An Integrative Approach to Treating ADHD in Children and Adolescents

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July 2017

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A Multi-Disciplinary Approach to Treating ADHD in Children and Adolescents

1. Introduction

As a psychiatric nurse practitioner in private practice, I am on the front lines of treating Attention Deficit Hyperactivity Disorder (ADHD) in children and adolescents. Every day I am presented with families whose child has been identified as hyperactive, unfocused, depressed, oppositional and/or not living up to their potential. These families are in crisis and, for the most part, the child feels like a failure. Families often come to me expecting a pharmaceutical solution that will "fix" their child.

My goal, as a psychiatric nurse practitioner specializing in functional medicine, is to first correctly diagnose ADHD. To do this, I use a combination of screening questionnaires, medical records and interviews. My goal is to thoroughly understand the patient and identify any co-morbid psychiatric conditions.

Next, I employ a multi-disciplinary treatment designed to reduce the patient's symptoms of ADHD and improve their quality of life. This multi-disciplinary approach may include medication, therapy or lifestyle modifications. For the multi-disciplinary approach to be successful, I need the cooperation of my young patients, their families and their teachers.

This paper describes how I diagnose and treat ADHD in children and adolescents. My goal is to identify many factors that contribute to ADHD and explain how to incorporate them into an ADHD treatment plan. Many of these factors are easy fixes (such as drinking enough water) and make a huge difference in a patient's successful management of their ADHD symptoms.

2. The Challenge of Working with Children and Adolescents

Working with children who have ADHD has many challenges. The nature of ADHD is that patients have difficulty focusing, listening, sitting still, and paying attention to detail. Patients can be impulsive or forgetful, and not make decisions that are in their best interest (such as remembering to take their medication).

In addition, it is not uncommon for one (or both) of the patient's parents to also have ADHD. Although the parents have learned coping skills, they often exhibit traits such as forgetfulness, poor time management, and poor record-keeping. This leads to missed appointments, not filling prescriptions in a timely fashion, and potentially poor compliance with other recommendations.

While it is easy to prescribe medication to treat ADHD, my experience has taught me that such an approach is not successful. Many of my patients have underlying physical, emotional and psycho-social problems that must also be addressed for their treatment to be successful.

This paper describes my approach to treating ADHD in children and adolescents, beginning with pre-screening questionnaires and a thorough intake interview that looks at many aspects of the

patient's medical and social history. Once I am confident about how ADHD impacts their life, I move on to treatment that may include medication, counseling, acupuncture, and lifestyle changes. For the ease of my patients, and so that I have the ability to collaborate with their practitioners, I now provide many of these adjunct services in my practice.

3. Defining ADHD

The American Psychiatric Association Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5™) provides strict guidelines for diagnosing ADHD. These guidelines require that the child has a "persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development." [1]

Symptoms of inattention include problems paying attention to detail, being distracted, and having difficulty organizing their work. Symptoms of hyperactivity include excessive fidgeting, restlessness and difficulty waiting their turn. Symptoms must be present in at least two settings (home, school, sports, etc.) and have a negative impact on the patient's life.[2]

In addition to diagnosing a child with inattentive and/or hyperactive ADHD, the DSM-5™ provides guidelines for diagnosing the severity of ADHD as mild, moderate or severe.[3]

4. Types of ADHD

Psychiatrist Daniel G. Amen, MD is a world leader on brain research. Since 1989, he has used functional brain scans to show that the brains of patients with ADHD are different from the neuro-typical population. The Amen Clinics now have the world's largest database of functional brain scans relating to behavior, with more than 120,000 scans on patients from 111 countries.[4]

Dr. Amen has identified seven types of ADD-ADHD. Each type of ADHD has a recognizable pattern in the brain and a unique set of symptoms. The information below is based on the work of Dr. Amen and can be found, in more detail, on his website.[5] Additionally, a great resource is Dr. Amen's book called "Healing ADD Revised Edition: The Breakthrough Program that Allows You to See and Heal the 7 Types of ADD."

1. **Classic ADD.** This is the most common presentation of ADD in children. They are inattentive, distracted and disorganized. Children with Classic ADD tend to be demanding and high-maintenance from a very early age.

2. **Inattentive ADD.** These children are quiet, introverted and daydreamers. Children with Inattentive ADHD often appear lazy and unmotivated.

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[1] American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition. 2013.
[2] American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition. 2013.
[3] American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition. 2013.
[4] http://www.amenclinics.com/about-us/
[5] http://www.amenclinics.com

3. **Over Focused ADD.** Children with Over Focused ADD become hyper-focused on a single activity and tune everything else out. These children also tend to worry excessively and need things done in a particular manner.

4. **Temporal Lobe ADD.** This type of ADD presents like Classic ADD, with additional issues of learning disabilities, aggression, outbursts and violence. Children with Temporal Lobe ADD are often irritable and paranoid.

5. **Limbic ADD.** Children with Limbic ADD have an underactive prefrontal cortex. These patients have depression, moodiness and low energy.

6. **Ring of Fire ADD.** This type of ADD is often caused by allergy, inflammation or infection. The child is unpredictable and irritable. They also experience mood swings and may have bipolar disorder.

7. **Anxious ADD.** Anxious ADD is caused by an overactive basal ganglia. These patients are anxious, experience social stress, and avoid conflict.

5. Pre-Intake Assessment and Screening

Prior to their first appointment, parents are asked to complete one (or more) of the following assessments. I review their answers prior to the initial appointment to help determine my questions and diagnosis. As clinicians, screening tools are often be downloaded from your EMR program or obtained from Healing ADD Revised Edition: The Breakthrough Program that Allows You to See and Heal the 7 Types of ADD and http://www.chadd.org/Understanding-ADHD/For-Professionals/For-Healthcare-Professionals/Clinical-Practice-Tools.aspx. My favorite tools are:

1. **Pediatric Symptom Checklist** (PSC) is a 35-item psychosocial screen, to be completed by the parent, designed to facilitate the recognition of cognitive, emotional, and behavioral problems in children.

2. **Vanderbilt Assessment Scale** is a 55-item scale used to aid in the diagnosis of ADHD, oppositional-defiant disorder, conduct disorder, anxiety, depression, and academic performance.

6. **Child Symptom Screener** is a 146-item screener for the following DSM-IV diagnoses in children: ADHD, Oppositional Defiant Disorder; Conduct Disorder; Depression; Anxiety disorders; OCD; History of Trauma; Psychosis; Alcohol abuse; Drug abuse; Developmental disorders; Autism Spectrum Disorders; Enuresis; and Encopresis. The Child Symptom Screener incorporates the entire Vanderbilt parent version, entire Screen For Child Anxiety Related Disorders (SCARED) parent version, entire Johns Hopkins Depression Checklist for Children (HDCL-C), a portion of the Children's Yale-Brown OC Scale (CY-BOCS) parent report, as well as other screening questions. Intake Interview: ADHD Factors Identification

My intake interviews range from 60 to 90 minutes in length. I begin by interviewing the parent(s) and child together. The screening questionnaires give me a good starting point for more investigation.

Once the family is in my office, I also base my questions on the physical appearance of the child. If a child is very thin, for example, I would ask questions about how much they were eating, if they are restricting calories, and whether they are drinking enough water. From an emotional perspective, I would ask whether they are being bullied and wonder if they are depressed.

Next, I speak to the parent(s) alone so I can understand the child's life at home and school. Typically, the child has been labeled as disruptive or inattentive by the school; is disruptive or combative at home; and/or has grades that do not reflect their potential. I will also ask parents about marital issues, their own mental health histories, and about any family history of addiction.

I then speak to the child in depth to learn their "side of the story." I will ask the child to describe the issues that trigger their disruptive or inattentive behavior. I will also ask about their family situation, screen for potential abuse, and ask more personal questions (such as questions related to sexuality).

At the end of my assessment, I invite the parent(s) back into my office and give my recommendations for treatment.

My recommendations are never just medication and always require buy-in from both the parents and the child. These recommendations, which are discussed in Part 8 of this paper, are based on my pledge to "first do no harm." My goal is improved functioning at home and at school, with the minimum use of medication.

7. Factors Influencing ADHD

I take a holistic view of the child's life and try to distill what is causing their ADHD symptoms. Below are many factors that I consider during my assessment. Because I try to explore all of these items during an intake interview, I have listed the factors in alphabetical order.

Co-morbid Psychiatric Conditions

Many psychiatric conditions appear to be similar to ADHD. Other psychiatric conditions can co-exist with ADHD and make management more challenging. It is extremely important to correctly diagnose the patient. In addition to ADHD, I consider the following:

- Anxiety disorder
- Depression
- Dissociative disorders
- Learning disabilities
- Mood disorder
- Personality disorder

- Pervasive developmental disorder
- Psychotic disorder
- PTSD
- Schizophrenia
- Traumatic Brain Injury

Daily schedule.

I often begin my initial assessment by asking the child to describe their day. What time do they get up? When do they eat for breakfast? What time do they leave for school? When do they eat lunch? Do they get to move around during the school day? Do they play video games after school? What time do they go to bed?

Frequently, I conclude that a child's inattentiveness is due to fatigue (lack of sleep), hunger (not eating a nutritious breakfast), lack of physical activity, or an inappropriate teaching style that doesn't connect with the child. Many students diagnosed with ADHD would have significantly increased focus if they had enough sleep, an engaging classroom environment, regular nutrition, and an opportunity to move throughout the day.

Elimination

I ask patients how often they have bowel movements so I can ascertain if they are constipated or have diarrhea. This helps me determine if they are building up toxins and/or not absorbing nutrients.

Exercise

Exercise increases focus by releasing natural dopamine, norepinephrine, and serotonin in the brain. At the very least, a patient who is not exercising will require more stimulant medication. Unfortunately lack of exercise is associated with a sedentary lifestyle that includes lots of screen time and poor eating habits.

Exposure to Chemicals and Toxins

While many chemicals and toxins are deemed safe for consumers in small doses, their cumulative effect on a developing brain can be significant. These chemicals include Bisphenol A (BPA), fluoride, lead, manganese, perfluorinated compounds (PFCs), pesticides and more. The Collaborative on Health and the Environment (CHE) maintains a Toxicant and Disease Database that contains environmental chemicals that contribute to health problems, including ADHD[6].

In 2010, the Learning and Developmental Disabilities Initiative (LDDI) released a report called "Mind, Disrupted: How Toxic Chemicals May Affect How We Think and Who We Are.[7]" This report describes the role of toxic chemicals in brain development, as well as the prevalence of

[6] http://www.healthandenvironment.org/tddb
[7] http://www.minddisrupted.org/documents/Mind%20Disrupted%20report.pdf

these toxins in the community. If I suspect a toxin is contributing to my patient's mental health, I will refer to them to their Primary Care Practitioner/Pediatrician for further screening.

Food Sensitivity

There are conflicting studies concerning the impact that milk, gluten, soy and other food sensitivities play in behavior. A study published in *The Lancet* in 2011 showed that 63 percent of ADHD patients on a restrictive diet experienced a worsening of symptoms when challenged foods were re-introduced.[8] A referral to a Pediatric Allergist or a GI specialist will often assist with this conclusion.

Headaches

Dr. Daniel Amen[9] has done pioneering work on brain imaging and ADHD. Unfortunately, I do not have the luxury of imaging on most of my patients, so I base my diagnosis on symptoms. If a patient complains of headaches, I pay attention to where headaches are located and order a neurology consult if needed. Occasionally I see patients who have experienced a traumatic brain injury (TBI) that presents as ADHD symptoms or depression. Persistent headaches can be a clue that something else is going on. Dig deeper. Is it stress? Is it physiologic like Chiari Malformation? Is it Lyme/Tic related? Is it sleep related?

Hobbies and Habits

Most children and adolescents are spending their leisure time interacting with screens on their computers, tablets, phones or monitors. They are not exercising or socializing. To make it worse, most children consume junk food while in front of their "junk TV," which contributes to malnutrition and obesity.

Videos are formatted to induce short attention spans, which is especially difficult for a patient who already lacks focus. In the 1960s, a typical television show would be 51 minutes long and have 9, one-minute commercials. In 2016, a typical show would be 44 minutes long and have dozens of advertisements, many of which last only a few seconds. [10]

The popularity of cell phones and social media require constant attention as patients fear missing out. Cell phones are constantly pinging from instant messaging, Instagram, Snapchat and other applications. These programs enable a child to interact with dozens of people simultaneously, which stresses an ADHD brain. The popularity of social media sites also creates a "wannabe" world that can make the child's life feel inadequate.

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[8] Effects of a restricted elimination diet on the behavior of children with attention-deficit hyperactivity disorder (INCA study): a randomized controlled trial, The Lancet, Dr. Lidy M Pelsser, MSc. http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(10)62227-1/abstract

[9] [9] http://www.amenclinics.com

[10] https://en.wikipedia.org/wiki/Television_advertisement

Hormone Levels

Thyroid, testosterone and estrogen are three of the many hormones that affect a child's brain and impact their behavior.

An overactive thyroid will cause a child to feel anxious and jittery, which are symptoms that can be mistaken for ADHD. An underactive thyroid will cause sluggishness that may be misdiagnosed as depression.

Testosterone causes some males become aggressive at age 12 or 13. Females experience the impact of estrogen during and following puberty. This can cause by moodiness and pre-menstrual fatigue that is unrelated to ADHD.

Hydration

Children are not drinking enough water. A recent study published in the *Journal of Attention Disorders* showed that dehydration created a "brain fog" in children with ADHD. In addition, children with ADHD were more likely to consume artificially sweetened juice and less likely to drink more water than neurotypical children. [11]

Medical History

I require my patients to provide recent bloodwork reports that screen for vitamin deficiencies, thyroid levels, and Lyme disease (very prevalent in my practice on Long Island, New York). I also ask about immunizations, surgeries, infections and other underlying conditions.

The timeline of the child's symptoms can often provide a clue about an exacerbation in ADHD symptoms. As the child approaches puberty, their behavior will change as their brain is bathed in progesterone and testosterone. An iron deficiency can occur in menstruating females. There is also ongoing research speculating whether immunizations (such as the Gardasil® vaccine for HPV) play a role in behavioral changes.

If a patient complains of anxiety symptoms – such as a pounding heart – I will send them to a Pediatric Cardiologist for an EKG to further find a possible contributing factor.

Medications and Caffeine

Both brain fog and an inability to sit still – classic symptoms of ADHD – can also be side-effects to medication. Brain fog can be a side effect of antibiotics, antidepressants and cardiac medications. Hyperactivity can be a side effect of prednisone and of asthma rescue inhalers (such as albuterol). Patients may also have mental health side effects from illegal use of performance-enhancing drugs for such as anabolic steroids or other illegal poly-substances and alcohol.

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[11] Journal of Attention Disorders, Kathleen Holton, Lead Author and Joel Nigg
http://www.natureworldnews.com/articles/21585/20160504/children-with-adhd-may-benefit-from-increased-water-consumption.htm

The combination of sugar and caffeine in soda, energy drinks and coffee can also cause ADHD-like symptoms.

Nutrition

Poor diet and excess carbohydrates create ADHD-like symptoms. Many children grab a Pop-Tart® or sugary coffee for breakfast. This raises blood sugar, stimulates the production of insulin, and then creates a rapid decrease in blood sugar. The result is reactive hypoglycemia that can be mistaken for inattentiveness.

Patients may skip breakfast altogether because they are too tired to eat or there isn't food in the house. This means that the child may be tired because they've already been fasting for many hours when they arrive at school. Some patients may be purposely restricting calories or skipping meals. Additionally, GI specialist Lynn Villano, ANP of Twin Forks Gastroenterology states "Although we do not have enough definitive studies to prove that diet alone can control ADHD symptoms, we do know that supplements and diet can correct nutrient shortfalls that exacerbate ADHD symptoms. A diet rich in fruits and vegetables and omega 3 fatty acids and possibly zinc can be very helpful for some people. Avoiding processed foods all dairy and gluten is also another strategy which I have found to be helpful for patients".

Physical Pain

It is important that physical pain be addressed because it can cause inattention and sleep problems. I have young patients in chronic pain due to rheumatoid arthritis, tick-borne illnesses, TMJ, migraines and injuries. These conditions should be managed by their pediatrician or an appropriate specialist.

It's also important to consider a patient's dental health. According to the American Academy of Pediatric Dentistry, tooth decay is the single most common chronic childhood disease. It is five times more common than asthma, four times more common than early-childhood obesity, and 20 times more common than diabetes.[12] If your patient does not have regular dental care, explain the importance of dental health and suggest they make an appointment.

Relationships and Family Dynamics

It is important to understand a child's living situation and whether any changes have occurred. A divorce, death, new sibling, re-marriage, relocation, change in schools, or period of parental unemployment all impact the child's life. Problems among their peer group, such as bullying, can also fuel aggression or depression.

What appears to be ADHD could be a natural reaction to a difficult personal situation. In this case, I would recommend therapy to help the patient develop strategies to cope with their personal situation.

[12] http://www.mychildrensteeth.org/assets/2/7/ECCstats.pdf

Sexuality

It is important to ask children at an appropriate age about their sexuality. Depression from the inability to express their sexual preference or gender may appear as Inattentive type ADD. Additionally, monitoring for signs and symptoms of hyper sexuality is important to address a comorbid diagnosis of Bipolar Disorder – Hypomanic presentation.

Sleep Quality

Thanks to the invention of smart phones and tablets, children have the ability to entertain themselves long past a reasonable bedtime. The backlit screens affect the pineal gland which secretes melatonin. This disrupts the child's circadian rhythm. Patients are falling asleep in class because they are tired, not because they have inattentive ADHD. Proper sleep hygiene is essential for focus, concentration and our mental health as per Dr. Rubin Naiman, a true pioneer in integrative sleep and dream medicine. (See DrNaiman.com for more information.)

I'm seeing many patients with obstructive sleep apnea caused by obesity and inflamed tonsils. I observe whether the patient appears to have a large neck and ask them about snoring, stuffiness and breathing problems. Doing a routine exam to see if their throats are occluded is simple. I send many of my pediatric patients to ENTs for sleep studies.

Substance Abuse and Addictions

Children with ADHD often feel like failures. They are repeatedly told they are not trying hard enough. They underperform at school and see themselves falling behind in the classroom. They are usually nagged by their parents and can be teased by their siblings.

It doesn't take long before these children learn to self-medicate their anger, anxiety and depression. To determine if this is an issue, I question patients about their use of food, alcohol, cannabis, cigarettes, drugs, TV, video gaming, and self-harming behaviors such as cutting or symptoms of an eating disorder.

Vision

Inattentiveness, boredom or frustration may be caused by vision problem. I ask if the child has problems seeing the board (farsightedness) or reading a book (nearsightedness). If this is the case, I recommend evaluation by an optometrist.

Vitamin Deficiency

The diets of children and adolescents are typically low in nutrition and high in fat, sodium and chemicals. These deficiencies can cause or exacerbate ADHD symptoms. The list below itemizes a few of the vitamin deficiencies that impact ADHD.

- Vitamin A – Low Vitamin A causes malabsorption of fat soluble vitamins needed for mental health.
- B1 (Thiamine) – Low thiamine can cause memory impairment, confusion and disorientation.

- B6 (Pyridoxal) – Low pyridoxal can cause depression and contribute to chronic pain.
- B9 (Folate) – Low folate is linked to behavior disorders.
- B12 (Cobalamin) – Low B12 can cause depression, irritability and agitation
- Vitamin D – Low Vitamin D is a common problem because patients don't get natural sunlight. A vitamin D deficiency can cause fatigue, depression, insomnia, anxiety dementia. Required for absorption of calcium.
- Folate – Low folate can decrease response to antidepressants.
- Iron – Low iron can cause Irritability and fatigue.
- Iodine – Low iron reduces thyroid function, which lowers energy, concentration and memory.
- Magnesium – Low levels of magnesium can cause anxiety.
- Zinc – Zinc plays an important role in making dopamine, melatonin and serotonin.

8. Treatment Choices for Children and Adolescents with ADHD

Once the intake process is complete, I create an individualized plan for each of my patients. This plan is based on their age, type of ADHD, medical history, symptoms, strengths, challenges, finances/health insurance and family dynamics.

The foundation of treating ADHD is to promote new, healthy habits and to set limits on activities that exacerbate the ADHD. This is not popular and, as a clinician, delivering this news often makes me the "bad guy." Patients are understandably not excited to be asked to exercise, limit their screen time, or eat a nutritious breakfast. Parents are also reluctant to invest time in preparing meals at home, driving their child to sports, or learning meditation. Teachers would prefer not to adapt their teaching to match the child's kinesthetic learning style. Nonetheless, if everyone is compliant, they see a big improvement in ADHD symptoms that motivates them to continue following my recommendations.

My specific treatment recommendations are based on my clinical experience and my review of scientific research. The latter can be controversial, as mental health is the subject of thousands of conflicting studies (often funded by lobbyist and industry organizations). The recommendations below should provide a significant improvement in ADHD symptoms in most patients. For organizational purposes, I have listed these recommendations in alphabetical order.

Address Addictions and Habits

ADHD patients have learned how to self-soothe. Many of these methods – alcohol, drugs, eating disorders, video games, etc. – are a negative form of self-soothing and need to be replaced with more positive practices. Limits should be placed on screen time. Exercise and

outdoor activities should be encouraged. Any addiction to alcohol, drugs or food should be addressed through therapy.

Consider Herbal Supplements

I recommend supplements based on the patient's age, blood levels, symptoms and nutrition. One of my concerns is that the patient is adequately absorbing nutrients, which is difficult if they are eating a high fat diet. If absorption is an issue, I refer the patient to a gastroenterologist for treatment for leaky gut, celiac or acid reflux.

At the very least, I believe that all patients can benefit from a probiotic. Below are the most common supplements that I use:

- Alpha Lipoic Acid – Regulate insulin and blood sugar.
- Ashwagandha – Support stress and adrenal function.
- HPA Select[13] is manufactured by Moss nutrition. This product decreases stress hormones.
- Omega 3 fatty acids – Supports healthy brain function.
- Melatonin – Regulates sleep.
- Probiotics – Improves the absorption of vitamins and minerals.

Consider Vitamin Supplementation

I recommend vitamins based on the patient's bloodwork, symptoms, and reported eating habits. In my experience, every child can benefit from a multi-vitamin. The following list shows the role that vitamins deficiencies play in mental health:

- Vitamin A – Low Vitamin A does not allow the absorption of fat soluble vitamins that are needed for mental health.
- B1 (Thiamine) – Low Thiamine causes memory impairment, confusion and disorientation.
- B6 (Pyridoxal) – Low Pyridoxal reduces the body's ability to make serotonin. Contributes to depression and chronic pain.
- B9 (Folate) – Low folate contributes to behavior disorders.
- B12 (Cobalamin) – Low B12 can cause depression, irritability, and agitation.
- Vitamin D – Low Vitamin D can lead to fatigue, depression, and dementia. It is also required for the absorption of calcium.
- Folate – Low folate can decrease response to antidepressants.

[13] https://www.mossnutrition.com/products/hpaselect60vc/?listWidgetID=227

- Iron – Low iron can cause Irritability and fatigue.
- Iodine – Iodine is required for optimal thyroid function. Low iodine can lead to low energy, poor concentration and memory issues.
- Magnesium – Low magnesium can increase anxiety.
- Zinc – Because Zinc is required to make dopamine, melatonin and serotonin, low Zinc can cause ADHD-like symptoms. A 2011 Study by the *Journal of Child and Adolescent Psychopharmacology* demonstrated that 30 mg per day of Zinc reduced the need for amphetamines by 37 percent.[14]

Educate Patients About ADHD

It is important for the patient to learn how to use their peak performance times for the highest focus work. For instance, I might suggest that a patient do their homework during their lunch period while their medication is still active, rather than waiting until after school when they are less focused.

I also educate patients about their learning style. If a patient understands that they are a kinesthetic learner – and need to be active to process what they are learning – they are much more successful with school. I also teach patients how to use their strengths to manage their deficits.

Finally, I talk to patients about organization strategies. I help patients to learn about time management and set up a system of reminders. This may be a "to do" list, phone alarms, a dry erase board, or a calendar.

Improve Sleep Quality

ADHD symptoms would be better managed if the patient got enough sleep. This usually requires parental intervention and is not popular! I recommend that my patients do not use any devices within two hours of bedtime and do not take their devices to the bedroom when they should be sleeping. Patients should also have a schedule that enables them to get adequate rest.

Some patients will need to be evaluated and treated for obstructive sleep apnea to ensure that they are getting good quality sleep.

Manage Pain

It is important to ascertain if a child is in pain and make sure the pain is well-managed. This includes dental cavities, which are especially prevalent in families who cannot afford regular

[14] Zinc for Attention-Deficit/Hyperactivity Disorder: Placebo-Controlled Double-Blind Pilot Alone and Combined with Amphetamine, Journal of Child and Adolescent Psychopharmacology (February 21, 2011). https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3037197/

dental care. According to the World Health Association, 60 to 90 percent of school children have dental cavities.[15]

Promote Adequate Hydration

Many schools do not permit water bottles in the classroom. In addition, most students prefer drinking soda, diet soda, fruit juice or chocolate milk over water.

In addition to hydration being important for health, dry mouth can be a side-effect of ADHD medication. I recommend that, as part of their IEP 504 Plan, students be allowed to carry a water bottle with them at all times. If they don't like water, I recommend adding lemon or lime, or infusing water with oranges or other fruits.

Promote Aerobic Exercise

As I clinician, I see enormous improvement in ADHD symptoms when a patient participates in aerobic exercise. To be successful, the exercise has to consider the child's ADHD needs, as well as be appropriate and enjoyable. A 13-year-old male with Classic ADHD would be bored by baseball or yoga, yet thrive in football, track or wrestling.

A 2016 study on the "Potential Social and Neurocognitive Benefits of Aerobic Exercise as Adjunct Treatment for Patients with ADHD" demonstrated that "stimulant medication, the main pharmacotherapy for ADHD, and aerobic exercise both act on catecholamine pathways. Aerobic exercise has been shown to be beneficial in preclinical studies on spontaneous hypertensive rats, an animal model of ADHD, and in clinical trials of children with ADHD, as an adjunct treatment to medication.[16]

Aerobic exercise is an essential part of healthy living, regardless of an ADHD diagnosis. I encourage my patients to get outdoors and move their bodies every day.

Recommend Acupuncture

Acupuncture has been used for thousands of years to treat mental imbalances. It is extremely calming to the body and has been beneficial to my ADHD patients. Dr. Dori Fortunato, DAOM, LAc, LMT of East End Mental Health, states that acupuncture works on the Neurotransmitter Theory. It has the ability to affect neurotransmitters such as serotonin, noradrenaline, and norepinephrine. These transmitters help regulate our moods, appetite, sleep, focus and concentration.

The benefits of acupuncture are impressive. Acupuncture helps promote increased calmness, better sleep, less agitation. It provides relief from stress and emotional trauma, minimizes the potential side effects of medications, and often enables a reduced dosage of meditation. Acupuncture is also a discovery of inner quiet and strength, lessens or eliminates both physical

[15] http://www.who.int/mediacentre/factsheets/fs318/en/

[16] Potential Social and Neurocognitive Benefits of Aerobic Exercise as Adjunct Treatment for Patients With ADHD, Journal of Attention Disorder (June 10, 2016), Sivan Kill-Drori & Lily Hechtman

symptoms and mental/emotional symptoms, and decreases cravings for alcohol and drugs (including nicotine). It allows more confidence to cope with unpleasant aspects of life and make necessary changes.

Acupuncture supports the immune and nervous systems and, unlike medication, acupuncture does not have any negative side-effects. It also helps young patients to experience a measure of tranquility that is unknown due to a hyperactive brain. Acupuncture is often an integral part in adjunctive therapy to my ADHD patients.

Recommend Individual and/or Family Therapy

Today's parents are busy and stressed. In some cases, the parents are divorced and the child's living situation is split between households. Parents need to set video game limits, encourage time outdoors, dispense medication at regular intervals, and ensure that their child gets enough sleep. These changes are tough – especially as a child enters puberty and becomes more combative. Therapeutic support can be an important part of treating ADHD.

Four types of therapy that I recommend are:

- **Individual Therapy.** The goal of individual therapy is to help the patient deal with their problems in a safe, one-on-one environment.
- **Cognitive Behavioral Therapy (CBT).** CBT helps to change the patient's thought processes, behaviors and beliefs. The family will work with a therapist to identify problems and create new strategies for overcoming them. CBT is very structured and solution-oriented. CBT has shown to be an extremely effective treatment for mental health problems, including ADHD.[17]
- **Dialectical Behavior Therapy (DBT).** DBT is similar to CBT, in that it emphasizes problem-solving and creating new beliefs about self. However, it also includes weekly group therapy sessions, where patients learn interpersonal skills, emotion regulation, mindfulness and how to deal with distress.
- **Family Therapy.** The goal of family therapy is to reduce conflict, increase communication, and help the family create a plan to support the member with ADHD. Often therapists will help families create behavioral contracts that identify appropriate actions (for both parents and children) and consequences. Family therapy can equip the parent to set boundaries, as well as help a family deal with stress and implement a plan that addresses ADHD.

[17] The Efficacy of Cognitive Behavioral Therapy: A Review of Meta-analyses by Stefan G. Hofmann, Ph.D (October 1, 2012) https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3584580/

Recommend a Healthy Diet

Many attention-related problems would go away if the patient ate regular, healthy meals and eliminated soda, caffeine and junk food. While this is not a popular topic with my patients, I educate them on the role that nutrition plays on their brain chemistry. A healthy diet also promotes gut health. This enables nutrition and medication to be properly absorbed, as well as improves elimination (bowel movements) to detoxify the body.

Seek School Accommodations

Since the patient spends much of their time at school, it is important to have a school environment that is conducive to their success. The accommodations I recommend will vary depending on the type of ADHD.

In general, I recommend that parents put in place a 504 IEP. This should enable the child to sit at the front of the class where there is the least distraction. If the patient has inattentive or hyperactive ADHD, they should be allowed an additional 50 percent of time for testing so that they can walk around and stay on task. I may also recommend a scribe assist with testing.

I also recommend that patients who get distracted be allowed to chew gum or use music to stay focused and block out ambient sound. All children should be allowed to have a water bottle in the classroom, both because hydration is important and because some ADHD medications create a dry mouth.

If medication must be administered during the day, the child will need adequate time to visit the nurse's office.

In an ideal situation, the teacher supports the ADHD treatment by being cognizant of the patient's learning style; incorporating meditation and yoga in the classroom; and limiting unhealthy foods (such as pizza and cupcakes).

Select Appropriate Medication

Medication can play an important role in managing ADHD. I use the following criteria in selecting medication:

- Ask what medications have already been tried. Learn if they were successful and if the child experienced any side effects.
- Learn the structure of the child's day. I generally prefer long-acting medication so the child doesn't need to visit the nurse mid-day for medication. This increases compliance and reduces social stigma.
- Consider the child's body weight and size. Least possible dose to avoid decreased appetite, weight loss and circadian growth disruptions.
- Know the child's living situation. If a child is living in two households or has multiple caregivers, there needs to be a system for administering medication.

- Monitor side effects. ADHD medication can cause decreased appetite, abdominal pain, trouble sleep, facial tics, changes in blood pressure and hallucinations. It is important to monitor how the child feels and adjust the dosage (or medication type) accordingly.
- Financial issues and insurance coverage play a large role in choosing medication.

If possible, I like to use genetic testing to enable me to select the proper medication. Regardless of the medication I use, my policy is to begin with a low dose and increase slowly. Choices for ADHD medications include:

- Amphetamine Stimulants -- Adderall, Dexedrine, Dextrostat, Dexedrine Spansule, Adderall XR, Vyvanse and Mydayis
- Methylphenidate Stimulants – Focalin, Methyline, Ritalin, Evekeo, Metadate ER, Methylin ER, Ritalin SR, Metadate CD, Ritalin LA, Aptensio XR, Concerta, Quillivant XR, Focalin XR, and Daytrana patch.
- Nonstimulants – Strattera and Intuniv.
- Antidepressants – Wellbutrin, Wellbutrin SR, and Wellbutrin XL
- Blood Pressure Medicines – Clondine, Catapres, Kapvay and Tenex

Teach Stress Reduction, Mindfulness and Meditation

- **Calm App.** This Calm App[18] is available on iTunes. It has guided meditations to help calm anxiety and manage stress. This is a great option to help patients decompress and manage their emotions. Many teachers are successfully using the Calm App as an alternative to punishment and to help manage their classroom.
- **Mindfulness-Based Stress Reduction (MBSR).** This method of meditation was pioneered by Jon Kabat-Zinn to help the body respond to stress and pain. It also provides an alternative to stress eating and "zoning out" that helps ADHD patients feel more in control of their body. MBSR is easy to learn and there are many resources on Jon Kabat-Zinn's website.[19]
- **Journaling.** I recommend that my patients use a private journal and write about their feelings. This reduces their need to lash out and helps them process emotions.
- **Yoga.** Practicing yoga can reduce stress and balance the production of neurotransmitters in the brain. It also builds self-awareness and helps give the patient a positive way to self-soothe that does not involve video games or self-destructive behavior.

Treat Co-Morbid Psychiatric Conditions

A patient may suffer from additional psychiatric conditions that require treatment along with their ADHD. These co-morbid psychiatric conditions include learning disabilities, depression,

[18] [18] https://itunes.apple.com/us/app/calm-meditation-to-relax-focus-sleep-better/id571800810?mt=8
[19] https://www.mindfulnesscds.com/

pervasive developmental disorder, schizophrenia, psychotic disorder, mood disorder, anxiety disorder, dissociative disorders, personality disorder, PTSD and Traumatic Brain Injury (TBI). Most of the preceding disorders can also benefit from the treatments outlined in this paper.

9. Conclusion: Successful Treatment of Childhood and Adolescent ADHD

Successfully treating children and adolescents with ADHD starts with a correct diagnosis. To do this, I use pre-intake screening tools and a lengthy (60 to 90 minute) intake interview. My goal is to fully understand the patient's life and the impact of ADHD on their education, family and social systems. I also screen for many factors that may be causing inattentive and disruptive behaviors, including physical, social and environmental problems. If necessary, I will refer the patient to an appropriate specialist for further consultation.

Once the ADHD diagnosis is confirmed, my goal is to help the patient manage their symptoms. This is a multi-faceted approach that may include medication, nutrition, therapy, stress reduction, supplements and lifestyle changes.

As a clinician, it is gratifying to see ADHD patients thrive as they learn to manage their symptoms. Patients feel more successful, interact more with their peers, get better grades, experience less conflict at home, and grow more confident. In addition, they learn coping skills (such as meditation and exercise) that help them manage stress and keep them from relying on maladaptive behaviors. If medication is required, the use of nutritional supplements and adjunct therapies – such as CBT and acupuncture – may improve the effectiveness of medication.

Using a multi-disciplined approach enables the child or adolescent patient to feel empowered and in control of their ADHD symptoms, in addition to developing healthy habits that improve their quality of life.

Biography

Catherine Poulos is a Psychiatric Nurse Practitioner, board certified in Adult Psychiatry, licensed and registered by the department of New York State Office of the Professions. With these credentials, Ms. Poulos is privileged to prescribe and therefore specialize in psychopharmacology. Additionally, Catherine recognized the need in the community and is the founder of East End Mental Health in Hampton Bays, New York.

She is a graduate of Adelphi University where she earned a Bachelor of Science in Nursing and from Stony Brook University where she received a Master of Science. Additionally, she was honored the Academic Excellence Advanced Practice Nursing Award in Psychiatric/Mental Health.

Her Master's clinical rotation took place in several areas where she was in charge of providing care to individuals with chronic mental illnesses including bipolar disorder, major depressive disorder, anxiety and substance abuse.

Ms. Poulos is a current consult and a prior Adjunct Clinical Professor for the Psychiatric Nurse Practitioner program at Stony Brook University. She was a clinical consultant for Long Island Center for Recovery in Hampton Bays, New York.

Catherine's psychiatric specialty is working with women coping with mid-life challenges, anxiety, ADHD, depression, family, marital stressors and hormonal changes. Research suggests that there are many psychotherapeutic medications and modalities of therapy that can help treat a variety of disorders. In her practice, she refers to research based medicine, genetic testing while following the guidelines of treatment put forth by the office of professions.