

Update: Bicycle Accidents, Tics, and Lead Exposure

OUR UNDERSTANDING of the causes, consequences, and most effective treatments for ADHD depends on high-quality research. But often this groundbreaking work doesn't reach the people who matter most: the families and individuals affected by ADHD. In this new semi-regular column, we'll bring you the latest breakthroughs in ADHD research.

BICYCLE ACCIDENT RISK

Why are children with ADHD at greater risk for bicycling accidents?

In this study, researchers used a bicycle simulator in a virtual environment to determine how aspects of ADHD symptoms affect children's bicycling behavior. The virtual environment included stop signs, traffic sounds, and cars, and children were asked to navigate through these obstacles on a bike. The researchers found that the children with ADHD made riskier attempts to cross the road in high-density traffic compared to children without ADHD. They also found that the children with ADHD struggled with timing their entries onto the road resulting in more "close-calls" when it came to encounters with cars. This study suggests that decision-making and motor-timing problems contribute to the increased risk for bike-related injuries among children with ADHD.

Nikolas, M.A., Elmore, A.L., Franzen, L., O'Neal, E., Kearney, J.K., & Plumert, J.M. (2016). Risky bicycling behavior among youth with and without attention-deficit hyperactivity disorder. *Journal of Child Psychology & Psychiatry*, epub ahead of print.



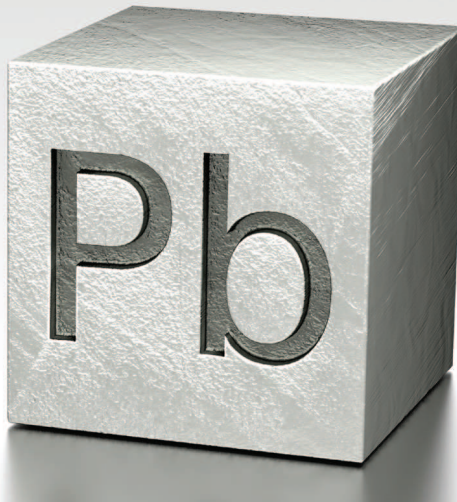
ADHD MEDICATIONS & TICS

Kids with ADHD and tics may not need to avoid ADHD medications

This study was a meta-analysis, which means that the authors pooled data across many different studies in order to draw conclusions. For many years, the clinical lore has been that medications used to treat ADHD can increase tics in children who also have a tic disorder. This meta-analysis found that, in fact, this is not the case—children with ADHD who were taking psychostimulant medications were no more likely to have new or worsening tics than children in placebo groups. This study suggests that doctors should not automatically rule out prescribing psychostimulant medications to children with ADHD who also present with tics.

Cohen, S.C., Mulqueen, J.M., Ferracioli-Oda, E., Stuckelman, Z.D., Coughlin, C.G., Leckman, J.F., & Bloch, M.H. (2015). Meta-analysis: Risk of tics associated with psychostimulants use in randomized, placebo-controlled trials. *Journal of the American Academy of Child & Adolescent Psychiatry*, 54, 728-736.





LEAD EXPOSURE

A genetic variant may render some children more vulnerable to the effects of lead exposure on ADHD symptoms

Exposure to lead has previously been found to be associated with ADHD, but it has been difficult to determine whether such exposure actually causes the development of ADHD symptoms. This study evaluated how heightened levels of lead could lead to ADHD symptoms. The authors found that a specific mutation in a gene that regulates iron uptake and modulates lead metabolism increased the association between lead levels found in blood and hyperactive-impulsivity symptoms in children with and without ADHD. Children who did not have this gene variant did not show as strong of an association between lead levels and ADHD symptoms. Overall, this study suggests that children who have this gene variant

are more vulnerable to the effects of lead exposure when it comes to ADHD symptoms. However, this is only one possible factor leading to ADHD, among many others.

Nigg, J.T., Natarajan, N., Friderici, K.H., & Nikolas, M.A. (2016). Variation in iron metabolism gene moderates the association between blood lead levels and attention-deficit/hyperactivity disorder in children. *Psychological Science*, epub ahead of print.

Meghan Miller, PhD, is a licensed psychologist and a postdoctoral fellow at the UC Davis MIND Institute, where her research focuses on identifying the earliest behavioral manifestations of ADHD and autism.

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— Dr. Mary Rooney, Clinical Psychologist specializing in ADHD



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