

You Can't Boost Your Immune System, but You Sure Can Suppress It!

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This phrase is one I've heard off and on through the years by colleagues and professors. In my short foray into a doctorate, the program I was a part of was working on the immune system and exercise.

As we've all been inundated with virus-related news, I wanted to share what I know about a pressing question for those in my friend group: exercise, the immune system, and the risk of infection.

The established can be summed up with two concepts:

- [The J-curve](#): Which can be thought of as goldilocks theory of exercise and the immune system. Too little or too much and risk of infection goes up. Moderate training loads and the risk of infection is lowest.
- The Open Window Theory: After a hard workout, your immune system is temporarily suppressed.

These theories, both developed in the 1980s, and have widely been accepted. Recently, however, there's been a slight challenge to both.

In regards to the J-curve, there's been a question of nuance of what constitutes easy, moderate, and hard training, and how some 'hard' training might actually be best. Other data shows little change in infection rates with hard training. We'll come back to this in a minute. And for the Open Window Theory, the concept has been [challenged](#) with the idea that the immune system isn't suppressed after a hard workout, rather it's redirected. Your immune system sends it's resources to other areas in your body to make it look like it's suppressed, but the reality is it's just preparing.

While scientists debate which theory to follow, here's what we know and how to think about it:

1. Regular exercise practiced over time is beneficial to the immune system. It will make it more robust.
2. But like with performance, if you push into or near over-training, your risk of infection likely goes up. It's not rocket science. It's stress and adaptation.
3. Rather than defining hard/moderate/easy for your training, think of it as drastic changes which alter your risk of infection. If 'normal' for you is running 10 miles per day and you continue doing that, you're likely fine. If normal for you is running 2 miles per day and you try to run 6 miles per day, your risk of infection likely goes up.

Based on everything we know about stress and adaptation, the last part is the most important. When it comes to your immune system, it works like everything else in your body. Large changes in either direction are likely detrimental. So if you are regular exerciser, don't stop. If you haven't exercised for months, don't dive into the deep end, do so gradually.

But what about the intensity of the workload? Regardless of which theory is correct, all point to the fact that if you are a regular exerciser, then consistent moderate training keeps your immune system in tip-top shape. Can you do hard workouts? If you are used to performing hard workouts, then yes it's okay to continue to do some. But scale them down a notch, because the downside of over-training (and suppressing your immune system) are far greater than just poor performance, especially in the current circumstances. As famed running coach Arthur Lydiard used to say, "Train, don't strain."

And when it comes to how far you should go? There's some evidence that points to longer duration exercise as 'suppressing' the immune system more so than intense training. What is a long duration? It depends on the person, but the goal is to limit glycogen depletion. [Low energy availability](#) is tied to risk of infection and immune system suppression. So think of eliminating or minimizing long runs that push the boundaries of your endurance.

When it comes to exercise and the immune system, remember the old adage, you can't boost your immune system, but you sure can suppress it. Here are a few concepts that will help maintain your immune system.

- Sleep!
- Maintain exercise routines.
- Eat quality food as best you can.
- Don't fall into a chronically slightly stressed state. Meaning don't watch or scroll through coronavirus tweets all day.
- Give structure to your day and time spent working on things you enjoy.
- Don't go to the well in training.
- For the most part, ignore all of the advice on supplements, magic pills, etc. that are "immune-boosting."
- Manage psychological stress: Find activities you can do to give yourself a mental break: Yoga, reading, meditation, walks in nature, etc.
- Don't train yourself (or diet yourself) into glycogen depletion.
- If you do decide to a slightly harder or longer workout, replenish with food and water soon after.
- Remember to exercise solo or in small groups with lots of distance to minimize transmission.

-- Steve Magness