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## Why you crave junk food when stressed

While junk food can help you relax short term when stressed, new research shows combining stress with calorie-dense comfort food is a bad idea

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Stress has become the new normal in today's fast-paced world, but the negative impact of stress on our health is frequently underestimated. A recent Garvan Institute of Medical Research study discovered a previously unknown link between stress and our eating habits.



The researchers discovered that stress could trick our brain into a constant food-craving mode, causing us to reach for more tempting treats more often.

According to Professor Herzog, the study's senior author and a visiting scientist at the Garvan Institute, stress alters our brain's natural satiety response.

"Our findings reveal stress can override a natural brain response that diminishes the pleasure gained from eating, meaning the brain is continuously rewarded to eat," Herzog explains. When we are full, our brain normally turns off the reward system, but when stressed, this off-switch appears broken.

This activity takes place in the lateral habenula region of the brain. When activated, it dampens the reward signals in general. However, this area remains dormant under chronic stress and a high-calorie diet. This produces an endless stream of reward signals that encourage us to continue eating with a preference for sweet, palatable foods.

Herzog claims that “chronic stress, combined with a high-calorie diet, can drive more and more food intake as well as a preference for sweet, highly palatable food, thereby promoting weight gain and obesity.”

As a result, the study emphasises the importance of eating a healthy diet during stressful times because while some people eat less during stressful times, most binge eat, preferring high-calorie, sugar-rich, and fatty foods.

In mouse models, the researchers investigated this stress-eating link further, discovering the role of the molecule NPY, which is naturally produced by the brain under stress.

Dr Kenny Chi Kin Ip of the Garvan Institute, the study’s first author, explained that “the lateral habenula, which is normally involved in switching off the brain’s reward response, was active in mice on a short-term, high-fat diet to protect the animal from overeating.”

Ip explains that when mice were chronically stressed, this part of the brain remained silent, allowing reward signals to stay active and promoting feeding for pleasure while not adequately responding to calls of feeling full. “We found that stressed mice on a high-fat diet gained twice as much weight as mice on the same diet that were not stressed,” he said. In a “sucralose preference test”, in which mice were given the option of drinking water or an artificially sweetened drink, stressed mice on a high-fat diet consumed three times as much artificial sweetener as their non-stressed counterparts.

Conversely, the researchers discovered that inhibiting NPY activation in brain cells in the lateral habenula of stressed mice on a highfat diet caused the mice to eat less and gain less weight.

According to Herzog, the desire for sweet foods is strong during times of stress and may be beneficial because “the feeling of reward can calm you down.”

However, he emphasises that longterm stress changes this equation, “driving eating that is bad for the body long term,” and can lead to unhealthy eating habits.

The study shows that stress can interfere with the brain’s natural ability to balance energy needs, leading to unhealthy eating habits.

It demonstrates “just how much stress can compromise a healthy energy metabolism,” says Herzog.