

Large-scale study focuses on heavy smokers

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A special gene variant increases the risk of heavy smoking. A special gene variant increases the risk of heavy smoking.

A study based on blood samples from more than 55,000 Danes conducted by the University of Copenhagen and Copenhagen University Hospital shows a direct correlation between smoking and mortality. A special gene variant increases the risk of heavy smoking. The findings have been published in the *International Journal of Epidemiology*.

It is a fact that [smoking](#) is harmful and associated with deadly diseases such as cancer and cardiovascular disease. Researchers also know that [smokers](#) die earlier than non-smokers. But a study that sheds light on the direct causal relationship between smoking and mortality by investigating genes has never been published before:

"We have studied 55,568 individuals, including 32,823 smokers who we followed for ten years. 3,430 died during this period. The epidemiological

studies were supported by genetic analyses, and the conclusion is clear. Smoking is associated with premature death, and [heavy smokers](#) have a 75 percent higher risk of dying than never-smokers of the same age. This may not come as a surprise, but it is actually the first time that this type of study – which presents a direct causal relationship between smoking and mortality – has been carried out," says Professor and chief physician Børge Nordestgaard from the University of Copenhagen and Copenhagen University Hospital.

Smoking gene increases tobacco consumption

The researchers have also studied a special [gene variant](#) that impacts heavy smoking: The smoking gene has no influence on whether you start or quit smoking. But if you do smoke, the gene will make you smoke more. People who have inherited the gene variant from both their parents smoke 20 percent more than those without the special gene variant.

"There is a lot to suggest that you can be genetically predisposed to heavy smoking. Smokers carrying a special genetic mutation have a higher tobacco consumption – and they are more affected by smoking, e.g. by having higher blood nicotine levels. They quite simply smoke more convincingly – which is, of course, very harmful for their health – and they have a 14 percent higher risk of dying before other smokers," says Børge Nordestgaard.

The study is based on the Copenhagen General Population Study and was carried out together with, amongst others, Line Rode, MD, PhD, at Copenhagen University Hospital.

More information: ije.oxfordjournals.org/content/.../dyu119.full.pdf+html

Provided by University of Copenhagen

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