

Lighten Up

New studies show that stress not only makes you gain weight, but it affects what you eat and even where you pack on those extra pounds. What you can do to stop it.

Dean Ornish M.D.

Newsweek Web Exclusive

Jul 5, 2007 | Updated: 7:08 p.m. ET Sep 14, 2007

Calories in, calories out. What you eat and what you do. Energy balance. Isn't that what determines how much you weigh?

Not completely. It's also how you feel that determines how much you weigh.

Does emotional stress make you fatter or thinner? Both. It appears that short-term, acute stresses may help you lose weight, whereas chronic stresses cause you to put on pounds, especially around your belly, where it's most harmful.

A new study published this week in the prestigious journal *Nature Medicine* looked at the effects of stress on weight gain in mice. Investigators reported that chronic emotional stress turns on a peptide (chemical messenger) called neuropeptide Y, which is found in body fat. This hormone increases appetite, especially for carbohydrate-rich foods. It also causes your body to convert these calories into belly fat, a double whammy.

What's especially interesting is that chronic stress alone didn't have much effect on weight gain in only two weeks, nor did a high-fat, high-sugar diet. However, combining both together was especially toxic and markedly increased abdominal fat deposits in only two weeks.

Over a longer period of time—three months—the high-fat, high-sugar diet caused obesity, but the amount of weight gain increased three-fold when this same diet was given to mice who were also put under chronic stress. It also caused metabolic syndrome (glucose intolerance that can lead to diabetes, high cholesterol, high blood pressure and inflammation).

When the researchers blocked the effects of neuropeptide Y, it reduced stress-induced visceral (belly) fat by 50 percent "without any discernible effect on food intake, which remained as increased as it was" according to the investigators.

In other words, they ate the same amount of food, didn't exercise more, yet their belly fat decreased by half when the effects of neuropeptide Y were blocked. This is amazing stuff.

What about humans? A major study published last month in the American journal *Epidemiology* followed almost 7,000 men and 3,500 women over a 19-year period. The investigators found that there was a direct relationship between work stress and risk of general obesity (body mass index greater than 30) and central obesity (waist circumference greater than 40 inches in men and 35 inches in women, the kind that is the most harmful) that was largely independent of other factors.

So, the more stressed people felt, the more belly fat they accumulated.

In a 2002 study in Sweden, anxiety and depression were also found to increase the risk of obesity. Insulin and blood-sugar levels were higher in those who were anxious and depressed.

Neuropeptide Y may also be a common pathway with other chronic diseases, including coronary heart disease and diabetic retinopathy. It also stimulates growth of new blood vessels, called angiogenesis. This contributes not only to weight gain but also to cancer and may help to explain the relationship of obesity to increased cancer risk.

How much stress causes your body to secrete neuropeptide Y is, in part, genetically determined. Stress-induced increases in neuropeptide Y are particularly high in people who are of Northern European descent and makes them especially vulnerable to a greater incidence of atherosclerosis, obesity and diabetic retinopathy (diseased blood vessels in the eyes which can lead to blindness).

In order for tumors to grow rapidly, they secrete factors that promote blood-vessel growth. New classes of drugs known as angiogenesis inhibitors, such as Avastin and Nexavar, are showing great promise in clinical trials treating certain types of cancers. Several studies have shown that a diet low in fat and high in fruits, vegetables, whole grains, legumes, omega-3 fatty acids and soy products inhibits angiogenesis.

As you have probably experienced, stress plays a role in what we eat as well in how it affects us. There's a reason why fatty foods are often referred to as "comfort foods." A patient once told me, "When I feel lonely, I eat a lot of fat—it coats my nerves and numbs the pain. I can fill the void with food." A recent study published in the *Journal of Marketing* examined the connection between people's moods and the type and quantity of food they eat. Researchers found that people who are feeling unhappy eat larger amounts of foods they consider tasty, but unhealthy, than happy people.

In this study, test subjects who were asked to watch the movie "Love Story," the 1970 maudlin romance in which the heroine dies at the end (I hope I didn't spoil it for you ...), ate on average almost 125 grams of buttered, salty popcorn (the amount found in a medium-size bag at the movies)—about 28 percent more than did those watching "Sweet Home Alabama," the 2002 romantic comedy about a fashion designer going home to the rural South.

In another study described in the same paper, college students reading about the deaths of seven children in a fire ate more than four times as many M&M's as raisins from nearby bowls of snacks. In contrast, students reading about four old friends having an evening together after a chance reunion ate more raisins than M&M's.

As you might imagine, the researchers have applied for a patent and begun negotiating with drug companies to make drugs to block neuropeptide Y. It may be years, if ever, before clinical trials in humans are conducted and drugs that affect neuropeptide Y are on the market.

In the meantime, stress-management techniques can play a major role in helping you to lose weight and keep it off. I described several of these in one of my earlier columns. Even a minute a day can make a meaningful difference.

Awareness is the first step in healing. Part of the value of research is to raise our level of awareness about how much these simple choices in our lives can make in our health and well-being. When we exercise, it feels like we're really out there doing something, whereas spending a few minutes with your eyes closed in meditation may feel a little, well, wimpy. Studies like these demonstrate how powerful these stress-management techniques can be and why they work so effectively.

As the researchers of neuropeptide Y concluded, "Our findings provide evidence that stress is not 'just in the mind' but rather affects body weight and metabolism by activating neurogenic angiogenesis and fat remodeling."

URL: <http://www.newsweek.com/id/40438>

© 2007