

Testing for ApoB protein may be a more accurate marker for heart disease risk than testing for cholesterol alone

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In a new study presented at the 2023 American College of Cardiology annual Scientific Sessions in New Orleans, researchers from Intermountain Health found that ApoB testing may help identify patients who may still be at increased risk for a cardiovascular event, despite having normal LDL cholesterol levels. Credit: Intermountain Health

Getting tested for levels of HDL (the good) and LDL (the bad) cholesterol is part of the annual physical exam. But emerging research is showing that these standard tests may not be the most accurate way to test for heart disease risk.

Instead, emerging data suggest that testing for levels of Apolipoprotein B-100 (ApoB), a protein that carries fat molecules, including LDL cholesterol—the so-called "bad cholesterol"—around the body, may be a more accurate risk predictor of atherosclerotic cardiovascular disease, which occurs when cholesterol plaque builds up, hardens, and creates narrowing inside the arteries.

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"Testing for ApoB doesn't tell you how much cholesterol a patient has, but instead it measures the number of particles that carry it," said Jeffrey L. Anderson, Intermountain Health cardiologist and principal investigator of the study, noting that ApoB testing is still fairly uncommon, but on the rise.

"While it's still not a commonly ordered test, we found that it's both being used more often, and it could lead to a more accurate way to test for lipoprotein-related risk than how we do it now," Dr. Anderson added. "For example, some people have normal LDL cholesterol levels but still have a large number of particles due to an abundance of small, dense LDL particles."

ApoB levels measure atherogenic particle numbers, and an increasing number of studies indicate that particle numbers beat cholesterol levels

as risk predictors of disease.

In the retrospective study, Intermountain Health researchers examined all patients' electronic health records from 2010 to February 2022.

They found that Apo B testing increased from 29 cases in 2010 to 131 in 2021. They also found that ApoB levels positively correlated with LDL cholesterol, but that the ApoB/LDL cholesterol ratio increased as LDL cholesterol decreased, suggesting the presence of an excessive number of atherogenic small, dense LDL particles—those particles with smaller amounts of LDL cholesterol per particle.

A better assessment of particle numbers is why Dr. Anderson suggests that ApoB may be better at evaluating risk, especially for patients with normal LDL cholesterol levels, including those with [metabolic syndrome](#), such as diabetes or prediabetes or low HDL and high triglyceride levels.

"Data suggest that these particle numbers increase risk to a greater extent than just [cholesterol](#) levels alone," Dr. Anderson said. "ApoB could help us identify a population of patients with normal or even low LDL numbers but who are at higher risk and should be more aggressively treated," he said.

However, Dr. Anderson doesn't expect ApoB to eclipse standard HDL and LDL testing anytime soon.

ApoB testing is slightly more expensive, and it's not yet ingrained in the healthcare system in nearly as firmly a way, but it should increasingly be considered a [valuable tool](#) for clinicians to refine cardiovascular risk, especially in these specific patient groups.

Provided by Intermountain Healthcare

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