

Link shown between environmental toxicants and atherosclerosis

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Environmental toxicants such as dioxins, PCBs, and pesticides can pose a risk for cardiovascular disease. For the first time a link has been demonstrated between atherosclerosis and levels of long-lived organic environmental toxicants in the blood. The study, carried out by researchers at Uppsala University, is being published online this week in ahead of print in the prestigious journal *Environmental Health Perspectives*.

Cardiovascular diseases, including heart attacks and strokes, are the most common cause of death in industrialized countries, and the most important underlying cause of these diseases is atherosclerosis. Unbalanced [blood fats](#), diabetes, smoking, and [high blood pressure](#) are traditionally recognized risk factors for atherosclerosis.

Previous studies have also reported possible links between cardiovascular disease and high levels of persistent (long-lived and hard-to-degrade) organic environmental toxicants, such as [dioxins](#), PCBs, and pesticides. These compounds are fat-soluble and can therefore accumulate in vessel walls. However, no earlier studies have investigated possible links between exposure to these compounds and atherosclerosis.

The current study measured the circulating levels of the above group of compounds in about 1,000 Swedes living in Uppsala. Atherosclerosis in the carotid artery was also measured using ultrasound.

The findings show a clear connection between increasing levels of

environmental toxicants and atherosclerosis, even after taking into consideration the traditional risk factors. There was also a link to tangible signs of fat accumulation in [vessel walls](#).

"These findings indicate that long-lived organic environmental toxicants may be involved in the occurrence of atherosclerosis and thereby lead to future death from cardiovascular diseases," says Lars Lind, professor at the Department of Medical Sciences, Uppsala University.

"In Sweden, and in many countries in the world, many of these substances are forbidden today, but since they are so long-lived they're still out there in our environment. We ingest these environmental toxicants with the food we eat, and since they are stored in our bodies, the levels grow higher the older we get," says Monica Lind, Associate Professor in Environmental Medicine at Occupational and Environmental Medicine

These researchers are now going on to study how these compounds affect [atherosclerosis](#) in experimental models. They are also going to monitor the individuals included in their study to determine whether a direct connection exists between exposure to these substances and the occurrence of heart attacks and strokes in humans.

More information: The study will be available October 11 at [dx.doi.org/10.1289/ehp.1103563](https://doi.org/10.1289/ehp.1103563)

Provided by Uppsala University

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