

Study finds first evidence that ADHD is genetic

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By [Kate Kelland](#)

LONDON, Sept 30 (Reuters) - British scientists have found the first direct evidence attention deficit/hyperactivity disorder (ADHD) is a genetic disorder and say their research could eventually lead to better treatments for the condition. Researchers who scanned the gene maps of more than 1,400 children found that those with ADHD were more likely than others to have small chunks of their DNA duplicated or missing. Anita Thapar, a professor psychiatry at Cardiff University who led the study, said the findings should help dispel the myths that ADHD is caused by bad parenting or high-sugar diets. "This is really exciting because it gives us the first direct genetic link to ADHD. Now we can say with confidence that ADHD is a genetic disease and that the brains of children with this condition develop differently to those of other children," she told reporters at a briefing about the findings.

ADHD is one of the most common child mental disorders and is estimated to affect around 3 to 5 percent of children globally. It is seen far more often in boys than in girls. Children with ADHD are excessively restless, impulsive and easily distracted, and often experience difficulties at home and in school. There is no cure, but the symptoms can be kept in check by a combination of medication and behavioural therapy. Millions of people take ADHD drugs including Novartis's (NOVN.VX: [Quote](#), [Profile](#), [Research](#), [Stock Buzz](#)) Ritalin, known generically as methylphenidate, Johnson & Johnson's (JNJ.N: [Quote](#), [Profile](#), [Research](#), [Stock Buzz](#)) Concerta, Shire's (SHP.L: [Quote](#), [Profile](#), [Research](#), [Stock Buzz](#)) Adderall and Vyvanse and Eli Lilly's (LLY.N: [Quote](#), [Profile](#), [Research](#), [Stock Buzz](#)) Strattera. Global sales of ADHD drugs were around \$4 billion dollars in 2009, according to pharmaceutical analysts at Deutsche Bank in London.

NO DIAGNOSTIC TEST IN SIGHT

Thapar said the findings would help unravel ADHD's biological basis, "and that's going to be really important in the future to develop new and much more effective treatments". But experts stressed that the DNA findings were unlikely to lead the development of a genetic test for ADHD, since a complex mix of genes and environment are likely to be the cause. "It is not clear that this will yet lead to a diagnostic test, but may well open up new avenues for understanding the neurobiology of the disorder," said Philip Asherson of the Institute of Psychiatry King's College London. The study also showed an overlap between the deleted or duplicated DNA segments, known as copy number variants (CNVs), and genetic variants linked to the brain disorders autism and schizophrenia -- providing what the scientists said was "strong evidence" that ADHD is a neurodevelopmental condition. The Cardiff team analysed the genomes of 366 children with ADHD and compared them with 1,047 samples from children without ADHD to try to find variations in their genetic make-up. The findings, published in The Lancet medical journal, showed that rare CNVs were almost twice as common in children with ADHD compared to the other children.

Nigel Williams, who also worked on the study, noted the significant overlap between CNVs found in children with ADHD and regions of the gene map which are known to influence susceptibility to

autism and schizophrenia. He said the most marked overlap was found at a particular region on chromosome 16 which has been linked to schizophrenia and other major psychiatric disorders and spans a number of genes, including one known to play a role in brain development. "We have seen a clear genetic link between these segments and other brain disorders," he said. "These findings give us tantalising clues to the changes that can lead to ADHD." (Editing by [Ralph Boulton](#))

QUESTIONS:

- 1) What is the author's purpose in writing this article?
- 2) What do researchers now believe could be the cause of ADHD?
- 3) What are some of the common symptoms of ADHD?
- 4) Based upon this research what theories about the causes of ADHD may be dispelled?
- 5) What impact does this research potentially have on the current and future ADHD drug treatments?
- 6) Based on this research what links can be made to other brain disorders?