

## Research Brief

### ADHD – To Medicate or Not?

**Question:** What does the research indicate are the effects of medicating or not medicating adolescents with ADHD?

**Summary of Findings:**

Many parents and health care providers are rethinking and questioning the long-term effects of medication on children. Whether or not to medicate adolescents with ADHD is a conundrum that many parents face. Some parents believe their child will grow out of it, others feel that living a healthy lifestyle is the answer, while a number of parents are certain that medication will help. Research shows that there is not single right answer.

**What is ADHD?**

ADHD, Attention Deficit Hyperactivity Disorder, can manifest itself in three different ways: inattentiveness, over activity and/or impulsivity. To be diagnosed with ADHD the person must show symptoms for at least six months in a minimum of two settings. Additionally, the symptoms cannot be caused by some other problem (*ADHD symptoms and ADHD diagnosis-Diagnostic criteria for ADHD*, 2008; NIMH. n.d., *Attention deficit hyperactivity disorder*). 4.4 million U.S. children aged 4-17, of which 58% are males and 45% are females, have been diagnosed with ADD/ADHD. Out of this, 56% are taking some form of a medication (Science Daily, 2006. *Many children continuing use of ADHD medication*).

**What has research discovered?**

In a study of 53 adults with ADHD who had never received medication to treat it, and 44 adults that did not have ADHD, it was found that those with ADHD had lower levels of dopamine receptors and transporters. These affect a person's attention and motivation levels and their response to rewards. It was suggested that those with low dopamine levels might be more prone to drug abuse and over eating because these things can stimulate the reward receptors (*Science Daily*, 2009, September 10).

A recent study of elementary school students with ADHD showed that those who had taken medication for the condition appeared to score 2.9 points higher in math and 5.4 higher in reading than their peers who had not taken medication (NIMH., n.d.. *ADHD medication treatment associated with higher academic performance in elementary school*).

In other research, it was found that there was on average, a three-year developmental delay in the frontal cortex among students with ADHD. This area of the brain controls the ability to control one's thinking and is where attention and planning are located. This developmental lag may explain these students' restlessness and squirminess. The brain of students with ADHD does mature normally, but about three years behind those without ADHD. This may account for why some children often seem to outgrow the ADHD behavior. One additional finding was that the brain's motor cortex seems to mature earlier in those with ADHD (NIHM, n.d., *Brain matures a few years late in ADHD, but follows normal pattern*).

Two other studies offer some guidance. In one study it was reported that as people who have ADHD age, there is more of a tendency to voluntarily stop taking medication, taking it sporadically or over medicating (Science Daily, 2006. *Many children discontinuing use of ADHD medication*). The second study reported that the longer a stimulant was taken, the less effective it became. More than 60% stopped taking their

medication within eight years while 20% did not benefit from stimulants (Johnson, M., 2009, August; Schute, N., 2009, January).

### **How can adolescents with ADHD be supported?**

If a child has qualified for special education services or for a 504 plan, the school should provide the appropriate support so that the student is receiving FAPE (free appropriate public education). Some additional things that can be done include:

- provide training for parents regarding ways to manage and reward appropriate behavior
- offer summer programs where students learn how to manage their own behavior
- introduce more rhythmic activities
- encourage regular exercise
- present a variety of opportunities to learn about and develop life and social skills
- train teachers and other staff in meeting the needs of this special population
- encourage students to get more sleep and to eat healthy (Johnson, M., 2009, August; Schute, N., 2009, January; Section 504 of the rehabilitation act, n.d.; U.S. Department of Education, 2009).

### **Online Resources:**

These online resources provide information about the symptoms of ADHD, the ongoing discussion about treatment for ADHD and reasons why parents choose not to treat ADHD with medication. Several articles discuss the reasons students choose not to take their medication.

- ADHD symptoms and ADHD diagnosis-Diagnostic criteria for ADHD. (2008). Retrieved online from <http://web4health.info/pl/adhd-diagn-dsm.htm>  
A definition of ADHD and its symptoms are provided in this piece.
- Baldauf, S. (2008, April). 8 questions adolescents are asking about stimulants. Retrieved online [http://health.usnews.com/articles/health/brain-and-behavior/2008/04/21/8-questions-adolescents-are-asking-about-stimulants.html?s\\_cid=related-links:TOP](http://health.usnews.com/articles/health/brain-and-behavior/2008/04/21/8-questions-adolescents-are-asking-about-stimulants.html?s_cid=related-links:TOP)  
A few questions from students regarding drugs and ADHD and responses are provided in this article.
- Johnson, M. (2009, August). 9 drug-free approaches to managing ADHD. Retrieved online <http://health.usnews.com/articles/health/brain-and-behavior/2009/08/12/9-drug-free-approaches-to-managing-adhd.html>  
A list of alternatives to taking medication is provided in this article.
- Kon, A. (2006). When parents refuse treatment for their child. Retrieved online [http://www.nursingcenter.com/prodev/cearticleprint.asp?CE\\_ID=634482](http://www.nursingcenter.com/prodev/cearticleprint.asp?CE_ID=634482)  
This article provides examples of and reasons for parents refusing medical treatment for their child.
- NIMH. (n.d.). Attention deficit hyperactivity disorder. Retrieved online <http://www.nimh.nih.gov/health/topics/attention-deficit-hyperactivity-disorder-adhd/index.shtml>  
An overview and description of ADHD is provided in this piece.
- NIMH. (n.d.). ADHD medication treatment associated with higher academic performance in elementary school. Retrieved online <http://www.nimh.nih.gov/science-news/2009/adhd-medication-treatment-associated-with-higher-academic-performance-in-elementary-school.shtml>  
This is an overview of survey results regarding elementary students with ADHD who took medication and who did not.

- NIHM (n.d.). Brain matures a few years late in ADHD, but follows normal pattern. Retrieved online <http://www.nimh.nih.gov/science-news/2009/adhd-medication-treatment-associated-with-higher-academic-performance-in-elementary-school.shtml>  
This is a synopsis of a study done that found that parts of the brain of those with ADHD develops normally, just later than those without ADHD.
- Schute, N. (2009, January). ADHD medication: Can your child go without? Retrieved online <http://health.usnews.com/articles/health/brain-and-behavior/2009/01/14/adhd-medication-can-your-child-go-without.html>  
A list of several potential alternatives to drug therapy are cited in this piece.
- Science Daily. (2009). ADHD linked to sleep problems in adolescents. Retrieved online from <http://www.sciencedaily.com/releases/2009/05/090501090914.htm>  
Issues dealing with sleep in adolescents are described in this article.
- Science Daily. (2006). Almost half of kids with ADHD are not being treated, study finds. Retrieved online <http://www.sciencedaily.com/releases/2006/12/061216104616.htm>  
This is a brief review of research conducted using twins to ascertain appropriate treatment for children with ADHD.
- Science Daily. (2009, September 10). Deficits in brain's reward system observed in ADHD patients; low levels of dopamine markers may underlie symptoms. Retrieved online <http://www.sciencedaily.com/releases/2009/09/090908193432.htm>  
This is a synopsis of a very current research study conducted on adults with ADHD.
- Science Daily. (2006). Many children discontinuing use of ADHD medication. Retrieved online <http://www.sciencedaily.com/releases/2006/12/061216104616.htm>  
A brief article that provides a few statistics on some reasons why children discontinue taking their medication for ADHD.
- Section 504 of the rehabilitation act. (n.d.). Retrieved online from <http://www.section508.gov/index.cfm?FuseAction=Content&ID=15>  
This is the actual section describing the tenets of Section 504.
- U.S. Department of Education. (2009). Frequently Asked Questions About Section 504 and the Education of Children with Disabilities. Retrieved online from <http://www.ed.gov/about/offices/list/ocr/504faq.html>  
Specific guidelines regarding special education placement and supports are addressed in this section.
- Wright's Law. (n.d.). Is a child with ADD/ADHD eligible for special education. Retrieved online from [http://www.wrightslaw.com/advoc/ltrs/eligibility\\_add.htm](http://www.wrightslaw.com/advoc/ltrs/eligibility_add.htm)  
This piece describes reasons for inclusion in special education programs.
- Wright's Law. (n.d.). OCR facts: Section 504 coverage of students with ADD. Retrieved online from [http://www.wrightslaw.com/advoc/ltrs/eligibility\\_add.htm](http://www.wrightslaw.com/advoc/ltrs/eligibility_add.htm)  
A description of Section 504 is provided in this piece.
- Wright's Law. (n.d.). Is a child with ADD/ADHD entitled to special ed services under IDEA? A 504 plan under section 504? Retrieved online from <http://www.wrightslaw.com/blog/?p=152>  
A description of the services to which a student with ADD/ADHD may be eligible are listed in this piece.



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