

To Fight Covid-19, Don't Neglect Immunity and Inflammation



By **Jane E. Brody**

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While most people focus, as they should, on social distancing, face coverings, hand washing and even self-isolation to protect against the deadly coronavirus now ravaging the country, too few are paying serious attention to two other factors critically important to the risk of developing a Covid-19 infection and its potential severity.

Those factors are immunity, which should be boosted, and inflammation, which should be suppressed. I've touched on both in past columns, but now that months of pandemic-related restrictions have impacted the lives of millions, and after seeing who is most likely to become infected and die, immunity and inflammation warrant further discussion and public attention.

One fact is indisputable: Older people are especially

vulnerable to this disease and its potentially fatal consequences. But “older” doesn’t necessarily mean “old.” While people over 80 are 184 times more likely to die from Covid-19 than those in their 20s, Dr. Nir Barzilai, scientific director of the American Federation for Aging Research, points out that vulnerability increases starting around age 55. Immune defenses decline with age. That is a fundamental fact of biology. For example, with advancing age, natural killer cells, a major immunological weapon, become less effective at destroying virus-infected cells. But it doesn’t mean nothing can be done to slow or sometimes even reverse immunological decline, said Dr. Barzilai, who directs the Institute for Aging Research at Albert Einstein College of Medicine.

At the same time, inflammation in tissues throughout the body increases with age, a fact that helps the coronavirus get into the body, bind to molecules in the nose and lungs, and wreak havoc, Janet Lord, director of the Institute of Inflammation and Ageing at the University of Birmingham in England, [explained in a webinar](#) this month.

Fat tissue, for example, increases inflammation and renders overweight people more vulnerable to a Covid infection.

Here, too, there are established ways to diminish inflammation and thereby enhance resistance to this deadly disease. The basic weapons, diet and exercise, are available to far more people than currently avail themselves of their benefits. Lifestyle can have a major impact on a person's immune system, for better or worse, Dr. Lord said.

I spoke recently to a friend who "escaped" New York City in early March to avoid Covid-19. But while he reduced his risk of infection by limiting contact with other people, he has gained weight, lost muscle mass and, in becoming nearly sedentary, is also now more likely to become seriously ill if he should contract the virus.

"Skeletal muscle helps the immune system," Dr. Lord said. The contractions of skeletal muscles produce small proteins called myokines that, by dampening inflammation, have big health benefits. Myokines ferret out infections and keep inflammation from getting out of hand, she said. Also, exercising skeletal muscle helps diminish body fat and increases the potency of natural killer cells no matter what your age. An 85-year-old who increases muscle mass is better able to recover from Covid, she said.

The more extensive or vigorous the exercise, the

less inflammation, Dr. Lord said. She noted that those who do fewer than 3,000 steps a day have the highest level of inflammation, whereas those who do 10,000 or more steps daily have the least inflammation. But social isolation doesn't have to make you a couch potato.

“You don't need any special equipment,” she said, so the inability to go to a gym or even outside need not be an impediment to getting in those 10,000 steps. She suggested exercises like heel raises, leg raises and sit-to-stand exercises. You could even use two of those cans of beans you stocked up on to strengthen arm muscles. Or consider going up and down stairs, or even one step, which has the added benefit of strengthening heart function. For other ideas, see [Gretchen Reynolds's column published in The Times on April 22](#).

Exercise is especially important for people with chronic health conditions that increase their vulnerability to a serious Covid infection. “No matter what your condition, exercise will improve your immunity,” Dr. Lord said.

Regular exercise can also improve your sleep, which can suppress inflammation and keep your immune system from having to work overtime. Aim for seven to eight hours of sleep a night. If virus-related anxieties keep you awake, try tai chi, meditation or

progressive muscle relaxation (from feet to head) to reduce stress and calm your mind and body. Avoid eating a big meal late in the day or consuming caffeine after noon. Perhaps eat a banana or drink a glass of warm milk about an hour before bedtime.

Which brings me to what for many is the biggest health challenge during the coronavirus crisis: consuming a varied, nutrient-rich diet and keeping calorie intake under control. It seems baking has become a popular pastime for many sheltering at home, and the consequences — weight gain and overconsumption of sugar and refined flour — can increase susceptibility to the virus. Excess weight weakens the immune system, and abdominal fat in particular enhances damaging inflammation.

The good news, according to Dr. Leonard Calabrese, clinical immunologist at the Cleveland Clinic, is that even small amounts of weight loss can counter inflammation, a benefit aided by avoiding highly processed foods and eating more fresh fruits and vegetables that are relatively low in calories and high in protective nutrients.

Especially helpful are foods rich in vitamin C — all manner of citrus (oranges, grapefruit, clementines, etc.), red bell pepper, spinach, papaya and broccoli — and zinc, including shellfish (oysters are a powerhouse of zinc), seeds, dairy products, red

meat, beans, lentils and nuts.

For those who drink alcohol, these stressful times can tempt overconsumption. More than the recommended two drinks a day for men and one for women can reduce immunity-boosting nutrients in the body and impair the ability of white blood cells to fight off microbial invaders, Dr. Calabrese notes. For those who drink, a five-ounce serving of red wine a day is widely considered a beneficial component of an anti-inflammatory Mediterranean-style diet. Reports linking a deficiency of vitamin D to an increased risk of developing a severe Covid-19 infection have prompted some people to take measures that may ultimately undermine their health, like basking unprotected in the sun, which can lead to skin cancer, and taking excessive amounts of a vitamin D supplement, which can cause distressing gastrointestinal symptoms. Healthy blood levels of vitamin D can, though, help keep the body's immune system strong and possibly help prevent it from raging out of control, causing the cytokine storm that can severely damage the lungs and other tissues and has resulted in many Covid-19 deaths. But for those with already healthy levels of vitamin D, there's no established immune benefit from taking more than 2,000 IU of vitamin D-3 a day.

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