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RUNNING HEAD: ADHD AND STUTTERING

ADHD and Stuttering: A Tutorial

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Abstract

The purpose of this tutorial is twofold. The first is to provide a brief description of some of the key diagnostic features of attention deficit hyperactivity disorder (ADHD) for speech-language pathologists who might not be knowledgeable about this disorder. The second purpose is to provide information and suggestions about treating children who stutter and who have been diagnosed with ADHD. Specific information is provided regarding medication used to treat ADHD symptoms as well as the minimal documented evidence of its impact on stuttering. Suggestions for educational, behavioral, and cognitive management of children who stutter and have ADHD also are discussed.

ADHD and Stuttering: A Tutorial

Attention deficit hyperactivity disorder (ADHD) is thought to affect in approximately 3-5 percent of school-age children (APA, 1994). The prevalence of children who stutter and have ADHD is not known but preliminary published studies suggest that it can range from 4% (Arndt & Healey, 2001) to 26% (Riley & Riley, 2000). Conture (2001) suggested that between 10-20% of the children who stutter might exhibit ADHD. Given the range of these prevalence data, it is likely that a speech-language pathologist treating stuttering will encounter a child who stutters who also has ADHD. It is also likely that few clinicians have an extensive understanding of ADHD and some general principles that classroom teachers follow in instructing and managing behavior for children with ADHD. Therefore, it is believed that few clinicians know how to adapt treatment when an ADHD child also stutters.

The purpose of this tutorial is twofold. The first is to provide a brief description of some of the key diagnostic features of ADHD for speech-language pathologists who might not be knowledgeable about this disorder. The second purpose is to provide information and suggestions about treating children who stutter and who have been diagnosed with ADHD. The majority of these suggestions evolve from empirically-based studies for how to facilitate maximum responses in the classroom, which have direct application to the clinical setting. The tutorial will begin with a brief description of ADHD, followed by a discussion of general and specific suggestions for speech-language pathologists treating children who stutter and also have ADHD.

GENERAL ASPECTS OF ADHD

ADHD is a disorder that has been recognized for decades; however, the exact terminology used to describe children with difficulty moderating activity, problems with attention, and impulsivity has changed many times. The terms hyperkinetic, hyperactive, minimal brain dysfunction, and attention deficit disorders have all been used to describe children with ADHD-like behaviors (Barkley, 1998). In 1980, the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM III) used the term attention deficit disorder (ADD), which included two categories: a) ADD with hyperactivity, and b) ADD without hyperactivity. In 1987, the DSM IIIR combined the attention and hyperactivity dimensions into a single term, currently referred to as attention deficit hyperactivity disorder (ADHD). Like terminology, the diagnostic criteria have also changed to some degree. Additional changes in the nomenclature and diagnostic descriptions of ADHD were released in 1994 with the advent of the DSM IV (APA, 1994). The primary effect of diagnostic changes has resulted in an increase in the number of children who would be diagnosed with ADHD (Baumgaertel, Wolraich, and Dietrich (1995)

Symptoms of ADHD

The DSM IV diagnostic criteria for ADHD are shown in Table 1. Currently, ADHD is subdivided into three categories: (1) ADHD combined type, (2) ADHD predominantly inattentive type, and (3) ADHD predominantly hyperactive-impulsive type. ADHD combined type occurs when at least six symptoms each of inattention and hyperactivity-impulsive are present. It is the most common form of ADHD. The predominantly inattentive and predominantly hyperactive-impulsive types of ADHD are diagnosed when at least six symptoms are present from each respective category but not from the other.

When diagnosing a child with ADHD using the above symptoms, one must also consider that there are exclusionary clauses that are often overlooked. First, at least some of the ADHD symptoms have to become manifest prior to age seven but usually appear around age three. Thus, it is common to have the symptoms of ADHD appear in the preschool years. Children are not considered to have ADHD if symptoms first appear when children reach middle or high school age. Second, children have to exhibit ADHD symptoms in two or more environments such as school, home and other social settings. Third, the symptoms must result in clinically significant impairment in academic, social, or occupational functioning. Typically, a child with ADHD will experience severe difficulties in school, will have serious social problems (e.g. few or no friends), won't be able to do uninterrupted work, and will be unpopular. Fourth, anxiety disorders, mood disorders, or a traumatic life event (e.g. divorce, death in the family) may result in problems with attention or impulsivity (Reid & Maag, 1994; Sabatino & Vance, 1994). Moreover, ADHD is not the result of any mental disorder, learning disability, developmental disorder, or anxiety and depression. One should be able to rule out these disorders before a diagnosis of ADHD is made.

Another feature of ADHD is that these children, as a group, are highly variable in terms of their performance and behavior (Barkley, 1998). Additionally, it is common to find other disorders such as oppositional defiant disorders, conduct disorders, or learning disabilities (Barkley, 1998; DuPaul & Stoner, 1994). Thus it is difficult to speak of a "typical" child with ADHD. However, there is one theme that occurs regularly with all children with ADHD – they are consistently inconsistent. Educators and clinicians will not see the same kind of performance pattern displayed by a child from one day to the next (DuPaul & Stoner, 1994). For example,

one day the child will do well completing an assignment but the next day, the child struggles to accomplish any task. Therefore, clinicians, parents, and teachers must expect the unexpected from the child. Unfortunately what sometimes occurs is that a child has one good day, which then becomes the expectation and the thought is that “He could do it if he really wanted to” (Reid, 1999). Practitioners should remember that inconsistent performance and behaviors are symptomatic of ADHD.

GENERAL ASPECTS OF TREATMENT FOR ADHD

At present, multi-modal treatment to ADHD is the most widely accepted approach (e.g., Barkley, 1998; DuPaul & Stoner, 1994). The model includes four major areas in which intervention may be addressed: (a) pharmacological management (b) educational accommodations, (c) promoting appropriate behavior, and (d) ancillary support services for children and parents (e.g. counseling, parental support groups). Medication is the most widespread treatment in that children identified by medical/health professionals, approximately 9 out of 10 children will receive medication for at least some period (Reid, Maag, Vasa, & Wright, 1994).

Educational and clinical accommodations focus on manipulating the classroom or clinic environment in an attempt to prevent behavior problems from occurring. The purpose of behavior management is to decrease inappropriate behavior and increase appropriate replacement behaviors that will help the student to better function in the classroom (Reid & Maag, 1998). Many of the suggestions for the classroom have direct application to the clinical treatment of stuttering and will be discussed in greater detail below.

Ancillary support services are also important since many children will profit from psychological counseling and special instruction in areas such as social skills. Providing support for the parent may also be critical in helping them understand and cope with the disorder. Speech language services are one important support service for many children with ADHD because speech and language disorders are common among children with ADHD (Baker & Cantwell, 1992; Damico & Armstrong, 1996; Riccio & Jemison, 1998). ADHD has long been associated with an increased risk for delayed speech development (Hartsough & Lambert, 1985; Szatmari et al., 1989) and problems with expressive language (Barkley, DuPaul, & McMurray, 1990; Munir et al., 1987). Studies have reported that the rate of speech and language disorders among children with ADHD have ranged from 15% (Baker & Cantwell, 1982) to 30% (Beichtman, Nair, Clegg, Ferguson, & Patel, 1986). Thus, a speech-language pathologist will likely become involved in treatment of children with language disorders who also have symptoms of ADHD (Damico & Armstrong, 1996).

The most effective treatments for children with ADHD include a combination of pharmacological, environmental, and behavioral interventions (Paul, 2001). The next section will describe the pharmacological approaches for treating the symptoms of most ADHD children. This will be followed by a description of research related to medications that have been used with children who stutter and have ADHD. Subsequent sections will be devoted to behavioral and educational issues that have direct application to the treatment processes associated with treating children who stutter.

Pharmacological Management

According to the American Academy of Pediatrics (AAP, 2001) medication is a recommended component of ADHD treatment. There is a good chance (> 80%) that if a child has received an ADHD diagnosis from a medical professional, he or she will be given medication (Reid, Maag, Vasa, & Wright, 1994). There are three major types of medication used for children with ADHD: psychostimulants (e.g. dexedrine and methylphenidate), antidepressants (e.g. imipramine, fluoxetine) and hypertensives (clonidine). Psychostimulants are currently the most widely prescribed and for this reason, the discussion of medications will be limited to them.

Properly used, psychostimulant medication can greatly reduce the severity of ADHD symptoms (MTA Cooperative Group, 1999). However, medication is not a panacea for reducing or eliminating ADHD symptoms and it should be used in combination with other behavioral and educational management strategies (Reid, 1999). For some children, medication can literally make the difference between functioning well and failing to cope in the school environment. Medication can help the child to be more attentive, persist longer at a task, and/or modify inappropriate motor activity. It will often improve compliance and reduce oppositional behaviors such as refusing to comply with directions but it will not directly help a child learn or acquire new skills. Unfortunately, there are no documented long-term effects of medication on academics (Swanson et al., 1993).

One critical aspect of psychostimulant medication is coordinating medication and instructional schedules (AAP, 2001) in order to minimize inappropriate behaviors that might interfere with instruction. Therefore, it is important for clinicians to be aware of the duration of

medication effects. Psychostimulants can be categorized as short- (3-5 hours, e.g. Ritalin ®, Methylin ®, Dexedring ®), intermediate- (6-8 hours, e.g. Ritalin SR ®, Metadate ER ®, Adderall ®), and long-acting (8-12 hours, e.g., Concerta ®, Metadate CD) (AAP, 2001). In the case of commonly used short- and intermediate-acting psychostimulants such as Ritalin ® and Adderall ® medication will typically take around 30 minutes before its effects become apparent. Approximately 1 hour after ingestion, the positive effects will be maximized. This period of maximum effectiveness will last approximately 2-6 hours depending upon the type of medication. Effects of long-acting medications (e.g. Concerta ®) are not as clear and the time to peak effectiveness may vary. Additionally, differences among children (body mass, metabolism) may affect response to medication (Barkley, 1998). The implication for treatment is that clinicians should strive to schedule intervention activities that are most difficult for the child during the period of peak effectiveness (Barkley, 1998). For example, in the case of short- to intermediate-acting medication, it is best if treatments are scheduled not less than 1 hour or more than 4 hours after medication is ingested in order to receive optimum results. After 2 to 4 hours, the medication will be metabolized out of the bloodstream and its effects will diminish. During this time, some children may experience “rebound” effects such as increased motor activity, emotional outbursts, and moodiness (DuPaul & Stoner, 1994). All of these are considered typical responses to the rebound phenomenon.

Psychostimulants are among the most well studied drugs ever. They are considered to be generally safe in that any negative side effects are typically mild. If side effects become manifest, they typically occur soon after the medication regimen has been initiated (AAP, 2001).

However, it is important for professionals to be familiar with common, mild side effects and those side effects that are less common but potentially serious. According to the AAP (2001), the most common side effects include appetite reduction, headaches or stomachaches, sleeping disturbances, jitters, and social withdrawal. These problems are usually dealt with easily through changes in the dosage levels and schedule of administration. A more serious side effect is the occurrence of motor tics (i.e., involuntary movements, twitches, facial gestures). Up to 30% of children receiving psychostimulants will experience motor tics. Moreover, some children may have heightened sensitivity to medication or may be receiving too high a dose. When this occurs the child may appear “dull,” “over focused”, or “zombie-like.” Again the physician should be notified so that the dosage can be adjusted. In rare instances when children are receiving high doses it is possible for children to experience psychotic reactions, mood disturbances, or even hallucinate (AAP, 2001; Swanson et. al, 1993).

Issues of Over-Prescription

The number of children receiving medication for ADHD has increased steadily over the last two decades (Safer & Zito, 2000). This has resulted in concern that over-prescription of medication is occurring (Diller, 1998; Greenhill, 2001). There are two factors that may result in over-prescription. First, medication is the mainstay of most physician’s treatment regimens and there is little indication that nonpharmacological treatments are widely used (Wolraich, Lindgren, Stromquist, Milich, Davis, & Watson, 1990). Second, the diagnosis of ADHD is not an objective process, rather it relies on the judgements of parents, teachers, and medical professionals (Reid & Maag, 1994), and there is good evidence that misdiagnosis of ADHD is a

fairly common occurrence. Studies have reported the rate of misdiagnosis may range from 30% to 50% in some instances (Cotugno, 1992; Sabatino & Vance, 1994).

Impact of Medication on Stuttering

Unfortunately, there is a paucity of well-controlled studies documenting the effects of medication for ADHD on the frequency of stuttering. Clinicians have reported both positive and negative anecdotal evidence regarding the effects of medication on stuttering behavior. For example, Riley and Riley (2000) reported that two of their participants stuttered more while on psychostimulant medication but three other participants showed no changes in stuttering while on the medication.

Recently, two studies published have documented the impact of medication for ADHD on stuttering. Burd and Kerbeshian (1991) reported their experience with a 3-year-old female who “stuttered” in response to psychostimulant medication. It was reported that the child produced “... repetitions of the first syllable that became more complex and more severe” (p. 72). The child was diagnosed with severe hyperactivity by a pediatrician and a psychologist. Both professionals recommended a variety of behavioral interventions, but none were successful. Because there was no family history of stuttering, tic disorders, or developmental disorders, the pediatrician placed the child on psychostimulant medication to control the hyperactivity. After being placed on the medication, the child’s “stuttering” became worse and there was no improvement in the hyperactivity. Consequently, psychostimulant medication was discontinued and the stuttering disappeared as well. The child was placed on another type of medication – Pemoline (Cylert®) – to control behavior but the child began to stutter after 4 days. Because the

Pemoline had no effect on the hyperactivity, it was discontinued and after 5 days off the medication, the researchers reported that child's stuttering disappeared.

More recently, Lavid, Franklin and Maguire (1999) described a 9-year-old Caucasian male who stuttered and was diagnosed with ADHD at 2 1/2 years-of-age. Stuttering was found as a side effect of the psychostimulant medication used to control the hyperactive-impulsive type ADHD. Because of the increase in stuttering, the parents discontinued the use of the medication. Two years later, the behavioral disturbances had increased and the parents resumed the psychostimulant medication. With the behavior more under control, the parents were less concerned about the stuttering. However, as the child got older, there were greater demands for oral presentations in class that resulted in an increase of stuttering. Because the psychostimulant medication controlled the hyperactive behavior, the physicians decided to examine the effects of an antipsychotic and dopamine inhibitor medication called olanzapine (Zyprexa), which had shown some promise in reducing stuttering in adults. After being placed on olanzapine, the stuttering was "improved" (less stuttering) within 1 month. There were no side effects of the olanzapine and the child's decreased stuttering lasted throughout the two-month trial on the medication. Lavid et al (1999) point out that although olanzapine reduced stuttering and produced fewer side effects than other antipsychotic medications, additional controlled studies examining the effects of olanzapine on stuttering are needed.

Unfortunately, few conclusions can be drawn about the impact of medication on stuttering from these two case studies. Different medications appear to produce different results for the two cases reported in the literature. Clearly, more research on the effects of medication on stuttering is needed. Additionally, it is important to note that it was unclear how the

researchers defined or measured “stuttering.” At this time, there is insufficient evidence that allows doctors and clinicians to predict how a child’s stuttering will be affected by the addition of medication to control ADHD symptoms. Until more data are available, speech-language pathologists, along with clients, parents, teachers, and physicians will have to determine the effects of medication on changes in stuttering on a case-by-case basis. Clinicians can help in the process of monitoring response to medication in a number of ways. For example, they can question parents, teachers, and clients to determine if the medication had any noticeable effects on the frequency or severity of dysfluencies or if there have been differences across different time frames (e.g., morning, afternoon, evening, weekends, school breaks, etc.). Additionally they should ask parents if any changes occur in stuttering during periods when the child is off medication or when dosage changes occur.

Environmental and Behavioral Management

Specific information regarding the management of children who stutter and have ADHD cannot be found in the literature. However, much of what is derived from evidence-based research on how to manage children with ADHD in the school environment can be applied to treating stuttering children with concomitant ADHD. Well-established environmental and behavioral interventions have been developed to improve the performance of these children in the classroom. Principles of intervention gleaned from treating ADHD children in the classroom have been applied to general intervention program for communication disorders (Damico & Armstrong, 1996). This next section is a description of these principles of intervention as they apply to treating children who stutter and have ADHD.

The first consideration in the clinical management of ADHD children is environmental accommodations that a clinician can provide during treatment. Ideally, children with ADHD should be taught in a room rather than in hallways, open classroom environments, or a corner of a classroom. Research shows that for children with ADHD, the types of distractions in the environment other than a room can result in decreases in time on task and other problem behaviors (Whalen, Henker, Collins, Finck, & Dotemoto, 1979). However, it is not necessary (or desirable) to conduct individual treatment in a room with four bare walls (Abramaowitz & O'Leary, 1991). Rather, a clinician should be sensitive to potential distractions and minimize their potential effects.

Instructional grouping also is an important consideration. Children with ADHD often do better in one-to-one situations or very small groups with the best-behaved students. Damico and Armstrong (1996) suggest that if the speech-language pathologist collaborates with the classroom teacher to provide interventions with ADHD students, then cooperative learning might be an effective strategy to use. Cooperative learning refers to having the ADHD student collaborate and learn from other students. Within this context, the speech-language pathologist could encourage a child who stutters to use speech management strategies with children within the small learning group. Members of the group could provide feedback and support the child's efforts in managing his/her fluency disorder and on-task behaviors.

Another environmental consideration is permitting physical movement within the classroom or clinical setting to control for restlessness or fidgeting. Allowing children to move, stand during lessons, or interspersing activities that may require physical activity may be helpful in maintaining attention to the tasks (Reid, 1999). For a child who stutters, this could involve

having children move objects or draw a line slowly on a piece of paper while talking with prolonged speech pattern. Moreover, children with ADHD are more likely to display behavior problems when they are not actively responding and/or receiving frequent feedback on performance (DuPaul & Stoner, 1994). Providing students with frequent opportunities to respond, rather than having them spend time sitting passively while waiting for an opportunity to respond, is a crucial component for keeping a student with ADHD engaged. If a student with ADHD is made to sit too long, it will often result in tuning out or other inappropriate behavior. Thus, children with ADHD typically perform best when they receive frequent and immediate feedback on their performance (Barkley, 1998).

Relative to instruction and intervention planning, the length and difficulty of individual sessions is an important consideration. It may be better to schedule treatment for short periods of time (i.e., 10-15 segments) rather than one lengthy session such as 30 minutes in length. If longer sessions are needed, or the student tolerates longer sessions, it is a good idea to break up the activities within the session. For example, rather than doing two 15 minute activities, it would be better to do four 7-minute activities and allow brief breaks in between (Reid, 1999).

Another aspect of intervention planning with children who stutter and have ADHD is a combination of cognitive-behavioral management strategies (Westby & Cutler, 1994). This form of intervention is designed to assist ADHD students to become more aware of their behavioral and cognitive processes so that the child learns better problem solving abilities, with less reliance on direct management by the clinician. This approach combines behavioral reinforcement with training students to achieve increased self-regulation of behaviors. Reid (1999) and Westby and Culter (1994) provide thorough discussions of this approach.

It is noteworthy that the success approach will depend on such factors as the child's language abilities and cognitive difficulty of the task (Westby & Cutler, 1994). Given that approximately one-third of children who stutter also have language impairments (Arndt & Healey, 2000), a clinician should be aware of the links between stuttering, language impairment, and ADHD. Children with these characteristics would be at risk for developing the necessary cognitive skills necessary to self-evaluate and self-regulate behaviors (Abikoff, 1985).

A Case Example

The environmental, behavioral, and cognitive management strategies discussed above have direct implications for treating children who stutter and have ADHD. The following case study will be used to illustrate these principles. The case involves a nine-year-old male who had been stuttering since early childhood and was on psychostimulant medication (i.e., Ritalin) to control behavioral hyperactivity. The child was treated in our university speech and hearing clinic for 3, 15-minute sessions of therapy each day for a period of two days each week. Treatment was conducted in a small 8 x 8 foot room with a table and chairs. As recommended by Pfiffner and Barkley (1998), treatment began approximately 2 hours after the mother gave the child medication to control his ADHD symptoms. During therapy, the child was allowed to stand or sit and was asked to use a specific, target fluency enhancing strategy (e.g., a prolonged speech pattern or "stretched speech") each time a verbal response was expected. A list of specific target speech behaviors and speech performance "rules" were printed on a chart visible to the child (Bender & Mathes, 1995; DuPaul & Stoner, 1994). The child's correct use of a specific speech strategy was rewarded by having him place stars on a page that was taped to a wall outside the therapy room. To allow additional physical movement, he also was allowed to

shoot a miniature ball into a miniature basket that was positioned near the top of the door to the treatment room. He was also rewarded for being aware of any stuttered moments that he produced during the session.

As past research has shown, children with ADHD improve their behavior when directives are initially combined with praise/positive reinforcement rather than reprimands (or punishers) when directives are not followed (Acker & O'Leary, 1987; Pfiffner & O'Leary, 1987; Pfiffner, Rosen, & O'Leary, 1985). Therefore, verbal praise alone for our client's performance usually was not effective, which is why a tangible reward system was implemented. Also, because reinforcers lose their effectiveness over time, new reinforcers were introduced every two weeks (Pfiffner & Barkley, 1998).

Following the treatment suggestions for ADHD children offered by Reid (1999), the clinician made sure to obtain the client's full attention before giving directions. Attention-getting strategies included lightly touching the child's hand or arm and/or making eye contact with the child prior to the instruction. Once attention was achieved, directions were short and to the point. Long involved directions were difficult for the client to remember and caused him to lose focus and become distracted. An example of an instruction given to the child was, "use a prolonged speech pattern when talking about the picture" rather than "look at the picture and keeping your voice on continuously and blending the words together the whole time you are talking about the picture." The clinician would also give verbal directions to use a particular speech strategy and then model the strategy for the child. Before he responded, the client was asked to repeat what he was to do and then demonstrate his understanding of the task by using the desired strategy within a specific speech context.

As stated earlier, an important aspect of treating ADHD children who stutter is to have the clinician manipulate and control the cognitive, linguistic, and motor demands of the speech task. A basic component of most stuttering therapy programs is the manipulation of the length and grammatical complexity of client utterances (Guitar, 1998). For instance, Ryan and Ryan (1995) reported that a fluency-shaping treatment program, based on a gradual increase of utterance length and complexity, was effective in establishing fluency in school-age children who stutter. A multiple-step training program, beginning with single words with progressive increases in utterance length to conversational speech, was shown to be effective in establishing and generalizing fluency skills. This approach seemed appropriate for our client because of the structure, monitoring, and reinforcement inherent in this treatment program.

The initial stages of therapy involved having the child produce short carrier phrase length utterances (e.g., “I see a ___”) or short 3-5 word phrases in response to pictures or questions about the pictures. However, it was observed that the child found this level of linguistic complexity too easy and easily distracted him from the speech task. This is consistent with what Norris and Hoffman (1996) found in treating a child with ADHD. Therefore, we decided to follow the suggestions by Healey, Scott Trautman, and Panico (2001) and select a topic that the child enjoyed discussing and using that theme as the focal point of linguistic context manipulation. Healey et al. (2001) suggested using objects, pictures, and printed materials as stimulus items about the topic being discussed. This approach to manipulating linguistic context seemed particularly important for this ADHD child as a way to facilitate his attention and motivation to respond. The topic selected was basketball, his favorite sport. Instruction began with describing the basic components of basketball such as types of players, roles of players and short stories

about professional basketball stars. Once the child mastered fluency at these simple linguistic levels, he was asked to respond to questions about the interpretation and evaluation of material read in stories or information about basketball in general. This formed the basis for making the speech discourse and semantic contexts more difficult while at the same time, maintaining enhanced fluency through prolonged speech patterns. A thorough discussion of how to manipulate the situational, discourse, and semantic levels of communication with a child with ADHD can be found in the chapter by Norris and Hoffman (1996).

Conclusions

Children who stutter who also have ADHD represent a small subgroup of the population of disfluent children. At the present time, the prevalence of children in this subgroup is unknown so additional research is needed in this area. While most children with ADHD are placed on medication to control behaviors, there is conflicting evidence whether medication for ADHD ameliorates or exacerbates a child's stuttering. Clinicians need to be aware of the impact of medication on stuttering and address this issue when developing and implementing treatment. Clearly, the role of medication for children who stutter and have ADHD is an area of research that needs to be studied more extensively.

Management of children who stutter and have ADHD in the classroom and clinical setting requires cooperation between teachers and speech-language pathologists. A number of basic strategies that are effective in managing a child's ADHD condition in the classroom have direct relevance to clinicians who either treat that child in the classroom or in an individual therapy room. It is important to remember that children with ADHD are an extremely heterogeneous group and the research base of studies conducted in the classroom is very small

(DuPaul and Eckert, 1997). There is no one intervention or accommodation that will be effective for all students with ADHD or that should be implemented for all students. As DuPaul noted, one size does not fit all for children with ADHD (DuPaul, Eckert, & McGooey, 1997). There are however, a number of simple and effective practices and adaptations that can have dramatic effects on behavior for children who stutter and have ADHD.

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Table 1

DSM-IV Diagnostic Criteria for ADHD

<p>A. Either 1 or 2:</p> <p>(1) six (or more) of the following symptoms of inattention have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:</p> <p><i>Inattention</i></p> <p>(a) often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities</p> <p>(b) often has difficulty sustaining attention in tasks or play activities</p> <p>(c) often does not seem to listen when spoken to directly</p> <p>(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)</p> <p>(e) often has difficulty organizing tasks and activities</p> <p>(f) often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)</p> <p>(g) often loses things necessary for tasks or activities (e.g., toys, school assignments, pencils, books, or tools)</p> <p>(h) is often easily distracted by extraneous stimuli</p> <p>(i) is often forgetful in daily activities</p> <p>(2) six (or more) of the following symptoms of hyperactivity-impulsivity have persisted for at least 6 months to a degree that is maladaptive and inconsistent with</p>	<p>(b) often leaves seat in classroom or in other situations in which remaining seated is expected</p> <p>(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)</p> <p>(d) often has difficulty playing or engaging in leisure activities quietly</p> <p>(e) is often "on the go" or often acts as if "driven by a motor"</p> <p>(f) often talks excessively</p> <p><i>Impulsivity:</i></p> <p>(g) often blurts out answers before questions have been completed</p> <p>(h) often has difficulty awaiting turn</p> <p>(i) often interrupts or intrudes on others (e.g., butts into conversations or games)</p> <p>B. Some hyperactive-impulsive or inattentive symptoms that caused impairment were present before age 7 years.</p> <p>C. Some impairment from the symptoms is present in two or more settings (e.g., at school [or work] and at home).</p> <p>D. There must be clear evidence of clinically significant impairment in social, academic, or occupational functioning.</p> <p>E. The symptoms do not occur</p>
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developmental level:

Hyperactivity:

- (a) often fidgets with hands or feet or squirms in seat

exclusively during the course of a Pervasive Developmental Disorder, Schizophrenia, or other Psychotic Disorder and are not better accounted for by another mental disorder (e.g. Mood Disorder, Anxiety Disorder, Dissociative Disorder, or a Personality Disorder).