

Stress, anxiety can make allergy attacks even more miserable and last longer

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A new study here shows that even slight stress and anxiety can substantially worsen a person's allergic reaction to some routine allergens. Moreover, the added impact of stress and anxiety seem to linger, causing the second day of a stressed person's allergy attack to be much worse.

The finding, the latest in more than three decades of study on stress and immunity, is important since allergic reactions are the fifth-most-common chronic disease in America, and medical costs to treat them can reach \$3.4 billion each year.

In a report presented today (8/14) at the annual meeting of the American Psychological Association in Boston, Ohio State University researchers described recent experiments meant to gauge how psychological stress might affect allergy sufferers.

"Allergies are not minor problems," explained Jan Kiecolt-Glaser, a professor of psychology and psychiatry at Ohio State. "A huge number of people suffer from allergies and, while hay fever, for example, is generally not life-threatening, allergy sufferers often also have asthma which can be deadly."

Some data suggest that 38 percent of the people who suffer from allergic rhinitis also have asthma, and that 78 percent of asthma sufferers have allergic rhinitis.

Kiecolt-Glaser and Ronald Glaser, professor of molecular virology, immunology and medical genetics at Ohio State, recruited 28 men and women. All of the volunteers had a history of hay fever and seasonal allergies.

The volunteers spent two half-days in a research unit at the Ohio State University Medical Center. Each time, they were given the standard skin prick test several times to determine their reactions to various allergens, and blood, saliva and serum samples were taken before, after and at several times during the research project.

All of the participants were given a battery of psychological questionnaires to determine their levels of stress, anxiety, self-confidence and feelings of control over situations.

On the day that individuals were assigned to the low-stress control condition, they were given the skin prick test and then asked to read from a magazine. Then they were asked to tape themselves reading the same material aloud.

During the day that people were assigned to the experimental condition, however, they had a much tougher time.

"We used a 'speech stressor test' used in a lot of psychology research," Kiecolt-Glaser said.

"Basically the participants each appeared before a panel of several 'evaluators' who supposedly were behavioral experts. Participants had to give a 10-minute speech, which was videotaped, and then are asked a series of math questions they had to solve without paper or pen."

Afterwards, they had to watch their videotaped performance.

"The whole exercise is a nice stress experiment in the laboratory," she said.

The researchers measured the raised "wheals" that formed on the arms of the participants before and after they were stressed, as well as the next day.

"The wheals on a person who was moderately anxious because of the experiment were 75 percent larger after the experiment, compared to that same person's response on the day when they were not stressed," Kiecolt-Glaser said, signifying a stronger reaction.

"But people who were highly anxious had wheals that were twice as big after they were stressed compared to their response when they were not stressed. Moreover, these same people were four times more likely to have a stronger reaction to the skin test one day later after the stress," she said.

This next-day change – labeled a "late-phase reaction" – is important because it signals an ongoing and strengthening response to the allergens, and even suggests that sufferers may react strongly to other stimuli that previously hadn't caused them to develop an allergic reaction.

Gailen Marshall, a co-investigator on the project and professor of medicine and pediatrics at the University of Mississippi, said that late phase, or delayed, reactions are typically unresponsive to the most common forms of allergy treatment, such as antihistamines.

"Late phase reactions also occur in allergic asthma and can, in the proper settings, be potentially life-threatening.

"The results of this study should alert practitioners and patients alike to the adverse effects of stress on allergic reactions in the nose, chest, skin

and other organs that may seemingly resolve within a few minutes to hours after starting, but may reappear the next day when least expected," he said.

Partner Ronald Glaser, director of the University's Institute for Behavioral Medicine Research, said that they stimulated cells taken from study participants and then measured the levels of cytokines like interleukin-6 (IL-6) that the cells produced.

Lymphocytes taken from participants during the study showed increased levels of cytokines like IL-6. High levels of IL-6 are part of the allergic response to an allergen, Glaser said. The researchers also measured levels of stress hormones called catecholamines and they were elevated as well.

He suggests that the raised levels of these compounds are to blame for the residual effects seen in the late-phase reaction.

"What's interesting about this is that it shows that being stressed can cause a person's allergies to worsen the next day," she explained.

"This is clinically important for patients since most of what we do to treat allergies is to take antihistamines to control the symptoms – runny nose, watery, itchy eyes, and congestion.

Antihistamines don't deal with those symptoms on the next day."

People may be setting themselves up to have more persistent problems by being stressed and anxious when allergy attacks begin," Kiecolt-Glaser said.

The researchers estimate that Americans pay \$2.3 billion for allergy medications each year and \$1.1 billion for doctor visits to treat allergy

attacks. Those amounts don't include approximately 3.5 million workdays lost as well.

Source: Ohio State University

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