

The Mystery of ADHD

By Donald Dulli

“longing to curl up inside herself, her eyes, especially her eyes, turned inwards, more, more, more, until they could reach and observe inside her own brain, there where the difference between seeing and not seeing is invisible to the naked eye.”

Jose Saramago. Blindness

Due to the consistent rise in the diagnosis and medicinal treatment of ADHD among children aged 6-11, there is a need to explore different forms of treatment that do not include the use of prescription amphetamines. The prevalent use of Ritalin, Adderal and other drugs designated for the treatment of ADHD within this age group have often been based on the observations of parents, teachers and school officials and have not always been accompanied by appropriate consultations with pediatricians, therapists and other medical professionals. Adequate attention to environmental, nutritional and behavioral therapies is often ignored in favor of an easy, uncomplicated solution. However, many recently released studies have questioned not only the effectiveness of treatment that focuses only on drug therapy, but how safe these drugs are for the brains of young children. Given the rising numbers of children who suffer from the symptoms of ADHD, it is imperative that parents, doctors and school officials revisit the strategy for managing this disorder.

According to a study conducted by the center for disease control on diagnosed Attention Deficit Hyperactivity Disorder and Learning Disability in the United States from 2004-2006, about 7.1 percent of children aged 6-11 have been diagnosed with ADHD and of that about 66.4 percent are on or have been on prescription medication for the disorder. Of these children, only 32.8 percent contacted a therapist and only 30.2 percent contacted a medical specialist. Of the children in the study that did not have ADHD, only 9.6 percent were on prescription medication. The study also concluded that there has been a 3% average annual increase in childhood ADHD diagnoses from 1997 to 2006, and that children with ADHD diagnoses were more likely than other kids to have other chronic health conditions. “A study by the National Institute of Mental Health found that certain parts of the brains of children with ADHD develop normally but about

3 years later than in children without ADHD, this may be why some children seem to grow out of the disorder.” (Curtis)

There is a lot of speculation over what causes Attention Deficit Disorder but many doctors believe that it is genetic. Using various imaging tests, researchers have been able to observe the brain at work. Doctors have found a possible link between ADHD and Brain structure such as: The function of chemicals in the brain that help regulate attention and activity (dopamine and norepinephrine). These two chemicals help the areas of the brain that affect attention and impulse control. Also, research shows that a mother's use of cigarettes, alcohol, or other drugs during pregnancy may increase the risk for ADHD. Some studies suggest that exposure to lead may cause symptoms associated with ADHD.

Attention-Deficit Hyperactivity Disorder -- is commonly diagnosed after a child has shown six or more specific symptoms of inactivity and/or hyperactivity on a regular basis for more than six months in more than two settings. A child's primary care doctor can determine whether a child has ADHD using standard guidelines developed by the American Academy of Pediatrics. These diagnosis guidelines are for children 6 to 12 years of age. Some of these guideline symptoms include.

- Squirm and fidget.
- Do not seem to listen.
- Have difficulty playing quietly.
- Often talk excessively.
- Interrupt or intrude on others.
- Are easily distracted.
- Do not finish tasks.

Some behaviors can appear to be ADHD-related, but are not. Some causes of ADHD-like behavior are:

- A sudden life change (such as divorce, a death in the family, or moving).
- Undetected seizures.
- Medical disorders affecting brain function.
- Anxiety.
- Depression.

The diagnosis of ADHD involves the gathering of information from several sources, including school, caregivers, and parents. The doctor will consider how a child's behavior compares with that of other children the same age.

Today, the most common form of treatment for ADHD in children is through the use of Synthetic Amphetamines. They are used to treat both moderate and severe ADHD. The drugs are approved for use in adolescents or children over age 6 who are having difficulty with ADHD symptoms both at school or at work, as well as at home. The most common drug used to treat ADHD is Ritalin. Other drugs that are also used for ADHD include: Adderal and Adderal XR, Concerta, Dexedrine, Focalin, Metadate CD and Metadate ER and Methylin.

These drugs have caused a lot of controversy from both parents and doctors. Many studies have shown significant improvement with children's grades and behavior through the use of these drugs but there has also been many cases of children having adverse reactions to these drugs, such as hallucinations, aggression and severe mood swings.



Here is a list of some of the some of the side effects of ADHD prescription amphetamines:

RITALIN

Side Effects: Insomnia, decreased appetite, weight loss, headache, irritability, stomachache, and when medication wears off, symptoms are worse than ever.

FOCALIN

Side effects :Same as above, but Focalin may cause less sleep or appetite disturbance.

CONCERTA

Side Effects include: abdominal pain, aggravation, nervousness, hostility, sadness, drug dependence, dizziness, headache,tics, insomnia and prolonged sleepiness loss of appetite, increased coughing, sinusitis, upper respiratory tract infection, vomiting, allergic reaction, increased blood pressure, psychosis (abnormal thinking or hallucinations)

ADERALL

Side effects: Loss of appetite, Dry mouth, Difficulty sleeping, headaches, Abdominal pain (or stomach pain) ,Temporary increases in blood pressure, Weight loss,Emotional changes Nausea, upset stomach or vomiting, Dizziness, Diarrhea, Feeling of weakness (asthenia) Increased heart rate (tachycardia), Infection, including urinary tract infection, Fever, Heartburn, Adderall can also cause a temporary slowing of growth in children.

DEXADRINE

Side Effects: Palpitations, tachycardia, elevation of blood pressure, Psychotic episodes at recommended doses (rare), overstimulation, restlessness, dizziness, insomnia, euphoria, dyskinesia, dysphoria, tremor, headache, exacerbation of motor and phonic tics and Tourette's syndrome, Dryness of the mouth, unpleasant taste, diarrhea, constipation, other gastrointestinal disturbances, Impotence, changes in libido.

METHYLIN

Side effects: Nervousness, Insomnia, Loss of appetite, Nausea, Dizziness, Headache, Drowsiness, Abdominal pain, Weight loss



“Amphetamine was first synthesized in Germany in 1887. No medicinal use was found for it until the late 1920s, when it was discovered that amphetamine dilates the bronchial sacs of the lungs. During the 20s and 30s, amphetamine was used to treat asthma, hay fever, and the common cold. In 1932, the Benzedrine Inhaler was introduced to the market, and was a huge over-the-counter success. Amphetamine was soon available in pill form too. "Pep pills" were sold over the counter for depression, Parkinson's disease, epilepsy, motion sickness, night-blindness, and hyperactive disorders of children, obesity, narcolepsy, impotence, and apathy. Hitler's Nazi troops were taking Benzedrine during world war two as means to stay alert and continue fighting for long periods of time. During World War II, over 72 million amphetamine tablets were given to soldiers on both sides of the conflict to keep them alert and awake. The amphetamines also caused psychosis-like aggression in some soldiers. Hitler was also known to have taken amphetamines daily, by injection, which probably increased his psychotic aggressiveness, as well.” (Maynard)

By the late 1930's doctors began to discover amphetamine use helped children with ADHD calm down and focus better. In 1937 a doctor named Charles Bradley prescribed Benzedrine, a strong amphetamine, to children suffering from post-neumoencephalogram headaches in hopes of eliminating the children's headaches. "The children's headaches were not particularly affected or relieved by the drug. The most striking change in behavior during the

week of Benzedrine therapy occurred in the school activities of many of the patients. The behavior and school performance of many of the 30 children who received the drug underwent a dramatic change characterized by increased interest in schoolwork, better work habits and a significant reduction in disruptive behavior. The drug calmed many of the children without dulling their attention span. The effect was not limited to children with any particular behavior disorder but ranged from the child who had specific educational disabilities, to the retiring schizoid child." (Mayes Bagwell, Erkulwater 53) This began the trend of prescription amphetamines to children with Attention deficit hyperactivity.

After world war two was over there was a huge epidemic of amphetamine abuse among the Japanese citizens. Throughout the 1960's amphetamine abuse became a worldwide epidemic. Cases of psychosis and addiction had been reported in the thousands. "With growing amphetamine abuse in the united states and a documented epidemic of Ritalin abuse in Sweden, congress instructed the Drug Enforcement Administration (DEA) in 1971 to reclassify amphetamines and Methylphenidate (which is Ritalin) as Schedule 2 drugs(along with opiates such as Demerol and morphine, which created a production quota or limit for all stimulants." (Mayes, Bagwell, Erkulwater 65)

Most of the kids that are being prescribed Ritalin and other amphetamine stimulants are between the ages of 6 and 11 years of age and are male. It may be alarming to know that the vast majority of children being prescribed this drug are so young. The main reason for this has more to do with the hyperactivity then the attention problems. Most boys that suffer from Attention deficit Hyper Activity peak in this age group for their hyperactivity problems. A lot of parents and teachers advocate Prescription Ritalin and other stimulants to treat these boys because they don't have the patients or knowledge on how to deal with the boy's hyperactivity. For most children with ADHD, the hyperactivity decreases significantly by there mid to late teens. Some children who suffer from the hyperactivity end up having the opposite problem as adults. A lot of these boys complain of periods of severe fatigue or low energy as they get older. One reason for this could be neurological burn out from being prescribed these stimulants as kids.

There are an estimated 2.5 million children in the United States who take prescription amphetamine for ADHD. Most of the children diagnosed with ADHD come from middle to upper middle class families where health care and testing are available due to the parent's financial bracket.

Although there are many adverse effects to prescription drugs such as Ritalin, many doctors, parents and teachers believe that the benefits have vastly outweighed the negatives. Many children have shown great improvement in their grades as well as their behavior as a result of taking drugs such as Ritalin. Accord to a Mayo Clinic report concluded in 2007, an 18-year study on attention-deficit/hyperactivity disorder (ADHD) has revealed that prescription stimulants can improve the long-term academic success of hyperactive children. Children with ADHD usually lag behind in studies as they have short attention span. "A Mayo Clinic report

shows that it is common to find low reading achievement, absenteeism, repeating a grade, and dropping out of school cases amongst ADHD children. In the United States, there are about 3 to 5 percent (nearly 2 million) of children suffering from this disorder. To put it even clearer, most classrooms now have at least one child diagnosed with ADHD. The Mayo Clinic studies succeeded in investigating links between ADHD and school performance. What makes the data meaningful was that the children were placed in the sample group from child-birth, till an average of 18 years. From a total of more than 5,000 children evaluated, 370 (277 boys and 93 girls) were identified as having ADHD” (Wilken)

I believe that children between the ages of 6 and 11 should not be treated with Ritalin or other prescription amphetamines because of potential harmful side effects that have been discovered over the past 20 years by researchers. Pharmaceutical companies must present evidence that a new drug is safe and effective before the FDA approves the drug. Many of the major side effects of prescription drugs for ADHD do not show up until years after they are approved. One of the major reasons for this is due to the fact that none of the testing was done on children before the drugs approval by the FDA. Researchers and doctors now agree that these drugs have very different effects on children and that children have a higher risk of negative side effects from the drugs. ADHD drugs have been shown to be safe during studies done by pharmaceutical companies that try there best to make the drug look safe. Most of these studies were done over a short period of time using a limited demographic. Many researchers have found potential links to neurologic damage and health problems from these drugs.

After years of speculation and rare case reports, a recent study conducted by The National Institute of Mental Health,(that was funded by the FDA) states that “prescription amphetamine medication for ADHD increases the risk of sudden death in children.”(MacMillian) According to scientific research funded by the FDA and the National Institute of Mental Health, drugs such as Ritalin increase the risk of sudden death by five hundred percent among children and teens. In these cases of sudden death, the child suddenly collapses and dies, only to be discovered later by parents or siblings. This is what happened to Matthew Hohmann in 2004 and according to this new research, it keeps happening to more and more children at a rate that's 500 percent higher than would be considered typical for children of a similar age and health status.“ADHD drugs like Ritalin are, of course, amphetamine stimulants. They used to be sold on the street as "speed," but now they're prescribed by psychiatrist to children after a subjective diagnosis of a fictitious disease, ADHD, which has no measurable biological symptoms whatsoever.’ Interestingly, the FDA banned ephedrine, an herbal stimulant, after a handful of consumers died from consuming huge amounts of the herb in a desperate effort to lose weight. In the case of banning the herb, the FDA announced "the risks outweigh the benefits;" declaring that "ephedrine is not safe at any dose. In great contrast to that, even as children are literally dropping dead after taking ADHD drugs, the FDA is now insisting "the benefits are worth the risks." (MacMillan



Doctors and scientist have only in recent years been conducting thorough tests on the potential harmful effects these drugs might have on neurologic damage to the brain. A recent study conducted by the National Institute of Health, suggests that Ritalin may affect the developing brain. "Use of the attention deficit/hyperactivity disorder (ADHD) drug Ritalin by young children may cause long-term changes in the developing brain."(Miller) This was based on the study of very young rats by a research team at Weill Cornell Medical College in New York City. The study is among the first to probe the effects of Ritalin (methylphenidate) on the neurochemistry of the developing brain. Between 2 to18 percent of American children are thought to be affected by ADHD, and Ritalin, a stimulant similar to amphetamine and cocaine, remains one of the most prescribed drugs for the behavioral disorder." These brain tissue findings revealed Ritalin-associated changes in four main areas," Dr. Milner says, "First, we noticed alterations in brain chemicals such as catecholamine's and norepinephrine in the rats' prefrontal cortex -- a part of the mammalian brain responsible for higher executive thinking and decision-making. There were also significant changes in catecholamine function in the hippocampus, a center for memory and learning." Treatment linked alterations were also noted in the striatum, a brain region known to be key to motor function and in the hypothalamus, a center

for appetite, arousal and addictive behaviors."That's encouraging, and supports the notion that this drug therapy may be best used over a relatively short period of time, to be replaced or supplemented with behavioral therapy," Dr. Milner say.. In that case, it is possible that chronic use of the drug would alter brain chemistry and behavior well into adulthood." (Miller)

Studies conducted by researchers have shown that Ritalin and other stimulants bind or attach to receptors throughout most of the forebrain. The forebrain is the most highly developed and specifically human part of the central nervous system. It includes the cortex of the frontal lobes where functions related to intelligence take place. Ritalin and other stimulants also have been shown to profoundly disrupt the reticular activity system in the core of the brain, causing impairments in energy level, alertness and responsiveness to external stimulation. This causes the person to become more apathetic and less aware of the world around them.

Another part of the brain ADHD stimulants have been shown to negatively effect is the Basal Gangala. Dysfunction in this region of the brain impairs higher mental function, obsessions and compulsions and abnormal movements. "A study by Borchering at NIMH specifically looked for OCD symptoms and abnormal movements caused by Ritalin and Amphetamine. Researchers found that 51 percent of children (23 out of 45) developed symptoms of obsessive compulsive disorder."(Breggin 37) Some of the symptoms these children had were, pervasive counting of puzzle pieces and participating in activities much longer then would be considered normal. One 6 year old in the study played with his legos for 36 hours straight without food or sleep.

Psychosis is another know side effect of drugs like Ritalin. There is a label on most Ritalin pill boxes that states, "warning: toxic Psychosis." One ADHD drug, Cylert, has banned because it caused such severe hallucinations in many children.

Many parents groups have formed in opposition to ADHD drugs being given to children. Most of these parents have had there children on Ritalin or other ADHD medications and saw there child experience severe side effects from the drugs. Extensive research has been conducted into the use of the drug Ritalin (methylphenidate) over the past 20 years. This research leads to the conclusion that Ritalin is one of the most dangerous and addictive substances known to man. In the past two years, the amount of Ritalin available for prescription in the United States has increased by 97% according to the Drug Enforcement Administration (DEA). Ritalin is used primarily on children as a treatment for so-called "attention deficit" or "hyperactivity." Estimates currently place from one to four million American children on Ritalin. There is growing evidence that Ritalin can cause suicidal depression, neurological disorders including Tourette's Syndrome and epilepsy, drug abuse and dependence, stunted growth, psychotic states which are "indistinguishable from the active phase of schizophrenia." In cities across the nation, parents and children have protested the use of Ritalin and other psychiatric drugs on school children. "Love Me, Don't Drug Me," "Stop Drugging Americas Children," and "Don't Let Psychiatrists Drug Me" read signs carried by demonstrators in such places as New York, Los Angeles,

Chicago, Atlanta, Minneapolis, Phoenix, San Jose, Boston, Washington D.C., Austin, Dallas, and Miami. The demonstrations have focused the attention of the nation on the inappropriate, unwarranted, and excessive use of powerful mind-altering psychiatric drugs on our nation's school children. Lawsuits have been filed in many of the cities above, seeking compensation for the children allegedly harmed by Ritalin.

"More and more, the concept of ADD as a disorder is being qualified by inclusion of a string of positive qualities -- such as creativity, high intelligence, ability to do many things at once, an aptitude for small business entrepreneurship, and a powerful intuitive sense." - *Susan Burgess, from "Think Fast! The ADD Experience (Hartmann, Bownman & Burgess).*

Awareness of Attention Deficit Hyperactivity has grown into the conscious minds of mainstream society. Today most people know what ADD OR ADHD is in its basic form. "Parent training for ADHD is considered so mainstream that last fall the British government mandated parent training as the first choice for treatment in many cases." "For milder cases, we recommend starting with behavioral therapy," says Eric Taylor, a professor of psychiatry at King's College Hospital and an ADHD authority who helped write the new standards for the National Institute for Health and Clinical Excellence. In England, parents of children with ADHD are offered free government-funded classes where they learn to set clear limits for the child, be consistent in enforcing those limits, and reward good behavior. In a perfect world, all children with ADHD would get coordinated, "multimodal" treatment, which would include parent training; a tailored program at school; education about ADHD for kids, parents, and teachers; and medication if necessary. But all too often, kids get just the pills. Most children are treated by pediatricians, who may not be aware of the data on the benefits of behavioral treatments such as parent training, despite the fact that the American Academy of Pediatrics recommends both behavioral interventions and medication. The various professional societies favor their own strengths, not surprisingly, with the psychologists endorsing behavioral therapy and the psychiatrists big on medication as the first line of treatment. "The behavioral treatment had no side effects," says William Pelham, a research psychologist who directs the Center for Children and Families at the University at Buffalo-SUNY and who was a pioneer in the use of parent training as a behavioral intervention for ADHD. Side effects of medication include insomnia, loss of appetite, and stunted growth. That, he says, is reason enough to follow the British mode (us news week and world report Jan 14 2009 Due to the prevalent diagnoses of Attention deficit Hyper Activity, there are many other methods being used today that seem to be very effective in treating kids with this problem. Many doctors and psychologist believe these methods to be just as and more effective then giving children prescription amphetamine.

On the contrary, many studies have concluded that Ritalin and other ADHD prescription drugs are safe. They have shown to drastically improve Childs attention span, memory power and behavior. A study conducted by Liv Larsen Stray of the University of Stavangert, concluded

that Ritalin helps muscle control in hyperactive boys. For the study, the researchers observed 24 8- to 12-year-old boys with ADHD-C/HKD on two separate days. On each day, the children underwent tests of their coordination, balance and movement control. On one day, the boys took the tests before and 90 minutes after a dose of methylphenidate; on the other day, they were given an inactive placebo instead of the drug. Just one dose of the ADHD drug methylphenidate can temporarily improve affected children's muscular control and movement, a small study shows. The study, reported in the online journal *Behavioral and Brain Functions*, focused on 24 boys newly diagnosed with hyperkinetic disorder (HKD), a diagnosis nearly identical to attention-deficit hyperactivity disorder-combined type (ADHD-C). In this form of ADHD, children not only have attention problems, but also act impulsively and have difficulty sitting still and otherwise controlling their movement. Norwegian researchers looked at the effects of a single dose of methylphenidate -- best known by the brand-name Ritalin -- on the boys' movement control. Children with ADHD commonly have increased muscle tension, which can hinder normal movement. This, in turn, may manifest as problems such as stiffness, restlessness as a child repeatedly shifts to get comfortable and even poor handwriting, explained Liv Larsen Stray of the University of Stavanger, the lead researcher on the study. "Our study shows that a single dose of methylphenidate typically led to improvement of the muscular tone and to a more fluent movement in children with ADHD-C/HKD," (Norton) Many Doctors agree believe that prescription ADHD medication is the most effective means of treating hyperactive boys who cannot sit still.

Children with attention deficit problems make bigger academic gains if they are taking stimulant medications compared to similar kids who aren't receiving drug therapy, a new study shows. The findings, from a five year study of nearly 600 school children from across the country, are believed to be the first to offer an objective measure of the effect of drug therapy on a child's long-term academic achievement. Earlier studies have shown that children who receive medication for attention-deficit hyperactivity disorder behave better in class and can complete more homework. But it hasn't been clear whether treating A.D.H.D. results in any measurable improvement in long-term academic gains. The latest study, conducted by researchers at the University of California, Berkeley, tracked standardized math and reading scores among a nationally-representative sample of 600 children from kindergarten through the fifth grade, all of whom had been diagnosed with A.D.H.D. The researchers compared the scores of the students who were on A.D.H.D. medications with similarly diagnosed students who weren't receiving drug therapy. In the study, taking A.D.H.D. medication was associated with gains in math scores that equated to about a fifth of a school year in extra learning. In reading, the gains were even greater, equating to progress of about a third of a school year. "I think the findings are important because this is the first time that we've had objective educational performance measures, to look at whether kids who are taking medications for A.D.H.D. compared to kids who are not, that actually show that they are doing better," said Richard Scheffler, distinguished professor of health economics and public policy at the University of California, Berkeley's School of Public Health. "There are 4.4 million A.D.H.D. kids, so this is a huge improvement quantitatively in their school year."(pope)

Many schools have pressured parents into giving their child ADHD medication. Public school administrators, long the enthusiastic adherents of a "Just Say No!" policy on drug use, appear to have a new motto for the parents of certain tiny soldiers in the war on drugs: "Medicate

or Else!" It is a new and troubling twist in the psychiatric drugs saga, in which public schools have begun to issue ultimatums to parents of hard-to-handle kids, saying they will not allow students to attend conventional classes unless they are medicated. In the most extreme cases, parents unwilling to give their kids drugs are being reported by their schools to local offices of Child Protective Services, the implication being that by withholding drugs, the parents are guilty of neglect. "At least two families with children in schools near Albany, N.Y., were reported by school officials to local CPS offices when the parents decided, independently, to stop giving their children medication for attention-deficit hyperactivity disorder. (The parents of one student pulled him from school; the others decided to put their boy back on medication so that he could continue at his school.

"You are not disordered." - Lynn Weiss, Ph.D., from "ADD and Creativity - Tapping Your Inner Muse."

A treatment plan for ADD boys between the ages of 6 and 11 that includes, exercise, specific diet and cognitive therapy, would be just as effective as prescription medication without the harmful side effects. Typically these kids are put on proscription drugs like Ritalin. These drugs primarily increase the Dopamine and Serotonin in there brain, which helps them concentrate better and fidget less. The treatment plan I have provided would help boast these chemicals in the brain.

One of the most significant problems with children in this age group with ADHD is there inability to sit still. Most of the time these children are put on medication to combat the Childs behavioral problem. It is well know that sugar and sweets can cause a child to become hyper active. A strict diet that has no sugar can help elevate some of the hyperactivity. Eating the right foods maximizes concentration, learning capacity and self-control, and poor nutrition choices can exacerbate symptoms of ADD. A growing body of research points to nutritional deficiencies, especially with essential fatty acids and amino acids - as a contributing factor of Attention Deficit Disorder and learning deficiencies. Fatty acids are used to make brain and nerve tissue in the body and are crucial for proper growth, mental function, the immune system and brain development. The body cannot produce the two fatty acids families, Omega-3 and Omega-6, on its own and therefore must receive these key Attention Deficit Disorder ADHD nutrition ingredients through diet and supplementation. Although the typical Western diet is high in the Omega-6 family of fatty acids (found in corn, sunflower, canola and safflower oil, margarine, vegetable oil and shortening), most Americans young and old are highly deficient in Omega-3. Learning specialists now believe many childhood with behavior and learning problems have Omega-3 deficiencies. This deficiency has a greater impact on males because their requirements for essential fatty acids are, in general, much higher. "A George Washington University School of Medicine study found that hyperactive children who ate a meal high in protein did equally well, and sometimes better, in school than non-hyperactive kids. (Virtue) I would start a specific lunch program in schools for ADHD children that would provide them the vitamins and nutrients they need to help combat their inability to pay attention and sit still. Most of these children are

not on a diet that provides them with the nutrients and vitamins they need and a lot of these children are aloud to eat sweets that are high in sugar. Sugar should be eliminated from there diet.



Exercise can also be a great source to help combat ADHD symptoms. Exercise almost immediately elevates dopamine and norepinephrine and keeps them up for a period of time so that it acts like a little bit of Ritalin or Adderal. Exercise also helps to still the impulsivity and still the cravings for immediate gratification as it works to wake up the executive function of the frontal cortex, which in turn allows for delay, better choices, and a bit more time to evaluate consequences. Exercise improves the learner. Their senses are heightened, their focus and mood are improved, they're less fidgety and tense, and they feel more motivated and invigorated. In addition to priming your state of mind, exercise influences learning directly, at the cellular level, improving your brain's potential to log in and process new information. Exercise creates the environment for our brain cells to wire together, which is the basic building block of learning. "One of the key ingredients that exercise increases is BDNF, Brain Derived Neurotrophic Factor, or what I call Miracle Growth for the brain -- as it truly is fertilizer. Exercise is also perhaps the best way to increase neurogenesis, which is the making of new neurons that happens on its own daily. The process is pumped up greatly after we exercise, by releasing factors to encourage the process of our innate stem cells to divide and then provide a healthier internal environment for them to grow up to be functioning nerve cells on their own." (Low) I would implement a program in schools allowing these children to get a half hour of exercise a day. This would be an important and effective way to improve there ability to function properly in school.

Cognitive therapy can also be a great alternative to prescription drugs for kids with ADHD. Currently the only program they have in public schools for ADHD children is a program called resource or withdrawal. In most schools this program acts like a tutoring center for these children. Once a day they go to the resource room and receive help from a teacher with

the work that they are having the most difficulty with. This program helps ADHD children but I think there needs to be added time for them in resource specifically for cognitive therapy.

Recent studies support the notion that many children with ADHD have cognitive deficits, specifically in working memory—the ability to hold in mind information that guides behavior. The cognitive problem manifests behaviorally as inattention and contributes to poor academic performance. Such research not only questions the value of medicating ADHD children, it also is redefining the disorder and leading to more meaningful treatment that includes cognitive training. Learning and rehearsing a set of self-directed instructions to guide them when completing a task or responding to a social situation (helping them to slow down and consider all their choices before problematic behavior begins). These skills can help improve school performance, daily conduct, friendships, and reduce the need for constant supervision or excessive punishment. Self-control and calming techniques that help the child to reduce his/her frustration or anger and think things through in difficult situations limiting conflicts with parents, siblings and friends. Using structured feedback from the child's teachers and/or parents to monitor, correct and reward more appropriate classroom behaviors and help training in independent study skills to improve organizational skills and school performance. If we could implement a cognitive program that helps these children deal with their behavioral problems as well as train them to become more organized and efficient in their tasks, they would be more effective in their academic and social life.

The current treatment plan that is typically administered for children with ADHD consists mainly of a two part plan. For boys between the ages of 6 and 11 years of age are usually put on prescription drugs to help combat their hyperactivity. Most schools in this country and doctors suggest a two part plan to treat ADHD. Doctors usually recommend prescription drugs such as Ritalin. The academic success rate is higher for most of the children put on Ritalin and other ADHD medications.

In Most public schools in the country there is usually a study group that meets once a day with children with minor learning disabilities and ADHD, it is mostly referred to as the “resource room.” Resource rooms are classrooms (sometimes smaller classrooms) where a special education program can be delivered to a student with a disability. It is for the student who qualifies for either a special class or regular class placement but needs some special instruction in an individualized or small group setting for a portion of the day. Individual needs are supported in resource rooms as defined by the student's IEP. A series of steps is typically necessary in order for the child to receive special education services. First, the child must be experiencing educational performance problems. Second, when such problems become evident, the parent or teacher can refer the child to the local school district's child evaluation team and request an evaluation. Third, an evaluation is performed to determine if the child does indeed have a disability according to eligibility criteria set forth in state and federal law and if that

disability is adversely affecting the child's educational performance. If so, the child may then be found eligible for special education services.



"The same right-brained children who are being labeled and shamed in our schools are the very individuals who have the skills necessary to lead us into the twenty-first century. These children process visually and randomly, and think holistically. They are intuitive problem solvers who get the big picture. They thrive on visual imagery and stimulation; these "attention deficit" kids can spend hours with computer and CD-ROM programs that mirror their thought processes. It's no wonder they are attracted to computers. The use of computers is congruent with the way right-brained children think." - *Jeffrey Freed and Laurie Parsons from "Right-Brained Children in a Left Brained World"*

There are still a lot of unanswered questions in the medical field in regards to Attention Deficit Hyperactivity disorder. Today doctors are still not one hundred percent sure what causes it. Doctors are also still learning about the brain activity in children with this disorder. Medication seems to help some children while other children react badly to these drugs. There seems to be a great divide in the medical community over whether the risks and damaging effect of these drugs outweigh the positive treatments they provide for these children. Most doctors would agree that children with ADHD have muscle tension that may be caused by low levels of

Dopamine. This drug not only influences muscle movement but also affects the brains ability to receive pleasure from an activity, which could contribute to the Childs inability to concentrate. I thought about the similarities between children with Attention Deficit Hyperactivity and adults who with Parkinson's disease. I started to research the possibility of a link between the two disorders but could not find anything. Since both ADHD and Parkinson's patients have low levels of Dopamine, and both suffer from muscle tension, it may be possible that many of these children will suffer from Parkinson's disease later in life.

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Appendix

INTERVIEW

I conducted an interview with a 32 year old white male name mike Hammond. Mr. Hammond was diagnosed with Attention Deficit Hyperactivity Disorder at the age of 5. He is currently a professional audiologist and a graduate of New York University. We sat and discussed his history of being prescription medications as a result of being diagnosed with Attention Deficit hyper Activity Disorder. The interview took place at his Apartment in Brooklyn, New York. Over the course of our interview it became quit apparent that he is extremely intelligent and well spoken. You would never guess that this is a person who was diagnosed with a severe case of Attention Deficit Hyper activity disorder as a child and who got kicked out of school for behavioral problems as a teen. I began the interview by asking Mike a series of questions:

How old were you when you were diagnosed with Attention Deficit Hyper Activity Disorder?

Mike: "I was Five Years Old. I could not sit still in school and got in trouble a lot because of my high energy level. I was mischievous, always looking to play even when play time was over."

Who diagnosed you will Attention Deficit Hyper Activity Disorder and at what age were you diagnosed?

Mike: "I was five years old at the time and diagnosed by my pediatrician. There was no formal testing down to evaluate weather or not I had it. My mother brought it to the pediatrician's attention that I was extremely Hyperactive and having trouble paying attention in school. He told her that I had Attention Deficit Disorder."

What was done after you were diagnosed?

Mike: “After I was diagnosed not much was done the first few years. In New York State public schools they had this program called “resource Program.” It was basically a tutoring class set up for kids with learning disabilities or attention problems. My mother tried to get me in the program. I had to take an IQ test first. At the time, if your IQ was past 130 they would not let you in the program. I scored a 135 and was not aloud to participate in Resource. When I was in second grade I started to see a speech pathologist for language therapy targeting pragmatics”

How old were you when you were first prescribed medicine for Attention Deficit Hyper Activity?

Mike: “I was 9 years old. They put me on Ritalin. There was a big change in my behavior. I was a lot calmer then I was before I was given the medicine. My ability to pay attention in school improved and so did my grades.”

How long were you on Ritalin For?

Mike: “On and off until I was 13. My father did not want me on drugs. I would be on it for a year then he would take me off for a year. My behavior would get worse and my grades would suffer and then they would put me back on it.”

Were you prescribed anything after you were taken off Ritalin at 13?

Mike: Well, when they took me off Ritalin at 13, my behavior got worse. I got in more trouble then I ever did before. At this point the school was willing to let me attend the Resource Program but my behavior and grades did not improve. When I was in 9th grade they gave me a drug called Cylert for the ADHD. I was put on the drug for 3 weeks. They took me off the drug because I started having auditory hallucinations. I was hearing voices taking to me or having a conversation with someone else. At the time they did not think it was the drug that caused this. The doctor thought that there was something else wrong with me”

Cylert was an Add medication that was banned by the FDA in 2005. Cylert had many negative side effects. At the time Mike Hammond was on Cylert, it was not reported that one of these side effects was hallucinations but by the time the FDA decided to ban the drug in 2005, it

was confirmed that the drug could and had caused severe hallucinations in many teens as well as adult.

What Happened Next?

Mike: “I was seeing a psychiatrist on a regular basis. I told the doctor that I was feeling really depressed. They decided to put me on anti depressants. I was put on a drug called Effexor. Shortly after being on the drug I had what the doctors described as a severe manic episode. I barley sleep for three days and was thinking and talking at an unusually high speed. I felt amazing, like I could do anything. My confidence level was at an all time high and I felt like I could do things that I normally would not believe I had the ability to do. I was in school one day and decided I didn’t want to be there and set a trash can on fire in the bathroom and the fire alarm went off. I left school and decided to go for a jog and as I was running I saw someone come up next to me and we started racing, at some point he exploded and disappeared in front of me. The school found out I caused the fire and I was expelled. They put me in a special school for kids with behavior problems that had high testing scores .Due to these 2 episodes my doctor decided that I was Bi polar schizoaffective. I was soon but on bipolar medicine, anti depressants and anti psychotics.”

Effexor is an anti depressant that primarily affects Dopamine levels. The drug has been known to cause serious manic episodes in people, especially teens. Many of these cases have been reported in people that are not bipolar. Unfortunately for Mike, many of the side effects were not known at the time he was on Cylert. He believes this had caused a misdiagnosis. Mike spent the next 12 years on Bi polar Medications and anti depressants and anti psychotics. He had a few more manic episodes in his late teens, all of which seemed to coincide with a medication change, most of which were the anti depressants he was taking. At the age of 27 Mike Hammond saw a doctor who was fully aware of the side effects of ADD and Anti depressant medications on teens. They discussed the possibility of a misdiagnosis.

Mike: “When I went to this new doctor we started to discuss my Prescription history. We realized that the Cylert and Effexor may have caused the hallucinations and mania I experienced at the age of 14 and that I might have been misdiagnosed. I was starting to suffer from kidney damage due to years of being on a bi polar medicine called Depakote. I really wanted to get off all these drugs. We both decided to slowly wean me off all the drugs. After about 5 months of

decreasing medicine, I was off of everything. Since then I have had no manic episodes or hallucinations. It has been five years since I have been on any medication. My doctor and I both believe that the Attention Deficit medication Cylert and Anti depressants caused me to suffer an illness I did not have. What I went through as a teen was a living nightmare. I wish I was never put on those drugs. They caused so many problems in my life.”

INTERVIEW

I did a telephone interview with a Child Psychiatrist named Tom Smith. He currently has 15 patients with ADHD that he sees on a regular basis.

Question: What are your thoughts on Attention Deficit Hyperactivity Disorder?

Answer: “The first thing we must look at is the possibility that something is missing in the body that needs to be there, or something that's there shouldn't be that keeps the body and mind from working properly. The children that we are diagnosed with ADHD are acting up, misbehaving, and are unable to focus and give attention, perhaps because the body isn't working as it's meant to. “

Question: Have you found by testing the children, any consistencies of a nutritional deficiency or other health problems?

Answer: “Yes. I do a stool test on all our patients and find that close to 90% have a yeast overgrowth. 50% have a bacterial invasion;, and 25% have parasites. Certainly in looking at their diets, I ask, "What are they eating?" Recently a school was having all kinds of difficulty with a child, and wanted the mom to have her evaluated for ADHD and put on drugs. She brought her to me and I did a diet history. "What does the child eat for breakfast?" I asked. "Oh, for breakfast she has a Tylenol and a Coke, because she has a headache everyday." Of course she has a headache everyday because she is not eating properly, which is certainly a contributor. She certainly isn't getting the nutrients she needs to make her biochemical processes right. In this case it was a simple process to modify her diet and get the right nutrients in her. I do a diet diary with all of my patients and I don't see too many good diets out there in these kids. Generally they don't like green foods and they don't usually eat a lot of fruits, eating mostly carbohydrates. I did a small study with children with ADD or ADHD and found some consistencies. The B vitamins, magnesium and calcium were consistently low. There were other individual vitamins and minerals that were missing in there bodies.”

Question: What are your thoughts on prescribing drugs like Ritalin?

Answer: "I do see an improvement in a lot of children that are given these drugs but I believe there are other methods of treatment that are just as effective as prescription drugs and they don't cause severe health problems and side effects that medication can contribute to."

