

# Smoking during pregnancy may harm the child's motor control and coordination

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Women who smoke during pregnancy run the risk of adversely affecting their children's coordination and physical control according to a new study from Örebro University, Sweden, published in the *Journal of Epidemiology and Community Health*.

"Moreover, we discovered that boys' abilities may be affected to a greater extent than those of girls," says Professor Scott Montgomery at Örebro University.

"There is a link between [nicotine](#) and testosterone. Nicotine can influence development of the brain and interacts with [testosterone](#) particularly during the fetal stage, and this could make boys extra susceptible to fetal nicotine exposure," says Matz Larsson, researcher in medicine and consultant physician at Örebro University Hospital.

The results are based on a study of over 13,000 children taking part in the National [Child Development](#) Study. The children, all born in Great Britain in the same week in March 1958, are followed throughout their lives. The smoking habits of the mothers during pregnancy were also recorded.

At the age of eleven, the children were tested by a school doctor in terms of physical control and coordination. They were set the task of picking up 20 matches against time - both with their left and right hand. They had to tick up to 200 squares against time and copy a simple figure.

The children with mothers who had smoked at least nine cigarettes a day during pregnancy had greater difficulty completing the tests - especially when using their non-dominant hand, which for most of us is the left hand.

"Our findings suggest that women who smoke during pregnancy run the risk of harming the child's motor ability. There may be several reasons behind this. The nicotine interacts with [acetylcholine](#), which is an important [neurotransmitter](#) and messenger when the brain is developing during the foetal stage. But it might also be the case that the mother's smoking leads to a form of foetal [malnutrition](#)," says Matz Larsson.

"We believe this is an interesting study as it is based on physical tests rather than cognitive, which are dependent on, for example, elements of learning. That makes our results less sensitive to the influence of social and economic factors. Other factors linked to the mother's smoking may still have affected the result, but the difference in motor abilities remained even after a check for such factors," says Scott Montgomery.

"These findings also help us to understand why neurological function in childhood is linked with adverse health outcomes in later life such as obesity and type 2 diabetes, as these are also associated with maternal smoking during pregnancy. In addition, it is important to take note of even a slight impairment in childhood. Quite often it can be linked to a more rapid decline in motor function and health later on in life," says Scott Montgomery.

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