Medical Xpress

Why are some more likely to get sick—and how can they boost their immune system?

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Credit: Ketut Subiyanto from Pexels

It has been a long winter, filled with many viruses and cost-of-living pressures, on top of the usual mix of work, study, life admin and caring responsibilities.

Stress is an inevitable part of life. In short bursts, our stress response has evolved as a survival mechanism to help us be more alert in fight or flight situations.

But when stress is chronic, it weakens the immune system and makes us more vulnerable to illnesses such as the common cold, flu and COVID.

Stress makes it harder to fight off viruses

When the immune system starts to break down, a virus that would normally have been under control starts to flourish.

Once you begin to feel sick, the stress response rises, making it harder for the immune system to fight off the disease. You may be sick more often and for longer periods of time, without enough immune cells primed and ready to fight.

In the 1990s, American psychology professor Sheldon Cohen and his colleagues conducted a number of studies where healthy people were exposed to an upper respiratory infection, through drops of virus placed directly into their nose.

These participants were then quarantined in a hotel and monitored closely to determine who became ill.

One of the most important factors predicting who got sick was prolonged psychological stress.

Cortisol suppresses immunity

"Short-term stress" is stress that lasts for a period of minutes to hours, while "chronic stress" persists for several hours per day for weeks or

months.

When faced with a perceived threat, psychological or physical, the hypothalamus region of the brain sets off an alarm system. This signals the release of a surge of hormones, including adrenaline and cortisol.

In a typical stress response, cortisol levels levels quickly increase when stress occurs, and then rapidly drop back to normal once the stress has subsided. In the short term, cortisol suppresses inflammation, to ensure the body has enough energy available to respond to an immediate threat.

But in the longer term, chronic stress can be harmful. A Harvard University study from 2022 showed that people suffering from psychological distress in the lead up to their COVID infection had a greater chance of experiencing long COVID. They classified this distress as depression, probable anxiety, perceived stress, worry about COVID and loneliness.

Those suffering distress had close to a 50% greater risk of long COVID compared to other participants. Cortisol has been shown to be high in the most severe cases of COVID.

Stress causes inflammation

Inflammation is a short-term reaction to an injury or infection. It is responsible for trafficking immune cells in your body so the right cells are present in the right locations at the right times and at the right levels.

The immune cells also store a memory of that threat to respond faster and more effectively the next time.

Initially, circulating immune cells detect and flock to the site of infection . Messenger proteins, known as pro-inflammatory cytokines, are released

by immune cells, to signal the danger and recruit help, and our immune system responds to neutralize the threat.

During this response to the infection, if the immune system produces too much of these inflammatory chemicals, it can trigger symptoms such as nasal congestion and runny nose.

What about chronic stress?

Chronic stress causes persistently high cortisol secretion, which remains high even in the absence of an immediate stressor.

The immune system becomes desensitized and unresponsive to this cortisol suppression, increasing low-grade "silent" inflammation and the production of pro-inflammatory cytokines (the messenger proteins).

Immune cells become exhausted and start to malfunction. The body loses the ability to turn down the inflammatory response.

Over time, the immune system changes the way it responds by reprogramming to a "low surveillance mode." The immune system misses early opportunities to destroy threats, and the process of recovery can take longer.

So how can you manage your stress?

We can actively strengthen our immunity and natural defenses by managing our stress levels. Rather than letting stress build up, try to address it early and frequently by:

1. Getting enough sleep

Getting enough sleep reduces cortisol levels and inflammation. During sleep, the immune system releases cytokines, which help fight infections and inflammation.

2. Taking regular exercise

Exercising helps the lymphatic system (which balances bodily fluids as part of the immune system) circulate and allows immune cells to monitor for threats, while sweating flushes toxins. Physical activity also lowers stress hormone levels through the release of positive brain signals.

3. Eating a healthy diet

Ensuring your diet contains enough nutrients—such as the B vitamins, and the full breadth of minerals like magnesium, iron and zinc—during times of stress has a positive impact on overall stress levels. Staying hydrated helps the body to flush out toxins.

4. Socializing and practicing meditation or mindfulness

These activities increase endorphins and serotonin, which improve mood and have anti-inflammatory effects. Breathing exercises and meditation stimulate the parasympathetic nervous system, which calms down our stress responses so we can "reset" and reduce cortisol levels.

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