
Exercise is important in reducing size of abdominal fat cells

Aug. 9: Reducing the size of abdominal fat cells - which are a risk factor for diabetes and heart disease - takes more than cutting calories, according to new research from Wake Forest University Baptist Medical Center.

Early results from a five-year study show that exercise should be added to the equation.

"The message is very clear," said Tongjian You, Ph.D., instructor in geriatric medicine at Wake Forest Baptist and lead author. "Exercise is important to reducing the size of these cells, and may one day be part of a prescription for treating the health complications associated with abdominal fat."

A press release by EurekAlert says that the study is reported in the August issue of the International Journal of Obesity. The results - from 45 obese, middle-age women with excess abdominal fat - are part of an ongoing study of up to 125 women. The goal is to determine what lifestyle changes are needed to reduce the size of abdominal fat cells.

It is well known that overall obesity is a risk factor for diabetes and heart disease. Not all obese people develop these diseases, of course. Obese people who have more abdominal fat (an apple shape) are at a higher risk than people who store excess fat in their hips and thighs (a pear shape).

Abdominal fat is associated with metabolic syndrome, a cluster of symptoms that increases the risk for heart disease and diabetes. The syndrome is diagnosed when someone has at least three of the following: abdominal obesity, high triglycerides, low levels of high-density lipoprotein ("good") cholesterol, high blood pressure and increased levels of sugar in the blood.

The current research studied a lesser-known risk factor for the syndrome - the size of fat cells just under the surface of the skin, known as subcutaneous fat.

"The size of these fat cells predicts type 2 diabetes, independent of whether the patient is obese," said You.

Earlier studies had shown that exercise can reduce fat cell size, but it is not known if the intensity of exercise matters during dietary weight loss. For the current study, all women had a deficit of 2,800 calories a week, either through dieting or a combination of dieting and exercise.

One group cut their calorie levels through diet, but did not exercise. A second group walked at about 1 to 2 miles per hour on a treadmill for 50 minutes three times a week. A third group also walked three times a week, but at 3.5 to 4 miles per hour for 30 minutes. Both exercise groups burned 400 calories each week through walking.

The women were provided food for their lunch and supper, which was selected by a registered dietician. Body size and weight, as well as total fat and abdominal fat cell size were measured both before and after the 20-week study period. The results showed that all groups lowered their fat mass, body weight (by 19 to 23 pounds), percent fat, and waist and hip girths (by 3 to 4 inches in hips and 4 inches in waists) to a similar degree.

The diet-alone group had no changes in abdominal fat cell size. However, both exercise groups had decreases of about 18 percent in the size of their abdominal fat cells.

"It is important to complete our larger study to see if these results hold true," said You. "But, these

early findings do point to the importance of exercise in treating the complications of abdominal fat."

You said it's possible that because of the small size of the study, women in the diet-alone group did have small reductions in fat cell size that weren't detected. "However, considering the important role of abdominal fat cell size in predicting diabetes and heart disease, our study does indicate that addition of exercise to dietary weight loss is more beneficial than weight loss alone," he said.



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