



NASSET ADHD SERIES

Part # 15 - Natural Treatment of Health Impairment Symptoms: Profit versus Prudent

A Literature Review

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Abstract

The prevalence of ADHD in school age children has greatly increased over the past 20 years- and the United States is the leading country with this disability diagnosis. The treatment of ADHD, through prescription medications, has proved to be a growing business, as doctors, parents, and educators are being recommended to use these forms of treatment for children that identify with some of the loose qualifications of ADHD. As the drug companies are using these recommendations for their benefit some children, then, are recommended to take drugs that they don't necessarily need. With a leading number of ADHD diagnoses, doctors are quickly turning to the pharmaceutical companies for ways to treat these children. Research has shown, however, that these prescription medications can have both short term and long term effects on an individual. By medicating young children that, in other countries may not even qualify as having ADHD, individuals are not learning how to cope and manage their differences in a healthy or natural way. These young children could potentially grow into adults that are only familiar with how to live with their ADHD medication and are unsure of how they should act and feel off of their medication; medication that they may not have needed growing up. In treating the symptoms of ADHD, there are many different supplements and strategies that can effectively be used in place of prescription medication. These natural alternatives, however, are not recommended by doctors, as they do not make the pharmaceutical companies a profit. The over diagnoses and over treatment of ADHD in the United States, therefore, becomes a case of profit vs. prudence.

What is ADHD?

A Health Impairment, or ADHD, is commonly known for affecting an individual's executive functioning skills, including "verbal and nonverbal working memory, emotional self-regulation, shifting of attention or focus, and planning and problem solving among others." Elements of the core ADHD symptoms are those symptoms that most often lessen with age, whereas executive functioning symptoms often carry over into adulthood. (Kelley, T. 2013). The symptoms of ADHD are often controllable through the use of prescription medication, as the medication either speeds up or slows down certain receptors in the brain to improve an individual's attention, focus, and executive functioning capabilities. Prescribed medications used to treat the symptoms of ADHD "increase dopamine, a neurotransmitter important for cognitive functions such as attention and focus." (*Attention Deficit Hyperactivity Disorder Medications*. 2014) Although medications are effective in treating the symptoms of ADHD, both short term and long term side-effects raise a question- could the effects of natural treatment alternatives be more effective and beneficial than prescribed medication for treating the symptoms of Health Impairments?

Moreover, a drastic increase in ADHD diagnoses and treatment over the past twenty years raises the question whether most children prescribed ADHD medications truly need to be taking them.

The symptoms of ADHD are often exaggerated characteristics of childhood behaviors- impulsivity, hyperactivity, and inattention. The United States is the leading country in diagnosing children with ADHD, as “ADHD is diagnosed about 25 times more often in the U.S. than in the U.K. And while attitudes vary by country, many European parents, teachers, and doctors are reluctant to use medication to treat what they see as routine childhood behavioral problems.” (Kelley, T. 2013) Medicine is becoming a quick alternative fix to treating and ultimately managing these behaviors of children with ADHD in the United States. The restriction for a diagnosis of ADHD is much stricter in other countries than in the U.S.; some individuals in other countries are then living undiagnosed with ADHD symptoms. Alternatively, if these individuals were living in the U.S. they would have likely been diagnosed and quickly medicated. In the U.S., 10% of children are diagnosed with ADHD, whereas in Europe .4% of children are diagnosed with ADHD. (Kelley, T. 2013) Some children living in Europe could possibly qualify as having a Health Impairment in the U.S. These children then, undiagnosed in the U.K., are using other strategies and natural alternatives to limit their symptoms of ADHD instead of turning to medication.

Pharmaceutical Profits from ADHD

With such a large percentage of the U.S. population being diagnosed with ADHD, pharmaceutical companies are greatly benefiting from the loosely restricted guidelines of ADHD qualifications. According to *The Big Bucks in Keeping Kids Focused*, the world’s biggest seller of ADHD drugs is a pharmaceutical company known as Shire. Shire is one company that is happy with the high rates of ADHD diagnoses in the U.S., as “more than 90 percent of the Dublin-based company’s sales of ADHD medicines are in the U.S., where brisk demand since 2007 helped fuel a more than doubling in U.S. annual revenue for the class of stimulants used to treat the condition.” (Kelley, T. 2013) According to the data company IMS health, sales of Shire drugs soared to five times the amount from their previous year’s earnings, profiting from nearly \$9 billion in 2012. (Schwarz, A. 2013) The over diagnosis and prescription of ADHD medications has become one of the leading profits for drug companies. Medical companies are marketing this disability as a means of increasing revenue.

Drug companies are ultimately promoting medication for ADHD to ensure a profitable market. A rise in ADHD diagnoses is directly coinciding with a remarkably successful two-decade campaign by pharmaceutical companies to publicize the disability and promote medication to parents, educators, and doctors. (Schwarz, A. 2013) Over the past two decades, there has been a drastic increase in advertisements promoting ADHD medication. Magazine advertisements voice to mothers the great potential their children could have to succeed if they were medicated. Children see superheroes that personify their disorders and read that “medicines may make it easier to pay attention and control your behavior!” (Schwarz, A. 2013) Doctors are often being paid by drug companies, as they publish their research, deliver presentations, and encourage physicians to make diagnoses in favor of finding more children as having ADHD. (Schwarz, A. 2013) These advertisements and presentations have been found to broaden the qualifications of an individual as having ADHD, as they are beginning to include relatively normal childhood behaviors in the disability qualifications. Drug companies, however, are being reprimanded for the persuasively biased and false advertisements to promote ADHD medication. Since 2000, “the Food and Drug Administration has cited every major ADHD drug- stimulants like Adderall, Concerta, Focalin, and Vyvanse, and non-stimulants like Intuniv and Strattera for false and misleading advertising.” (Schwarz, A. 2013) And consequently in February 2012, Shire agreed to pay “\$57.5 million in fines to resolve allegations of improper sales and advertising of several drugs, including Vyvanse, Adderall XR and Daytrana, a patch that delivers stimulant medication through the skin.” (Schwarz, A. 2013) The over publicity of these ADHD adds and promotions shows that diagnosing ADHD and treating it is no longer about managing the disorder; it has grown into a matter of pharmaceutical sales. The drugs that many children are being prescribed to treat their ADHD are unnecessary. There are many natural approaches to treating the symptoms of a Health Impairment, but these alternatives are not being promoted because pharmaceutical companies would no longer be making as large a profit.

According to a survey of parents by the CDC (Centers for Disease Control and Prevention), “almost 10 percent of U.S. school-age children have been diagnosed with ADHD.” (Kelley, T. 2013) This means that 1 in every 10 school aged child in the United States has been diagnosed with ADHD; a drastic increase from 1990. “The number of children on medication for the disorder had soared to 3.5 million from 600,000 in 1990. (Schwarz, A. 2013) Dr. Conners, a psychologist and professor emeritus at Duke University, refers to this great increase in medicating students with ADHD as a “national disaster of dangerous proportions.” (Schwarz, A. 2013) With such a large number of school aged children with this Health Impairment, it is important to consider the implications when medicating young individuals to treat their symptoms of ADHD. In a culture that is continuously researching and expanding on different forms of treatment for disabilities, considering a natural approach to treating symptoms of ADHD is an important alternative for parents and doctors to consider. ADHD is most often diagnosed at a young age, when children’s brains are still developing. The introduction of a foreign substance into a child’s brain ultimately affects the ways in which their brain will develop into adulthood. When these children become adults, their brains have developed a familiarity with these drugs. Adults who have taken ADHD medications since they were children are unaccustomed with the way they feel when they are off their medication and have difficulty coping without it. Natural approaches to treating the symptoms of ADHD will have no short term or long term side effects, will provide children with strategies that can be used into adulthood, and will ultimately help promote and develop healthy living style from childhood into adulthood.

Serious Side Effects of ADHD Medication

There are currently a varied number of medications that are prescribed for the treatment of ADHD. The most popular types of medication include Methylphenidate (Ritalin, Concerta, Metadate, Daytrana), Dexamethylphenidate (Focalin), Amphetamine-Dextroamphetamine (Adderall), Dextroamphetamine (Dexedrine, Dextrostat), and Lisdexamfetamine (Vyvanse.) (*Attention Deficit Hyperactivity Disorder Medications - Attention Deficit Hyperactivity Disorder Health Information - NY Times Health.*) These medications are most often administered in pill form and are taken at varying dosages depending on the weight and body type of the individual. As with most prescription medications, there are different types of side effects that are associated with each medication. Although many doctors portray these medications as being safe, ADHD stimulants are “regulated in the same class as morphine and oxycodone because of their potential for abuse and addiction.” (Schwarz, A. 2013) Two of the commonly prescribed medications, Dextroamphetamine and Amphetamine can be habit forming. If too much of this medication is taken, it may no longer be effective in controlling symptoms of ADHD. Individual’s taking this medication that are not feeling a change “may feel a need to take large amounts of the medication, and you may experience symptoms such as rash, difficulty falling asleep or staying asleep, irritability, hyperactivity, and unusual changes in your personality or behavior. Overusing dextroamphetamine and amphetamine may also cause sudden death or serious heart problems such as heart attack or stroke.” (Huang et. Al, 2012) There are also concerns that these stimulant medications have some effect on the heart; “there is concern about the potential for rare but serious cardiovascular adverse events, as well as sudden cardiac death, with pharmacotherapies used for treating ADHD in children, adolescents and adults.” (Martinez-Raga, J., Knecht, C., Szerman, N., & Martinez, M. I. 2013). The MTA (Multimodal Treatment Study of Children with ADHD) conducted a 14 month study in which 579 children were randomly assigned one of three different treatment groups. Results of the study indicated that children that were taking the stimulant medication had, on average, higher heart rates than the children not taking stimulant medication. These findings support that stimulant medications do have some effect on the heart. (Vitiello B et. & American Journal of Psychiatry.) Another means of treating symptoms of ADHD may be the use of antidepressants. The use of “antidepressants such as imipramine and desipramine is limited due to risk of adverse effects like cardiovascular complications and sudden death..” (Riahi, F., Tashakori., et. Al. 2013) Findings in these different studies are conclusive in supporting that the effects of ADHD medications can have serious implications on young children.

Common Side Effects of ADHD Medication

Less serious, yet very common, side effects associated with these medications include nervousness, sleeplessness, decreased appetite, disordered movements, irritability, stomach pain, headache, depression, hair loss, and lack of spontaneity. (Attention Deficit Hyperactivity Disorder Medications - Attention Deficit Hyperactivity Disorder Health Information - NY Times Health.) Although these side effects are less serious, they can undoubtedly impact an individual's day to day functioning. As children are growing, their dosages of medication need to be carefully monitored by parents, teachers, and doctors. In the initial phases of medicating and throughout growth, children will be affected differently as their bodies are changing. Through these body changes, a change in dosage of medication is very important to ensure consistency with how a child is reacting to the medication and that they are receiving the proper dosage. This, however, can be difficult to monitor as children are growing.

Balanced Nutrition to Reduce Symptoms of ADHD

As with all medication, there is no way for a parent to be confident in the ways ADHD medication will affect their child. With the availability of natural alternatives, there are effective and safer means of treating the symptoms of ADHD. These alternatives, however, are not publicized or advertised because there is no profit for pharmaceutical companies. Before ADHD was diagnosed and treated, natural approaches and herbal remedies were used to treat the symptoms of ADHD. Along with natural supplements and strategies, an individual's diet plays an integral role in brain functioning. Nutrition is ultimately a means of providing the body with particular nutrients and vitamins essential for proper functioning. According to Richardson, "nutrition can influence gene expression, while genetic differences can affect the absorption and utilization of specific nutrients, contributing to individual variation in dietary requirements." (Richardson, A. J. 2006) Through proper nutrition, certain gene expression can be repressed or less noticeable so it is important for each individual to eat a balanced diet supportive of their unique body. Diets rich in refined sugars and low in nutrients, however, can make symptoms of ADHD more prominent. "A 2007 trial published in The Lancet found article food color and additives resulted in significantly more hyperactivity and shorter attention spans. Regular meals and snacks that are low in refined carbohydrates and include moderate amounts of protein especially high and eggs balanced with whole foods are essential for proper brain function." (Stengler, M. 2009) There is little to no nutritional value in many of the processed foods in the market, so it is important for parents to ensure that their children are eating diets with proper nutrition. Poor diets and unhealthy living styles can ultimately exasperate any condition an individual has. By instilling the habit of eating a balanced diet, children will be more likely to practice these habits into their adulthood.

Use of Vitamins to Reduce Symptoms of ADHD

A balanced diet rich in nutrients can also be supplemented through the use of vitamins, as vitamins are another excellent way of ensuring that individuals have a balanced system. Vitamins that have been found to help individuals with cognitive functioning include omega-3, omega-6 fatty acids, Zinc, and Phosphatidylserine. All of these vitamins can be taken as an additional supplement or can be found in natural foods. Phosphatidylserine is a natural nutrient and it "is a safe and effective brain nutrient for helping with memory, particularly those with ADHD. Take 200 to 300 mg daily." (Stengler, M. 2009) This nutrient can ultimately help with memory for those individuals with ADHD. Another natural supplement that has been found to show benefits of helping manage symptoms of ADHD is Zinc. "Zinc has been the most consistently reported, and there is some preliminary controlled trial evidence of benefits from supplementation." (Arnold & DiSilvestro, 2005) According to a study done by the University of Maryland Medical Center, Zinc has a direct correlation with behavior; as it regulates the activity of fatty acids, melatonin, and brain chemicals. (*Attention deficit hyperactivity disorder* | University of Maryland Medical Center. 2013) By increasing the intake of these natural vitamins and decreasing the sugars in an individual's diet, brain functioning has the potential to improve to perform at its best ability. "Nutritional and holistic therapies work every well with children when used correctly." (Stengler, M. 2009)

According to Richardson, blood glucose regulation has obvious benefits for mental function. Through a proper diet, brain function can be optimized for each individual and symptoms of ADHD can be managed more holistically.

Omega-3 and Omega-6 Improve Brain Function

Natural alternatives that are increasingly being used to treat varying disorders are omega-3 and omega-6 fatty acids. These two acids are “the most important for brain development and function, notable they omega-6 arachidonic acid (AA) and the omega-3 eicosapentaenoic and docosahexaenoic acids (EPA and DHA).” (Richardson, A. J. 2006) Because ADHD is a Health Impairment where change is seen in the brain, current prescription medication is used to increase particular neurotransmitters so that cognitive functioning is normalized. “Standard pharmacological treatment for ADHD involves stimulant medications that increase the availability of dopamine, as reflected in all current etiological theories of this condition. It is therefore notable that in animal studies, chronic omega-3 deficiencies can reduce dopamine and its binding to D2 receptors both in frontal cortex and other brain regions and are associated with attentional and behavioral dysfunctions comparable to those involved in ADHD.” (Takeuchi, Fukumoto, & Harada, 2002; Zimmer et al., 2002). Through animal studies, it has been found that those animals with omega-3 deficiencies have a reduction in dopamine and its binding to particular receptors in the frontal cortex and other brain regions. These regions are associated with attentional and behavioral dysfunctions, core symptoms of ADHD. With an introduction of omega-3 fatty acids, brain functioning of the brain can become more normalized, as there will be an increase of binding of receptors that are associated with attention and behavior. The use of natural supplements and interventions therefore can provide similar supports as those of prescribed medications by altering the workings of dopamine and its connection to particular receptors in the brain. (Takeuchi, Fukumoto, & Harada, 2002; Zimmer et al., 2002).

Herbal Remedies to Reduce Symptoms of ADHD

Along with vitamins and minerals, certain herbal remedies are also found to be effective in treating symptoms of ADHD. One or more of the following herbs have been recommended for calming purposes for individuals with ADHD: roman chamomile, valerian, lemon balm, and passion flower. Other herbs that are often found in botanical remedies for ADHD include Gingko and American ginseng. Gingko (Gingko biloba) has been used to improve memory and mental sharpness. American ginseng (Panax quinquefolium) and gingko have been found to improve symptoms of ADHD. These herbal remedies are used to better manage and suppress symptoms of ADHD such as hyperactivity and memory. (University of Maryland Medical Center. 2013)

Homeopathy

As prescribed medications for ADHD are tailored to an individual's body and particular needs, Homeopathic doctors are doctors that recommend certain dosages of natural supplements and remedies in treating different disorders. A Homeopathic doctor is a certified doctor that looks at the symptoms an individual is has in order to create an effective plan of treatment. In the case of ADHD, this holistic doctor will look at each child's individual case and will recommend different natural supplements that can be taken to monitor symptoms. These natural supplements, such as omega-3, Zinc, or Phosphatidylserine, will work to balance out the chemicals in the patient's brain to neutralize and stabilize brain functioning. For an individual with ADHD, a Homeopathic doctor will most often recommend supplements that will increase the amount of dopamine in the brain so that the core symptoms of ADHD, such as executive functioning skills, can be more easily managed by the individual. (University of Maryland Medical Center. 2013)

School Based Intervention

The benefits of a balanced diet with proper vitamins and supplements can be very beneficial in the development of an individual's brain. Good nutrition and proper self-care are a means to facilitate proper brain functioning and can ultimately help regulate the symptoms of ADHD. A change in diet and an introduction to supplements, however, are only part of the natural alternatives when working with individuals with ADHD. As the trend towards inclusion classrooms is becoming more prevalent in school districts, it is crucial for every general education teacher to understand the ways in which ADHD affects students. Through this knowledge, teachers can ensure their lesson plans are truly tailored to a variety of learners. Effective school based intervention and teacher training can improve the behavior and academics of students with ADHD. (Froelich, J., Breuer, et. Al. 2012)

In an 18 week teacher training program in an elementary school with 378 pupils in 16 classes, a study was conducted to evaluate the effectiveness of a teacher training program when working with students with ADHD and Oppositional Defiant Disorder (ODD). (Froelich, J., Breuer, et. Al. 2012) Prior to this study, a complete screening assessment was done for a non-randomized group. In the screening, 47 students were identified as having symptoms related to ADHD and to ODD. In this study, teachers were given information on ADHD and ODD. On a weekly basis, teachers learned about intensive strategies and basic principles of behavioral management and "classroom-relevant didactic aspects." (Froelich, J., Breuer, et. Al. 2012) The teachers then took what they had learned from this training and were asked to implement what they had learned about behavior modifications and attending to a variety of learners in their lessons. "Results after statistical analysis indicated significant treatment effects on ADHD and ODD symptoms." (Froelich, J., Breuer, et. Al. 2012) The effectiveness of the teacher training intervention drastically improved the performance of students with ADHD and ODD in the classroom. (Froelich, J., Breuer, et. Al. 2012) It is conclusive that when the teachers were aware of basic managerial modifications and implemented these changes in their classroom, there were heightened responses and participation from students with ADHD and ODD. This study supported the hypothesis that the teachers' knowledge and attitude towards children with ADHD and ODD greatly influenced the ways in which students responded in the classroom.

Influential strategies that teachers were taught and implemented in this study can be found in Table 1. Small changes in the classroom can make drastic changes for the ways in which a student with ADHD is able to manage their impulsivity, difficulty focusing, or hyperattention during class time. Results indicate that training programs for teachers in addressing "attentional and disruptive behavioral problems in the classroom" are beneficial in working with students with ADHD or ODD. (Froelich, J., Breuer. et. Al. 2012) "Research has shown that school-based intervention programs are effective in reducing ADHD symptoms and other disruptive behaviours in children." (Froelich, J., Breuer. et. Al. 2012) Table 1 provides several different effective strategies for working with students with ADHD or disruptive children. When working with a variety of learners, students with ADHD benefit when the lesson is stimulating and includes a level of involvement from the students in the lesson. This stimulation and involvement will improve overall attention. By reducing the complexity of problems and strategically providing the most important concepts through clear and precise directions, students will attend to the most important information presented to them. The teacher should also provide the student with examples and then have the student repeat back the skill independently. Transition periods are also particularly important when working with students with ADHD or behavioral difficulties. During these transitions, clear expectations and rules need to be set. Teachers should focus their attention on certain students during transitions, guiding these students in the correct direction with positive praise. Because one of the core symptoms of ADHD includes a deficit in executive functioning skills, many students with ADHD have difficulty staying organized. By teaching a student how and when to use a planner, organize their desk, or file away papers in the appropriate folders they will be more prepared for the lesson and set up for success. (Froelich, J., Breuer. et. Al. 2012)

Table 1: Basic principles in the management of ADHD and disruptive children

1. Keep the lessons stimulating for the students! Inhibit low intrinsic or extrinsic levels of stimulation of given exercises because they contribute to attentional problems. Especially your important assignments require a distinct elevation of the stimulation level.
2. Involve the student in the lesson! Exercises requiring active responses of the student improve his attention span.
3. Reduce complex information to their most important messages! Give clear and understandable instructions because ADHD children have problems in processing complex and detailed information. Use short sentences when speaking to the student. Give examples of your instructions. Let the student repeat your instruction.
4. Give regular, immediate and specific feed back to the student! To enhance his motivation for performance. To achieve his attention call him by name or keep eye contact with him.
5. Develop routines for the classwork! Develop routines for the student to start day off in a consistent manner. Instruct the student what he has to do and not to do if he enters the classroom in the morning, Design procedures how the student should deal with transitions during school day (e.g. short breaks) that might distract him.
6. Plan ahead for critical transitions of activities! Discuss critical situations with the student where he regularly gets into problems in continuing his work, e.g. from break to school lessons. Focus your attention on the student especially during these critical transitions!
7. Find the right place for the disruptive student! Never seat a disruptive or ADHD child beside a frequently used classroom activity center or beside another disruptive student! The best seating is in close proximity to the teacher so that the student is easily accessible for your prompting, correction or reinforcement. Alternatively a good peer role model can be chosen.
8. Help the student to stay organized! Teach the student to write notes to himself for helpful reminders. Let him use a homework journal or an assignment pad every day. Instruct the student to clear his desk of unnecessary material during school lessons.
9. Define clear rules against disruptive behavior and combine them with immediate consequences! Discuss appropriate rules with the entire class and define the four most important rules for academic performance and social behavior. Establish clear consequences if rules would be broken. Print the rules on a poster board and display them in the front of the classroom. (Froelich, J., Breuer, et. Al. 2012)

Therapy to Treat Symptoms of ADHD

Another effective means of managing an individual's behavior is through behavioral therapy. Through behavioral therapy, individuals with ADHD can learn how to cope, manage, and successfully live with their symptoms of ADHD. By learning these coping strategies at an early age, children will grow into knowledgeable and self-aware adults, using healthy strategies to manage their ADHD. Behavioral therapy is an important means of helping individual work on skills and relationships that are affected by their ADHD. According to the CDC, behavioral therapy can help individuals work on creating routines, getting organized, avoiding distractions, limiting choices, changing parent interactions with children, using goals and rewards to encourage positive behaviors, effective discipline systems for inappropriate behaviors, and helping children discover their unique talents. This alternative to helping individuals manage symptoms of their ADHD will provide effective skills and strategies that can be used from childhood into adulthood. (CDC - ADHD, Treatment - NCBDDD)

Through the use of specialized treatment and therapies, individuals with ADHD can use natural alternatives to effectively and safely manage symptoms of ADHD. The use of natural supplements, change in diet, structured teacher training, and behavioral therapies can provide individuals with a better understanding of their ADHD and the ways in which it affects them. Each individual is a unique case, and it is important for safe alternatives to treating ADHD to be tried before quickly turning to medicating 10% of the U.S. youth population. Current advertisements, drug sale campaigns, and recommendations for physicians has altered the image of ADHD into an over diagnosed and therefore over treated disorder. The increasingly loose restricted guidelines and qualifications of ADHD are causing many children, that otherwise wouldn't be in other countries, to be medicated. By providing children with safe and effective alternatives to managing symptoms of ADHD, individuals will be able to increase their performance by balancing out chemicals in their brains naturally. Through these natural alternatives, children will grow into more aware adults, conscious of their bodies and the natural supplements, strategies, and supports that can help them to best succeed.

References

- Arnold, L. E., & DiSilvestro, R. A. (2005). Zinc in attention deficit/ hyperactivity disorder. *Journal of Child and Adolescent Psychopharmacology*, 15, 619–627.
- Attention Deficit Hyperactivity Disorder Medications - *Attention Deficit Hyperactivity Disorder Health Information* - NY Times Health. (n.d.). Retrieved January 26, 2014, from <http://www.nytimes.com/health/guides/disease/attention-deficit-hyperactivity-disorder-adhd/medications.html>
- Attention deficit hyperactivity disorder | *University of Maryland Medical Center*. (2013, February 21). Retrieved January 28, 2014, from <http://umm.edu/health/medical/altmed/condition/attention-deficit-hyperactivity-disorder>
- CDC - ADHD, Treatment - NCBDDD. (n.d.). <http://www.cdc.gov/ncbddd/adhd/treatment.html>, 2014
- Froelich, J., Breuer, D., Doepfner, M., & Amonn, F. (2012). Effects of a Teacher Training Programme on Symptoms of Attention Deficit Hyperactivity Disorder. *International Journal Of Special Education*, 27(3), 76-87.
- Huang, Y., Wang, L., & Chen, C. (2012). Long-term neurocognitive effects of methylphenidate in patients with attention deficit hyperactivity disorder, even at drug-free status. *BMC Psychiatry*, 12194.
- Kelley, T. (2013). The Big Bucks in Keeping Kids Focused. *Bloomberg Businessweek*, (4350), 25-27.
- Martinez-Raga, J., Knecht, C., Szerman, N., & Martinez, M. (2013). Risk of serious cardiovascular problems with medications for attention-deficit hyperactivity disorder. *CNS Drugs*, 27(1), 15-30.
- Riahi, F., Tashakori, A., Izadi- Mazidi, S., & salehi-veysi, M. (2013). *Effectiveness of Reboxetine in Treatment of Outpatient Children and Adolescents with Attention Deficit-*
- Richardson, A. J. (2006). Omega-3 fatty acids in ADHD and related neurodevelopmental disorders. *International Review of Psychiatry*, 18(2), 155-172.
- Schwarz, A. (2013, December 14). *The Selling of Attention Deficit Disorder* - NYTimes.com. Retrieved February 1, 2014, from <http://www.nytimes.com/2013/12/15/health/the-selling-of-attention-deficit-disorder.html>
- Stengler, M. (2009). Help your kids thrive: dump the Ritalin and discover natural alternatives to drugs for kids' colds and flu, eczema, and ADHD. *Better Nutrition*, 71(9), 20.
- Takeuchi, T., Fukumoto, Y., & Harada, E. (2002). Influence of a dietary n-3 fatty acid deficiency on the cerebral catecholamine contents, EEG and learning ability in rat. *Behavioural Brain Research*, 131(1-2), 193-203.

Vitiello B, Elliott GR, Swanson JM, Arnold E, Hechtman L, Abikoff H, Molina BSG, Wells K, Wigal T, Jensen PS, Greenhill LL, Kaltman JR, Severe JB, Odbert C, Hur K, Gibbons R. Blood pressure and heart rate in the multimodal treatment of attention deficit/hyperactivity disorder study over 10 years. *American Journal of Psychiatry*. Online ahead of print Sept 2, 2011.

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Kerri Beisner is a native of New England, and spent most of her childhood growing up along the Connecticut shoreline. She attended the University of Connecticut in Storrs, where she received her Bachelor of Arts in English in 2011. Beisner has always been interested in special education and will be graduating with her Masters of Education in Moderate Learning Disabilities k-8 from Endicott College this coming May. Over the past few years, Beisner has worked with children in various settings including volunteer work for the Special Olympics, as an Assistant Director of a Day Camp, and at several different schools. Beisner currently resides in Boston and works as a Middle School Special Education Teacher at Boston Preparatory Charter Public School. She hopes to one day become a college professor and teach child development at a University.