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Blood tests reveal early signs of CVD risk in obese African-American teens

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Long before they have symptoms, blood tests in obese African-American teens, especially girls, reveal immune system changes linked to greater cardiovascular disease risk, according to a study presented at the American Heart Association's 2015 High Blood Pressure Conference.

"Obesity in the formative years is already priming the system to develop cardiovascular disease later in life," said Carmen De Miguel, Ph.D., study lead researcher and a postdoctoral scholar at the University of Alabama at Birmingham.

There is substantial evidence that the immune system is involved in the development of cardiovascular disease, with changes in immune cells in the blood appearing years before people develop high blood pressure, type 2 diabetes, or cardiovascular diseases. The new study shows that obesity-related immune cell changes appear early - particularly in African-American girls.

Researchers conducted blood tests on about 100 white and African American public school students between the ages of 14 and 20 in Augusta, Georgia. Obese teens were over the 95th percentile for weight, while lean teens were below the 60th percentile of weight.

To determine obesity's effect on inflammation, researchers compared levels of T-cells and their activation status among lean and obese children by race and gender. Activated T-cells are a sign of

inflammation. Researchers found:

- White teenagers displayed less systemic inflammation (marked by smaller numbers of T-cells in the blood) in response to obesity than black teens.
- Obese black teenage girls had higher levels of activated T cells compared to obese black teenage boys.

"We think that the fact that the girls do not decrease the numbers of activated T cells could be important in explaining the high risk that black females have of developing cardiovascular disease later in life," De Miguel said.

Since changes in the immune system appear years before symptoms of heart disease, De Miguel suggests that health professionals could use blood tests to identify teens who are at high risk of developing cardiovascular disease in the future.

"This could allow for preventive therapies and help changing exercise and diet habits to make the teen less prone to heart disease in adulthood," De Miguel said.

Provided by American Heart Association

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