

Low to moderate stress is good for you: study

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The holidays are a stressful time for many, but that may not be a bad thing when it comes to your brain functioning, according to new research from the Youth Development Institute at the University of Georgia.

The study found that low to moderate levels of [stress](#) improve working memory, the short-term information people use to complete everyday tasks like remembering someone's phone number or recalling directions

on how to get to a specific location.

There is, however, a caveat, the researchers said. The findings are specific to low to moderate stress. Once your [stress levels](#) go above moderate levels and becomes constant, that stress becomes toxic.

"The bad outcomes of stress are pretty clear and not new," said Assaf Oshri, lead author of the study and an associate professor in the College of Family and Consumer Sciences.

Constant high levels of stress can actually change the structure of the brain. It leads to increases in [white matter](#) at the expense of gray matter, which is involved in muscle control, decision-making, self-control, emotional regulation and more. Chronic stress can also make people more susceptible to a variety of illnesses ranging from nausea and migraine headaches to high blood pressure and heart disease.

"But there's less information about the effects of more limited stress," Oshri said. "Our findings show that low to moderate levels of perceived stress were associated with elevated working memory neural activation, resulting in better mental performance."

In previous research, Oshri and his colleagues demonstrated the low to moderate stress levels could help individuals build resilience and reduce their risk of developing mental health disorders, such as depression and antisocial behaviors. That study also showed that limited bouts of stress can help people learn how to cope in future stressful situations.

The present study builds upon that work, providing [magnetic resonance imaging \(MRI\)](#) that shows how low to moderate stress can make the parts of the brain that control working memory more effectively do their job.

Support networks, friends and family can help people cope with stress in healthy ways

The researchers analyzed MRI scans from the Human Connectome Project of more than 1,000 people from diverse racial and ethnic backgrounds. Funded by the National Institutes of Health, the Human Connectome Project aims to provide insight into how the human brain functions.

The results suggested that individuals who reported low to moderate stress levels had increased activity in the parts of the brain that involve working memory. Participants who said they experienced chronic high [levels of stress](#) showed a decline in those areas.

To assess perceived stress levels, participants answered questions about how frequently they experienced certain thoughts or feelings. For example, "in the last month, how often have you been upset because of something that happened unexpectedly?" and "in the last month, how often have you found that you could not cope with all the things that you had to do?" This scale has proven an effective measure in a variety of other international studies.

The researchers also examined participants' social networks using a variety of measures, including how individuals felt about their own ability to handle [unexpected events](#), how satisfied they were that their lives matter and are meaningful and the availability of friend-based support in their social networks.

To analyze working memory, participants were presented with a series of four types of images of things like tools and individuals' faces and later asked to recall whether they were the same photos they were shown before. The researchers then analyzed MRIs of the participants' brains as

they completed the tasks to assess neural activation in different parts of the [brain](#).

Perhaps unsurprisingly, the participants who said they had more support from their families and friends appeared more able to cope with low to moderate stress levels in a healthy manner.

"You need to have the right resources to be strengthened by adversity and stress," Oshri said. "For some people, being exposed to adversity is a good thing. But for others, maybe not."

"It's possible that you can sustain more stress if you have a supportive community or family."

The study was published in *Neuropsychologia*.

More information: Assaf Oshri et al, Low-to-moderate level of perceived stress strengthens working memory: Testing the hormesis hypothesis through neural activation, *Neuropsychologia* (2022). [DOI: 10.1016/j.neuropsychologia.2022.108354](https://doi.org/10.1016/j.neuropsychologia.2022.108354)

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