



Medical Management of Children and Adults with AD/HD

CHADD Facts Sheet #3

All individuals with Attention-Deficit/Hyperactivity Disorder (AD/HD) experience chronic problems with inattention and/or hyperactivity-impulsivity to a greater degree than the average person. It is a life span disorder, affecting both children and adults.

Children with AD/HD comprise approximately three to five percent of the school age population. While it has long been thought that boys with AD/HD outnumber girls by approximately three-to-one, recent research shows that the actual numbers may be nearly equal.

AD/HD can be a major problem for adults as well. It is conservatively estimated that two to four percent of adults are affected by AD/HD. In the past, clinicians believed that children outgrew AD/HD before or during adolescence. In part, this belief was due to the fact that researchers and clinicians focused on hyperactivity as the major symptom of AD/HD. We now understand that the major symptoms of AD/HD are primarily inattention and impulsivity, not hyperactivity. Impulsivity and inability to focus attention may continue into adulthood, while hyperactivity can decrease with age.

“AD/HD is one of the best-researched disorders in psychiatry, and the overall data on its validity are far more compelling than for most mental disorders and even many medical conditions.” (*Scientific Affairs*, American Medical Association, June 1997, “Diagnosis and Treatment of Attention-Deficit Hyperactivity Disorder in School-Age Children,”) Multiple studies have been conducted to discover the cause of the disorder. While there may be other causes of AD/HD, research has certainly indicated that at least three separate yet interactive brain regions have been associated with the condition. AD/HD tends to run in families. More than 20 genetic studies have supported the tendency for inheritability. Also, at least two genes have been reliably documented as being associated with the disorder. Undoubtedly, a number of genes will likely be identified in the near future as AD/HD is a complex trait and complex traits are typically the result of multiple interacting genes. This information provides increasing support for the concept that AD/HD is largely a neurologically based condition.

Without early identification and appropriate treatment, AD/HD can have serious consequences that include school failure and drop out, depression, conduct disorder, failed relationships, underachievement in the workplace, and substance abuse.

Diagnosis of AD/HD

Determining if a child has AD/HD is a multifaceted process. Many biological and psychological problems can contribute to symptoms similar to those exhibited by children with AD/HD. For example, anxiety, depression and certain types of learning disabilities may cause similar symptoms.

There is no single test to diagnose AD/HD. Therefore, a comprehensive evaluation is necessary to establish a diagnosis, rule out other causes and determine the presence or absence of co-existing conditions. Such an evaluation requires time and effort and should include a clinical assessment of the individual’s academic, social and emotional functioning and developmental level. A careful history should be taken from the parents, teachers and the child, when

appropriate. Checklists for rating AD/HD symptoms and ruling out other disabilities are often used by clinicians.

There are several types of professionals who can diagnose AD/HD, including school psychologists, private psychologists, clinical social workers, nurse practitioners, neurologists, psychiatrists, pediatricians and other medical doctors. Regardless of who does the evaluation, the use of the *Diagnostic and Statistical Manual IV* criteria is necessary. A medical exam by a physician is important and should include a thorough physical examination, including assessment of hearing and vision, to rule out other medical problems that may be causing symptoms similar to AD/HD. In rare cases, persons with AD/HD also may have a thyroid dysfunction. Only medical doctors can prescribe medication if it is needed. Diagnosing AD/HD in an adult requires an evaluation of childhood, academic and behavioral history as well as examining current symptoms.

Treatment for AD/HD

Getting appropriate treatment for AD/HD is very important. There may be very serious negative consequences for persons with AD/HD who do not receive adequate treatment. These consequences can include low self-esteem, social and academic failure, substance abuse, and a possible increase in the risk of later antisocial and criminal behavior. Treating AD/HD in children requires medical, educational, behavioral and psychological interventions. This comprehensive approach to treatment is called “multimodal” and includes:

- Parent training
- Behavioral intervention strategies
- An appropriate educational program
- Education regarding AD/HD
- Individual and family counseling
- Medication when required

Behavior interventions are a major component for children who have AD/HD. Important strategies include being consistent and using positive reinforcement and teaching problem-solving, communication and self-advocacy skills. Children, especially teenagers, should be actively involved as respected members of the school planning and treatment teams. Treatment plans should be tailored to the specific needs of each individual and family.

School success may require a range of interventions. Many children with AD/HD can be taught in the regular classroom with minor adjustments to the environment. Some children will require additional assistance using special education services. This service may be provided within the regular education classroom or may require a special placement outside of the regular classroom that fits the child’s unique learning needs.

A major research study done by the National Institute of Mental Health (MTA Cooperative Group (1999), called the Multimodal Treatment study was conducted with 579 children with AD/HD (combined type) received one of four possible treatments for over a 14-month period. The results of this landmark study showed that children in the group treated with medication that was carefully-managed and individually tailored, including intensive behavioral management, plus the treatment group that only received closely monitored medical management, had much

greater improvement in their AD/HD symptoms than the groups that received intensive behavior treatment alone or community care.

Treatment for adults with AD/HD also needs to be tailored to the needs of the individual patient. Education is the first strategy for intervention. Initially, most adults with AD/HD have little understanding of their disability. Accurate diagnosis helps adults with AD/HD understand that their educational, vocational and/or personal difficulties may be related to a disability, not to some personal failure or irremediable personality flaw. Many adults have co-existing medical conditions, to which they are genetically susceptible, that may require additional medical treatment in order for the adult to achieve maximal improvement. These co-existing disorders may include depression, manic/depressive (bipolar) disorder, anxiety, panic and obsessive-compulsive disorders, Tourette's syndrome, substance abuse, migraine headaches, irritable bowel syndrome and thyroid dysfunction.

Adults benefit from learning to structure their environment to improve time management skills. These involve consistent use of an appointment book, a personal computer or tape recorder. Other strategies include making a daily list of tasks, posting schedules and appointments throughout the home or office, and setting up a self-reward program.

Short-term psychotherapy can help an adult with AD/HD identify how his or her disability might be associated with a history of sub-par performance and difficulties in personal relationships. Longer-term psychiatric therapies, which may involve treatment with medication, can help address any mood swings that may exist, stabilize relationships and alleviate any guilt or discouragement.

The Role of Medication

For most children and adults with AD/HD, medication is an integral part of treatment. Medication is not used to control behavior. Medication is used to improve the symptoms of AD/HD so that the individual can function more effectively. Research shows that children and adults who take medication for the symptoms of AD/HD attribute their successes to themselves, not to the medication.

“Psychostimulant” compounds are the most widely used medications for the management of AD/HD-related symptoms. Psychostimulant medications were first administered to children with behavior and learning problems in 1937. It is believed that psychostimulant medications change the levels of important transmitter chemicals in the brain. These neurotransmitters help the different nerve cells to communicate among themselves. Between 70-80 percent of children with AD/HD respond positively to these medications. Attention span, impulsivity and on-task behavior improve, especially in structured environments. Some children also demonstrate improvements in frustration tolerance, compliance and even handwriting. Relationships with parents, peers and teachers may also improve.

Psychostimulant medication can also be effective in adults who have AD/HD. The reaction to these medications can be similar to that experienced by children with AD/HD — a decrease in impulsivity and an increase in attention. Many adults with AD/HD treated with psychostimulant medication report that they are able to bring more control and organization to their lives.

Common psychostimulant medications used in the treatment of AD/HD include methylphenidate (Ritalin), mixed salts of a single-entity amphetamine product (Adderall) and dextroamphetamine (Dexedrine, Dextrostat). Methylphenidate and amphetamine are available as both short- and long-acting preparations, whereas mixed amphetamine salts are generally short-

acting at low doses and longer acting at higher doses. Short-acting preparations generally last approximately four hours; long-acting preparations are more variable in duration – with some preparations lasting 6-8 hours, and newer preparations lasting 10-12 hours. Of course, there can be wide individual variation that cannot be predicted, and will only become evident once the medication is tried.

The specific dose of medicine must be determined for each individual. However, there are no consistent relationships between height, age and clinical response to a medication. A medication trial is often used to determine the most beneficial dosage. The trial usually begins with a low dose that is gradually increased until clinical benefits are achieved. It is common for the dosage to be raised several times during the trial. The patient is monitored both on and off the medication. For children, observations are collected from parents and teachers, even coaches and tutors. Parent and teacher rating scales are often used. In the case of an adult, the patient and significant family members share their impressions with the treatment team.

Hundreds of studies on thousands of children have been conducted regarding the effects of psychostimulant medications, making them among the most studied medications in history. Unfortunately, there are no long-term studies on the use of psychostimulant medications. Each family must weigh the pros and cons of choosing medication as part of the treatment plan for AD/HD.

Possible Side Effects of Medications for AD/HD

Most immediate side effects related to these medications are mild and typically short-term. The most common side effects are reduction in appetite and difficulty sleeping. Some children experience “stimulant rebound” — a negative mood or an increase in activity when medication is losing its effect. This tends to occur in younger children, and is usually seen just as the child arrives home from school. If the child continues to exhibit signs of rebound after about two weeks, consult your doctor. These side effects are usually managed by changing the dose and the scheduling for short-acting medications, or by changing to a prolonged-release formulation. Headache and stomachache are occasionally seen; these often disappear with time or, if necessary, a dose reduction. There may be an initial, slight effect on height and weight gain, but studies suggest that ultimate height and weight is rarely affected.

Parents often report that medication that had previously worked during childhood no longer works once the child reaches adolescence. This is not a time to give up on medical management if it was needed in past years. If this should occur with your child, discuss your observations and concerns with your medical doctor. Some studies suggest that children with AD/HD reach puberty later than their peers. However, for any child who seems to be lagging behind his or her peers, height and weight should be closely monitored.

A relatively uncommon side effect of psychostimulant medications may be the unmasking of latent tics — the medical term for involuntary motor movements, such as eye blinking, shrugging and clearing of the throat. Psychostimulant medications can facilitate the emergence of a tic disorder in susceptible individuals. Often, but not always, the tic will disappear when the medication is stopped. For many youth, vocal tics (throat clearing, sniffing, or coughing beyond what is normal) or motor tics (blinking, facial grimacing, shrugging, head-turning) will occur as a time-limited phenomenon concurrent with AD/HD. The medications may bring them to notice earlier, or make them more prominent than they would be without medication, but they often eventually go away, even while the individual is still on medication.

Tourette's syndrome is a chronic tic disorder that involves vocal and motor tics. Some experts estimate that seven percent of children with AD/HD have tics or Tourette's syndrome, which is often mild, but can have social impact in the rare-but-severe form, while 60 percent of children with Tourette's have AD/HD. Recent research suggests that the development of Tourette's syndrome in children with AD/HD is not related to psychostimulant medication. However, a cautious approach to treatment is recommended when there is a family history of tics or of Tourette's syndrome. In these cases, consideration can also be given to treatment with non-stimulant medications as an alternative.

Medications initially developed as antidepressants are used less frequently for AD/HD than stimulant medications, but have been shown to be effective. Those antidepressants that have active effects on the neurotransmitters — norepinephrine and dopamine (the tricyclic classes, and novel medications like bupropion) can have an effect on AD/HD. They are used when contraindications to psychostimulant medications exist, when psychostimulant medications have been ineffective, or when unacceptable side effects have resulted. Antidepressants that affect just the serotonin system (the serotonin selective reuptake inhibitors, or SSRIs, e.g. Prozac, Paxil, Zoloft) have not been shown effective for treating primary symptoms of AD/HD but may be effective against co-existing conditions. Clonidine and Guanfacine (Catapres and Tenex) are sometimes prescribed to reduce excessive hyperactivity or severe insomnia in children with AD/HD, though these medications have not been shown to be effective for alleviating inattention problems.

Ultimately, the success of an individual with AD/HD depends on a collaborative effort between the patient and a committed team of caregivers. These medications provide an opportunity for the complete multimodal treatment program to be effective and can maximize the effects of other interventions. Taken alone, however, medication is often not enough to help.

Frequently Asked Questions

Q. How long does it take to achieve a therapeutic dose of medication?

A. The effects of psychostimulant medications are usually noticeable within 30 to 60 minutes. However, it often takes a few weeks to determine the proper dosage and medication schedule for each individual.

Q. As a child grows, or if an adult changes weight, will the dosage need to be changed?

A. Not necessarily. Many adolescents and adults continue to respond well to the same doses of psychostimulant medication. However, many others will require higher doses. On the other hand, some children may respond well initially to a low dose of medication and then require a modest dose increase after a few weeks or months once a "honeymoon period" has passed.

Q. Will my child need to take medication forever, even into adulthood?

A. Not necessarily. AD/HD is a chronic condition. Its severity and developmental course are quite variable. Up to 67 percent of children with AD/HD continue to exhibit symptoms into adulthood.¹ For these adults, continuing effective treatment modalities, including medication, can be helpful.

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Q. Should medication only be taken when the child is in school, or only when the adult is at work?

A. This should be decided with the doctor and the therapeutic team. Children can often benefit from medication outside of school because it can help them succeed in social settings, peer relations, home environment, and with homework. Medication can be of help to children who participate in activities that require sustained attention, such as musical programs, debate or public speaking activities, and organized sports. For adults, the improved organizational and time management skills at home, as well as reduced irritability, are often beneficial for the family unit. As always, the benefits and potential side effects of medications should be considered carefully. Many individuals and families find that consistent use of medication leads to the best long-term results.

Q. What about individuals who do not respond to medication, either psychostimulants or antidepressants?

A. In general, two or three different stimulant medications should be tried before determining that this group of medications is not helpful. Similarly, several different anti-depressant medications can also be tried. Most individuals will respond positively to one of these medication regimens. But some individuals, because of the severity of their disability or the presence of other conditions, will not respond. And some individuals will exhibit adverse side effects. In such cases, the entire treatment team — family, medical doctor, mental health professional and educator — must work together to develop an effective intervention plan. Other medications such as clonidine may be helpful, and occasionally, combinations of medication may be needed. When all medication appears to be ineffective, consideration needs to be given to whether the diagnosis of AD/HD is accurate, whether other conditions are affecting functioning, whether appropriate criteria for improvement have been established, and whether objective and accurate feedback is being provided regarding medication efficacy.

Q. Are children who take psychostimulant medications more likely to have substance abuse problems later in life?

A. No. Although there is potential for abuse when misused, in those being treated appropriately, psychostimulant medications do not cause addictions to develop. Several studies that have followed children with AD/HD for 10 years or more support the conclusion that the clinical use of these medications does not increase the risk of later substance abuse. In fact, emotional difficulties, including substance abuse, are more likely to occur when a child with AD/HD is not treated.

Unfortunately, research does show that children who demonstrate conduct disorders (delinquent behaviors) by age 10, and who are smoking cigarettes by age 12, are at higher risk for substance abuse in the teenage years, possibly persisting into mid-life. Therefore it is important to recognize this subgroup early and get them involved in an effective multimodal therapeutic program.

Overview of Medications Often Used in the Treatment of AD/HD

This information is provided for educational purposes only. Discuss the specifics of any medication with your physician. The names used below are the generic (chemical) names of the compounds, with common brand names made by different pharmaceutical companies. It should be noted that a number of new medications for the treatment of AD/HD are currently being researched and should be available in the near future.

Methylphenidate (Ritalin, Methylin or generic methylphenidate)

Form: Short-acting tablets administered by mouth. Methylphenidate 5 mg, 10 mg, 20 mg.

Dosage: Very individual. Usually between 2.5-20 mg per dose. Effective dose does not necessarily correlate with age, body weight or severity of AD/HD symptoms. Usually the physician prescribes a small starting dose and then gradually increases to find the most effective dose that will not produce excessive adverse effects.

Duration of Action: Rapid-acting methylphenidate starts to work in 15-20 minutes. Lasts about 3.5-4 hours. Because of its relatively short action, methylphenidate is discontinued every night and started again in the morning.

Possible Side Effects: Moderate appetite suppression, mild sleep disturbances, transient weight loss, and irritability. “Rebound effect” can occur — anger and frustration — when the effect of medication dissipates. When the dosage is too high, motor tics may be unmasked, and depression and lethargy may occur. These are managed by lowering the dose. Tics will usually disappear if the dose is lowered.

Longer-Acting Methylphenidate

To avoid the need for taking short-acting methylphenidate three to four times daily, several new long-acting delivery systems have been developed. Each of the systems described below delivers the same medicine used in short-acting methylphenidate tablets, but does so in a way designed to give extended coverage so a child can get through a school day without having to take pills at school. Many adults find longer-acting preparations more convenient because they do not have to interrupt their workday to take medication for AD/HD as often as would be needed for short-acting tablets. Possible side effects are the same as methylphenidate.

Methylphenidate SR 20 (methylphenidate sustained release) (Ritalin) is a long-acting tablet administered by mouth with a duration of action of approximately 6-8 hours. The dosage is prescribed on an individualized basis. Possible side effects are the same as methylphenidate.

Form: 20 mg tablets

Ritalin 20-SR, the earliest form of extended-release methylphenidate uses a wax-matrix to deliver two doses from one pill. Each of these 20-SR tablets releases about 10 mg of methylphenidate within about one hour after ingestion and then releases another 10 mg about 3.5 hours later. It is intended to last 6-8 hours. Clinicians report that this preparation works well for some individuals, but is unsatisfactory for many others because it may release too quickly or unevenly.

Form: 20 mg tablet

Metadate ER, is similar to the Ritalin 20-SR tablet.

Form: 10 mg, 20 mg tablet.

Methylin ER, is similar to the Metadate ER tablet.

Form: 10 mg, 20 mg table.

Metadate CD, a new extended-release capsule, was approved by the FDA in April 2001. This capsule contains many tiny beads containing methylphenidate. Beads have various types of coatings so they can release 30% of the methylphenidate dose immediately and then continue to release methylphenidate over an extended period of time designed to cover a school day. These capsules should not be chewed; they should only be opened at the direction of a physician.

Form: 20 mg capsule

Concerta, a new osmotic release system for methylphenidate was approved by the FDA in September 2000. This capsule contains three chambers, two filled with different concentrations of methylphenidate and one with a polymer substance that expands when a liquid contacts it; there is a laser-drilled hole in one end. An initial dose of methylphenidate is released from the outer coating soon after the capsule is ingested. Gradually the medication in the two internal chambers is pushed out as the polymer substance expands, piston-like, in response to liquids absorbed from the digestive tract. Concerta is reported to be effective for about 10 to 12 hours from ingestion, though individuals may vary on this. Concerta capsules should not be opened or chewed.

Form: 18 mg, 36 mg, 54 mg capsules. (Each 18 mg is equivalent to about 5 mg of short-acting methylphenidate given three times over the day.)

Mixed Salts of a Single-Entity Amphetamine Product (*Adderall*)

Form: Double-scored tablets administered by mouth. 5 mg, 7 ½ mg, 10 mg, 12 ½ mg, 15mg, 20 mg, 30 mg.

Dosage: Very individual.

Duration of Action: Variable. Depending on dose can last from 3.5-8 hours.

Possible Side Effects: Same as methylphenidate.

Dextroamphetamine (Dexedrine, Dextrostat)

Form: Short-acting tablets administered by mouth. Dextroamphetamine tablets 5 mg, 10 mg.

Dosage: Very individual. Average: 2.5-10 mg.

Duration of Action: Rapid onset of action, 20-30 minutes.

Lasts about 4-5 hours.

Possible Side Effects: Same as methylphenidate.

Dextroamphetamine Spansules (Dexedrine)

Form: Long-acting, administered by mouth. Dextroamphetamine spansules 5 mg, 10 mg, 15 mg. Each spansule releases about one-half of its face-value dose in about 1 hour and then releases the balance about 3.5 hours later. Thus a 5 mg spansule actually releases the equivalent of 2.5 mg initially and 2.5 mg later. It does not provide the equivalent to 5 mg throughout the duration of its action.

Dosage: Very individual. Average: 5-20 mg.

Duration of Action: Very individual. Usually lasts 6-8 hours, but individual reaction may vary from several hours to the whole day.

Possible Side Effects: Same as methylphenidate.

Pemoline (Cylert)

(NOT A FIRST CHOICE FOR THE MANAGEMENT OF AD/HD SYMPTOMS DUE TO POTENTIAL FOR VERY SERIOUS LIVER DAMAGE.)

Form: Long-acting tablets administered by mouth.

Pemoline 18.75 mg, 37.5 mg, 75 mg.

Dosage: Very individual.

Duration of Action: Slow onset of action. Generally lasts 8-10 hours.

Possible Side Effects: Same as methylphenidate. Effect on liver functioning of concern, but significant complications are extremely rare. There is no evidence that monitoring liver functions has predictive value with regards to averting complications; nonetheless, very frequent lab testing is recommended.

Imipramine and Desipramine (Tofranil and Norpramin)

Form: Tablets administered by mouth. 10 mg, 25 mg, 50 mg and 100 mg.

Dosage: Very individual.

Duration of Action: Variable. Often has 24-hour effect.

Effect: Lower doses may improve AD/HD symptoms within several days, but may take 1-3 weeks for full effect. Higher doses may improve depressive symptoms and mood swings.

Possible Side Effects: Nervousness, sleep problems, fatigue, stomach upset, dizziness, dry mouth, accelerated heart rate. May affect conduction time of the heart, leading to irregular heart rate. In rare cases, may affect blood count. Should not be abruptly discontinued.

Bupropion (Wellbutrin)

Form: Tablets 75 mg and 100 mg; extended release as 100 mg and 150 mg.

Dosage: Very individual.

Duration of Action: About 4-6 hours in short-acting form; 6-8 hours in long-acting form.

Effect: Improves symptoms of AD/HD and can affect depressive moods.

Possible Side Effects: Difficulty sleeping, headache.

Clonidine (Catapres)

Form: Clonidine is available in patches applied to back of shoulder or tablets administered by mouth - 0.1 mg, 0.2 mg, and 0.3 mg.

Dosage: Very individual. The clonidine patch is available in three strengths.

Duration of Action: Patches last 5-6 days. Tablets last 4-6 hours.

Effect: Often will improve excessive hyperactivity or insomnia associated with AD/HD, but has not been demonstrated effective for improving inattention symptoms. May decrease facial and vocal tics in Tourette's syndrome. Often has positive side effect on oppositional defiant behavior and may be beneficial for management of excessive anger.

Possible Side Effects: Major side effect is fatigue, though this will usually disappear over time. Other side effects may include dizziness, dry mouth, increased activity, irritability, and/or behavior problems. Physician should be consulted prior to discontinuation of medication to prevent "rebound hypertension" or other effects.

Guanfacine (Tenex)

Form: Tenex is available in 1 mg tablets taken by mouth.

Dosage: Very individual.

Duration of Action: Guanfacine lasts 6-8 hours.

Effect: Often will improve excessive hyperactivity or insomnia associated with AD/HD, but has not been demonstrated effective for improving inattention symptoms. May decrease facial and vocal tics in Tourette's syndrome. Often has positive side effect on oppositional defiant behavior and may be beneficial for management of excessive anger.

Possible Side Effects: Major side effect is fatigue, though this will usually disappear over time. Other side effects may include dizziness, dry mouth, increased activity, irritability, and/or behavior problems. Physician should be consulted prior to discontinuation of medication to prevent "rebound hypertension" or other effects.

This is a revised version of an article that first appeared as CHADD Fact Sheet No. 3, Spring 2000.

Suggested Reading

Barkley, R. (1998). *Attention deficit hyperactivity disorders: A handbook for diagnosis and treatment*. New York: Guilford Press.

Brown, T.E. (Ed) (2000) *Attention deficit disorders and comorbidities in children, adolescents and adults*. Washington: American Psychiatric Press.

Goldman, L. S., M. Genel, et. al., et al (1998). Diagnosis and treatment of attention-deficit/hyperactivity disorder in children and adolescents. *Journal of the American Medical Association*, 279, (14) 1100-1107.

Greenhill, L.L., Halperin, JM, Abikoff, H. (1999) Stimulant medications. *Journal of the American Academy of Child and Adolescent Psychiatry*, 38 (5) 503-512

Goldstein, M. (1998) *Managing attention deficit hyperactivity disorder in children: A guide for practitioners-second edition*. New York: John Wiley & Sons.

MTA Cooperative Group (1999) A 14-Month randomized clinical trial of treatment strategies for attention-deficit/hyperactivity disorder. *Archives of General Psychiatry*, 56, 1088-1096.

MTA Cooperative Group (1999). Moderators and mediators of treatment response for children with attention-deficit/ hyperactivity disorder. *Archives of General Psychiatry*, 56,1088-1096.

Pliszka, SR, CL Carlson & JM Swanson. (1999) *AD/HD with comorbid disorders*. New York: Guilford Press.

Robin, Arthur L. (1998) *AD/HD in adolescents: Diagnosis and treatment*. New York: Guilford Press.

Spencer, T., J. Biederman, et. al. (1996) Pharmacotherapy of attention-deficit disorder across the life cycle. *Journal of the American Academy of Child & Adolescent Psychiatry*, 35 (4), 409-432.

Weiss, M, L.T. Hechtman, et. al., (1999) *ADHD in adulthood: A guide to current theory, diagnosis and treatment*. Baltimore: Johns Hopkins University Press.

Wilens, Timothy (1999) *Straight talk about psychiatric medications for kids*. New York: Guilford Press.

References

¹Barkley, RA, Fischer, M., Fletcher, K., & Smallish, L. (2001) *Young adult outcome of hyperactive children as a function of severity of childhood conduct problems, I: Psychiatric status and mental health treatment*. Submitted for publication.

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