

Children are more likely to have higher blood pressure by age six if their mother used snus during pregnancy

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Five to six year old children had higher systolic blood pressure if their mothers used snus, a moist, powdered smokeless tobacco that contains nicotine, while pregnant compared to children of mothers who did not use snus, according to new research published in the *Journal of the American Heart Association*, the open access journal of the American Heart Association.

The European Union banned the sale of snus in 1992, after a 1985 World Health Organization (WHO) study concluded it was carcinogenic to humans. Snus remains popular in Sweden, is now available in the U.S. and is currently under review by the U.S. Food and Drug Administration. Placed between the gums and upper lip, snus delivers high doses of nicotine yet does not include the combustible by-products found in smoked tobacco. Unlike typical American chewing tobacco or "dip," there is no need to spit when using snus.

"Nicotine use during pregnancy, regardless of

whether it is in snus, cigarettes, smoked tobacco or vaped tobacco products, is not safe and may have a negative impact on the future health of the child. Nicotine easily passes through the placenta and reaches the [developing fetus](#)," said lead author Felicia Nordenstam, M.D., Ph.D., senior consultant in [pediatric cardiology](#) at Karolinska Institutet University Hospital in Stockholm, Sweden.

The current study isolated nicotine exposure by studying women who used only Swedish snus during pregnancy. Previous studies of women who smoke during pregnancy have consistently found adverse effects, including [preterm birth](#), low birth weight and still birth. Studies have also found that children exposed to smoking while in utero have higher [blood pressure](#). However, those studies could not separate the effect of nicotine from the effect of other smoking-related by-products. They also could not control for the second-hand smoke exposure that many children of tobacco smokers experience after birth.

In this study, the researchers measured [blood pressure](#) and heart rate in 21 children, five to six years of age, whose mothers used snus during pregnancy and 19 children of similar ages whose mothers used no tobacco products during pregnancy. They found that the [systolic blood pressure](#) of the children exposed to snus was 4.2 mmHg higher than the children with no nicotine exposure. (Systolic blood pressure is the top number in a blood pressure reading and is the force of the blood against the walls of the arteries when the heart is beating.)

"Although the increase in blood pressure is not clinically significant for an individual child, because blood pressure generally follows an upward trajectory throughout an individual's life, it may increase more quickly to a point of clinical

significance during adulthood, especially if paired with other risk factors such as obesity or inactivity," said Nordenstam. "Tobacco products of any type should be avoided during pregnancy."

More information: Felicia Nordenstam et al, Blood Pressure and Heart Rate Variability in Preschool Children Exposed to Smokeless Tobacco in Fetal Life, *Journal of the American Heart Association* (2019). [DOI: 10.1161/JAHA.119.012629](https://doi.org/10.1161/JAHA.119.012629)

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