

Overlooked ugly cholesterol causes heart disease

January 21 2013

The risk of ischaemic heart disease – a disease affecting some 150,000 Danes – is three times higher in persons with high levels of the so-called 'ugly' cholesterol. This is the finding of a new study of 73,000 Danes, which is shedding light on a long debate on this topic. The results have just been published in the *Journal of the American College of Cardiology*.

Most Danes are aware that [high cholesterol](#) is life-threatening. But very few know which type of cholesterol is the most frequent killer.

Cholesterol is divided into 'the good' [HDL cholesterol](#), 'the bad' [LDL cholesterol](#) and 'the ugly' cholesterol. It is the so-called 'ugly cholesterol' – also called 'remnant-like particle cholesterol' – that is the really bad guy.

"LDL cholesterol or 'the bad' cholesterol' is of course bad, but our new study reveals that the ugly cholesterol is the direct cause of arteriosclerosis (hardening of the arteries) resulting in ischaemic heart disease and early death. By examining 73,000 persons, we found that an increase in the ugly cholesterol triples the risk of ischaemic heart disease, which is caused by [lack of oxygen](#) to the [heart muscle](#) due to narrowing or blocking of the coronary arteries," says Professor Børge Nordestgaard, chief physician at Herlev Hospital and Clinical Professor at the Faculty of Health Sciences at the University of Copenhagen.

"I hope that this new knowledge will lead to better preventive treatment, as more than one in five Danes suffers from high ugly cholesterol. We

also hope that the pharmaceutical industry will develop new drugs targeted specifically at raised ugly [cholesterol levels](#)," he emphasises.

Widespread disease worldwide

In Denmark alone, 20,000 persons are diagnosed with ischaemic heart disease every year, and some 150,000 Danes are currently affected by the disease. According to [World Health Organization](#) estimates, 17 million people fall victim to cardiovascular disease – the most frequent cause of death in the world.

"High ugly cholesterol is the result of high blood levels of normal fat (triglycerides). The most important cause of high ugly cholesterol is overweight and obesity. Persons with high ugly cholesterol should therefore be advised to lose weight, but drugs such as statins and fibrates may also lower levels of ugly cholesterol in the blood," says Børge Nordestgaard.

Samples from 73,000 Danes with genetic defect

Anette Varbo, physician and PhD student at Herlev Hospital, has been part of the research team behind the new findings. She says that the findings shed light on a long-standing debate among researchers on the so-called triglyceride, arteriosclerosis and cholesterol.

"To be able to examine the correlation between ugly cholesterol and heart disease, we have used blood samples from persons having a genetic defect which means that they suffer from high ugly cholesterol their entire life. The research findings do therefore not depend on their lifestyle patterns in general. Unhealthy lifestyle factors such as smoking, fatty foods and overweight all increase the risk of heart disease, and the blood samples from persons having this genetic defect thus give the most

accurate results," says Anette Varbo.

More information: The scientific article is based on the following three population studies: the Herlev-Østerbro study, the Østerbro study and the Copenhagen heart study.

Provided by University of Copenhagen

Citation: Overlooked ugly cholesterol causes heart disease (2013, January 21) retrieved 4 May 2024 from <https://medicalxpress.com/news/2013-01-overlooked-ugly-cholesterol-heart-disease.html>

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