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Go with your gut

You're no stranger to the benefits of exercise. Yet did you know working out also can improve your digestive health? Here are the straight goods on your all-important microbiome.



By Karen Asp

From building muscle and slimming down to decreasing stress, you can name a zillion reasons you exercise. Yet here's one that probably hasn't hit your list: making your gut healthier.

No doubt you're already giving the outside of your gut plenty of attention. Hello, tight abs, right? Yet the inside of your gut, otherwise known as your microbiome, is even more important because it drives critical aspects of your health and can be a key factor in helping you reach your health and fitness goals.

Truth is, though, the relationship you have with your microbiome is equal give and take. Give it what it needs to thrive, and in turn, it'll help you excel. **One factor that influences gut health? Exercise.**

Why your microbiome matters

Thousands of years ago, Hippocrates said all disease begins in the gut. The man was wiser than his time because it's only been in recent years that the importance of gut health has taken center stage, and while it should be top priority for everybody, it's especially crucial in helping — or hindering — your healthy lifestyle.

Think of your microbiome as your body's own garden that's made up of trillions of nonhuman organisms, or bacteria, in your gastrointestinal tract. Those bacteria are major multitaskers because they digest your food, command your immune system, control your appetite and metabolism, absorb nutrients, and manufacture natural antibiotics. They also have a major impact on how healthy your heart is, whether your brain is focused and if your bones develop properly. Simply put, "your microbiome can help you reach your true biological potential," says Raphael Kellman, M.D., founder of the Kellman Center for Integrative and Functional Medicine in New York City and author of *The Microbiome Diet* (Da Capo Lifelong Books, 2015).

Start with weight loss.

When your microbiome is unhealthy, your appetite for junk foods like refined carbohydrates, pastries and sweets increases and your metabolism will slow, causing you to gain weight. Yet just by improving your microbiome, you can reverse all this and shed pounds. "The bacteria do the weight loss for you," Kellman says.

Balancing your gut bacteria may even improve your aerobic endurance, according to a review of studies in the *Journal of Sport and Health*

Science. Researchers suggest that gut microbiota produce small-chain fatty acids that could be used as sources of energy. Gut microbiota are also responsible for the delivery of hormones, water and nutrients, keeping you not only fueled but also hydrated for the long haul.

How working out can make (or break) your microbiome

Because of the symbiotic relationship you share with your gut, everything you do affects that microbiome. Not sleeping enough? Feeling a little stressed or dehydrated? "All those habits can throw off your gut health," says Felicia D. Stoler, DCN, RDN, a New Jersey-based nutritionist and exercise physiologist and author of *Living Skinny in Fat Genes* (Pegasus, 2011).

Exercise also plays a key role in gut health. "The effects of exercise go far beyond

fitness, stamina and cardiovascular health," says Fergus Shanahan, M.D., DSc, professor of medicine and director of the APC Microbiome Institute at the University College Cork in Ireland. "Exercise has effects on hormones and the nervous system, and its impact probably extends to all organs, including the gut microbes."

One of Shanahan's studies from the journal *Gut* compared professional athletes, rugby players in this case, to two control groups: one an inactive, overweight group and another with individuals who were moderately active and not overweight. Blood and stool samples were collected, revealing several telling differences. "**Athletes had greater diversity in their gut microbiota and certain strains of bacteria that were low or absent in the control groups,**" Shanahan says. Because exercise acts as an



anti-inflammatory, athletes also had lower inflammatory blood markers. Not surprisingly, inactive individuals were the least healthy in terms of microbial diversity and inflammatory responses.

Another study from the *Journal of Nutrition* on rats found that exercise outweighs diet when it comes to preventing obesity, perhaps because of changes in the microbiome. Along with caloric restriction, exercise increased the abundance of certain bacterial groups that have been associated with improved health.

More nutrients, better efficiency

Note, though, that independent of weight loss, exercise alone changed the gut microbiome for reasons that are still being teased out. "Exercise may alter gut transit time, blood flow and the production of gut hormones," says study co-author Kelly Scott Swanson, Ph.D., a professor in the Department of Animal Sciences and Division of Nutritional Sciences and an adjunct professor of veterinary clinical medicine at the University of Illinois, Urbana-Champaign. These factors might then reduce the amount of time or efficiency by which the body digests food and absorbs nutrients and energy. Reduced absorption in the stomach or small intestines would deliver more nutrients to the large intestine, the main site of microbial fermentation.

Exercise also increases metabolism, decreases body fat while increasing lean body mass, and helps prevent obesity, which has a direct effect on the gut. "Obesity is known to affect barrier function, one reason obese individuals have a leakier gut," Swanson says.

So what type of exercise is the most gut-friendly? Possibly aerobic exercise. "To have the greatest effects on gut transit rate, blood flow and other factors, aerobic exercise would probably have the most impact," says Swanson, adding, though, that studies need to confirm this.

Of course, any exercise is better than none, but exactly how much you need to do to keep your gut healthy is still up in the air, something Shanahan is currently studying. He's also examining how much gut microbiota can change when inactive folks are put on a controlled exercise program, either with or without dietary monitoring.

Bottom line, though, remains the same: Exercise is key to healthy living. Even your gut agrees. ○



5 WAYS TO TAME YOUR TUMMY

By feeding your gut what it needs, you'll help your microbiome grow and flourish. "When you eat, you're not just feeding yourself but also your microbes, most of which are in the gut," Dr. Fergus Shanahan says. Here are five ways to feed your gut:

* **Focus on fiber:** Although women need 25 grams of fiber a day, most get only 15 grams a day, which could spell trouble. "Fiber feeds your gut good stuff," Felicia D. Stoler says. Load your diet with fiber-rich foods like fruits, vegetables and whole grains.

* **Belly up to fermented foods:** These foods contain live bacteria, or probiotics, which replenish healthy bacteria in your microbiome, Dr. Raphael Kellman says. Choose foods like kimchee, sauerkraut and kefir.

* **Give prebiotics a shot:** Prebiotics work differently from probiotics in that they support healthy bacteria that already live in your gut, Kellman says. Good sources include carrots, asparagus, radishes, kiwi, leeks and jicama.

* **Opt for organic, non-GMO, antibiotic-free foods as much as possible:** Otherwise, you could be giving your gut harmful toxins. "Pesticides in foods can adversely affect the gut wall and microbiome," Kellman says. You also should stop using anti-bacterial products and antibiotics unless your doctor knows about the importance of the microbiome, he adds. "Plus, genetically modified foods can upset the ensemble of DNA in the microbiome and, metaphorically speaking, create a virus in the microbiome."

* **Diversify your diet:** Rugby players from the *Gut* study not only had better gut health but also ate a more diverse diet. "Variety in the diet is no longer the spice of life but rather the staple," Shanahan says.