



# ECHO

Environmental influences  
on Child Health Outcomes

A program supported by the NIH

## Study Summary

### ***No significant correlation found between labor-inducing drug during childbirth and future risk of ADHD and autism spectrum disorder in children, study finds***

*Synthetic oxytocin was associated with lower ADHD risk among children born to mothers with pre-pregnancy obesity. Mothers with pre-pregnancy obesity were more inclined to receive labor-inducing medication.*

*Authors: Lisa Kurth, et al.*

#### Who sponsored this study?

This research was supported by the Environmental influences on Child Health Outcomes (ECHO) Program, Office of The Director, National Institutes of Health.

#### Why was this study needed?

More than 50% of U.S. childbirths are assisted with synthetic oxytocin (sOT)—known by trade names such as Pitocin or Syntocinon—a drug that promotes labor by stimulating the muscles in the uterus to contract. As rates of child ADHD and autism spectrum disorder (ASD) diagnoses are steadily rising, researchers have attempted to identify risk factors that might be contributing to these increases. There have been conflicting results from previous studies investigating the link between sOT exposure and childhood risk of ADHD and ASD. Additionally, the potential effect of the mother's pre-pregnancy body mass index (BMI) on this association has not yet been studied.

#### What were the study results?

Analysis of data from a large and diverse ECHO Cohort sample suggests that maternal exposure to sOT during childbirth was not associated with an increased risk for ADHD or ASD in offspring. Associations did not differ by sex. Unexpectedly, sOT was associated with lower ADHD risk among children born to mothers with pre-pregnancy obesity.

The study also found that 48% of laboring mothers received sOT. Researchers saw slightly higher usage of sOT in mothers with pre-pregnancy obesity.

#### What was this study's impact?

The findings raise questions about how these drugs might affect health outcomes, especially when combined with maternal obesity during pregnancy. Additionally, the findings indicate that maternal obesity may influence the need for interventions during childbirth. These results do not currently support a need to modify the clinical use of sOT during childbirth.

### What happened during the study?

A team of researchers used statistical analysis to examine the association between sOT exposure during labor and child ADHD or ASD diagnosis. Investigators also evaluated whether maternal pre-pregnancy BMI and child sex affected this correlation.

Note: Results reported here are for a single study. Other or future studies may provide new information or different results. You should not make changes to your health without first consulting your healthcare professional.

### Who was involved?

This study included over 12,000 mother-child pairs from 44 ECHO Cohort research sites across the U.S. Of the mothers participating in this study, 48% were exposed to sOT during childbirth.

### What happens next?

More research is needed to evaluate if the dosage and duration of sOT has any influence on children's neurodevelopment. Future studies may clarify how environmental exposures and other contributing factors, such as delivery method and maternal obesity at delivery, influence a child's neurodevelopment. Examining maternal/fetal biospecimens could also reveal how this exposure affects mothers and babies.

### Where can I learn more?

Access the full journal article, titled "Intrapartum Exposure to Synthetic Oxytocin, Maternal BMI, and Neurodevelopmental Outcomes in Children within the ECHO Consortium" in the [Journal of Neurodevelopmental Disorders](#).

*The content is the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.*