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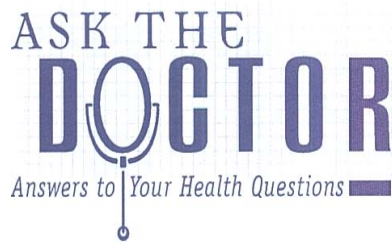


## Attention Deficit & Concentration

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## Nutritional Supplements for Attention and Concentration

Even as adults, all of us can recall a child from our long ago school days who simply could not pay attention and disrupted the whole class. Maybe this kid was the class clown, or the kid who just couldn't sit still, or the "Chatty Cathy," or the constant daydreamer, or even the school bully. Whatever the case, this child often disrupted the whole class's learning process because of his or her inability to focus and concentrate on school tasks. Looking back at these "problem children," experts realize that many of them probably had the disorder called attention-deficit/hyperactivity disorder (ADHD).

Chronic hyperactivity and distractibility is frustrating for anyone affected by this behavior. The individuals touched by ADHD include not only the affected children, but their concerned parents, siblings, and the frustrated teachers as well.

Children who have difficulty filtering out distractions, staying on task, paying attention, and controlling their bodies invariably do not do well in school. Because of this negative school experience, these children often incorrectly conclude that they are "dumb" or "worthless."

But there are ways to help hyperactive and easily distracted children focus their energy and attention in positive, constructive ways. In this issue of Ask the Doctor, we will talk about supplemental nutrients that help children concentrate on school activities and enjoy extracurricular activities and events.

But first we need to discuss some background about attention-deficit/hyperactivity disorder and how this disorder can adversely affect school performance, friendships,

### Q. What is attention deficit/ hyper-activity disorder?

A. Attention-deficit/hyperactivity disorder (ADHD) is a neurobiological disorder of self control. It consists of problems with attention span, impulse control, and activity level. 1,6,8

There are three subtypes of ADHD, each with a different subset of symptoms: 1,3-6,8

- Inattentive – can't seem to get focused or stay focused on a task or activity.
- Hyperactive-impulsive – very active and often acts without thinking.
- Combined – inattentive, impulsive, and very active

### Q. What are some of the symptoms of AD/HD?

- A. A few of the symptoms of ADHD are: 1-6,8
- Doesn't pay close attention to details

- Doesn't seem to listen when spoken to directly

- Is easily distracted
- Has difficulty organizing and finishing tasks
- Fidgets with hands and feet; has difficulty remaining seated.
- Runs about or climbs excessively when inappropriate (seems "motor-driven")
- Talks continually
- Interrupts conversations and intrudes upon other children's games



- Avoids tasks that require sustained mental effort (e.g. schoolwork, homework, games)
- Exhibits impulsive behavior (says or does things without thinking of consequences)
- Does things that are dangerous with-

out thinking about possible outcomes

While all children exhibit the symptoms outlined to some degree, a child with ADHD will exhibit these symptoms to such a degree that they produce impairment in major life activities and could even cause harm to the child.

**Q. What does ADHD mean for my child?**

**A.** The symptoms of ADHD can be crippling for a child. Because of ADHD, a really bright child may not be able to succeed to his full potential in school and in extracurricular activities. Constant failure may lead to low self-esteem and depression. Children with ADHD may be delayed by as much as 30 percent of their actual age in their ability to pay attention and remember. This means that a 9-year-old may act more like a 6-year-old in his ability to focus and use self control. Imagine how hard it might be for a first grader to sit and concentrate on

instruction in a fourth grade classroom, and you'll get an idea of how hard it is for many kids with AD/HD to function in groups their own age. It doesn't mean intelligence is any less; it's just the ability to control impulses that's affected.<sup>3,6,8</sup>

Early intervention to control ADHD symptoms is crucial. I believe that ignoring problems and hoping kids will grow out of this is, indeed, a recipe for disaster.

**Q. What causes ADHD?**

**A.** Understandably, one of the first questions parents ask when they learn their child ADHD is “Why? What went wrong?” Since no one knows the exact cause of ADHD, it doesn't help for parents to blame themselves. There are too many possibilities to pin down the cause with certainty. It is far more important for the family to move forward in finding ways to get the right help.

Scientists at the National Institute for Mental Health and other research institutions are tracking clues to determine what might prevent nerve cells from forming the proper connections. Some of the factors they are studying include drug use during pregnancy, genetics, and toxins. Research shows that a mother's use of cigarettes, alcohol, or other drugs during pregnancy may

have damaging effects on the unborn child. These substances may be dangerous to the fetus's developing brain. It appears that alcohol and the nicotine in cigarettes may distort developing nerve cells. Current research suggests that drug abuse may harm these receptors. Some scientists believe that such damage may lead to ADHD.<sup>5,6,8</sup>

Other research shows that attention disorders tend to run in families, so there are likely to be genetic influences. Children who have ADHD usually have at least one close relative who also has ADHD. One study demonstrated that at least one-third of all fathers who had ADHD in their youth go on to have children who have ADHD. Even more convincing, there is a study which shows that ADHD in identical twins is a shared trait.<sup>3,8</sup>

Looking at the role of toxins in development of ADHD has been my particular focus ever since my son developed autism after receiving a mercury containing vaccine. Lead is another such possible toxin. It is found in dust, soil, and flaking paint in areas where leaded gasoline and paint were once used. It is also present in some water pipes. Some animal studies suggest that children exposed to high lead levels may develop symptoms associated with ADHD, but only a few cases have actually been found.<sup>5,8</sup> Researchers are looking for an inherited susceptibility to the toxins associated with ADHD.

**Q. Can children “grow out” of ADHD?**

**A.** Most of them don't. Statistics show that 67% of people diagnosed with ADHD in their childhood will have it in adulthood.<sup>3,4,6, 10</sup> This doesn't mean the other 33 percent have outgrown it. It merely means they don't meet all the full criteria for the disorder. They may have residual ADHD, but not enough to get a full diagnosis of the disorder.<sup>3,4,6,10</sup> The vast majority of ADHD adults remain affected to some extent, and two-thirds of them seem to have the full disorder in adulthood.

**Q. What will happen to my child if his/her ADHD is not treated?**

**A.** Although children with ADHD can be very successful in life, without appropriate identification and treat-

ment, ADHD can have serious ramifications. School failure, depression, conduct disorder, failed relationships, and substance abuse occur at higher rates in children with untreated ADHD

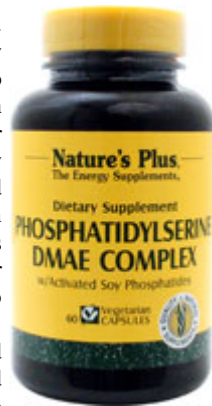
than in the general population.<sup>3,4,9,11</sup> ADHD takes its biggest toll in the area of education. These children often struggle academically throughout their educational careers. From 23 to 35% of children with ADHD will be retained (held back) at least once before reaching high school. Thirty seven percent of children diagnosed with ADHD will never finish high school, even though special education is made available to them. Thirty-five to forty percent of the non-ADHD population gets a college degree, while only 5 percent of children with ADHD will complete a degree.<sup>3,4,9</sup> The impulsive nature of ADHD also has a detrimental effect on relationships and decision-making abilities.<sup>11</sup> In a recent study, it was found that adolescents with ADHD started having sex earlier than their peers. In addition, they had more sexual partners and opted not to use contraception. An ADHD teen is 40 times more likely to have a child out of wedlock before the age of 20.<sup>3</sup>

**Q. What are some conventional treatments for ADHD?**

**A. Most often, the medications prescribed for people with ADHD are stimulants. Methylphenidate, amphetamine, and pemoline are the most frequently used stimulants. It may seem contradictory to prescribe a stimulant to a hyperactive child. However, it is theorized that stimulants activate the behavior control center in the brain, resulting in better focus, more controlled activity levels, and increased attention span.<sup>4,6,12,13</sup> Anti-hypertensive (blood pressure lowering) drugs are considered the last resort medications for ADHD children. While these drugs are used to treat high blood pressure, they also have behavior modifying properties.<sup>14,15</sup>**

**Q. What are some of the common side effects of ADHD medications?**

**A.** The stimulant medications often decrease a child's appetite, which leads to weight loss. Stimulant medications may also cause headaches, stomach discomfort, increased anxiety, and insomnia. In addition, the use of stimulants to treat ADHD may worsen the tics in 34% of children with Tourette's syndrome.<sup>16,17</sup> The



unique needs and circumstances of your child’s situation.

**Q. Are there any natural alternatives to ADHD medications that could help my child?**

**A.** Yes, there are non-drug alternatives to the ADHD medications. There are ingredients that can have powerful nutritional effects for a child diagnosed with ADHD. The chart above lists the most critical ingredients for the majority of ADHD children. You can see that these natural ingredients work together to help improve brain neurotransmittance, concentration, attention, and control of hyperactivity. There are many dietary supplements that are marketed as ADHD formulas. To get the best results, it is very important that the right ingredients are in the children’s formula you buy. Therefore, it is important to look for a product that is especially formulated for children and teens with ADHD. The combination of ingredients is important as each ingredient addresses a different facet of the symptoms and dysfunctions of ADHD. In addition, it is important to tailor the dosage of the dietary supplements based on the severity of your child’s symptoms. Some children’s ADHD symptoms are not severe and may require minimum dosage to achieve relief of symptoms, whereas children with severe ADHD symptoms, especially extreme hyperactivity, may require extra dosages as needed. Therefore, just like the prescription drugs, finding the correct dietary alternative dosage may be a “trial and error” before finding the correct dose to relieve the symptoms of ADHD.

**Q. Do dietary supplements have the**

**same type of side effects as prescription ADHD medications?**

**A.** No, the non-drug alternatives do not have any of the side effects of the prescription medications, such as decreased appetite, insomnia, sedation, and agitation. One of the natural supplements, L-theanine, is an ingredient in green tea and has been extensively consumed without any side effects. L-theanine is a safe alternative because it will promote relaxation without causing the daytime sedation that is associated with some prescription medications on the market today.<sup>18,19</sup>

**Q. Can these dietary supplements be taken in combination with conventional ADHD medications?**

**A.** These dietary alternatives can be safely taken in combination with conventional ADHD medications. I believe that natural alternatives, such as L-theanine and phosphatidylserine, can actually allow for a decrease in conventional medication doses. In fact, a recent study showed that phosphatidylserine reinforced medical interventions that were already in place, such as Ritalin® therapy, and further raised the degree of functioning of these children.<sup>20</sup> In addition, these dietary alternatives can be given to your child after school, when conventional medications have worn off. You may find that giving your child a dietary supplement after school will help him to focus on homework and extracurricular activities without any risk of sleeping difficulties at bedtime.

**Q. Could these natural alternatives be taken during conventional ADHD**

**medication “drug holidays” or on weekends?**

**A.** Definitely. If you choose to give your child a “drug holiday” over the summer or if you choose not to medicate your child on weekends, a dietary supplement could help your child relax and focus. Attention and the ability to focus are important in extracurricular activities, such as soccer league, or gymnastics class, or art lessons. Giving your child a dietary supplement may help him focus and enjoy activities during “drug holidays” or weekends.

**Conclusion**

Attention-deficit/Hyperactivity disorder is a real neurological dysfunction. It is not the product of bad parenting or too much television. Great strides have been made in understanding and managing this common childhood disorder. The more parents understand about ADHD, the more actively and intelligently they can participate in the process of helping their child. Children with ADHD who would have gone unrecognized and untreated only a few short years ago are now being helped, often with dramatic, positive results. The treatment of ADHD is a multi-faceted process requiring the experienced direction of your healthcare practitioner, necessary parental involvement, the cooperation of your child, and the assistance of the school system. With the use of educational accommodations, medication, and dietary supplements, a child with ADHD can look forward to a happy and successful future.

L-Theanine	Causes significant increases of neurotransmitter concentrations in brain, which promotes muscle relaxation and improves concentration and learning. <sup>18-19</sup>
Phosphatidylserine	A key constituent of nerve cell synaptic membranes, which are deeply involved in the production of neurotransmitters. Improves attention, behavior, learning performance, and mood. <sup>20,21</sup>
Taurine	Taurine is an amino acid, which acts as an inhibitory neuromodulator in the nervous system and muscle. There are studies citing that taurine administration results in fewer seizures and reduced anticonvulsant dosages in epileptic children, as well. <sup>26</sup>
DMAE (Dimethylaminoethanol)	Dimethylaminoethanol (DMAE) is thought to increase the body's production of the neurotransmitter, acetylcholine. DMAE can have a stimulant-type action in the ADHD brain, and has been used with success in the treatment of children with ADHD and developmental disorders. <sup>20-25</sup> Causes significant increases of neurotransmitter concentrations in brain, which promotes muscle relaxation and improves concentration and learning.
N-acetylcysteine	A powerful antioxidant that been shown to be beneficial in neurological disorders. NAC provides antioxidant support by protecting cells from free radical damage. In addition, NAC enhances detoxification processes in our body. <sup>27,28</sup>

use of the “last resort” anti-hypertensive drugs used to treat ADHD requires vigilant monitoring. The dosage of these drugs is hard to regulate in children, and the therapeutic effects of these drugs are merely just sedating the child.<sup>16,17</sup>

**Q. I am unsure if I want to give my child the conventional ADHD medication.**

**A.** You and your health care practitioner need to consider many factors in making this decision. This is a highly personal decision that will affect your child in all facets of his/her life: academically, socially, and emotionally. As you have undoubtedly realized by now, a diagnosis of ADHD should not constitute a recommendation for automatic drug treatment. You need to work with your health care provider and remain flexible to the care provider and remain flexible to the

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## Resources to learn more about Attention Deficit/Hyperactivity Disorder

CHADD: Children and Adults with Attention Deficit/Hyperactivity Disorder—[www.chadd.org](http://www.chadd.org)

International Child Development Resource Center - [www.icdrc.org](http://www.icdrc.org)

Schwab Learning - [www.schwablearning.org](http://www.schwablearning.org)

Attention Deficit Disorder Association—[www.add.org](http://www.add.org)

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