



WIN THE WAR IN YOUR GUT

Microscopic marauders are sabotaging your efforts to lose weight. It's time to fight back.

EXCEPT FOR THE OCCASIONAL RUMBLING IN YOUR BELLY, you'd never know that a battle is raging deep in your gut. At stake is the size of your belly (and your love handles too). See, we all have about 5,600 strains of bacteria that toil away, breaking down food as it passes through the 30 feet of our gastrointestinal tract. New science shows that the diversity and balance of your microbial troops can separate the losers from the gainers in the weight-loss war. That's because the makeup of these microbes determines how much energy you harvest from food, says Gerard Mullin, M.D., director of integrative gastroenterology nutrition services at Johns Hopkins University Hospital. That in turn regulates your appetite, satiety, and insulin resistance.

In general, the greater the variety of bugs you have, the better. For instance, scientists from Washington University School of Medicine in St. Louis compared the gut bacteria of twins and their mothers and found that obese twins had less diversity than the lean twins did. Fatter folks also have a different balance of bacteria populating their insides. A study from Brazil shows that obese people have more of a bad type of bacteria called Firmicutes and less of a good kind called Bacteroidetes. Dr. Mullin and others are studying foods and behaviors that can help you recruit more good guys and flush out the bad. We tapped their research to help you keep your belly in balance.

Pound Prebiotic Fiber

All fiber is good at fighting fat, but a special class called prebiotic fiber is great at it. Prebiotics promote the proliferation of good bacteria in your digestive tract, says Raylene Reimer, Ph.D., R.D., a professor of kinesiology and medicine at the University of Calgary. Here's how it works: Because you can't digest prebiotic fibers, they pass intact through your small intestine. But when they enter your colon, bacteria feast on them and break them down into gases and short-chain fatty acids—a setup that allows helpful bacteria to flourish. Plus, studies suggest, this process spurs the production of satiety hormones, which help you feel fuller faster.

► **DO THIS** Various foods contain a type of prebiotic fiber called fructan. (See "Prebiotic Fiber Finder" below for our top 10.) To maintain good gut health, eat 8 to 10 grams of prebiotic fiber a day, says Reimer. If you're aiming to lose weight, shoot for 15 to 21 grams. Fiber-supplemented products, such as Dannon Activia Fiber yogurt and Fiber One bars, can help you hit your daily target. Those two contain inulin, a fiber extracted from chicory root—one of the best natural sources of prebiotic fiber.

Fill Up on the Right Fats

You already know that foods that are high in saturated fat, such as processed meats and cheeses, are calorie bombs. They're also gut-bacteria bombs. In a study pub-

lished in the journal *Science*, people who ate more saturated fat had higher levels of the bad kind of bugs associated with flab than did those who ate less of it. That's because saturated fat may stay intact as it passes through your intestine, according to Dutch research. And as it goes by, it steamrolls your good bacteria.

► **DO THIS** Limit your saturated fat intake to 7 percent of daily calories (that's about 15 grams if you're on a 2,000-calorie diet), suggests Marisa Moore, R.D., an Atlanta-based dietitian. Swap in foods that have healthy fats, such as avocado instead of mayo on a sandwich, nuts instead of chips, and lean cuts of meat instead of the processed kind, she says. For instance, grass-fed beef is usually lower in saturated fat than grain-fed beef (about 2 grams versus 5 grams for a 7-ounce strip steak) and has more omega-3s. A new study published in *Meat Science* identified eye of round as the cut with the least saturated fat. Lean meats can dry out easily, so braise them in a slow cooker or marinate them before grilling.

Psych Out Flab

Your gut bacteria respond to more than just what you put into your mouth. Every time you become riled up, they suffer. "The fight-or-flight mode you experience when stressed leads to imbalances of gut bacteria," says Dr. Mullin. That means more room for harmful bugs and less space for the good guys. In a new Ohio State University study, stressed-out

mice showed immediate decreases in helpful-bacteria levels and an increase in several types of bacteria that may contribute to weight gain.

► **DO THIS** Meditate to mellow out your miscreant microbes. "Even very brief practice can reduce stress," says A.C. Del Re, Ph.D., a health science specialist at the VA Palo Alto Health Care System. He recommends this daily session: First, set the timer on your smartphone to count down for 3 minutes. Then close your eyes and bring your attention inward. Take note of your feelings and body sensations. Direct your awareness to inhaling and exhaling through your nose. Imagine that you are breathing with your whole body, and try to focus on whatever sensations you're feeling.

Not your wavelength? Sign up for a dance class. Recent Australian research suggests that tango dancing rivals meditation as a stress reliever. Dance may be a particularly good tension buster because it makes you redirect both your body and mind away from negative thoughts. Of course, a strong body of research shows that any daily exercise can help slay stress.

Protect Your Microbes

The antioxidants found in produce fight cancer and protect your heart. On top of that A-list of benefits, they also boost good gut bacteria. "Many phytochemicals are produced by plants as antibiotic agents to protect the plants from infection," says Johanna Lampe,

Ph.D., a researcher at the Fred Hutchinson Cancer Research Center. "When consumed, those phytochemicals can have antibacterial effects in your gut too." Against the bad bacteria, that is.

► **DO THIS** If you nosh on the CDC's recommended 6 cups of fruits and vegetables per day, you're on the right track. You can also drink your phytochemicals: In a Japanese study, people who sipped a cup of green tea daily for 10 days experienced a boom in flab-fighting flora. Prefer stronger stuff? A study in the *American Journal of Clinical Nutrition* found that men who drank 9 ounces (about two glasses) of Spanish red wine a day for 20 days showed improved concentrations of belly-off bacteria.

Eat More Bugs

Evolution may explain why having a diverse community of bacteria in your digestive tract is important, says Lampe. Basically, your gut is like any fragile ecosystem: If you start to lose species, the habitat suffers. Several species of bacteria can carry out similar chemical reactions to process your food. If fewer of them are available to complete these reactions, metabolic changes—and weight gain—result.

► **DO THIS** Eat probiotics. These good bacteria work best when consumed daily, says Lampe. Fermented foods such as yogurt, kimchi, and sauerkraut all contain potentially beneficial bacteria. Another strategy is to pop a probiotic supplement, such as Align. ■

PREBIOTIC FIBER FINDER

Eat these foods daily to hit your prebiotic fiber goal. Your richest source by far? The little-known sunchoke. Andrea Reusing, author of *Cooking in the Moment*, offers prep tips.

Prebiotic Fiber (Fructan, g)

Sunchokes ½ CUP	15.0
Leeks ½ CUP	5.6
Artichoke 1	5.5
Asparagus 8 SPEARS	2.6
Pasta 1 CUP COOKED	2.5
Onion 2 TSP	2.1
Watermelon ⅙	0.9
Barley 100 G	0.7
Banana 1	0.6
Garlic 1 CLOVE	0.5

Sources: *Journal of Family Ecology and Consumer Sciences*, *Journal of Agricultural and Food Chemistry*



ROAST Preheat the oven to 450°F. Slice the sunchoke, drizzle with olive oil, and season with salt. Roast them on a baking sheet until their outer edges look crisp and light gold but the insides are still soft and creamy.



MASH Use the chokes to create a healthier alternative to mashed potatoes. Peel them, boil them until a knife glides in easily, and mash them with a drizzle of walnut oil or olive oil. Add salt and pepper to taste.



CRUNCH Slice the sunchoke into thin strips to use in a salad of baby arugula or crinkly spinach. Make a vinaigrette with olive oil or walnut oil paired with a teaspoon of mustard and some lemon juice or champagne vinegar.



BRAISE Melt butter in a skillet. Sauté chokes, chopped onion, and a few garlic cloves until the onion and garlic are translucent. Deglaze the pan with dry white wine and simmer until the chokes are tender. Add a sprig of thyme.