

OPINION

Can epilepsy cause autism?

BY GREG BOUSTEAD

26 AUGUST 2013





Last week, we reported on one of the largest prevalence studies of **epilepsy** in autism yet, which confirms research implicating lower cognitive function as a risk factor for epilepsy among children with autism.

[Read the full article here »](#)

The new study estimates that 26 percent of children with autism, beyond age 12, also have epilepsy, compared with an epilepsy prevalence of 2 percent in the general population.

Some common underlying brain dysfunction could explain the high co-occurrence of these disorders. Looking **deeper into this connection**, however, has led some researchers to consider a more provocative notion: that epilepsy *per se* can cause autism.

Orrin Devinsky, director of the New York University Comprehensive Epilepsy Center, is quoted in the article and has a working hypothesis of how this progression might unfold. In some cases, he says, “it is likely that the frequent, severe seizures are the actual 'brain injury' that leads to autism — analogous to recurrent concussions causing short-term memory problems.”

The earlier epilepsy develops, the **greater the child’s risk of autism**: Children whose first seizure occurs before age 2 have twice the risk of developing autism as those who develop epilepsy later

in life.

Although the evidence suggests a causal relationship, much more research is needed to understand how the two disorders are related. A shared genetic root may also explain their interrelated prevalence.

If research shows that epilepsy does contribute to autism, it offers the tantalizing possibility of preempting the seizures to prevent autism.

There are no drugs available to treat the core symptoms of autism. But anticonvulsants such as valproic acid effectively stave off the seizures associated with epilepsy. Intriguingly, in a study last year, researchers found that giving the anticonvulsant clonazepam to mutant mice **reverses their autism-like behavior**.

Using electroencephalography, scientists can detect bellwethers of impending epilepsy: short bursts of brain activity resembling the patterns produced by seizures. As much as **85 percent of children with autism** exhibit these abnormal brainwave patterns, although only a subset of them eventually develop epilepsy. That means it may be possible to stop the brain damage before it starts.

But this sort of preventive approach raises thorny ethical concerns. Giving powerful drugs that have significant side effects to young children carries obvious risks, especially when it's unclear whether any of the children will go on to develop epilepsy or, for that matter, autism.

What do you think?

- **Based on current evidence, do you think epilepsy can lead to autism? How can researchers test this connection?**
- **Is it appropriate to treat preclinical signs of epilepsy as a preventive measure?**

Share your thoughts in the comments section below. Or, to dig deeper, continue the conversation in the moderated **SFARI Forum** for researchers. Not yet a member? Learn how to register **here**.

Like us on **Facebook** » | Follow us on Twitter **@SFARIconmunity** » | Join our **newsletter** »