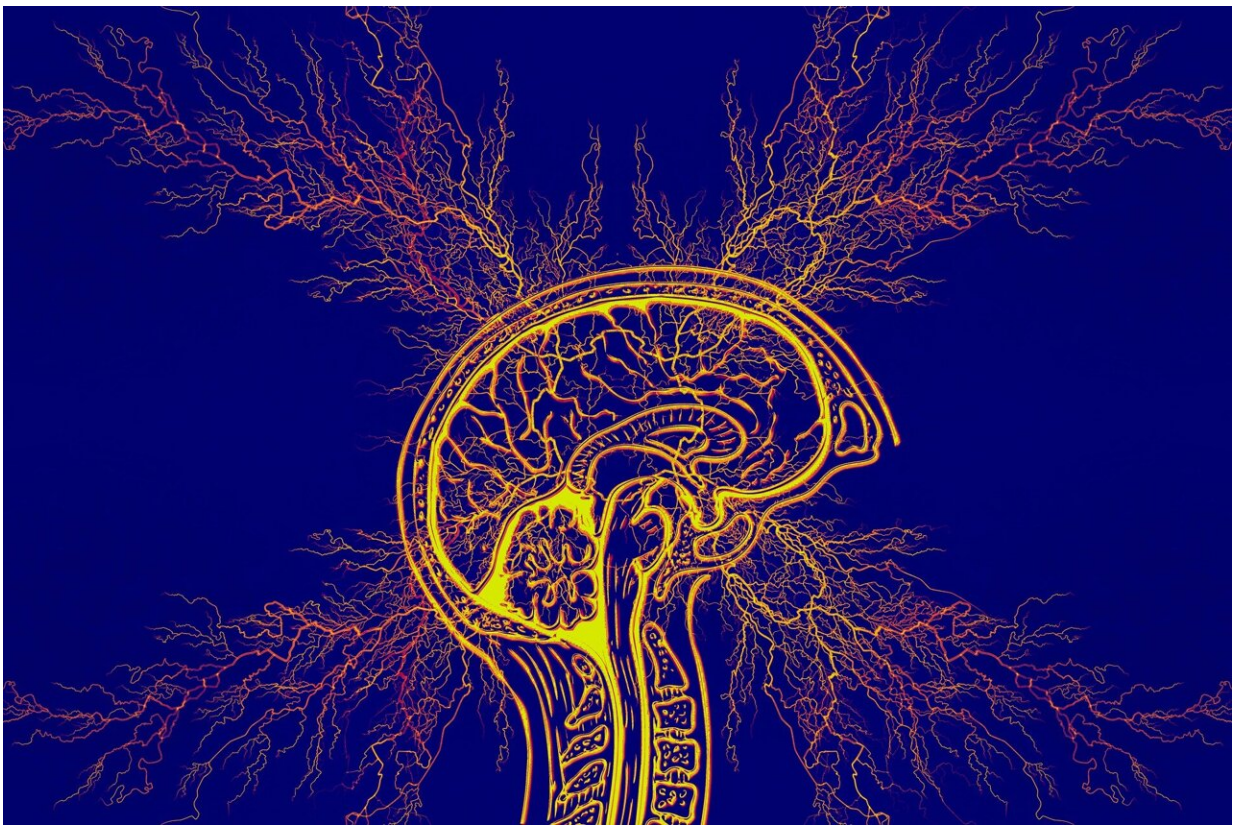


Exposure to anti-seizure medications does not harm neurological development in young children, new study finds

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Most mothers who took prescription anti-seizure medications during pregnancy can breathe a sigh of relief: A new study published today in

The Lancet Neurology has found that young children who were exposed to commonly-prescribed medications in utero do not have worse neurodevelopmental outcomes than children of healthy women.

Commonly used anti-seizure medications such as lamotrigine and levetiracetam are generally considered effective and safe, especially compared to many first-generation [epilepsy](#) treatments that carried profound risks to the [unborn child](#). But while epilepsy may no longer be the reason that prevents someone from starting a family, there is still not enough information about how drugs taken by the mother affect maternal and child outcomes after delivery.

The new study provides reassurance to patients and offers guidance to neurologists who are faced with a challenge of maintaining fragile balance between prescribing drug dosages that suppress mother's seizures but carry no increased risks of neurological complications for the baby.

"A blanket saying that all anti-seizure medications are bad is overly simplistic and doesn't make sense biologically," said senior author Page Pennell, M.D., professor and chair of neurology at the University of Pittsburgh. "Being able to say that no, taking these medications will not put their future child at a greater risk of autism or learning disabilities, has a huge impact for women with epilepsy who are considering pregnancy."

Epilepsy is a neurological disorder of abnormal electrical activity in the brain that affects over one million American women of childbearing age. With its sudden and debilitating seizures and limited number of medications, which cause significant risks to the developing fetus, the condition was considered incompatible with pregnancy for much of the 20th century, though that landscape is gradually changing.

The Maternal Outcomes and Neurodevelopmental Effects of Antiepileptic Drugs (MONEAD) study was launched two decades ago with the goal of delivering high-quality information about how anti-seizure medications affect both the mother and the child. The prospective observational study recruited women who were treated for epilepsy at twenty medical centers across the United States and followed them and their babies over the course of pregnancy and several years postpartum.

[Previous research](#) that has come out from the study highlighted the need to carefully monitor and adjust the dosage of anti-seizure medications to achieve adequate control of seizures without compromising the health of the fetus. The new study focused on determining whether exposure to these drugs causes long-term neurodevelopmental effects that negatively affect the child.

To assess the effects of fetal exposure to medications, children at the age of three years old were tested for their vocabulary and verbal comprehension skills as well as ability to describe simple pictures. Children of women with epilepsy were as good at verbally describing simple objects and pictures as children of women without epilepsy. Their ability to understand language was also comparable to children of the same age who were born to women without epilepsy, highlighting that both lamotrigine and levetiracetam pose low risks for negatively affecting cognitive outcomes.

In a secondary analysis researchers found that a high dosage of levetiracetam in the third trimester of pregnancy was correlated with adverse neurodevelopmental effects on the baby and recommend especially careful monitoring of blood levels of this drug and thoughtful dosing strategies. Researchers point out, however, that additional research is needed to determine if the same holds true for other anti-seizure medications that are less common.

Screening for mood and [anxiety disorders](#) is another important factor that clinicians must consider. As part of the study researchers observed that increased maternal anxiety and, to a lower degree, depression has negative effect on newborns.

"The findings provide valuable information for women with epilepsy, but there is still much to do as we don't know the risks for most anti-seizure medications," said lead author and one of several principal investigators of the study Kimford Meador, M.D., professor of neurology at Stanford University.

"For many years, prescribers did not have good information on cognitive outcomes of children exposed in utero to more recently approved anti-seizure medicines," said Adam Hartman, M.D., program director in the NINDS Division of Clinical Research and NINDS project scientist for MONEAD. "This study represents another important step in advancing our knowledge; however, there is more confirmatory work to be done, particularly for the secondary outcomes."

More information: Cognitive outcomes at age 3 years in children with fetal exposure to antiseizure medications (MONEAD study) in the USA: a prospective, observational cohort study, *The Lancet Neurology* (2023). DOI: 10.1016/S1474-4422(23)00199-0 , [www.thelancet.com/journals/lan ... \(23\)00199-0/fulltext](http://www.thelancet.com/journals/lan ... (23)00199-0/fulltext)

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