

Study shows how troubled marriage, depression history promote obesity

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The double-whammy of marital hostility and a history of depression can increase the risk for obesity in adults by altering how the body processes high-fat foods, according to new research.

In the study, men and women with a history of depression whose arguments with spouses were especially heated showed several potential metabolic problems after eating a high-fat meal. They burned fewer calories and had higher levels of insulin and spikes of [triglycerides](#) – a form of fat in the blood – after eating a heavy meal when compared to [participants](#) without these risk factors.

The reduced calorie-burning in the seven hours after a single meal – 118 fewer calories, on average, by previously depressed people with marital discord – translates to weight gain of up to 12 pounds in a year. And the multiple problems add up to the potential for metabolic syndrome – the presence of at least three of five factors that increase the risk for heart disease and diabetes.

"These findings not only identify how chronic stressors can lead to obesity, but also point to how important it is to treat mood disorders. Interventions for mental health clearly could benefit physical health as well," said Jan Kiecolt-Glaser, director of the Institute for Behavioral Medicine Research at The Ohio State University and lead author of the study.

"Our results probably underestimate the health risks because the effects

of only one meal were analyzed. Most people eat every four to five hours, and often dine with their spouses," said Kiecolt-Glaser, also a professor of psychiatry and psychology. "Meals provide prime opportunities for ongoing disagreements in a troubled marriage, so there could be a longstanding pattern of metabolic damage stemming from hostility and depression."

Kiecolt-Glaser announced the new findings with co-author Martha Belury, professor of human nutrition at Ohio State, on Monday (10/20) during the New Horizons in Science briefings at ScienceWriters2014, an annual conference hosted this year by Ohio State.

They discussed the research as part of [their presentation](#) "Metabolism: A new link between marital stress, depression and health."

The researchers recruited 43 healthy couples, ages 24 to 61, who had been married for at least three years. As part of the study, participants completed a range of questionnaires that included assessments of marital satisfaction, past [mood disorders](#) and depressive symptoms.

During the two daylong study visits, all participants ate eggs, turkey sausage, biscuits and gravy that totaled 930 calories and 60 grams of fat. The meal was designed to mimic common fast-food options, and matches the calories and fat in a Burger King double whopper with cheese or a Big Mac and medium fries at McDonald's.

Two hours later, the couples were asked to discuss and try to resolve one or more issues that researchers had previously judged to be most likely to produce conflict. Common topics were money, communication and in-laws.

Researchers left the room during these videotaped discussions, and later categorized the interactions as psychological abuse, distress-maintaining

conversations, hostility or withdrawal.

After the meals, participants' [energy expenditure](#) – or calories burned by converting food to energy – was tested for 20 minutes of every hour for the next seven hours. Researchers obtained this data by using equipment that measured inhaled and exhaled airflow of oxygen and carbon dioxide. Blood samples were drawn several times after the meals to measure glucose, insulin and triglycerides and compare them to baseline levels.

Participants with both a mood disorder history and a more hostile marriage burned an average of 31 fewer calories per hour and had an average of 12 percent more insulin in the blood than low-hostility participants in the first measurement after the meal; the level didn't match other participants' lower levels until two hours after eating. Insulin contributes to the storage of fat.

The peak in triglycerides in the high-hostility and depressed participants four hours after eating exceeded all others' levels. High levels of triglycerides are considered a risk factor for cardiovascular disease.

"Insulin stimulates food intake and the accumulation of fat tissue in the abdomen, and adding that on top of the lower energy expenditure creates a higher likelihood for obesity," Belury said. "But it doesn't stop there: Elevated triglycerides lead to heart disease. Along with high insulin, elevated triglycerides indicate metabolism of sugars and fats is impaired. These are hallmarks of increased risk for [heart disease](#) and diabetes."

Provided by The Ohio State University

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