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COOKBOOK*



**FAVORITE PIECE
OF GEAR**
TIE: GARMIN
235 AND GOODR
SUNGLASSES

GO-TO RUNNING SHOE
SPEEDWORK: NEW BALANCE
1400 V6; ALL OTHER RUNS:
ADIDAS ADIZERO BOSTON V7



**HARDEST RUN
EVER 2016**
RUNNER'S WORLD
5K, FIRST SUB-20
(19:46)



BEST RUN EVER
HUGGING MY
13-MONTH-OLD AT
THE FINISH OF A
5:33 FIFTH AVE MILE

**RUNNING PHILOSOPHY WHEN
YOU WANT TO TEST YOUR FITNESS
LEVEL, HILL REPEATS NEVER LIE.**



**SOUL ROUTE THE GANTRY,
LONG ISLAND CITY, WITH
NORTH BROOKLYN RUNNERS**

Running More Is Great, But What Does It Do to Your Immune System?

If you're lacing up to fight cabin fever, you're not alone. It seems that with extra free time available and fewer places to work out, more and more people are turning to running, suggesting that ours is the perfect social-distancing sport. And there's no question that running has health benefits—it keeps your heart strong, helps you drop pounds or maintain a healthy weight, and is a perfect way to de-stress, which frankly is important right now. But when it comes to supporting a healthy immune system, experts are still debating whether exercise can suppress the immune system, making an athlete more susceptible to infection after a workout.

It's important to understand that researchers look at the effect of exercise on the immune system in the short term (a single bout of exercise) and the long term (days, weeks, months, and years of regular exercise), explains exercise physiologist James Turner, Ph.D., a senior lecturer at the University of Bath in the U.K., who specializes in immunobiology.

When you start to exercise, your heart rate increases due to adrenaline and more blood moving through your body. Your body calls on certain types of white blood cells—your body's immune system cells—to race around and fight off any potential pathogens. "Within seconds of starting to exercise, your immune cells increase, double, triple, and some even increase tenfold," Turner says.

About 10 to 15 minutes after finishing a workout—low- or high-intensity—that cell count goes back to normal. But then, Turner says, some of those immune cells decrease to below normal levels—sometimes by half or more—for hours before returning to the normal baseline level.

This is what's called the "open window," says Caroline Jouhourian, M.D., a gastroenterologist at Lowell General Hospital in Lowell, Massachusetts. And until recently, it was widely accepted that during that open window, the immune system was suppressed, leaving people more susceptible to infection.

But what researchers, including Turner and his colleague John Campbell, Ph.D.,

explain is that those immune cells haven't disappeared during that open window, they're just out of the bloodstream looking for infection—which is, Turner says, what they should be doing. That process is called immune surveillance, and exercise like running can make it happen more quickly and efficiently.

When it comes to the effects of exercise on the immune system over the long▶

► term, there is definitely an advantage to working out regularly. “Long-term exercise and training encourage a healthy, anti-inflammatory environment [in the body],” Turner says. There’s no question that the immune system weakens with age, but running might actually slow down the aging process. Specifically, it seems to strengthen the adaptive (or acquired) immune system, Jouhourian says.

The adaptive immune system is learned over time, meaning it creates antigens to fight specific infections. A 2018 study published in *Aging Cell* found that cyclists between the ages of 55 and 79 had less immunosenescence—immune system deterioration associated with aging—than adults in the same age group who did not exercise. What’s more, the researchers found that the older, more active subjects produced the same number of immune T cells (a type of white blood cell) as a 20-year-old. That means, Turner says, older adults who are regularly active might respond better to vaccines. A paper published in 2014 in *Brain, Behavior, and Immunity* supports this idea: Short bouts and long-term exercise significantly augment the immune response to vaccination.

Overtraining can lead to a host of problems including injury and burnout. But whether it makes you more susceptible to illness is still up for debate, and recent evidence suggests that it doesn’t. “Moderate running—less than 60 minutes—has been shown to be beneficial versus long-term strenuous running,” says Jouhourian, who is also a runner.

But it matters how you recover, too, she says, pointing out that refueling properly plays a key role in staving off illness and injury. (Beer, she says, isn’t a recovery drink.)

“Nutrition is really important,” Jouhourian says. “Your immune system

requires vitamins and minerals to function properly.” Rest is important, too—if you only slept two hours, exercise is probably not beneficial, she says.

And yes, it’s thought that elite athletes—who undergo intense long-term training and competition—might suffer from increased rates of upper respiratory infections (URIs), but experts are calling that thinking into question as well. “We’re still not 100 percent sure if you can exercise too much,” Turner says. “We don’t dismiss the possibility that elite athletes are at greater risk [for illness], but that’s probably not because their immune systems are suppressed.”

In a debate paper published earlier this year in *Exercise Immunology Review*, Turner and Campbell point out that while athletes participating in a large marathon, for example, might report experiencing higher levels of URI symptoms, these cases are often not confirmed with laboratory tests. People may think they have a cold when it’s actually allergies or other noninfectious issues that have similar symptoms, says infectious disease specialist Amesh Adalja, M.D., a senior scholar with Johns Hopkins Bloomberg School of Public Health.

“What is now very clear is that it’s not exercise suppressing the immune system; it’s thousands of people taking part in a marathon and inhaling droplets, touching surfaces, and not eating or sleeping well,” Turner says.

The number one risk factor for coming down with an illness is exposure, Adalja says. “Remember that a virus has to get to you from somewhere,” he adds. “Any type of social interaction in which you’re in contact with a virus—travel, other people, improper hygiene during a race like spitting or sharing water bottles—makes it more likely for you to come into contact with it.”



THE NUMBER ONE RISK FACTOR FOR COMING DOWN WITH AN ILLNESS IS EXPOSURE.

SHOULD I KEEP RUNNING DURING A PANDEMIC?

In two words: Yes, but...

While running itself may not suppress the immune system like we once thought, other factors certainly can, including increased levels of stress, poor sleep and eating habits, and of course, exposure. “Everyone has a high level of anxiety at this point, and baseline cortisol levels are higher than normal,” Jouhourian says. “Just the sheer state of stress can increase your risk of infection.”

Jouhourian emphasizes the importance of avoiding crowded roads, tracks, and trails: “The problem with COVID-19 is that you might feel fine but have it, and then you’re infecting other people if you go out running.”

Turner recommends avoiding outdoor exercise if you have any symptoms: “The best advice is just rest and stay home.” That said, experts emphasize the importance of exercising for long-term health but remind runners to log their miles solo and wear a mask for now.

Sure, over the long term, running can bolster your immune system, but as it pertains to preventing the spread of this disease, nothing can replace the habits recommended by experts and health officials: “Maintain social distancing, wash your hands frequently, don’t touch your face or surfaces,” Adalja says.

“Will running save you against COVID-19? No,” Jouhourian says. “Are you more likely to survive if you get it? Yes.”