Stress reduction and mindful eating curb weight gain among overweight women

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Many dread gaining weight during the holiday season, but there may be hope for those who find that stress causes them to reach for yet another helping of holiday goodies.

In a study by UCSF researchers published online in the *Journal of Obesity*, mastering simple mindful eating and stress-reduction techniques helped prevent weight gain even without dieting.

Women in the study who experienced the greatest reduction in stress tended to have the most loss of deep belly fat. To a greater degree than fat that lies just under the skin, this deep abdominal fat is associated with an elevated risk for developing heart disease or diabetes.

"You're training the mind to notice, but to not automatically react based on habitual patterns – to not reach for a candy bar in response to feeling anger, for example," said UCSF researcher Jennifer Daubenmier, PhD, from the Osher Center for Integrative Medicine. "If you can first recognize what you are feeling before you act, you have a greater chance of making a wiser decision."

Daubenmier led the current study with UCSF psychologist Elissa Epel, PhD. The study, published online in October, is part of ongoing UCSF research into how stress and the stress hormone cortisol are linked to eating behavior, fat and health.

The women who participated were not on calorie-counting diets. Instead,

24 of the 47 chronically stressed, overweight and obese women were randomly assigned to mindfulness training and practice, and the other 23 served as a control group. Although no diets were prescribed, all participants attended one session about the basics of healthy eating and exercise.

The training included nine weekly sessions, each lasting 2 1/2 hours, during which the women learned stress reduction techniques and how to be more aware of their eating by recognizing bodily sensations – including hunger, fullness and taste satisfaction. At week six they attended an intensive seven-hour, silent meditation retreat.

They were asked to set aside 30 minutes daily for meditation exercises and to practice mindful eating during meals. Researchers used a scientifically tested survey to gauge psychological stress before and after the four-month study, and recorded the women's fat and cortisol levels.

The UCSF researchers looked for changes in the amount of deep abdominal fat and overall weight. They also measured secretion of cortisol shortly after awakening, a time when cortisol peaks in those under chronic stress.

Cortisol secretion runs in a daily cycle and normally ramps up when we awaken. But secretion also is triggered by both real and perceived threats. If we wake up, anticipate the day's events, and experience these thoughts as stressful, cortisol secretion may spike even higher, Daubenmier said.

Among women in the treatment group, changes in body awareness, chronic stress, cortisol secretion and abdominal fat were clearly linked. Those who had greater improvements in listening to their bodies' cues, or greater reductions in stress or cortisol, experienced the greatest reductions in abdominal fat.

Among the subset of obese women in the study, those who received the mindfulness training had significant reductions in cortisol after awakening and also maintained their total body weight, compared to women in the waitlist group, who had stable cortisol levels and continued to gain weight.

The stress-reduction and mindful-eating techniques used in the study were adapted from methods developed three decades ago by Jon Kabat-Zinn, PhD, the first director of the Stress Reduction Clinic at the University of Massachusetts Medical School and a founding member of the Cambridge Zen Center. The mindful-eating techniques used in the UCSF study are part of a larger program of mindful eating developed by Jean Kristeller, PhD, of Indiana State University.

"In this study we were trying to cultivate people's ability to pay attention to their sensations of hunger, fullness and taste satisfaction as a guide for limiting how much they eat," Daubenmier said. "We tried to reduce eating in response to emotions or external cues that typically drive overeating behavior."

Daubenmier said the small study is preliminary and must be confirmed in ongoing, follow-up research. Furthermore, when the entire study group was included in the analysis – overweight as well as obese women – the researchers found no significant differences in weight change between women who practiced stress reduction and mindful eating and those on the waiting list.

In a separate, ongoing study with lower-income, pregnant women who are overweight, Epel, Daubenmier and colleagues are teaching similar mindful-eating techniques. Pregnancy is a time when heavy women tend to gain an excessive amount of weight and later find it very hard to lose it. Furthermore, excessive weight gain during pregnancy can harm the baby's health.

"We are intervening at a critical point, when the health of the next generation is being shaped," Epel said. "We hope to improve the health of both the mothers and their babies."

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