

Nicotine exposure during pregnancy may increase risk of sudden infant death

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Infants whose mothers have used snus (a moist oral tobacco product) during pregnancy run three times the risk of sudden infant death, according to a comprehensive registry study from Karolinska Institutet

in Sweden, published in the journal *Pediatric Research*. The risk was much lower if the mother had stopped taking snus before the first antenatal visit. The researchers conclude that all types of nicotine products should be avoided during pregnancy.

"Fortunately, the incidence of sudden infant death is very low, but we can see that taking snus or smoking while pregnant is associated with an increased risk," says Anna Gunnerbeck, pediatrician at the Astrid Lindgren Children's Hospital and researcher at the Department of Medical Epidemiology and Biostatistics, Karolinska Institutet.

Studied two million babies

While it is known that smoking during [pregnancy](#) is a risk factor in sudden infant death, little research has been done on snus and other [nicotine](#) products. To address this, the researchers conducted a registry study comprising over two million babies born in Sweden between 1999 and 2019. During this time, only two out of 10,000 babies suffered sudden infant death, which is when death occurs suddenly for no apparent reason during sleep.

When registering for [maternal care](#), just over one percent of the mothers took snus and seven percent smoked. Taking snus while pregnant was associated with a 70 percent increase in the risk of infant death during the first year, regardless of cause, and a three-fold increase in the risk of sudden infant death. The risks associated with taking snus were comparable to moderate smoking (one to nine cigarettes a day). The highest risks were associated with smoking over ten cigarettes a day.

All nicotine products should be avoided

Quitting snus and cigarettes early on in pregnancy, before the first appointment at the antenatal clinic, lowered the risk compared with

continued use.

Swedish snus is high in nicotine, but unlike cigarettes contains no combusive products and is thus considered, like vaping and other such nicotine products, to be much less harmful to the health.

"Given the dramatic rise in the use of snus among young women of fertile age in Sweden over the past few years and the growing popularity of e-cigarettes, women need to be informed of the potential risk to fetuses and [infants](#)," says Dr. Gunnerbeck. "Our study indicates that nicotine is a risk factor of sudden infant death, so we conclude that all types of nicotine products should be avoided during pregnancy."

No established causality

By linking different registries, the researchers were able to adjust for a number of important potential [risk factors](#) of sudden infant [death](#), such as [socioeconomic status](#) and the age of the mother. However, the researchers are unable to establish any causal relationships, since unknown factors might have impacted the results.

It is difficult to separate the risk for the fetus associated with snus and smoking from exposure to [cigarette smoke](#) and nicotine in the breast milk after the baby is born. Furthermore, mothers who stopped [smoking](#) or taking snus early on in their pregnancy might also have resumed the habit later. The researchers had no information about how much snus was consumed during pregnancy or what dose of nicotine that may cause harmful effects.

More information: Association of maternal snuff use and smoking with Sudden Infant Death Syndrome—a register cohort study, *Pediatric Research* (2023). [DOI: 10.1038/s41390-022-02463-4](https://doi.org/10.1038/s41390-022-02463-4)

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