makeup. To counteract the effect, researchers are experimenting with vaginal seeding, or swathing a baby born via C-section with their mother's bacteria.

SCIENTISTS HAVE KNOWN about bacteria inside of us for centuries, but the current wave of research really got going in 2008 when the National Institutes of Health (NIH) started the Human Microbiome Project. NIH scientists got samples of microbes from volunteers' oral and nasal cavities, skin, gastrointestinal tract, and urogenital tract. They then sequenced the microbes' DNA, which paved the way

for research on bacterial differences between healthy and unhealthy people, as well as research into possible treatments using probiotics and fecal transplants (when doctors transfer poop from healthy subjects into people with a condition to rebalance their gut bacteria).

While microbiome research is still in its infancy, there have been some headline-grabbing findings: People with conditions like schizophrenia and autism have gut bacteria that are different from the bacteria in healthy people. In addition, certain kinds of gut bacteria may speed the progression of Alzheimer's, according to research in mice published in *Nature*. The mice given antibiotics developed fewer of the plaques associated with the disease.

And an unfavorable mix of bacteria may be linked to the inflammatory GI disorder Crohn's disease.

Experts are studying whether fecal transplants can help improve the condition.

A person's blend of bugs may also play a role in whether he or she develops allergic diseases, says Tania Elliott, MD, an allergist and clinical instructor in the department of medicine at NYU Langone Health. "The microbiome is not limited just to the gut—there is a microbiome of the skin and respiratory tract. And

just as the gut microbiome is different in people with food allergies versus not, there are differences in the respiratory microbiome in people with asthma and in the skin microbiome in people with atopic dermatitis [eczema]."

Eczema isn't the only skin condition that a balanced microbiome may help. One 2016 study in *Beneficial Microbes* revealed that taking a strain of the probiotic *Lactobacillus* improved adult acne more than a placebo.

THANKFULLY, MOST OF US can stack our flora in our favor without popping probiotics or considering a fecal transplant. "To shift your individual microbiome, it's important to eat a fiber-rich diet from a range of sources. Your gut bacteria need fiber to thrive," says Cassetty. Build your meals around plants and you almost can't go wrong. "You don't need to eliminate meat—instead, elevate plants," she adds.

The reason prioritizing produce helps transform

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an unhealthy gut into a healthier one is that plants are full of fiber and probiotics, as well as polyphenols—antioxidants key to gut health. When you eat polyphenol-rich foods, your body produces byproducts that influence your gut health and your overall health, Cassetty explains.

At meals, aim for a generous helping of nonstarchy veggies (think spinach, broccoli, zucchini, green beans), some plant-based fats (like avocados, nuts, seeds, or their butters; olives or olive oil), and a portion of either fruits, starchy veggies (like butternut squash and sweet potatoes) or whole grains, Cassetty advises. "Swap some of the meat for plant-based protein—pulses [the term for beans, legumes, and lentils]."

And while the jury is still out on probiotic supplements—particularly because the supplement industry isn't regulated—enjoying probiotic foods

(yogurt, miso paste, kombucha, sauerkraut, kimchi, sourdough bread) is a smart gut move. "These foods help enrich your gut with healthy bacteria," Cassetty explains. Also prioritize prebiotics—nondigestible carbs that feed healthful gut bacteria. Some good picks: Jerusalem artichokes, garlic, leeks, bananas, and asparagus.

While there's still so much researchers don't know about the potential of our microbiomes, this much is clear right now: everyday habits matter. "Some studies show that you can alter your microbiome in just two days," says Cassetty. That means that while a single course of antibiotics or a week of bingeing on junk food messes with your bacterial balance, you can quickly correct course and get back on track. "That's pretty dramatic, considering that it sets you up for a healthier life." ●