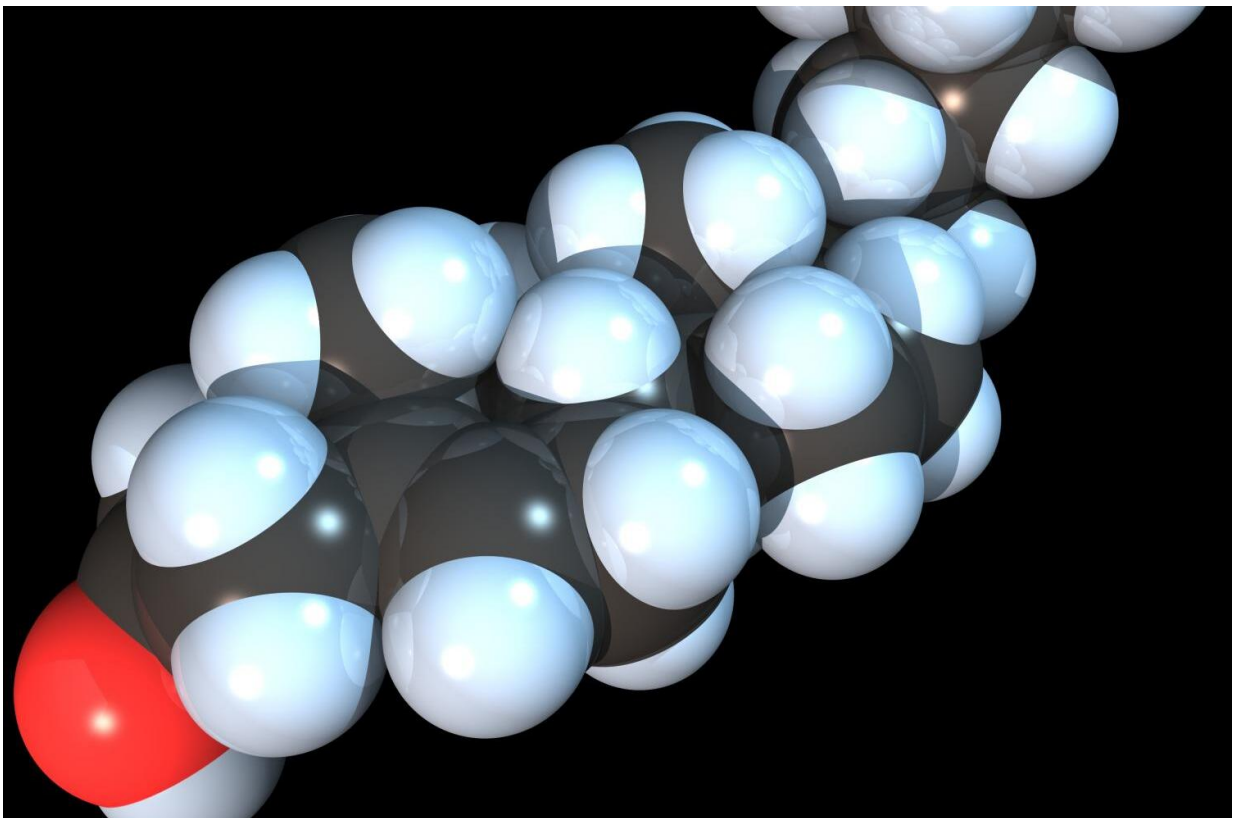


# Knowing the genetic cause of high cholesterol predicts disease risk better than cholesterol levels alone, study finds

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Space-filling model of the Cholesterol molecule. Credit: RedAndr/Wikipedia

Having a genetic cause of high cholesterol increases the risk of heart disease more than having high cholesterol levels alone, a Geisinger-led

study has found.

An estimated 6% to 13% of Americans have very high levels of low-density lipoprotein (LDL) cholesterol, known as severe hypercholesterolemia. These high LDL levels increase the risk of heart disease, heart attack and stroke.

The research team included Geisinger investigators Matthew Oetjens, Ph.D., M.S., Alexander Berry, Ph.D., Laney Jones, PharmD, and Samuel Gidding, M.D. They evaluated genetic data from 11,738 UK Biobank participants who had high LDL levels. The team observed a small difference in the rate of heart disease between those with the lowest LDL and highest LDL levels.

However, when participants were grouped by the specific genetic cause of their condition, there were distinct differences in the rates of disease. For example, people with a single gene variant linked to high cholesterol or with elevated lipoprotein (a), a form of LDL cholesterol, had a significantly increased risk of future disease when compared to the rest of the study participants.

The results were published in [\*Arteriosclerosis, Thrombosis and Vascular Biology\*](#).

"This study demonstrates the potential for [genetic data](#) to inform [risk management](#) and clinical care of patients with high cholesterol," said Dr. Oetjens.

**More information:** Alexander S.F. Berry et al, Subtyping Severe Hypercholesterolemia by Genetic Determinant to Stratify Risk of Coronary Artery Disease, *Arteriosclerosis, Thrombosis, and Vascular Biology* (2023). [DOI: 10.1161/ATVBAHA.123.319341](https://doi.org/10.1161/ATVBAHA.123.319341)

Provided by Geisinger Health System

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