“Nature Deficit Disorder”:
An Ayurvedic Approach to Understanding and Treating Attention Deficit/Hyperactive Disorder
By Saran Ekambaram, AHE
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Introduction

Ayurveda is a 3000 year old science of personal responsibility (with some references dating it back to 5000 years). Its approach to disease is threefold: Understanding the nature of the disease, the person, and the medicine. Only in this threefold manner can any approach to healing be considered Ayurvedic. From here, through mindful practice, one can achieve more balance in health. To understand these natures, we look at things partly through the lens of the doshas: categories of the energetic forces that make up all of existence, which in turn are made of the pancha maha bhutas, or the five great elements: earth, water, fire, air, and ether. These elements in turn have gunas or pairs of opposite qualities which make it easy to categorize things that exist in nature, such as disease.

When Ayurvedic classical texts were first being written, there was no such disease labeled as attention deficit disorder (hereafter referred to as ADD). Therefore, this paper will look to understand what ADD is via the western definition, and how that applies to understanding it through the lens of Ayurveda as a disease of majja dhatu (nervous system) and manas (the mind). These types of diseases are referred to as vatavyadhi. In understanding vatavyadhi diseases, such as ADD, we look to the “king of diseases” - Vata dosha, and it's five subdoshas or vayus. Vata dosha is comprised of the elements of ether and air. It is the least stable of the doshas, and is prone to movement making it the easiest one to become imbalanced. It's gunas which help us to classify it are: cold, dry, light, subtle, flowing, mobile, hard, sharp, rough, and clear. Knowing our disease's gunas allows us to use treatments made up of the opposite gunas to bring balance to it.

But what causes ADD/ADHD? Ayurveda considers there to be three basic causes of diseases – Misuse of the senses, intellectual error, and change. All of these causes contribute to ADD or vata imbalance. In order to discover how to treat ADD through Ayurveda, one must look to pacify vata dosha in these areas.

However, there is also one fundamental cause of all disease: forgetting that we are connected to nature and believing we are somehow separate from it. This is where the idea of NDD or “Nature Deficit Disorder” comes into play. This paper will show that through practices in diet and lifestyle that bring us closer to nature, many symptoms of ADD can be easily managed. Furthermore, Ayurvedic treatments can be used to manage the numerous side effects of ADD related western medical drugs.

Ayurveda can help manage the disease in preventative ways as well as symptomatic relief, as referenced by studies listed in this research paper. While western medical treatments are limited and not without side effects, Ayurveda has many options available with no side effects. This paper will explore the Ayurvedic options in depth: herbal medicines, bastis, five sense therapies, oleation therapies, routines, diet, yoga, time in nature,
and meditation.

When comparing western treatments to Ayurvedic treatments, this paper will also examine the effects of ADD medication in conjunction with Ayurvedic treatments (Note: Though at times this paper may refer to both ADD and ADHD, the two diseases are similar and generally research is done on both simultaneously. For brevity's sake, sometimes only one will will be referred to where appropriate).

ADD and ADHD are diseases that affect a large portion of the population and put enormous costs on the system as well as individuals and families. The drug based approach to treating this disease is incomplete and non-curative, with side effects that can cause further health issues in both the short and long term. Ayurveda looks at all disease from a holistic approach. By understanding the root cause of this disease, those with ADD can use Ayurvedic treatments to help them live a relatively symptom free life, and to also improve their general health in body, mind, and spirit.

Western Understanding and Approach

Definition

Attention deficit disorder (and ADHD: attention deficit/hyperactive disorder) is defined as “...a problem of not being able to focus, being overactive, not being able control behavior, or a combination of these. For these problems to be diagnosed as ADHD, they must be out of the normal range for a person's age and development.”

Symptoms

The symptoms of ADD/ADHD are as follows:
- inattentiveness
- hyperactivity
- impulsivity

The symptoms listed have varying sub-symptoms and those afflicted with ADD/ADHD may contain any combination of them. The following are some relevant examples from a Medline Plus article on how to better understand these sub-symptoms in each category:

Symptoms of Inattentiveness:
- failure to pay attention to details
- careless mistakes in work/school
- difficulty maintaining attention
- difficulty organizing tasks
- avoidance or displeasure in tasks requiring sustained concentration
- easily loses items
- distracted easily
Symptoms of Hyperactivity:

- fidgeting
- unable to sit in one place
- difficulty working quietly
- excessive speech and rambling
- excessive motion often at inappropriate times

Symptoms of Impulsivity:

- blurtting out speech
- interrupting others
- difficulty waiting their turn

**Diagnosis**

Those who display just inattentiveness may be categorized as only ADD rather than ADHD.

Diagnosis of ADD occurs more commonly in children, with around 11% being diagnosed between the ages of 4-17, with boys being approximately 2.5 times more likely. Of those children diagnosed with ADD/ADHD, 69% were on medication.

**Prognosis & Treatment**

ADD is not yet curable by western medicine. Evidence suggest that it is a lifelong condition that can lead to increase in risk in the following areas:

- substance abuse
- sleep difficulty
- physical injury
- occupational, social, and academic functioning
- illegal activities
- cognitive and emotional problems
- motor coordination and development
- low self esteem
- suicide

The current recommended treatment for ADD is medication treatment and behavioural therapy combinations, especially for young children.

**Economic Cost**

The cost of ADD can be a real financial burden. Studies done in 2005 have shown that the cost of
ADD/ADHD is estimated between $36 - $52 billion annually. The cost per individually annually is approximately $12,005 - $17,458. Approximately $3.7 billion is lost annually on loss of work for adults with ADD/ADHD and family members of individuals with ADD/ADHD. The cost per patient is approximately three times higher than matched controls.

Summary of Western Approach

The western approach to treating ADD is to catch early signs of inattentiveness, hyperactivity, and impulsivity via family and caregivers. From there, a doctor may do further examination to diagnose the individual with ADD/ADHD.

The options from here are a to do a behavioural modification approach, a drug approach, or a combination of the two.

The long term outlook for individuals with ADD/ADHD shows that it is not yet curable by western medical science. Those with ADD/ADHD are also more susceptible to other diseases and risks in life, with the long term financial costs being high for the system as well as families. Due to this, more and more researchers are looking into ways to treat ADD/ADHD in more lifestyle based and affordable ways, such as in Ayurveda.

Ayurvedic Understanding and Approach

Definition

ADD is a disease that displays all the qualities of vata. Someone with ADD we would describe as having vatavyadhi, an excess of the elements of air and ether in the manovaha srota (mind) and majja dhatu and majjavaha srota (nervous system and channels). In order to understand what's happening with vatavyadhi, we must look at the subdoshas of vata: Prana vayu, vyana vayu, samana vayu, udana vayu, and apana vayu. These vayus are responsible for many afflictions associated with ADD.

The Vayus

Prana vayu (forward moving air) is responsible for our sensory input and occurs from outside stimulus coming into our system. It is located at the head or brain. Prana is intimately connected with the majja dhatu (nervous system). When talking of the threefold causes of disease, this would be where misuse of the senses comes in. Though we can't completely control our outside environment, we can understand that being in a vitiating environment for prana vayu will aggravate ADD. A simple example: studies show that removing distractions from people with ADD helps to reduce their symptoms. Anything that is stimulating to the mind or body can easily throw off prana vayu for those with ADD, as their sensitivity is already heightened. When prana vayu is in dysfunction in those with ADD, it can lead to other disorders such as addiction.

Vyana vayu (outward moving air) is responsible for circulating the energy of vata. It moves from the
heart outwards. If this is happening in excess, it can lead to hyperactivity. If excessive prana vayu has already been taken in, vyana vayu moves that energy around, but not out. It will circulate creating more and more activity in the mind and body. This causes a dysfunction in the flow of information in the nervous system and mind.

Samana vayu (*the balancing air*) is responsible for how we absorb information. It moves from the periphery to the center, both in the macroscopic view of the body and the microscopic absorption at a cellular level. It is located in the small intestine. Those suffering from memory related issues with their ADD have a samana vayu imbalance. With so much coming in through prana vayu, and then circulated by vyana, those with ADD can accumulate a lot of stimulus without properly processing it. Without proper processing, there is no retention. When samana vayu is in dysfunction, we see instability in the mind and body, such as having erratic or alternating symptoms and behaviour.

Udana vayu (*that which carries upward*) is responsible for expression of the energy of vata. It moves upwards and out, putting our mind and muscles to work. It resides in the chest and throat. The impulsiveness of ADD comes from here – interrupting speech and fast speech are examples. Lack of self-expression can also occur when udana vayu is in deficiency, leading to low self esteem and other related disorders stemming from ADD.

Apana vayu (*air that moves away*) is responsible for letting go of the energy of vata. It has a downward motion, residing in the lower abdomen to pelvic floor, and when blocked can lead to all of the other vayus building in excess. It is also responsible for us feeling more grounded. A blocked apana vayu or imbalanced apana vayu only serves to vitiate all the symptoms of ADD further and further with nowhere for them to go. This can be seen in constipation physiologically, or depression and negativity, all of which are affiliated with ADD.

**Ayurvedic Treatments**

In order to treat vatavyadhi, balancing all five vayus is paramount. First and foremost, we start with apana vayu. If apana vayu is blocked, there is no release of the incoming energy that the other vayus are interacting with. Working with apana vayu first allows us a channel for the energy to exit the body. From there, we can satisfy the other four vayus accordingly. Thankfully, there are several Ayurvedic ways to treat ADD (and all the vayus), and if used in conjunction, management of this disease can provide the afflicted with a relatively symptom free life.

**Herbal Medicines**

Herbal decoctions containing purgatives or laxatives are recommended in the Sushruta Samhita. This will help to clear the channel of apana vayu. Additional, diuretic herbs can be used if the blockage is in the urinary tract.
To manage the mind, we can look to the categories of nervine tonics and nervine sedatives for herbs. These can be administered in a multitude of ways, from teas to aromatherapy. Typically, herbs such as gotu kola are effective at reducing the symptoms of ADD and providing more focus. xxii

Bastis

Bastis, or enemas, are recommended using medicated oils. This will help to pacify vatavyadhi and is one of the most effective ways to bring balance to vata via apana vayu. Bastis are noted in the Sushruta Samhita as part of a regular regimen to maintaining bodily health and function, in addition to the positive effects of reducing vata in the majjavaha srota and manovaha srota.

5 Sense Therapies

After treating apana vayu, we can look to the other vayus. Starting with prana vayu, we can control to a certain degree the environment the person with ADD is in. Limiting distractions and reducing the amount of stimulus for the senses is key: sight, sound, taste, touch, and smell can all be used in moderation. Five sense therapies can be used to bring vata pacifying sensory input.

Chromotherapy:
– using the colours of the visible spectrum to successfully cure diseases. In the case of reducing vata, warming colours, earth tones, pastels, and gold tones are best in pacification.

Sound Therapy:
– time in silence to reduce udana vayu imbalance (rambling)
– soothing and calming music (less stimulating)
– the bija mantras lam and vam to increase the elements of earth and water to pacify air and ether.

Taste:
– salt to nourish the nervous system
– foods with a sweet rasa and vipaka to nourish and build the tissues
– sour tastes
– avoiding/limiting vata vitiating tastes such as bitter, pungent, and astringent (all depleting to the tissues).
– vata pacifying spices such as garlic, ginger, nutmeg, sage, turmeric, fennel, clove, cumin, etc.

Touch:
– oleation therapies (explored in more detail further)
– baths with calming essential oils and epsom salts

Aromatherapy
– diffusers, incents, candles, etc. Utilizing vata pacifying aromas: lavender, sage, cloves, pine, etc.
Oleation Therapies

Oleation therapies are numerous in Indian literature and practice. Oil has a nourishing effect on the cells and when applied in different methods to specific areas can provide symptomatic relief as well as future protection from diseases.

Mainly, oleation therapies are effective at reducing vata. Abhyanga (massage with large amounts of medicated oils) are especially effective when using downward strokes to bring grounding to vata. Oil is seen as being of the water element, thus bringing more of it will pacify air and ether, which are high in those with ADD.

Shirodhara is a treatment where liquid is warmed and gently poured onto the forehead. A study done in 2010 by the AYU, and international quarterly journal of research in Ayurveda, discovered that when shirodhara was done in conjunction with Ayurvedic drugs that reduce symptoms of ADD, results were more effective than if the drug was used alone or with a placebo.xxvii

Sneha-nasya (drops of oil placed in the nostrils) can help to lubricate the sinuses and when applied properly have benefits to reducing ADD. It brings clarity to the mind and allows for better restfulness. It creates a conjunction with the sense organs to perform their “respective functions”.xxviii

Western drugs used to manage ADD symptoms have show side effects such as headaches.xxix Karna Purana is an oleation treatment applied to the ears and is effective at treating headaches associated with ADD.xxx Warmed filtered medicated oils are gently poured into one ear. Then, one places a cotton swab or towel by the ear and tilts the head to the other side to do the same. It is shown to bring calmness and stability to the mind, and is also effective at reducing excessive input from prana vayu.

Routines

Vyana vayu becomes more agitated in those with ADD. Their thoughts and actions can tend to jump from one to the next to the next, not giving samana vayu enough time to retain anything. Surrendering to the moment and establishing solid, healthy routines are key to cultivating health in these vayus. In a study done on young children with ADD, families that employed regular routines and schedules were an important predictor in the ability for the children to perform household tasks.xxxi Additionally, biofeedback occurs through use of routines (biofeedback is the training of someone to acquire voluntary control over involuntary functions). In individuals with ADHD, biofeedback can reduce symptoms by up to 85%.xxxii

Diet

Diet plays an important role in ADD. The typical western diet contains “higher intakes of total fat, saturated fat, refined sugars, and sodium and is deficient in omega-3 fatty acids, fiber, and folate”.xxxiii This diet is shown to have an increase in ADD related symptoms of inattentiveness, hyperactivity, and impulsivity. This type of diet in individuals with ADD also provides an increased risk for obesity.

The Ayurvedic approach to diet would be to pacify vata. Diet is a complex and thorough subject in Ayurveda which is best selected for a patient via an Ayurvedic Practitioner. However, here is a general
outline of what is appropriate diet based on the rasas (tastes) of sweet, salty, and sour, as well as the avoidance of bitters, astringents, and pungents as referenced in the five sense therapies. Please note all food should always be as unrefined and as unprocessed as possible, with an emphasis on organic and fresh:

- cooked grains and unyeasted breads
- dairy such as warm milk, butter/ghee, yogurt, all with vata pacifying spicing
- almond or sesame oils
- sweeter fruits
- cooked vegetables which are more earthy in nature: beets, carrots, okra, squash, etc.
- Lightly roasted almonds
- limited meat consumption
- mung beans
- avoidance of alcohol, caffeine, soda
- avoidance of any habit forming foods such as that with high sugars

In essence, an avoidance of a typical western diet that relies heavily on processed foods high in fats and sugars and a connection to more natural foods is best to pacify vata.

**Yoga**

Yoga asanas (poses) have become more and more popular in the west as a way of maintaining physical, mental, and emotional balance in health. They often bring clarity, focus, a sense of calm, and a sense of alignment to those that practice it. It has recently been considered as a noninvasive and cost effective supplementary treatment to many different neurological disorders such as ADD/ADHD.

Yoga asanas are an effective way of building SA (sustained attention), which is a common problem in those with ADD. Some studies have shown that a consistent yoga practice can improve SA and leads to better performance in both work and academic endeavours. Yoga also helps to improve visual scanning, and better “activation and inhibition of rapid response”.

In cases of hyperactivity with ADHD, only a few studies have been done on the effects of yoga. Studies have mostly concluded that due to limitations with sample sizes and funding, results have shown that there is a potential benefit for yoga in conjunction with medication to reduce the effects of hyperactivity. Further research on the subject could lead to a better understanding of yoga's role in hyperactivity.

Additionally, yoga is more than just asanas. Yoga has eight limbs as referenced by the Sage Patanjali in the Yoga Sutras, which bring balance to the body and mind and spirit: discipline, restraint of the mind, postures, breathing practices, sensory withdrawal, focus, sustaining focus, and enlightenment.

Utilizing those other parts of yoga can bring the removal of many obstacles, such as disease, idleness, inattentiveness, instability, and distraction. These symptoms are all prevalent in those with ADD. A steady yoga practice could help in addressing these symptoms.
Time in Nature

Stress plays a major role in all diseases. Stress can often be the cause of disease as well as further aggravate symptoms and create even further disease in the body. It is in the latter that we look at the effects of stressful environments on individuals with ADD.

Individuals with ADD already are experiencing a prana vayu imbalance, often being more sensitive to external stimulus. Therefore anything which serves to vitiate prana vayu can be seen as a stressor.

Stress reduction strategies are key in reducing symptoms. Time in nature plays a large part in limiting stressful factors individuals with ADD may experience in day to day life. For example, television, games, busy areas, constant noises, etc. Time in nature automatically removes the majority of environmental stressors giving individuals with ADD relief from further vitiation of prana vayu.

Time in nature also increases exposure to the grounding elements of earth and water to offset the excessive ether and air elements present in vatavyadhi.

In a study done on “green outdoor activities”, time in nature was shown to reduce symptoms of ADHD across a wide range of individuals. Specifically, inattentiveness and impulsivity were shown to reduce after exposure to natural settings. In fact, even among those without ADD/ADHD, exposure to nature has shown that same reduction.

In that same study, children diagnosed with ADHD were put in a variety of recreational activities, with those activities having indoor and outdoor versions. The study indicated that those children that participated in a “greener” environment experienced a better reduction of ADHD symptoms than those of their indoor counterparts. The greener the child's environment was, typically the less severe their symptoms would be.

Meditation

Meditation as a general practice is integral to the idea of health in the studies of yoga and Ayurveda. There are many different schools of thought on meditation, and many different studies have been conducted. For example, mindfulness meditation has shown merit in helping to manage symptoms of ADD.

In Ayurveda, meditation is meant to bring balance to the body and mind, and ultimately the spirit. Meditation achieves this by balancing the chakras. These chakras are seven energy centres that exist from the tailbone up to the crown at various points along the spine. Each chakra corresponds with a different great element. By using meditation, one can bring balance to these chakras, and thus, the elements, helping to further reduce vata. Meditation also serves to reduce rajas in the mind, which can be akin to a state of agitation or constant turbulence of thoughts and emotions which occurs in those with ADD.

Summary of Ayurvedic Approach

The Ayurvedic understanding of ADD is that it is a disease of vata, specifically vatavyadhi. There are numerous treatments available to reduce vata, all revolving around bringing the individual afflicted more in tune
with their own nature and their environment via diet and lifestyle. When using a combination of these treatments, with or without the addition of western ADD drugs, Ayurveda can help to manage and reduce symptoms related to this disease.

**Conclusion**

The world we live in can have many stressful factors in our day to day lives. The fast paced, and often indoor environment we live in only serves to vitiate the vata dosha further. Since vata dosha is comprised of the least stable and grounding elements, the qualities of earth and water (nature) are best at balancing it. As evidenced by the studies on grounding practices such as time in nature, meditation, and also the Ayurvedic treatments of shirodhara, nasya, karna purana, and specific herbs for treatments, people living with ADD can better understand, manage, and treat their illness. Additionally, many other Ayurvedic practices such as five sense therapies, bastis, and others mentioned in this paper not only help manage ADD symptoms, but also serve to generally bring better health to entire body by pacifying vata, the king of diseases. Pacifying vata automatically allows us to be more connected to it's opposite earthly elements. Rather than looking at the disease as an “attention deficit disorder”, phrasing it as a “nature deficit disorder” might be more apt, as it classifies the cause and cure of the illness.

Western medical science still is unclear as to the cause of ADD, and the treatments available can only manage the symptoms. When the drugs are not taken, the illness returns. Although Ayurveda doesn't necessarily offer a cure for it all, it can help manage the symptoms of ADD without drugs, or at the very least manage the side effects of the drugs taken to manage ADD symptoms. Most importantly, it can do all this without creating any other side effects and restoring overall health and function to the body, mind, and spirit.

Many studies on ADD are still new and evolving, especially those with an emphasis on natural remedies. However, even small studies are showing that there is at least some benefit to focusing on nature in individuals with ADD, and that further testing to explore this area of treatment would be beneficial. As this desire to explore these treatments continues, more and more studies are being conducted and only time will tell the true effectiveness of natural treatments such as those offered in Ayurveda.

In conclusion, ADD is a serious problem in today's society, with more and more children and adults being diagnosed every year. One can only speculate as to the cause at this point, but the reality is that it is a prominent disease that effects more than just the individual diagnosed and has no cure in immediate sight. As more and more people are looking towards treatments without side effects and without high costs, Ayurveda offers a multitude of options to bring nature back to those who need it greatly.
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