

# Obesity and stress pack a double hit for health

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If you're overweight, you may be at greater risk for stress-related diseases like type 2 diabetes, cardiovascular disease and cancer, according to a new study by Brandeis University.

It's long known that [psychological stress](#) can trigger biological responses similar to the effects of illness or injury, including [inflammation](#). While normal inflammation is an important part of our body's healing response, runaway inflammation can contribute to chronic and life-threatening diseases.

In a recently published paper in *Brain, Behavior and Immunity*, Brandeis researchers observed that overweight and [obese individuals](#) have higher levels of [stress](#)-induced inflammation than those within a healthy weight-range.

"We've known that overweight and obese individuals already have chronic, low grade inflammation," says psychology professor Nicolas Rohleder, the study's principal investigator. "Now, it seems that when you add stress to the mix, it's a double hit."

The paper was authored by graduate student Christine McInnis, with fellow doctoral candidates Danielle Gianferante, Luke Hanlin, and Xuejie Chen, as well as co-investigators Myriam Thoma, Juliana Breines, and Suzi Hong.

The researchers measured interleukin-6 (IL-6), an inflammatory agent

linked to stress, to evaluate inflammation levels in normal-weight and overweight individuals over the course of two psychological stress tests. They classified weight based on several factors, including body mass index (BMI) and [body fat percentage](#). Individuals with a BMI of 25 or higher were classified as overweight.

On the first day of testing, lean and [overweight individuals](#) reacted similarly to stress, despite higher starting levels of IL-6 in overweight participants. On the second day of testing, however, the IL-6 levels of overweight participants nearly doubled, while the levels of lean participants remained the same as on the first day.

McInnis and Rohleder observed that the relationship between BMI and IL-6 levels was linear—the higher the BMI, even among lean individuals, the higher the IL-6.

"It seems that every percentage point of body fat makes you more susceptible to inflammation," says McInnis.

With about two thirds of Americans classified as [overweight](#), and worldwide obesity rates doubling since 1980, understanding the health risks of obesity could not be more important, says McInnis.

"We know that there are serious diseases associated with obesity. Now we are one step closer to understanding how and why," she says.

Provided by Brandeis University

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