

## The ABCs of AD/HD: A Primer for Parents and Teachers By Harvey C. Parker, Ph.D.

It seems like everybody is talking about AD/HD. Some say kids and parents use the diagnosis as an excuse for their child's poor schoolwork and poor behavior. Others are worried that too many children are being given drugs to control their behavior. While the media has made a considerable effort to inform the public about AD/HD, unfortunately not all of the information depicting AD/HD publicly printed is accurate.

### What is AD/HD?

AD/HD is a neurologically-based disorder that affects one's ability to regulate behavior and attention. People with AD/HD often have problems sustaining attention, controlling activity and managing impulses. Although we can easily regulate many things in our environment, regulating ourselves is not always so simple. Unfortunately, the process of self-regulation - purposefully controlling behavior - is rather complicated.

The brain is responsible for self-regulation - planning, organizing and carrying out complex behavior. These are called "executive functions." They develop from birth through childhood. During this time, we develop language to communicate with others and with ourselves, memory to recall events, a sense of time to comprehend the concept of past and future, visualization to keep things in mind, and other skills that enable us to regulate our behavior.

Executive functions are carried out in a part of the brain called the orbital-frontal cortex. This area of the brain may not be as active in people with AD/HD. The orbital cortex area is richer in neurons (brain cells) which depend on dopamine to operate efficiently. Stimulant medications affect dopamine production and, therefore, lead to improved executive functioning.

### How Common is AD/HD?

Most experts agree that AD/HD affects three to five percent of the population. Children with AD/HD have been identified in every country in which AD/HD has been studied. For example, rates of AD/HD in New Zealand ranged in several studies from two to six percent, in Germany 8.7 percent, in Japan 7.7 percent and in China 8.9 percent. AD/HD is more common in boys than girls. Girls are often older than boys by the time they are diagnosed and are less likely to be referred for treatment. One reason for this is that the behavior of girls with AD/HD is not usually disruptive or aggressive. Girls are typically less oppositional toward their parents and teachers.

### What Causes AD/HD?

AD/HD has been extensively studied for more than 50 years. Recent advances in technology allow us to study brain structure and functioning, and there has been a greater appreciation for the neurobiological basis of AD/HD. However, the pathogenesis

of AD/HD varies. Studies involving molecular genetics have provided us with mounting evidence to support the theory that AD/HD can be a genetic disorder for many individuals. It is not likely caused by one gene alone, but the result of multiple genes and their interaction with the social and physical environment of the individual. Not everyone who has AD/HD inherited it. AD/HD may also be caused by problems in development related to pregnancy and delivery, early childhood illness, head injury caused by trauma or exposure to certain toxic substances.

## How is AD/HD Diagnosed?

A physician or mental health professional with appropriate training can diagnose children suspected of having AD/HD. The Diagnostic and Statistical Manual of Mental Disorders (DSM IV), published by the American Psychiatric Association in 1994, provides health care professionals with the criteria needed to diagnose a person with AD/HD. To receive a diagnosis of AD/HD, a person must exhibit a certain number of behavioral characteristics reflecting either inattention or hyperactivity and impulsivity for at least six months to a degree that is "maladaptive and inconsistent with developmental level." These behavioral characteristics must have been present prior to age seven, must be evident in two or more settings (home, school, work, community), and must not be due to any other mental disorder such as a mood disorder, anxiety, learning disability, etc. These characteristics are listed below:

### **Inattention Symptoms**

- a. often fails to give close attention to details or makes careless mistakes in schoolwork, work or other activities
- b. often has difficulty sustaining attention in tasks or play activities
- c. often does not seem to listen when spoken to directly
- d. often does not follow through on instructions and fails to finish schoolwork, chores or duties in the workplace (not due to oppositional behavior or failure to understand instructions)
- e. often has difficulty organizing tasks and activities
- f. often avoids, dislikes or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)
- g. often loses things necessary for tasks or activities (e.g., toys, school assignments, pencils, books or tools)
- h. is often easily distracted by extraneous stimuli
- i. is often forgetful in daily activities

### **Hyperactive Symptoms**

- a. often fidgets with hands or feet or squirms in seat
- b. often leaves seat in classroom or in other situations in which remaining seated is expected
- c. often runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness)
- d. often has difficulty playing or engaging in leisure activities quietly

e. is often -on the go+ or often acts as if -driven by a motor+

f. often talks excessively

Impulsive Symptoms

g. often blurts out answers before questions have been completed

h. often has difficulty awaiting his or her turn

i. often interrupts or intrudes on others (e.g., butts into conversations or games)

There are three types of AD/HD. Some children with AD/HD show symptoms of inattention and are not hyperactive or impulsive. Others only show symptoms of hyperactivity-impulsivity. Most, however, show symptoms of both inattention and hyperactivity-impulsivity.

predominantly inattentive type

predominantly hyperactive-impulsive type

combined type

While the term AD/HD is the technically correct term for either of the three types indicated above, in the past the term attention-deficit disorder (ADD) was used, and still is by many. For the past 10 years, ADD and AD/HD have been used synonymously in publications and in public policy.

## Associated Problems

Many people with AD/HD have associated problems which doctors call co-existing conditions. Children with AD/HD are likely to experience problems with learning, behavior and mood. Learning disabilities affect as many as 25 percent of children with AD/HD and cause problems in reading, written language and mathematics. Many children and teens with AD/HD have other behavioral problems - strong-willed, difficult to manage, temper outbursts, irritable mood, etc. They may be diagnosed as having oppositional defiant disorder, or in more severe cases, conduct disorder. Problems with low self-esteem, depression and anxiety also affect a good number of people with AD/HD from childhood through adulthood. Some have such extreme mood shifts, episodes of manic behavior, temper outbursts, and may suffer from bipolar disorder. Treating these co-existing problems is very important.

## How is AD/HD Treated?

### Medication Treatments

Fortunately, we have made many advances in treating AD/HD. Stimulants are the best studied medicines for AD/HD. Commonly prescribed stimulants are methylphenidate (Ritalin), (Concerta), dextroamphetamine and amphetamine (Adderall), (Methylin), and dextroamphetamine (Dexedrine). With over 150 controlled double-blind studies of stimulant use in children with AD/HD, the findings are well documented that these medicines improve attention span, self-control, behavior, fine motor control and social functioning. Stimulants are generally quick-acting (within 30 minutes) but short lasting (four to six hours). Newer delivery systems are available for stimulants. Once-a-day

dosing in the morning can last as long as 12 hours. Tricyclic antidepressant medications like imipramine and desipramine, for example, and bupropion (Wellbutrin<sup>®</sup>) have been less well studied than stimulants, but have been shown to be effective agents for AD/HD as well. Certain anti-hypertensive medications known as adrenergic agonists such as clonidine and guanfacine (Tenex) have been shown to be effective as well in managing hyperactivity, impulsivity and aggression.

In the NIMH-funded MTA study completed in 1999, nearly 600 children ages seven to nine were assigned to four treatment conditions (medication, behavior treatment at home and school, combination of medication and behavior treatment, and community treatment). During the 14 months of treatment, children were evaluated by parents and teachers. Medication accounted for the largest improvement in AD/HD symptoms and the addition of behavior treatments resulted in additional modest gains, which normalized behavior.

### **Educational Interventions**

Educators understand the importance of providing assistance to students with AD/HD. Under existing federal laws (IDEA, ADA, Rehabilitation Act of 1973 [Section 504]) public schools are required to provide special education and related services to students with AD/HD who need such assistance. Schools must meet the needs of those with AD/HD who require accommodations in regular education classes. Such accommodations may -even the playing field+ for those disabled by AD/HD who must compete with other students in school.

Students with AD/HD have a greater risk of having academic skill problems. These problems could be the result of different factors. For example, difficulty with attention and focus will obviously cause the student to miss important instructions. Insufficient practice and review of material taught in class will reduce the chance of strengthening skills. Deficits in speech and language or in perceptual processing (such as auditory or visual memory, association or discrimination) may be more common in students with AD/HD. Such deficits are often associated with problems in learning.

Reading is a fundamental skill that is learned and practiced both inside and outside the classroom. Parents play an important role in the development of reading and language skills. Parents should make sure that their child sees them read often and write letters, messages and instructions. Encourage your child to read every day and read with young children when possible. The single most important step to overcoming a reading problem is for the child to receive individualized tutoring in a phonics-based approach to reading.

Students with AD/HD may have more difficulty with spelling. They may not pay attention to detail when writing or may be careless. This can cause spelling errors. Some students may have weaknesses in auditory or visual memory, which can also contribute to problems with spelling. Teach a phonetic approach to word analysis. Although many words are not spelled as they sound, a good understanding of phonics can be a powerful aid to weak spellers.

Students with AD/HD often have difficulty with fine-motor control. This can affect their handwriting. For some, written work becomes so laborious they avoid it. Writing assignments that may take other students a few minutes, may take the student with fine-motor problems hours to complete. Encourage the student to use a sharp pencil and have an eraser available. Teach appropriate posture and how to position the paper correctly. Experiment with pencil grip, special papers, etc. Allow the student to use laminated handwriting cards, containing samples of properly formed letters.

## Managing Behavior

Over half of all children with AD/HD present challenging behaviors which must be managed by parents or teachers. Behavior modification principles involving systematic delivery of reinforcements and consequences work well. Parents and teachers who are structured, consistent, provide close supervision and feedback about behavior to children and teens with AD/HD get the best results. Instruction in such strategies can be obtained through parent training groups offered in school districts, community clinics or practices. The following suggestions apply to parents and teachers:

Post house/school rules in a conspicuous place. Clearly communicated rules are helpful in maintaining appropriate behavior. Children with AD/HD may need such rules to be reviewed daily. When possible, consequences for rule violations should be specified.

Be alert to early warning signs of a problem. Anticipate trouble brewing. Intervene quickly before a situation becomes problematic.

Establish routines for regular family or classroom activities (i.e., at home - cleaning room, doing homework, morning and bedtime tasks; at school - handing out and collecting papers in class, entering and leaving the room, taking attendance, answering questions, etc.)

Use "proximity control" to manage problem behavior. Stay near the child who is acting out so you can provide immediate, frequent praise for appropriate behavior and quickly intervene if and when negative behavior occurs.

Redirect the acting out child to more appropriate behavior when you notice inappropriate behavior (e.g., a student who is talking to another student could be redirected to get on task).

Praise positive behavior often. Positive reinforcement is an effective way to motivate children to behave appropriately. Use of verbal praise can be extremely effective.

Use response-cost to encourage behavior change. Response-cost (loss of tokens or points, privileges, free time, etc.) should be implemented for student misbehavior.

Behavior change is most effective when teachers praise or reward positive behavior and provide consequences (response costs) for inappropriate student behavior.

## Become an AD/HD Expert

Parents need to become "AD/HD experts." Through their knowledge of AD/HD and their familiarity with the needs of their child, parents can coordinate treatment provided by health professionals, communicate with educators and advocate for their child. An

informed parent is an empowered parent. Your empowerment may be the best possible gift you can give your AD/HD child or teen.

### ADHD Symptom Checklist

Below is a checklist containing 18 items which describe characteristics frequently found in people with AD/HD. Items 1-9 describe characteristics of inattention. Items 10-15 describe characteristics of hyperactivity. Items 16-18 describe characteristics of impulsivity.

In the space before each statement put the number that best describes your child's (your student's) behavior (0 = never or rarely; 1 = sometimes; 2 = often; 3 = very often).

\_\_\_ 1. Fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities.

\_\_\_ 2. Has difficulty sustaining attention in tasks or play activities.

\_\_\_ 3. Does not seem to listen when spoken to directly.

\_\_\_ 4. Does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions).

\_\_\_ 5. Has difficulty organizing tasks and activities.

\_\_\_ 6. Avoids, dislikes or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework).

\_\_\_ 7. Loses things necessary for tasks or activities (e.g., toys, school assignments, pencils, books, or tools).

\_\_\_ 8. Is easily distracted by extraneous stimuli.

\_\_\_ 9. Is often forgetful in daily activities.

\_\_\_ 10. Fidgets with hands or feet or squirms in seat.

\_\_\_ 11. Leaves seat in classroom or in other situations in which remaining seated is expected.

\_\_\_ 12. Runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness).

\_\_\_ 13. Has difficulty playing or engaging in leisure activities quietly.

\_\_\_ 14. Is "on the go" or often acts as if "driven by a motor."

\_\_\_ 15. Talks excessively.

\_\_\_ 16. Blurts out answers before questions have been completed

\_\_\_ 17. Has difficulty awaiting his or her turn.

\_\_\_ 18. Interrupts or intrudes on others (e.g., butts into conversations or games).

Count the number of items in each group (inattention items 1-9 and hyperactivity-impulsivity items 10-18) you marked "2" or "3." If six or more items are marked "2" or "3" in each group, this could indicate serious problems in the groups marked.

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