

THE EFFECTS OF EXERCISE IN THE CLASSROOM WITH STUDENTS DIAGNOSED  
WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD)

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A REVIEW OF LITERATURE ON THE EFFECTS OF EXERCISE IN THE CLASSROOM  
WITH STUDENTS DIAGNOSED WITH ATTENTION DEFICIT HYPERACTIVITY  
DISORDER (ADHD)

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## **Chapter One: Introduction**

Attention Deficit Hyperactivity Disorder (ADHD) is considered the most common neurodevelopmental disorder in children (Cerillo-Urbina, 2015). 9.5 percent of all children ages 3-17, or 5.9 million children, have been diagnosed with Attention Deficit Hyperactivity Disorder. ([cdc.gov/nchs/fastats/adhd.htm](http://cdc.gov/nchs/fastats/adhd.htm)) ADHD is characterized by a persistent and impairing pattern of inattention and/or hyperactivity/impulsivity (Cerillo-Urbina, 2015). Students with ADHD have difficulty sustaining attention to tasks and have been reported to display between three to eight times as many off-task behaviors compared to their peers (Kercood & Banda, 2012).

School-based interventions are effective for managing the symptoms of ADHD, but they are typically individualized and time-intensive. Although effective, asking a general education teacher to devote the substantial amount of time needed for an individualized intervention can be taxing, is often not practical, and detracts from the amount of time the class receives as a whole. In addition, such individualized interventions may not be implemented with the high degree of fidelity required for the efficacy of the intervention (Harlacher, Roberts, & Merrell, 2006). Many professionals seem less likely to know, let alone apply, best practices for ADHD students. Responses to students with ADHD behaviors often include negative feedback, missed recess, isolation, and disciplinary action; all of which compound the problems associated with the disorder (Lawler, 2014). Unfortunately, teachers may not be aware of what types of classroom interventions there are, how effective they are, or what the outcomes are expected from their use. Classwide interventions are best used within the broader framework of Positive Behavior

Intervention Supports (PBIS) (Harlacher, Roberts, & Merrell, 2006).

There is evidence based research that implementing exercise activities throughout the day can help improve academic performance and reduce disruptive behaviors (Mulrine, Prater, & Jenkins, 2008). Studies have documented positive effects of physical activity for school aged children by incorporating physical activity across the curriculum, including classroom wide exercise programs and integrating outside school activities including improvements in standardized test scores and on-task behavior. Such activities include yoga, physical activity as a reinforcer for calmness, intense physical activity, fine motor activities and the use of therapy balls (Kercood & Banda, 2012).

### **Research Question**

How does exercise affect a student with Attention Deficit Hyperactivity Disorder (ADHD) within the classroom? Do students diagnosed with ADHD that use exercise able to focus in the general education classroom better than those without?

### **Hypothesis**

While working as a special education teacher, the students diagnosed with ADHD were discussed most often with general education classroom teachers. The common complaints were: they can't sit still, they can't focus, they are constantly getting up from their seat, they don't stop talking or blurting out during class, and they do not turn in homework. I tried to find solutions for those students and teachers. However, trial-and-error was challenging to the general

education classroom teacher; they wanted solutions immediately. This found me looking online at alternatives and came across a paper on the idea of using movement and/or exercise to help students diagnosed with ADHD have the ability to focus for a longer period of time in the general education classroom. When I thought about it, it made logical sense; but I wanted to research further into this subject.

## **Chapter Two: Review of Related Literature**

### **ADHD and the Education Setting**

ADHD is a large concern in school settings with one to two students per classroom (estimated) as having ADHD behaviors (Fabiano et al., 2013). Over the past decade, ADHD diagnoses have increased approximately 5 percent per year (<http://www.cdc.gov/ncbddd/adhd/facts.html>). ADHD is affecting approximately 8-12 percent of students worldwide (Hariprasad, 2013). Students with ADHD often disrupt the learning environment for others as well as themselves.

These students are “wired differently”, and it is essential to understand and be able to work with the differences in their learning experience in order to help them be successful (Lawler, 2014). A student with ADHD struggles to remain focused on a specific task, remain seated, follow directions, complete classroom tasks including homework, control impulsivity, and often disrupts others’ learning environment. These students require constant redirection from teachers and other adults within proximity (Mulrine, 2008).

The results of this literature review have clear implications for classroom practice, and can be translated into everyday teacher activities to improve chances for success for students with ADHD. Teachers routinely implement behavior management approaches to target behaviors that are disruptive to the classroom functioning normally; the student to teacher ratio can have an impact on disruptive behaviors in the classroom (Fabiano et al., 2013).

Not only do students with ADHD often struggle academically, there is a social impairment as well; even with stimulant medication and behavioral management they fail to

increase social acceptability. One theory for this is the stigma that is placed on students with ADHD. How a teacher acts and reacts to a student with ADHD (symptoms) may provide peers with cues as to whether those behaviors should be socially and peer rejected. The positive reactions of a teacher to children with behavioral problems have been found to diminish the correlation between disruptive behavior and sociometric peer rejection.

### **The Role of Interventions with Middle Level ADHD Students**

When diagnosing a child with ADHD, the goal is not the diagnosis itself, but the ability to plan interventions that will help the child be more successful both in and out of the classroom. Teachers being able to differentiate for learners with special needs is critical to these students being successful (Guerra, 2012). Knowledge of this disorder is important when applying interventions for students. The classroom is the ideal environment where interventions can improve personal, social and academic progress of children. It is imperative that they are involved in their treatment and are able to influence the focus and direction as the intervention evolves. When student's choose a goal that is intangible, allow them to make that choice; when previous approaches do not work, help them change their goal with new choices that are more tangible (Miranda, 2002). The development of interventions is an effective treatment for children. It is difficult to find privileges and tangible items to motivate adolescents. Finding adults in the same building that children interact with positively can also be difficult when implementing these types of interventions (Evans, 2014).

After seeing the results of their children's academic and behavioral changes at school,



parents were thrilled that the school was implementing a natural and balanced proactive intervention. Another benefit was the students were learning to use exercise to assist with management and regulation of their ADHD instead of turning to medication (Lawler, 2014).

### **The Role of Physical Education Helping Students with ADHD**

All students need exercise; it assists them with concentration and provides an outlet for healthy impulse discharge and helps to control impulsivity in the classroom (Muline, Prater & Jenkins, 2008). There is research based evidence that implementing exercise activities throughout the day can help improve academic performance and reduce classroom disruptive and negative social behaviors, as stated by Barkley (as cited in Muline, Prater & Jenkins, 2008). Allowing students ten minute exercise breaks can be beneficial for all students; they prove to be especially effective for students struggling to remain on-task (Lawler, 2014). The secret is to intervene with exercises that are both motivating and will help students sustain moderate heart rates (Lawler, 2014). Exercise helps students to be able to cope more effectively with stress; it also promotes positive self-image, clearer thoughts and improved memory (Akande, VanWyk & Osagie, 2000).

Recess is also important to every student's school day, but especially for those with ADHD. Recess is the time when students have the largest opportunity for physical activity. The recess experience for children with ADHD can be challenging because many of them lack the social skills needed to get along with their peers (Muline, Prater & Jenkins, 2008).

Including physical education in a student's IEP can be a powerful tool for them to be

successful at school: “Exercise is like a dose of Ritalin” says author John Ratey (Lawler, 2014). For example, energizers are short (ten minute) activities that integrate physical activity in the general education academic classrooms. Others may require lesson adaptations and accommodations, behavioral interventions, parent education and medical interventions in addition to exercise (Muline, Prater & Jenkins, 2008).

### **Chapter Three: Discussion and Conclusion**

After reviewing many articles and action research, one stood out above the rest. While the purpose of the studies was to benefit students diagnosed with ADHD, it became evident that using exercise and movement is beneficial to all students. Findings ranged from increased intellectual function and cognitive ability to raised academic achievement (Cerillo-Urbina, Garcia-Hermoso, Sanchez-Lopez, Pardo-Guijarro, Santos Gomez, and Martinez-Vizcaino, 2015).

According to Harlacher, Roberts and Merrell (2006), there are a number of classwide interventions that could be implemented, some with little to no preparation and/or supplies. Behavioral interventions include: contingency management, therapy balls, peer monitoring and instructional choice. Academic interventions include: classwide peer tutoring, instructional modification and computer-assisted instruction.

Contingency Management (CM) is one of the most common behavioral interventions used within school settings. CM can include many different components which can include students earning tokens, chips, or tickets for positive behaviors that are pre-determined. Subsequently, they can also be removed if an unwanted behavior occurs. The benefits of CM includes:

- Opportunities for students to practice and clarify desirable behaviors
- Discussion and practice on appropriate ways to respond when a token is lost
- Planned procedures for fading the use of CM and linking it to a more natural consequence
- A data tracking system

- Clear guidelines for when and how often CM will be used

Peer monitoring involves training students to monitor each other's behaviors and to reinforce positive behavior. An advantage to peer monitoring is the powerful impact that peers can have on one another's behavior, but it may require a fair amount of set-up and training time for students to become accurate. Instructional choice presents the student with two or more activities from a teacher-developed menu. Instructional choice is associated with increased academic engagement and decreased behavioral outbursts.

Classwide peer tutoring incorporates a point system into the peer tutoring methodology as an added reinforcement. Points are awarded for correct answers, successful error correction, and correct procedures. This form of tutoring has led to significant improvements in on task behavior, activity level and an increase in academic performance. Instructional modifications are changes that are made to assignments in order to target a specific child's needs. It has been shown to decrease disruptive behavior, increase task engagement and increase academic performance. Lastly, computer-based instruction helps supplement teacher instruction and provide additional exposure to the academic material.

While it can be difficult to support each student who may need movement and/or exercise to help focus in the general education classroom, it is possible to create classroom wide interventions. This benefits all students in addition to no child being singled out; which can be particularly difficult at the middle school level.

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