



Boost Your Immunity

Cold and flu germs are all around us this time of year, but there are plenty of ways—short of encasing yourself under glass—to block them out. These research-backed strategies offer what to eat, how to exercise, and whom to hug (it's true) to optimize your body's self-defense system.

TEXT BY KAREN ASP

YOU'RE THE FIRST IN LINE FOR THE FLU SHOT. You wash your hands constantly and whip out the sanitizer when you can't. All are good habits to keep up, according to the U.S. Centers for Disease Control and Prevention, but chances are you will still catch a bug. Adults, on average, get two to three colds a year, and millions succumb to the flu. How your body will handle it hinges on a single question: Which is stronger—the germs, or your immune system?

To answer that, here's a quick biology recap. When a cold or flu virus enters your body, your immune system tells white blood cells to release antibodies that coat and destroy it, explains Cameron R. Wolfe, M.D., an associate professor of medicine at Duke University Medical Center, in Durham, North Carolina. The trouble is, it can take a few days for those antibodies to ramp up. Meanwhile, the virus can multiply, and your body is producing immune cells called cytokines to help contain it. The cytokines' antiviral activity creates inflammation, which manifests as the symptoms that tell you you're coming down with something.

The faster your antibodies kick in, and the less inflamed you get, the lower your risk of feeling sick. That's precisely how the flu vaccine works: It delivers a tiny dose of a strain of the virus and gives your body a head start on making antibodies. Unfortunately, there's no shot for the common cold. You can, however, activate your system to run more efficiently.

Eat Better

Seventy percent of your immune system lives in your digestive tract, so "if you have a weak gut, you're at a disadvantage," says Taz Bhatia, M.D., an integrative health expert

and the author of *Super Woman Rx* (Rodale, 2017). While conditions like irritable bowel syndrome and chronic diarrhea can lower the microbe population in your intestines (called the microbiome), the more common culprit is an unhealthy diet. Foods high in sugar, preservatives, dyes, and additives can trigger gut inflammation, Bhatia explains; as a result, you'll have a tougher time absorbing nutrients and producing the immune responders you need to clear viruses. The friendliest diet for a healthy gut is an anti-inflammatory one, basically a Mediterranean approach; it includes lots of plant-based foods (leafy salads, fruits, beans), healthy fats like olive oil, and only a few small servings of lean red meat (each about the size of a deck of cards) per month.

Research also suggests that specific foods—like kefir, yogurt, miso, sauerkraut, and others that are full of probiotics—can help repopulate the gut with healthy bacteria. In addition to these, black tea contains an



Your Body vs. Breast Cancer

Good news: The slickest new tools for fighting breast cancer, especially the hard-to-treat triple-negative type, harness the immune system. Cancer somehow slips under its radar, but immunotherapy drugs, which help the body see and attack cancer cells, may be key to a cure. They have been shown to increase survival rates in other cancers, usually with manageable side effects; early studies of two (atezolizumab and pembrolizumab) slowed tumor growth and, when used with existing therapies, dramatically reduced the amount of cancer in the breast after treatment.
—Andrea Atkins



OUTER STRENGTH

Beauty expert Caitlin M. Kiernan had access to the industry's top pros in facing breast cancer. She shares all (from the best brush for a tender scalp to cold-cap therapy FYIs) in *Pretty Sick*, a go-to guide for anyone with a diagnosis (Grand Central Life & Style).

amino acid, L-theanine, that primes the immune system. Production of interferon, part of the body's immune defense, increased fourfold in clinical-trial subjects who drank five to six cups daily for two or four weeks. Other beneficial ingredients in red grapes (resveratrol), blueberries (pterostilbene), and turmeric (curcumin) have been shown to help boost natural antibiotic substances called antimicrobial peptides. Cranberry juice aids you, too: A 2013 study in *Nutrition Journal* found that infection-fighting cells were about five times more active in people who drank 15 ounces daily for 10 weeks than in those who drank a placebo, and the juice drinkers reported milder symptoms.

Supplement Smarter

Food should always be the primary source of nutrients that support your immune system, but supplements can round things out, Bhatia says. In addition to eating probiotic-rich foods, take capsules daily. Look for ones with at least 20 billion colony-forming units (CFU) and four strains of bacteria.

Echinacea and vitamin D may also preempt sickness. Twenty drops of the former three times a day, starting in October and continuing for at least two months, can reduce how many colds you get and how long they last, as well as protect against the flu, according to studies of the supplement Echinaforce. Taking vitamin D can cut the risk of respiratory infections by 10 percent on average, the *British Medical Journal* reported earlier this year. "Vitamin D supports the ability of white blood cells and cells lining the lungs to produce antimicrobial peptides," says lead study author Adrian Martineau, Ph.D., a professor of respiratory infection and immunity at Queen Mary University, in London. He adds that other research indicates that vitamin D supplementation in people who are deficient in it halves their risk of acute respiratory infection. People up to age 70 need 600 international units (IU) daily from food (a serving of sardines contains 16 percent of that amount; a serving of fortified whole milk, 24 percent), a supplement, or both.

React Faster

As soon as you feel that first chill or foreboding ache, reach for elderberry, zinc, or vitamin C, which can speed recovery. Subjects who took elderberry as part of a 2016 study in *Nutrients* had less severe, shorter colds (by about two days) than those who took a placebo. Zinc lozenges reduced cold duration by 42 percent, according to a 2016 study in the *British Journal of Clinical Pharmacology*; other research suggests zinc is most effective when you

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consume more than 75 milligrams a day and start within 24 hours of the onset of symptoms. And while vitamin C may not help everyone avoid a cold, it did halve the number of physically active people who got sick, per a study published earlier this year in *Nutrients*, which also found that taking six to eight grams a day hurried up healing.

Move More

> Make time for regular exercise. When you work out, your muscles send signals that prompt immune cells to circulate, and they do so at a higher rate than normal, contact-

ing and killing invaders, an effect that lasts for about three hours afterward, says David Nieman, director of the Appalachian State University Human Performance Lab, in Kannapolis, North Carolina. While even one session is beneficial, the effects increase with consistent exercise, which can cut the risk of acute respiratory infections by 40 to 50 percent. Activities that use the majority of muscles, like brisk walking, swimming, and cycling, are best, but weight lifting and vigorous yoga are worthwhile, too.

Address Stress

> If you've ever fallen ill after a frenetic period at work or a personal crisis, you know that emotional well-being can impact your immunity. To manage periods like these,

start by getting a solid night's sleep. Lack of shut-eye changes systems in your body that regulate immune defense, according to a 2013 study in the journal *PLOS One*, which may be one reason that consistently getting less than five hours of sleep a night can leave you three times more susceptible to colds, says Britney Blair, a board-certified behavioral sleep-medicine specialist in San Francisco. Shoot for seven to nine hours.

Try to meditate regularly. A daily practice of as little as 12 minutes can benefit the immune system by influencing the stress-response system, says David Black, Ph.D., an assistant professor of preventive medicine at the University of Southern California in Los Angeles. "A consistent mindfulness practice helps you better filter stressors and can leave you less susceptible to illnesses," he says.

Finally, snuggle up with a cat or dog. Animals bring many benefits, including stress relief, but the one people rarely gush about is germs. "Bacteria found on them, either on their skin or brought in from outside, can stimulate our immune system," says Anita Kozyskyj, Ph.D., a professor of pediatrics at the University of Alberta, in Edmonton. So hold them close: They've got the kinds of bugs you want to let in.

HOME TURF

Some viruses can live on surfaces for days, says Philip M. Tierno Jr., Ph.D., a professor of microbiology and pathology at the New York University School of Medicine. (Think about that the next time you touch your nose or eyes.) Here's how to knock 'em dead.

1. RUN A HUMIDIFIER

Adding moisture to the air can help zap influenza, according to a 2013 study in *PLOS One*. Peak virus termination occurred above 40 percent humidity.

2. REACH FOR BLEACH

Per Tierno: Add one part bleach to nine parts water to wipe food-prep surfaces. Use a more-diluted mix—one part bleach to 19 parts water—on those subject to constant touching, such as light switches, remote controls, and keyboards.

3. SWITCH SPONGES

This kitchen staple is the germiest thing in your house. Replace it every two weeks, or when it begins to disintegrate or smell bad.