

With a little exercise, your fat cells may coax liver to produce 'good' cholesterol

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(Medical Xpress)—With a little exercise and dieting, overweight people with type 2 diabetes can still train their fat cells to produce a hormone believed to spur HDL cholesterol production, report medical researchers from The Methodist Hospital and eight other institutions in an upcoming issue of the *Journal of Lipid Research*.

"What we're learning is that even overweight people who are physically active and eating a healthy diet are getting benefits from the [lifestyle change](#)," said principal investigator Christie Ballantyne, M.D., director of Methodist's Center for Cardiovascular Disease Prevention. "When you exercise and diet, you're improving the function of your [adipose tissue](#), your heart and vascular systems, and even [muscle performance](#). You're getting a lot of benefits that you may not see by just looking at the weight on a scale."

The Center for Cardiovascular Disease Prevention is part of the Methodist DeBakey Heart & Vascular Center.

Ballantyne said that while a causal relationship between adiponectin production and increases in blood HDL cholesterol levels is not yet proven, this latest study supports models putting the fat hormone somewhere in the controlling pathway of liver HDL cholesterol synthesis. Adiponectin's role in fat burning and sugar storage is well established.

Ballantyne and his team examined patient data from Look AHEAD, a

project intended to clarify the relationship between obesity, diabetes, and cardiovascular disease. Look AHEAD is funded by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). To be eligible for Look AHEAD, participants must have been diagnosed with [type 2 diabetes](#), and also deemed overweight or obese. Enrollees consent to an "intensive lifestyle intervention" in which they become more physically active and limit their calorie intake.

Look AHEAD participants have had their blood drawn at regular intervals, with testing for various biomarkers, including HDL cholesterol and the fat hormone adiponectin, in its many forms. Study participants are also weighed and given a fitness (exercise stress) test.

After one year, Look AHEAD participants' adiposity (a measure of total fat), fitness, blood glucose levels, and fat levels were, on average, significantly improved. Levels of LDL, the so-called "bad cholesterol," did not change. But Adiponectin levels and HDL cholesterol did. Total adiponectin produced by [fat cells](#) increased about 12 percent relative to a control group, in which people received diabetes and obesity education but no intensive lifestyle modification. And HDL cholesterol went up nearly 10 percent.

HDL cholesterol correlates positively with overall cardiovascular health. It is not yet known for sure whether low HDL cholesterol causes cardiovascular problems, or whether both (low HDL and CV problems) are controlled in parallel by another, as-yet-unknown effector.

Provided by The Methodist Hospital System

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