

# Genetic analysis of current smokers shows that high tobacco consumption lowers body weight

March 16 2015

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Published online in the *International Journal of Epidemiology*, a new study of 80,342 participants, including 15,220 current smokers, from the Copenhagen General Population Study has shown that smokers who consume a high amount of tobacco are more likely to weigh less.

Concern about gaining weight is one of the most common reasons that smokers give for not giving up the habit. Furthermore, previous research has shown that an increasing number of people are taking up [smoking](#) with the intention of lowering [body weight](#) or of maintaining a desired body figure. However, it is unknown whether smoking directly leads to weight loss or whether low weight in smokers is caused by some other lifestyle measure adapted by smokers.

In this new study, Professor Børge Nordestgaard and colleagues at Herlev Hospital, Copenhagen University Hospital, used genetics in a so-called Mendelian randomisation study to explore this unsettled issue. A polymorphism (rs1051730) in proximity to the cholinergic receptor, nicotinic, alpha 3 (CHRNA3) gene is associated with higher [tobacco consumption](#) among smokers and can therefore be used as a genetic proxy for high tobacco consumption.

While observational analyses among current smokers showed a body weight increase of 0.5 kg per 10 cigarettes smoked daily, genetic analysis in contrast showed that double carriers of the high smoking

genotype had a 1.2 kg lower body weight. The lack of association between CHRNA3 genotype and body weight among former smokers and never smokers supported smoking as the causal factor for the lower body weight in smokers.

"We found a clear disagreement between observational and genetic analyses," said Prof Nordestgaard. "Observational analyses suggested higher body weight, BMI, waist circumference, and hip circumference for higher tobacco consumption in current [smokers](#), while genetic causal analysis pointed in the opposite direction. These differences are most likely caused by residual confounders not included in the observational regression models. Reverse causality may also be a factor, where having a higher body weight in itself could lead to someone taking up smoking, or increasing their tobacco consumption."

"Smoking and obesity remain two leading modifiable risk factors for death. Which of them is associated with the greater health risk has not been subject to much investigation, and despite our findings, we do not recommend the decision to start or continue smoking in order to control body weight."

**More information:** 'High tobacco consumption lowers body weight: A Mendelian randomisation study of the Copenhagen General Population Study' by Ulrick Winsløw, Line Rode, and Børge Nordestgaard, *International Journal of Epidemiology*, [DOI: 10.1093/ije/dyu276](https://doi.org/10.1093/ije/dyu276)

Provided by Oxford University Press

Citation: Genetic analysis of current smokers shows that high tobacco consumption lowers body weight (2015, March 16) retrieved 23 April 2024 from <https://medicalxpress.com/news/2015-03-genetic-analysis-current-smokers-high.html>

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