

Blood samples can reveal chewable tobacco use

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Credit: public domain

People who use moist snuff snus have significantly higher levels of the protein cornulin in their blood than non-snusers. This previously unknown relationship was found in a new study from Umeå University, Sweden. Whether higher levels increase the risk of disease has, however, not yet been clarified.

"It's important to know about this type of association if you want to use [blood](#)-based markers for disease. For some markers, acceptable limits might have to be individualized, since lifestyle factors can influence background levels," says Robin Myte, doctoral student at Umeå University and one of the researchers behind the study.

Scientists at Umeå University investigated whether a person's lifestyle can be reflected in the blood levels of 160 different proteins. The study is based on blood samples and lifestyle data collected during health examinations in the Västerbotten Intervention Programme in northern Sweden.

It is now possible to measure the levels of hundreds of proteins in less than a drop of blood. The scientists hope that one or more of the proteins included in the study may someday be used to detect and predict diseases such as diabetes, cardiovascular disease or cancer. Previous studies have shown that tobacco habits, physical activity and alcohol consumption affect health, and probably also the protein composition in the blood. But the relationships among them are largely unknown.

For each of the 138 participants in the study, two [blood samples](#), collected ten years apart, were analysed. Several proteins were linked to different lifestyle behaviours. The strongest finding was that snusers had significantly higher levels of the protein cornulin compared to non-snusers.

Swedish snus, also called moist snuff, is a finely ground, moistened smokeless tobacco product, placed in a lump or tea-bag-like portion between the lip and the gum.

Cornulin is a protein that is produced mainly in the mouth and throat by cells exposed to external stress. The newly discovered relationship between snus and cornulin levels was completely independent of whether

or not the participants were smokers. The association was also confirmed in another study, through collaboration with researchers from Uppsala University. The consistent results increase the reliability of the finding. On the other hand, it is still unclear whether the higher cornulin levels in snusers are linked to an increased risk of disease.

"Protein markers are an exciting tool for diagnosis and early detection of diseases, but [protein levels](#) may vary due to many different factors. That is why we aimed to map some of the 'normal' variation in protein levels in our study," says Robin Myte.

More information: Anneli Sundkvist et al, Targeted plasma proteomics identifies a novel, robust association between cornulin and Swedish moist snuff, *Scientific Reports* (2018). [DOI: 10.1038/s41598-018-20794-3](#)

Provided by Umea University

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