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# ADHD: A Primer for Parents and Educators

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Attention-deficit/hyperactivity disorder (ADHD) is a complex disorder characterized by three core symptoms of inattention, impulsivity, and hyperactivity. Although all children display these behaviors to some degree, children with ADHD have far more significant symptoms than other children their age. Because these symptoms are pervasive, they tend to interfere with the child's behavior at home, in school, and among peers. Fortunately, with early identification and intervention, most children with ADHD can lead successful lives.

## OVERVIEW OF ADHD

ADHD is one of the most common reasons for a child to be referred for support services in school, and affects approximately 3-7% of elementary school children. Symptoms may be first recognized as early as preschool.

### Types of ADHD

According to current diagnostic practice, there are three subtypes of ADHD. Children who have severe problems with inattention and concentration are termed *ADHD - Predominately Inattentive* subtype. Although the term ADD is outdated and no longer widely used, some professionals and parents continue to use the ADD label to describe children who daydream, appear lethargic, have cognitive difficulties, but who do not have problems with impulse control or hyperactivity. Girls are more likely diagnosed than boys as *Predominately Inattentive*.

In contrast, boys are more likely diagnosed with one of the other subtypes of ADHD, either *ADHD - Predominately Hyperactive/Impulsive* (i.e., significant problems with hyperactivity and impulse control without attention problems) or *ADHD - Combined* (i.e., significant problems with hyperactivity, impulse control, and attention). Children with ADHD - Combined are likely to encounter academic difficulties as soon as they enter school.

### Causes of ADHD

Although a precise cause of ADHD may never be known, it is helpful to consider it a complex disorder that results from multiple factors. The cause or causes of ADHD may vary across individuals, and more than one cause may be necessary for ADHD to emerge. Although parenting style and childrearing practices do not directly cause ADHD, how parents, siblings, and the school responds to symptoms of ADHD can affect children's development and their ability to overcome secondary problems associated with the disorder.

**Genetic and biological factors.** Research with families and twins have led most experts to consider ADHD a biologically-based disorder, at least partially caused by genetic or neurological factors. A child who has a close relative with ADHD is about five times more likely to have ADHD than children in general. Also, there is cutting-edge research on brain structure and function among individuals with and without ADHD that suggests important neurological differences. Some neuroimaging studies indicate that the frontal lobes of the brain used in planning, problem solving, and impulse control may be different in children with ADHD (Castellanos et al., 2002; Shaw et al., 2006).

**Environmental toxins.** Research also indicates that alcohol or cigarette use during pregnancy may be a cause of ADHD (Knopik et al., 2005; Thapar et al., 2003). In addition, some studies have implicated exposure to lead as a possible cause. Although some believe that sugar in the child's diet causes ADHD,

numerous research studies have failed to establish a link between the child's diet and risk for attention or behavior problems.

### **PROBLEMS ASSOCIATED WITH ADHD**

There is no doubt children with ADHD experience challenges in many aspects of daily living, at home, at school and interacting with peers. Some of these problems may result from the ADHD-related symptoms, whereas other problems may be due to the same factors that cause ADHD. Regardless of the cause, each area of poor performance should be addressed with an appropriate intervention.

#### **Academic Difficulties**

The average child with ADHD receives lower grades, falls behind in classroom learning, and shows a significant difference between ability and actual academic performance. Up to one-third of these children will repeat a grade during their elementary school years. This academic underachievement probably represents a problem in performing rather than a true problem in learning. In other words, these academic difficulties usually seem to result from the combination of insufficient attention, impulsive work habits (i.e., being too fast and inaccurate), and disruptive classroom behavior, rather than an inability to learn expected skills. However, at least 25% of children with ADHD have significant learning problems (e.g., a Learning Disability) in addition to their attention problems.

#### **Conduct Problems**

Significant problems with aggression and oppositional behavior are found among a majority of children with ADHD. Because of insufficient self-control, including problems with anger management and explosive emotions, these children may engage in fighting, lying and stealing, violations of major rules, and destructiveness. Children who are inattentive may be perceived as blatantly ignoring the teacher.

#### **Problems with Peer Relationships**

Many children with ADHD experience serious problems in peer relations. Numerous studies indicate that classmates may view students with ADHD as the least preferred work or play partners among all children in general education (e.g., Hoza, 2007). These difficulties with social relations can emerge within minutes of first contact, develop during the preschool years and then persist through adolescence into adulthood.

Unfortunately, peer rejection can have harmful consequences. Children who have socially appropriate friends and positive relationships with peers are much more likely to show successful adjustment throughout

their life span. In contrast, children who display problems in peer relationships are less resilient and more vulnerable to life stressors. In addition, they tend to spend time with others who experience similar adjustment difficulties.

### **THE DIAGNOSIS AND ASSESSMENT OF ADHD**

ADHD is a medical condition and should be diagnosed by a qualified professional. In many cases, the child's pediatrician is the first professional to whom families turn for an evaluation. Based on training, psychiatrists, school psychologists, child clinical psychologists, neurologists, and clinical social workers may also be qualified to diagnose ADHD. However, in most states, only medical doctors (e.g., pediatrician, psychiatrist, neurologist) can prescribe medication in the treatment of ADHD.

#### **Comprehensive Assessment of ADHD**

No single test, questionnaire, laboratory procedure, or observation alone is sufficiently reliable when diagnosing ADHD. In addition, no single source of information (parent or teacher) should be considered sufficient for a reliable and accurate diagnosis. An appropriate ADHD evaluation uses multiple methods and multiple sources of information, including diagnostic interviews with parents and teachers, ratings of the child's behavior, and direct observations in all settings where problems may occur, especially at school.

In addition, the child's academic performance should be examined thoroughly, including evaluation of academic accuracy, work productivity, the child's learning style, and response to changes in instruction. Pediatricians or mental health professionals may then determine if the assessment results are consistent with the diagnostic criteria described by the American Psychiatric Association. During assessment, professionals should consider if there are other problems and disorders that better explain the child's pattern of difficulties. The focus of the assessment should not be limited to a diagnostic determination *per se*, but to a full delineation of the nature and extent of the child's impairment.

#### **Linking Assessment to Intervention**

Because children with an official diagnosis of ADHD vary tremendously in their respective symptoms and areas of impairment, intervention plans must be developed based on the *unique* needs of each child.

**FBA.** One valuable assessment strategy often employed by school psychologists or school social workers is functional behavioral assessment (FBA). FBA involves systematically observing the child to

determine *why* a behavior occurs (i.e., its purpose or function). This information leads to efforts to replace the child's inappropriate behaviors with more desirable and appropriate behaviors. The success of this approach contradicts the notion that all children with ADHD will benefit from the same treatment strategies.

**Academic assessment.** Due to the frequent overlap (or co-occurrence) of ADHD and Learning Disabilities, it is highly recommended that a formal psychoeducational assessment be conducted to identify current academic performance and potential underlying learning problems that may exacerbate the child's performance difficulties in school. Because ADHD affects behavior and learning in the classroom, instructional interventions should be emphasized and implemented as early as possible. Effective classroom accommodations (formal modifications) may be necessary to ensure the child's continued success in general education.

## INTERVENTIONS FOR ADHD

One of the most difficult decisions faced by parents of children with ADHD concerns treatment options. Fortunately, there are a number of scientifically-based interventions for ADHD. The two most widely researched treatment options include the use of psychostimulant medication and behavioral interventions. The most comprehensive research to date indicates that combined treatments (i.e., medication plus behavioral interventions) tend to have the most success in reducing symptoms and improving the child's overall functioning (e.g., social and school outcomes) (Van der Oord, Prins, Ooserlaan, & Emmelkamp, 2008).

### Medication

The most frequently prescribed class of drugs for ADHD treatment involves central nervous system stimulant medications. These include methylphenidate (Ritalin, Concerta, Metadate), dextroamphetamine (Dexedrine, Dextrostat), and amphetamine (Adderall). In addition, atomoxetine (Strattera), the first *non-stimulant* drug approved by the Food and Drug Administration to treat ADHD, has shown promising therapeutic effects for some children. It is important for parents to work closely with the child's teacher and prescribing physician to make sure the child is receiving the proper medication and at an optimal dose. Not all children with ADHD will respond favorably to medication, and the best dose of medication for problems in one area (such as classroom instruction) may not be the ideal dose in another area (playground behavior or family activities).

## Psychosocial (Behavioral) Interventions

These interventions are designed to increase positive, desirable behavior and reduce problematic, disruptive behavior through a system of feedback and contingencies (i.e., reinforcers and loss of rewards). Reward-based interventions, such as the token economy (i.e., earning points or stickers for later rewards), help the child to self-monitor his/her behavior and receive positive feedback for meeting behavioral goals.

Behavioral interventions may also include social skills training (e.g., developing skills to wait one's turn or learning how to listen to others) or organizational skill development, such as maintaining a homework log or setting daily schedules with clear expectations (e.g., clean room, homework, chores).

Finally, behavioral interventions that involve consistent communication between home and school will yield the greatest benefits. There is strong evidence that parent support and involvement in school-based interventions lead to improved effectiveness. Teachers commonly use daily reports and ratings to communicate the child's progress to parents, and the parents can then dispense reinforcers at home based on the intervention plan.

## School-Based Interventions

Some teachers may feel overwhelmed by the responsibility of providing individualized instruction or behavioral interventions for students with ADHD, but effective strategies can be implemented with parents, peers, and children with ADHD themselves. Additionally, assistive technology can be used to enhance attention to academic instruction (e.g., computer programs).

There are also a number of proactive strategies teachers can incorporate into their routine with minimal effort. Examples include preferential seating to reduce distractions, reducing or chunking assignments, and using nonverbal cues to redirect the inattentive child (e.g., hand gestures). Other school-based interventions include class-wide peer tutoring, home-school notes, and self-management programs with a response-cost system (i.e., child tracks his/her own behavior and earns tokens for appropriate actions and loses tokens for inappropriate actions).

## SPECIAL EDUCATION AND ACCOMMODATIONS

Often children with ADHD require additional services and supports beyond what is usually available within a general education classroom. Some may be eligible for special education services, while others may be best served by a Section 504 Plan.

### Special Education and ADHD

The diagnosis of ADHD alone does not qualify the student with ADHD for special education services,

unless the child is considered Other Health Impaired (OHI). In order to be classified as OHI, the school team determine that the health condition (ADHD) significantly interferes with learning and performance in school. Specifically, the school team whether or not the child's condition is chronic (i.e., at least 6 months), results in limited alertness (i.e., significant difficulty attending to tasks) and adversely affects educational performance. Aside from OHI eligibility, since children with ADHD have an elevated risk for other difficulties, including oppositional-defiant disorder, conduct disorder, depression and/or anxiety, and learning disability, some may qualify for some level of special education services under the categories of Behavior Disordered/Emotionally Disturbed or Learning Disabled.

Special education service options vary widely across states and across districts within states, but federal law defines general eligibility standards and requires the development of an Individualized Education Program (IEP) that outlines measurable academic and/or behavioral goals for children who qualify for services. The IEP is developed in collaboration with parents, educators, community service providers (at parent discretion), and the child, when appropriate.

### Section 504 Plans

In many cases, students with ADHD require modifications or accommodations in their instructional program, but do not require, and are not eligible for, special education supports. In other words, the learning and behavioral needs of many children with ADHD can be successfully addressed within general education. Section 504 plans are mandated by federal law (The Rehabilitation Act of 1973) and ensure a free, appropriate education for all children who have physical or mental impairments that substantially limit one or more major life activities (such as learning). If appropriate, a 504 plan might include accommodations such as: extended time on tests, modified assignments, a quiet workspace, or computer-assisted instruction, to name a few. Parents should contact their child's school if they feel their son or daughter may benefit from these services or accommodations.

### REFERENCES

Castellanos, F. X., Lee, P. P., Sharp, W., Jeffries, N. O., Greenstein, D. K., Clasen, L. S., et al. (2002). Developmental trajectories of brain volume abnormalities in children and adolescents with attention-deficit/hyperactivity disorder. *Journal of the American Medical Association*, 288, 1740-1748.

Hoza, B. (2007). Peer functioning in children with ADHD. *Journal of Pediatric Psychology*, 32, 655-663.

Knopik, V. S., Sparrow, E. P., Madden, P. A., Bucholz, K. K., Hudziak, J. J., Reich, W., et al. (2005). Contributions of parental alcoholism, prenatal substance exposure, and genetic transmission to child ADHD risk: A female twin study. *Psychological Medicine*, 35, 625-635.

Shaw, P., Lerch, J., Greenstein, D., Sharp, W., Clasen, L., Evans, A., et al. (2006). Longitudinal mapping of cortical thickness and clinical outcome in children and adolescents with attention-deficit/hyperactivity disorder. *Archives of General Psychiatry*, 63, 540-549.

Thapar, A., Fowler, T., Rice, F., Scourfield, J., van den Bree, M., Thomas, H., et al. (2003). Maternal smoking during pregnancy and attention deficit hyperactivity disorder symptoms in offspring. *American Journal of Psychiatry*, 160, 1985-1989.

Van der Oord, S., Prins, P. J. M., Oosterlaan, J., & Emmelkamp, P. M. (2008). Efficacy of methylphenidate, psychosocial treatments and their combination in school-aged children with ADHD: A meta-analysis. *Clinical Psychology Review*, 28, 783-800.

### RECOMMENDED RESOURCES

#### For Parents

Barkley, R. A. (2000). *Taking charge of ADHD: The complete authoritative guide for parents* (rev. ed.). New York: Guilford Press.

Monastra, V. J. (2004). *Parenting children with ADHD: 10 Lessons that medicine cannot teach*. Washington, DC: American Psychological Association.

#### For Educators

Barkley, R. A. (2006). *ADHD in the classroom: Strategies for teachers* [DVD]. New York: Guilford Press.

DuPaul, G. J., & Stoner, G. (2003). *ADHD in the schools: Assessment and intervention strategies* (2nd ed.). New York: Guilford Press.

Power, T. J., Karustis, J. L., & Habboushe, D. F. (2001). *Homework success for children with ADHD: A family-school intervention program*. New York: Guilford Press.

Rief, S. F. (2008). *The ADD/ADHD Checklist: A practical reference for parents and teachers* (2nd ed.). San Francisco: Jossey-Bass.

Stoner, G., & DuPaul, G. S. (2008). *Classroom interventions for ADHD* (DVD). Psychotherapy.net

#### For Children With ADHD

Kraus, J., & Martin, W. (2004). *Cory stories: A kid's book about living with ADHD*. Washington DC: Magination Press.

Zeigler Dendy, C. A., & Zeigler, A. (2007). *A bird's-eye view of life with ADD and ADHD: Advice from young survivors* (2nd ed.). Cedar Bluff, AL: Cherish the Children.

**Online**

Children and Adults With Attention-Deficit/Hyperactivity Disorder (CHADD): <http://www.chadd.org>  
National Resource Center on ADHD: <http://www.help4adhd.org>

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