

EXPLORE WELLNESS

Beating the Stress-overeating Connection¹

There is truth behind "stress eating." Stress, the hormones it unleashes, and the effects of high-fat, sugary "comfort foods" push people toward overeating.

The Mayo Clinic staff share, *Why stress causes people to overeat*, in the Harvard Mental Health Newsletter (2012) and *Exercising to Relax* in the Harvard Men's Health Watch (2011).

Researchers have linked weight gain to stress, and according to an American Psychological Association survey, about 1/4 of Americans rate their stress level as 8 or more on a 10-point scale.

In Canada, 21.2% of males and 23.4% of females aged 15 or older reported that most days were quite a bit or extremely stressful. Working women were more likely than working men to report high levels of perceived life stress. Canadians who were physically active in their leisure time reported lower levels of stress.²

In the short term, stress can shut down appetite. A structure in the brain called the hypothalamus produces corticotropin-releasing hormone, which suppresses appetite. The brain also sends messages to the adrenal glands atop the kidneys to pump out the hormone epinephrine (also known as adrenaline). Epinephrine helps trigger the body's fight-or-flight response, a revved-up physiological state that temporarily puts eating on hold. But if stress persists, it's a different story. The adrenal glands release another hormone called cortisol, and cortisol increases appetite and may also ramp up motivation in general, including the motivation to eat. Once a stressful episode is over, cortisol levels should fall, but if the stress doesn't go away — or if a person's stress response gets stuck in the "on" position — cortisol may stay elevated.



Fat and sugar cravings

Stress also seems to affect food preferences. Numerous studies — granted, many of them on animals — have shown that physical or emotional distress increases the intake of food high in fat, sugar, or both. High cortisol levels, in combination with high insulin levels, may be responsible. Other research suggests that ghrelin, a "hunger hormone," may have a role.

Once ingested, fat- and sugar-filled foods seem to have a feedback effect that inhibits activity in the parts of the brain that produce and process stress and related emotions. These foods really are "comfort" foods in that they seem to counteract stress — and this may contribute to people's stress-induced craving for those foods.

Of course, overeating isn't the only stress-related behavior that can add pounds. Stressed people often lose sleep, exercise less, and drink more alcohol, all of which can contribute to excess weight.



Gender differences



How much cortisol people produce in response to stress may also factor into the stress–weight gain equation. In 2007, British researchers designed an ingenious study that showed that people who responded to stress with high cortisol levels in an experimental setting were more likely to snack in response to daily hassles in their regular lives than low-cortisol responders.

Some research suggests a gender difference in stress-coping behavior, with women being more likely to turn to food and men to alcohol or smoking. And a Finnish study that included over 5,000 men and women showed that obesity was associated with stress-related eating in women but not in men.

Harvard researchers have reported that stress from work and other sorts of problems correlates with weight gain, but only in those who were overweight at the beginning of the study period. One theory is that overweight people have elevated insulin levels, and stress-related weight gain is more likely to occur in the presence of high insulin.

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Steps to counter stress snacking

When stress affects someone's appetite and waistline, the individual can forestall further weight gain by ridding the refrigerator and cupboards of high-fat, sugary foods. Keeping those "comfort foods" handy is just inviting trouble.

Here are some other suggestions for countering stress:

Meditation. Countless studies show that meditation reduces stress, although much of the research has focused on high blood pressure and heart disease. Meditation may also help people become more mindful of food choices. With practice, a person may be able to pay better attention to the impulse to grab a fat- and sugar-loaded comfort food and inhibit the impulse.

Social support. Friends, family, and other sources of social support seem to have a buffering effect on the stress that people experience. For example, research suggests that people working in stressful situations, like hospital emergency departments, have better mental health if they have adequate social support. But even people who live and work in situations where the stakes aren't as high need help from time to time from friends and family.

Exercise. Intense exercise increases cortisol levels temporarily, but low-intensity exercise seems to reduce them. University of California researchers reported that exercise — and this was vigorous exercise — may blunt some of the negative effects of stress. Some activities, such as yoga and tai chi, have elements of both exercise and meditation.



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Aerobic and endurance exercise ³

Aerobic exercise is key for your head, just as it is for your heart. You may not agree at first; indeed, the first steps are the hardest, and in the beginning, exercise will be more work than fun. But as you get into shape, you'll begin to tolerate exercise, then enjoy it, and finally depend on it.

Regular aerobic exercise will bring remarkable changes to your body, your metabolism, your heart, and your spirits. It has a unique capacity to exhilarate and relax, to provide stimulation and

calm, to counter depression and dissipate stress. It's a common experience among endurance athletes and has been verified in clinical trials that have successfully used exercise to treat anxiety disorders and clinical depression. If athletes and patients can derive psychological benefits from exercise, so can you.



How can exercise contend with problems as difficult as anxiety and depression? There are several explanations, some chemical, others behavioral.

Canadians who were physically active in their leisure time reported lower levels of stress.

The mental benefits of aerobic exercise have a neurochemical basis. Exercise reduces levels of the body's stress hormones, such as adrenaline and cortisol. It also stimulates the production of endorphins, chemicals in the brain that are the body's natural painkillers and mood elevators. Endorphins are responsible for the "runner's high" and for the feelings of

relaxation and optimism that accompany many hard workouts — or, at least, the hot shower after your exercise is over.

Behavioral factors also contribute to the emotional benefits of exercise. As your waistline shrinks and your strength and stamina increase, your self-image will improve. You'll earn a sense of mastery and control, of pride and self-confidence. Your renewed vigor and energy will help you succeed in many tasks, and the discipline of regular exercise will help you achieve other important lifestyle goals.

Exercise and sports also provide opportunities to get away from it all and to either enjoy some solitude or to make friends and build networks. "All men," wrote St. Thomas Aquinas, "need leisure." Exercise is play and recreation; when your body is busy, your mind will be distracted from the worries of daily life and will be free to think creatively.

Almost any type of exercise will help. Many people find that using large muscle groups in a rhythmic, repetitive fashion works best; call it "muscular meditation," and you'll begin to understand how it works. Walking and jogging are prime examples. Even a simple 20-minute stroll can clear the mind and reduce stress. But some people prefer vigorous workouts that burn stress along with calories. That's one reason ellipticals are so popular. And the same stretching exercises that help relax your muscles after a hard workout will help relax your mind as well.

1. Harvard Mental Health Letter (2012) www.health.harvard.edu/newsletter_article/why-stress-causes-people-to-overeat
2. Statistics Canada. Perceived Life Stress (2014) <http://www.statcan.gc.ca/pub/82-229-x/2009001/status/pls-eng.htm#hg>
3. Harvard Men's Health Watch (2011) www.health.harvard.edu/staying-healthy/exercising-to-relax