

Why stress makes colds more likely

By Medical expose' staff

Most of us know from experience that stress weakens our immune system. Colds always seem to strike when we're overworked or emotionally exhausted, as do eczema flare-ups, headaches and a myriad of other health problems.

Doctors long ago confirmed that the connection between stress and health is real, but they haven't been able to fully explain it. Now, in a new study, researchers say they've identified a specific biological process linking life stressors - such as money trouble or divorce - to an illness.

In this case it's the common cold.

Most research in this area has focused on cortisol, the so-called stress hormone released by the adrenal glands when we feel threatened or anxious. One of cortisol's jobs is to temporarily dampen the immune system, specifically the inflammatory response, in order to free up energy to deal with threats.

The fact that cortisol suppresses inflammation presents a puzzle: People who are chronically stressed tend to have higher levels of cortisol, yet the sneezing, sniffing and coughing of the average cold are actually caused by the inflammatory response to a virus, not the virus itself.

Shouldn't stress therefore prevent cold symptoms?

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The authors of the new study have an answer: The key factor that influences a person's vulnerability to illness appears to be the immune system's sensitivity to cortisol, not his or her cortisol levels per se. And chronic stress, the study suggests, may weaken the body's responsiveness to the hormone, allowing the inflammation that causes cold symptoms to run wild.

"Stressed people's immune cells become less sensitive to cortisol," says lead author Sheldon Cohen, Ph.D., a professor of psychology at Carnegie Mellon University, in Pittsburgh. "They're unable to regulate the inflammatory response, and therefore, when they're exposed to a virus, they're more likely to develop a cold."

Cohen and his colleagues tested their theory in a pair of experiments, published this week in the Proceedings of the National Academy of Sciences. In the first, they interviewed 276 healthy men and women about the sources of psychological stress in their lives over the previous year, including unhappy work situations, long-term conflicts with

family or friends, or legal or financial woes. And then they tried to get them sick.

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The researchers gave each study participant nasal drops containing a rhinovirus (a common cold-causing virus) and quarantined them for five days, during which 39% of the volunteers came down with a cold. Those who were stressed-out had double the risk of falling ill, even after age, body mass index and a host of other factors were taken into account.

When the researchers went back and looked at blood tests taken a week or two earlier, they found no link between blood cortisol levels and the likelihood of getting sick. However, they did find that the typical relationship between cortisol and inflammation - as one rises, the other tends to fall - seemed to be disrupted in people who were stressed-out and in those who developed colds.

In these groups, cortisol levels had no bearing on inflammation (as measured by the levels of certain white blood cells), suggesting that "stressed people were... resistant" to cortisol and "non-stressed people were not," Cohen says.

A second, smaller experiment that used a different measure of inflammation confirmed the link between cortisol resistance and higher levels of inflammation.

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Although a cure for the common cold is still a long ways off, the findings do raise the possibility that there may be "ways of intervening when a person is chronically stressed, possibly pharmacologically, to influence this kind of process," Cohen says.

An intervention of that sort wouldn't only be useful during cold-and-flu season, since a wide range of health problems have been linked to stress and inflammation, including heart disease, diabetes, asthma, and autoimmune diseases such as rheumatoid arthritis and psoriasis.

The study "implies that other diseases where the control of inflammation is important would be influenced in the same way—that we could find the same sort of mechanisms operating in those cases," Cohen says.