

Teens of epileptic moms display poor school performance

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A large population-based study revealed that multiple antiepileptic drugs (AEDs) used by pregnant women to control seizures may cause poor school performance in their teenagers. The research team from Karolinska University Hospital and the University of Lund in Sweden confirmed that exposure to AEDs in utero may have a negative effect on neurodevelopment. Their findings now appear online in *Epilepsia*, a journal published by Wiley-Blackwell on behalf of the International League Against Epilepsy.

Prior studies suggest that exposure to AEDs in utero may cause permanent damage to exposed [children](#). Cognitive and behavioral issues, malformations, psychomotor delay, and lower intelligence quotient (IQ) have all been reported in research of standard therapies for [epilepsy](#). Medical evidence also points out that polytherapy—when multiple AEDs are used—is more harmful than monotherapy (single AED therapy).

The Swedish research team used the Medical Birth Register, Patient Register, and a local study to identify women with epilepsy who gave birth between 1973 and 1986, and their anticonvulsant use during pregnancy. Children's performance in school was obtained from the School Mark Registry, which provides grades for all students leaving compulsory school (age 16 in Sweden). Researchers then linked the data from all registers and identified 1,235 children born to epileptic mothers using AEDs, comparing their school performance to all other children born in Sweden (1,307,083) during the stated time period.

Results showed 641 children were exposed to monotherapy, 429 to polytherapy, and 165 to no known AED treatments in the womb. Those children exposed to two or more AEDs had an increased risk of not receiving a final grade upon completion of schooling, while those exposed to a single anticonvulsant, mainly carbamazepine (CBZ) or phenytoin, did not.

In finding that children exposed to a single AED had no increased risk of completing school without a final grade, the authors confirmed previous medical evidence that failed to show negative effects on nervous system development after exposure to monotherapy. However, the current study did show these children had a reduced chance of earning a "pass with excellence" grade, indicating that single AED use may impair higher cognitive function.

"Our results suggest exposure to several AEDs in the womb may have a negative effect on the child's neurodevelopment," said lead study author Lisa Forsberg, M.D. The findings support current recommendations based upon a study by Harden et al., that if adequate seizure control can be obtained, polytherapy should be replaced by monotherapy during pregnancy to reduce the risk of poor cognitive outcomes. "If possible [pregnant women](#) should avoid using multiple anticonvulsants to treat their seizures," concluded Dr. Forsberg.

More information: "School Performance at Age 16 in Children Exposed to Antiepileptic Drugs in Utero: A Population-Based Study." Lisa Forsberg, Katarina Wide, and Bengt Källén. *Epilepsia*; Published Online: November 4, 2010 [DOI: 10.1111/j.1528-1167.2010.02778.x](https://doi.org/10.1111/j.1528-1167.2010.02778.x)

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