

Fatty foods can impair the body's response to everyday stress, research suggests

December 5 2023



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Eating fatty foods during stressful periods can impair the body's 'recovery' from the effects of stress, new research suggests.

Different findings from a study published recently in [Frontiers in Nutrition](#) and [Nutrients](#), have shown that consuming foods high in fat before a mentally stressful episode can reduce brain oxygenation and cause poorer vascular function in adults.

Rosalind Baynham, a Ph.D. researcher at the University of Birmingham and first author, explained, "We took a group of young, healthy adults and gave them two butter croissants as breakfast. We then asked them to do mental math, increasing in speed for eight minutes, alerting them when they got an answer wrong. They could also see themselves on a screen while they did the exercise. The experiment was designed to simulate everyday stress that we might have to deal with at work or at home."

"When we get stressed, different things happen in the body: our heart rate and [blood pressure](#) go up, our [blood vessels](#) dilate, and blood flow to the brain increases. We also know that the elasticity of our blood vessels—which is a measure of vascular function—declines following mental stress. We found that consuming fatty foods when mentally stressed reduced vascular function by 1.74% (as measured by Brachial Flow-mediated dilatation, FMD)."

"Previous studies have shown that a 1% reduction in vascular function leads to a 13% increase in cardiovascular disease risk. Importantly we show that this impairment in vascular function persisted for even longer when our participants had eaten the croissants."

The scientists were also still able to detect reduced arterial elasticity in participants up to 90 minutes after the stressful event was over.

The team also found that eating high-fat foods attenuated cerebral oxygenation in the pre-frontal cortex, with lower oxygen delivery (39% reduction in oxygenated hemoglobin) during stress compared to when

participants consumed a low-fat meal. Furthermore, fat consumption had a negative effect on mood both during and after the stress episode.

Jet Veldhuijzen van Zanten, Professor of Biological Psychology at the University of Birmingham, said, "We looked at healthy 18–30-year-olds for this study, and to see such a significant difference in how their bodies recover from stress when they eat [fatty foods](#) is staggering. For people who already have an increased risk of cardiovascular disease, the impacts could be even more serious."

"We all deal with stress all the time, but especially for those of us in high-stress jobs and at risk of cardiovascular disease, these findings should be taken seriously. This research can help us make decisions that reduce risks rather than make them worse."

The research also suggested that by consuming low-fat [food](#) and drinks, people's recovery from stress is less affected. After eating a low-fat meal, stress still had a negative effect on vascular function (1.18% decrease in FMD), but this decline returned to normal 90 minutes after the stressful event.

[Further research from the University of Birmingham team](#) has shown that by consuming 'healthier' foods, particularly those rich in polyphenols, such as cocoa, berries, grapes, apples and other fruits and vegetables, this impairment in [vascular function](#) can be completely prevented.

Dr. Catarina Rendeiro, Assistant Professor in Nutritional Sciences at the University of Birmingham, said, "The impact of these foods during stressful periods cannot be understated. For example, reduced oxygenation to the brain could potentially impact mood and mental health, making people even more stressed. On the other hand, it could affect cognitive function and people's ability to perform the very task

they are stressing about, such as an interview, an exam, or a work meeting. This is something we would like to do more research into in the future."

"Our studies show that food choices around stressful episodes can exacerbate or protect from the [effects of stress](#) on our cardiovascular system. The good news is that this means we can do something about this."

"We know that when people are stressed, they tend to gravitate towards higher-fat foods, either because it is the more convenient option if time is in short supply or as a treat to deal with the stress. But by doing this, they are making their physical and psychological response to stress worse. By picking low-fat foods, they could be positioning themselves to cope with the stress more effectively."

Rosalind Baynham concluded, "The world is an incredibly stressful place right now, and even without outside factors such as war or a cost-of-living crisis, stress is something we all need to deal with. So, next time you are in a big meeting or taking part in a job interview, maybe try and resist the free biscuits and go for some berries instead. You might find you feel more relaxed and can cope with the [stress](#) just a little bit better."

More information: Rosalind Baynham et al, Fat intake impairs the recovery of endothelial function following mental stress in young healthy adults, *Frontiers in Nutrition* (2023). [DOI: 10.3389/fnut.2023.1275708](https://doi.org/10.3389/fnut.2023.1275708)

Rosalind Baynham et al, Fat Consumption Attenuates Cortical Oxygenation during Mental Stress in Young Healthy Adults, *Nutrients* (2023). [DOI: 10.3390/nu15183969](https://doi.org/10.3390/nu15183969)

Provided by University of Birmingham

Citation: Fatty foods can impair the body's response to everyday stress, research suggests (2023, December 5) retrieved 28 April 2024 from <https://medicalxpress.com/news/2023-12-fatty-foods-impair-body-response.html>

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