

Link between PCOS in the mother and autism in the child

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Quinn, an autistic boy, and the line of toys he made before falling asleep. Repeatedly stacking or lining up objects is a behavior commonly associated with autism. Credit: Wikipedia.

Children born to mothers with polycystic ovarian syndrome, PCOS, are at an increased risk of developing autism spectrum disorders, according to a new epidemiological study from Sweden's Karolinska Institutet. The findings, which are published in the journal *Molecular Psychiatry*,

support the notion that exposure to sex hormones early in life may be important for the development of autism in both sexes.

The new study is the first report that demonstrates a link between maternal [polycystic ovarian syndrome](#), PCOS, and [autism spectrum disorders](#), ASD, in children. ASD represent a range of neurodevelopmental disorders characterised by impairments in language and social interaction, as well as stereotypic, repetitive behaviours. The underlying causes are not entirely clear, but there are several lines of evidence that indicate that exposure to certain sex hormones early in life may play a role in the development of ASD. These [sex hormones](#), known as androgens, are responsible for development of male-typical characteristics.

Androgens also affect the development of the brain and central nervous system. Since women with PCOS have increased levels of androgens even during pregnancy, the investigators hypothesised that the disorder might affect the risk of ASD in the children. 5-15 per cent of women of child-bearing age are affected by PCOS, making it one of the most [common endocrine disorders](#).

The researchers used the extensive nationwide Swedish health and population register databases and studied all children aged 4-17 who were born in Sweden from 1984 to 2007. The researchers used an anonymised dataset where all personal identifiers had been removed. They identified around 24 000 ASD cases and compared them to 200 000 controls.

"We found that a maternal diagnosis of PCOS increased the risk of ASD in the offspring by 59 per cent", says Kyriaki Kosidou, lead researcher on the study, at the Department of Public Health Sciences. "The risk was further increased among mothers with both PCOS and obesity, a condition common to PCOS that is related to more severely increased

androgens."

ASD are about four times more common in boys than girls, but there were no observed differences in risk between boys and girls in the study. The mechanisms that explain the association between maternal PCOS and ASD in the children were not explored in this epidemiological study. In addition to increased exposure to maternal androgens, other possibilities are that shared genetic influences between the two conditions, or other metabolic problems common to PCOS, might partly explain the relationship. Further studies are necessary to explore and replicate the finding.

"It is too early to make specific recommendations to clinicians in terms of care for pregnant women with PCOS, though increased awareness of this relationship might facilitate earlier detection of ASD in children whose mothers have been diagnosed with PCOS", says Renee Gardner, senior investigator on the study, also at the Department of Public Health Sciences.

More information: 'Maternal polycystic ovary syndrome and the risk of autism spectrum disorders in the offspring: A population-based nationwide study in Sweden', Kyriaki Kosidou, Christina Dalman, Linnea Widman, Stefan Arver, Brian K. Lee, Cecilia Magnusson, Renee M. Gardner, *Molecular Psychiatry*, online Dec. 8, 2015, doi: [org/10.1038/MP.2015.183](https://doi.org/10.1038/MP.2015.183)

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