

Faster metabolism makeover—nurturing your gut bacteria

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Credit: Weizmann Institute of Science

Here's how to take control of your cravings and lose weight for good by improving your gut health.

You're not alone! Right now, you've got 100 trillion bacteria living in your digestive system. Most of us are familiar only with these tiny critters' embarrassing habit of releasing smelly gas at the wrong moments, but the truth is, your gut bugs are intimately involved with your weight. There's growing evidence that the right mix of bacteria in your intestines can help you make healthier [food choices](#) and stay slim, while the wrong mix encourages weight gain and a taste for junky processed foods.

When researchers carefully checked the types of bacteria found from the digestive systems of 154 people, they found that those who were obese had the smallest variety of gut bacteria. A lab study with mice from the same team found that having more of a type of bacteria called Firmicutes may be related to weight gain. These bugs are great at sucking more kilojoules out of [food](#)—digesting complex sugars that other bacteria can't and converting them into simple sugars and fatty acids that get absorbed from your intestines into your bloodstream. In contrast, having more of a type of bacteria called Bacteroidetes has been associated with a slimmer physique.

Gut bugs help control your weight in several ways, research suggests. Some send more kilojoules into your body, where they're likely to be stored as fat. But that's not all. Scientists have found that the bacteria *Helicobacter pylori* is involved in the regulation of certain hormones, including the hunger hormone ghrelin. While nobody wants an overabundance of *H. pylori* (it can cause painful stomach ulcers), the

researchers note that the widespread use of antibiotics has reduced levels of *H. pylori* and could be making weight loss more difficult.

In a 2011 study of 92 people published in the journal *BMC Gastroenterology*, found those who were prescribed antibiotics to knock out *H. pylori* (due to digestive-system problems) also saw ghrelin levels rise sixfold after the bacteria were completely eliminated. And in a recent lab study in mice, researchers found that a fatty acid called acetate, which is pumped out by gut bacteria, increased eating behaviours. The elevated release of acetate also increased production of ghrelin and of insulin, a key blood sugar control hormone that also promotes the storage of body fat.

The big news about the microbiome (the catchall name for your personal bacterial "zoo") is that what you eat can help determine which bacteria gain the upper hand in your digestive system. Change happens quickly when you change your diet—and can go either way depending on what you eat.

For example, when 21 people increased their daily intake of fibre by 21 grams, they had more Bacteroidetes and fewer Firmicutes in their systems after 3 weeks, according to a study. Bacteria, especially the good guys, love munching on the fibre found in abundance in clean foods like fruits, vegetables and whole grains.

But loading up on processed junk food takes things in the other direction in a hurry. In a headline-grabbing study, a British genetics professor asked his college-student son to munch nothing but fast food for 10 days. The son's microbiome was checked using stool samples, before and after. In just 10 days, his microbiome was "devastated" by the steady diet of burgers, chicken nuggets, fries and soda, according to an informal report from his father published on the British science Web site TheConversation.com. Forty percent of the bacterial species in his gut

were wiped out—a loss of 1,400 types. "I felt good for 3 days, then slowly went downhill, I became more lethargic, and by a week my friends thought I had gone a strange grey color," the son noted. When the study ended, he rushed to the supermarket for fruit and salad.

While the young man didn't gain much weight during the 10-day study, his father commented that the shift in gut bacteria could lead to that over time. "Loss of diversity is a universal signal of ill health in the guts of obese and diabetic people," he noted.

There are clear-cut differences in the ways clean foods and processed foods affect your microbiome—and by extension, may affect your weight. Here are a few examples, all backed by science.

One science magazine calls it the "workhorse" that feeds "a healthy gut microbiome." Your [good bacteria](#) love all sorts of fibre, but two especially beneficial types—Bifidobacteria and Lactobacilli —love fibres called fructans, especially a type called inulin. You'll find inulin in plant foods including bananas, onions, garlic, leeks, asparagus, Jerusalem artichokes, chickory root, soybeans and whole grain foods like rye and barley.

In other research, people who ate whole grains such as whole wheat bread saw an increase in beneficial Bifidobacteria, while those munching refined wheat products saw levels decline. You'll get plenty of good-for-you natural fibre from food when you eat clean. In fact, experts call fibre a "prebiotic"—a compound that primes your digestive system for optimal good-bug health.

Yogurt, kefir (a fermented milk drink) and fermented foods such as sauerkraut, kimchi and tempeh (a soy-based meat alternative) all contain [beneficial bacteria](#). Case in point: Yogurts that contain "live, active cultures" contain good bacteria including *Lactobacillusgasseri*, shown in

at least two recent studies in animals to discourage weight gain and even help with [weight loss](#). That's why you should only buy yogurt that says right on the label that it contains live, active cultures. And yes, these bacteria can survive your digestive system and thrive. Evidence of this comes from research on people who've taken antibiotics, which can wipe out some good bacteria. Those who had yogurt daily cut their risk for antibiotic-related diarrhea by two-thirds.

A diet rich in omega-3 fatty acids—found in fatty fish like salmon and trout, as well as in walnuts and flaxseeds—fostered a mix of [gut bacteria](#) that kept mice slim in a recent study. In contrast, a diet packed with saturated fat in the form of lard encouraged [bacteria](#) that caused [weight gain](#). That's a great reason to grill salmon instead of a fatty steak for dinner tonight! While this was a lab study on mice, results like these can spark or stem important lessons for humans, too.

In a 2014 lab study from Israel's Weizmann Institute of Science, mice fed aspartame, sucralose or saccharin developed a microbiome strikingly similar to that of obese mice. The researchers note that in some studies, people who used artificial sweeteners were more likely to be overweight and have impaired glucose tolerance than those who didn't—and differences in their microbiome may explain this difference.

Giving your body the nutrients it needs, stopping the exhausting cycle of blood sugar peaks and valleys that comes with eating processed foods, and sweeping chemical additives out of your system—that's a fatigue-fighting, metabolism-boosting recipe for renewed physical and mental energy! And the more energy you have, the easier it is to make healthy, clean food choices and to be more active all day, whether that means taking a morning Zumba class, getting outside for a lunchtime stroll, or jumping on your exercise bike while you watch television at home tonight.

Feeling tired is a top reason people skip exercise and make less-than-stellar food choices, surveys reveal. And too often, processed food bears some of the blame. Highly-processed, low-nutrient food makes it more difficult to fall asleep, stay asleep and wake up refreshed—a huge energy drain. Unhealthy, high-fat stuff can also make you more tired in a matter of minutes after a meal.

In a 2013 study, participants who ate the most fat at lunch felt the sleepiest afterward. According to another study published in the *British Journal of Nutrition*, a high-fat meal significantly reduced mental energy (alertness and sustained attention), compared to a lower-fat meal. It turns out that eating fat triggers the release of a digestive hormone called cholecystokinin that lulls your brain into a foggy slump that scientists call "postprandial somnolence." (That kind of sleepiness can quickly lead to a mid-afternoon trip to the vending machine for a coke and a chocolate bar!)

In contrast, clean foods support high energy. Start with breakfast. In one study, people who ate a whole grain cereal felt 10 percent less fatigued than usual. In another, people who ate protein in the morning felt 12 percent more alert at midmorning and 18 percent more alert by lunchtime than people who skimmed on this important metabolism-boosting nutrient.

Provided by Weizmann Institute of Science

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