'Healthy' individuals may be at risk for heart disease

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In the face of a growing obesity epidemic in the United States, researchers at Wake Forest University Baptist Medical Center have new study results that indicate that how much fat a person has is not as important as where that fat is located when assessing risk for cardiovascular events and metabolic disease.

"We are facing an obesity epidemic, which obviously affects many things – metabolic abnormalities, cardiovascular disease, etc.," said Jingzhong Ding, M.D., lead researcher and an assistant professor of gerontology. "Now we are finding out that where the fat is distributed is of high importance."

The findings of the study, funded by the National Heart, Lung and Blood Institute and the National Institutes of Health, will appear in the September issue of the *American Journal of Clinical Nutrition*, a publication of the American Society for Nutrition.

For the study, researchers used cardiac and CT scans to measure multiple fat depots in 398 white and black participants from Forsyth County, N.C., ages 47-86. They found that the amount of fat a person had deposited around organs and in between muscles (nonsubcutaneous fat) had a direct correlation to the amount of hard, calcified plaque they had. Calcified plaque itself is not considered risky, but it is associated with the development of atherosclerosis, or the presence of less stable, fatty deposits in the blood vessels that can lead to heart attack and stroke.

"Our hypothesis was that this kind of fat is quite different from subcutaneous fat, or fat just below the skin," Ding said. "Subcutaneous fat may not be as bad as having fat deposited around organs and in between muscles."

Last month, Ding published results of a similar study showing that fat deposited around the heart (pericardial fat) is associated with calcified plaque in the arteries and therefore may be worse than having a high BMI or a thick waist.

"For the previous study, our hypothesis was that pericardial fat released inflammatory cytokines and free fatty acids directly into the coronary arteries, leading to endothelial dysfunction, which initiates atherosclerosis," Ding said.

Ding is continuing long-term studies to investigate whether individuals with excessive fat deposited in and around organs and muscles may be at higher risk of cardiovascular disease and cardiac events regardless of overall body fat.

"We know that even thin people could have excessive non-subcutaneous fat," Ding said. "If this hypothesis is confirmed, we should look for ways to specifically target the non-subcutaneous fat depot."

Source: Wake Forest University