

Take a chill pill if you want to avoid the flu this year

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Credit: AI-generated image ([disclaimer](#))

Along with snow and frigid temperatures, the winter months also bring coughs, colds and the flu. Lower respiratory tract infections, the ones that cause feelings of chest congestion despite the deepest coughs, are one of the top 10 causes of death in [the United States](#) and around the

[world](#). In the U.S. the flu alone [kills thousands](#) of people each year.

Besides causing poor health, the flu and other respiratory illness also have a huge impact on the economy. A [study published in 2007](#) suggests that flu epidemics account for over US\$10 billion per year in direct medical care costs, while lost earnings due to illness account for an additional \$16.3 billion per year. And that doesn't cover run-of-the-mill colds and coughs. The total economic impact of [non-influenza viral respiratory tract infections](#) is estimated at another \$40 billion per year.

Avoiding the flu or catching a cold in the winter months can be tough, but there is something you can do in addition to getting the flu shot and washing your hands.

Relax. There's strong evidence that [stress](#) affects the immune system and can make you more susceptible to infections.

Big doses of stress can hurt your immune system

Health psychologist Andrew Baum defined [stress as](#) "a negative emotional experience accompanied by predictable biochemical, physiological, and behavioral changes that are directed toward adaptation." Scientists can actually measure the body's [stress response](#) – the actions the body takes to fight through arduous situations ranging from [difficult life events](#) to [infections](#).

In most stress responses, the body produces chemicals called [pro-inflammatory cytokines](#). They activate the immune system, and without them the body would not be able to fight off bacteria, viruses or fungi. Normally the stress response is helpful because it preps your body to deal with whatever challenge is coming. When the danger passes, this response is turned off with help from [anti-inflammatory cytokines](#).

However, if the stress response cannot be turned off, or if there is an imbalance between pro-inflammatory and anti-inflammatory cytokines, the body can be damaged. This extra wear and tear due to the inflammation from a heightened stress response has been termed [allostatic load](#). A high allostatic load has been associated with [multiple chronic illnesses](#), such as cardiovascular disease and diabetes. This partly explains the focus on [taking anti-inflammatory supplements](#) to prevent or treat disease.

Short-term stress hurts too

An inappropriate stress response can do more than cause chronic illness down the road. It can also make you more susceptible to acute infections by suppressing the immune system.

For example, when mice are [subjected to different environmental stressors](#), there is an increase in a molecule in their blood called corticosterone, which is known to have immunosuppressive effects on the body. This type of response is mirrored in research on humans. [In a study](#) of middle-aged and older women, stress from being instructed to complete a mental math or speech test was associated with higher levels of similar immunosuppressive molecules.

A similar response has been documented among medical students. A 1995 [study](#) showed that the students who reported "feeling stressed" the most during exam periods also had the highest levels of molecules with immunosuppressant characteristics.

Stress makes it easier to get sick

There is also direct evidence that stress can increase risk of infection. For instance, a group of scientists in Spain used surveys to assess stress

in 1,149 people for a year and then measured how many colds occurred within the group. They [found that](#) every dimension of stress they measured was associated with an increased risk for getting the common cold. While this study's large sample size and design make it particularly noteworthy, the relationship between colds and stress has been reported since [the 1960s](#).

More recently, we [presented a study](#) that calculated allostatic load scores in over 10,000 people that were a part of the National Health and Nutrition Examination Survey between 1999 and 2002. We searched for associations between those allostatic load scores and the likelihood of having reported symptoms of a communicable disease, like the common cold. We found that the higher the score, the more likely an individual was to have reported symptoms of illness.

While causality cannot be completely confirmed in the type of analysis we conducted, our calculations included multiple biological and clinical markers that would not likely have been significantly impacted by short-term illnesses alone. This suggests that the correlation between allostatic load score and disease symptoms was not simply due to the stress of having an illness.

Our results mirror what is generally accepted in the field. There are [whole book chapters](#) dedicated to describing the impacts of stress and infection risk. All this evidence seems to suggest that [stress reduction](#) might lead to a healthier cold and [flu season](#).

A prescription for relaxation

While there are medications that can treat the flu, the [latest evidence](#) suggests they are only marginally effective at relieving symptoms and may have no impact on reducing the rate of hospitalizations. And Vitamin C, which is often touted as an over-the-counter cold remedy,

has little impact on the incidence of the common cold according to the [latest compilation of studies](#) from the Cochrane Collaboration, an independent network of scientific researchers.

So keeping stress at bay might be a better bet for staying healthy. But besides just remembering to take deep breaths, participating in activities to reduce stress during the winter months has been shown to help reduce the burden of respiratory illnesses. This may include making good on that New Year's resolution to get to the gym. In fact, a recent [randomized controlled trial concluded](#) that those who exercised or meditated had fewer severe acute respiratory illnesses than did a control group that did neither.

It may also help to talk to somebody, such as your physician or a psychologist, about techniques to manage stress. In a [clinical trial](#) done with children between the ages of 8-12, those who talked with therapists about relaxation management had improved mood and decreased frequency of colds. On a cellular level, those in the therapist group had increased levels of secretory immunoglobulin A, one of the molecules that is responsible for protecting mucosal surfaces, like the lung, from infection. These types of relaxation techniques are not just for kids. [Review articles](#) conclude relaxation techniques are an important therapeutic strategy for stress-related diseases.

Cold and flu season is here, but getting worried about it might only hurt your chances of staying healthy. Instead, consider how [stress](#) hurts your immune system, and write yourself a prescription for relaxation.

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