

Emotional, Not Just Physical Weight, Increases Type 2 Diabetes Risk

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(PhysOrg.com) -- The combination of stress and obesity may significantly influence the development of type 2 diabetes among African-American women, with stress having a potentially greater role, according to researchers from Duke University Medical Center.

"These are interesting findings because much attention has been given to the role of obesity in the development of type 2 diabetes, but stress may be as important in this at-risk population," says Anastasia Georgiades, Ph.D., study co-author, who will present the findings today at the American Psychosomatic Society annual scientific meeting.

The study adds to a growing body of research connecting belly fat with type 2 diabetes, as well as other studies linking stress and high blood sugar.

"We observed a surprising connection between women with a higher percentage of belly fat and increased biological response to stress among African-American women, a patient population disproportionately affected by type 2 diabetes," says Richard Surwit, Ph.D., study co-author and chief of Duke's division of medical psychology. "While belly fat alone has been associated with elevated glucose, stress hormones appear to be contributing more significantly than previously thought."

According to the American Diabetes Association, nearly four million African-Americans have type 2 diabetes, including one in four African-American women over 55 years of age.

The new study included 62 healthy, non-diabetic African-American women who underwent a dual energy X-ray absorptiometry (DEXA) scan to determine their amount of belly fat. Each woman participated in an emotional stress test while researchers measured how their body responded. As the women recalled stressful life events, the researchers measured their blood sugar and epinephrine levels. Epinephrine is the "fight or flight" hormone released in reaction to stress.

Researchers said that the group of women with high epinephrine levels (³ 25pg/ml) during the stress protocol and with more belly fat (³ 33 percent of total body fat) had significantly higher fasting glucose scores than the other groups. Women with high epinephrine levels and more belly fat had fasting blood glucose scores near 100 mg/dl compared to around 85 mg/dl for women with lower epinephrine levels and less belly fat. Doctors consider 100 mg/dl within the low range of pre-diabetes and 125 mg/dl as the benchmark for type 2 diabetes.

Georgiades says that women with high epinephrine levels and more belly fat also had more dramatic increases in blood sugar levels during the stress tests. "While we don't fully understand the nature of the association, women with abdominal obesity may be more vulnerable to the impact of stress - causing their body to increase blood sugar production and elevating their risk for diabetes," she adds.

The researchers noted that further research is needed to explore how epinephrine production affects blood-sugar levels among African-American women.

In addition, they say this work may provide new research avenues for type 2 diabetes prevention efforts. "Pharmacologic or behavioral interventions aimed at reducing epinephrine or the response to it, such as beta blockers, may play a role in preventing the development of diabetes in this group," says Surwit.

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Provided by Duke University

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