

## **Nurturing the Developing Brain to Achieve Maximum Potential**

Written by Keri Chiappino, D.C., DACNB

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It's back-to-school time. As children get back into the routine of learning after the free-floating days of summer, what can parents do to create an environment that will allow their children to flourish and grow to their fullest potential?

According to a 2003 study conducted by the Centers for Disease Control, 4.5 million children ages 4–17 in the United States have ADHD (attention deficit/hyperactivity disorder) and 56 percent of them are taking some kind of medication. In addition, a 2006 study showed that 1 out of every 110 children is diagnosed with an ASD (autism spectrum disorder); the number is up from 1 in 150 in 2002. While it is yet unknown precisely what roles genetics and environment play, there are many environmental influences that can be controlled to help alleviate the symptoms of these disorders. This attention to environment not only benefits parents of affected children, but also serves to create a healthy, nurturing environment for the entire family.

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**HOLISTIC HEALTHCARE**

## Nurturing the Developing Brain to ACHIEVE MAXIMUM POTENTIAL

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It's back to school time. As children get back into the routine of learning after the free floating days of summer, what can parents do to create an environment that will allow their children to flourish and grow to their fullest potential?

According to a 2009 study conducted by the Centers for Disease Control, 4.5 million children ages 4-17 in the United States have ADHD (attention deficit/hyperactivity disorder) and 14 percent of them are taking some kind of medication. In addition, a 2006 study showed that 1 out of every 100 children is diagnosed with an ASD (autism spectrum disorder); the number is up from 1 in 150 in 2002. While it is yet unknown precisely what roles genetics and environment play, there are many environmental influences that can be controlled to help alleviate the symptoms of these disorders. This attention to environment not only benefits parents of affected children, but also serves to create a healthy, nurturing environment for the entire family.

**Fuel for the Brain**

In order to nurture the developing brain, two components are essential: fuel and activation. Food is the fuel that powers the brain so that it can function. In addition to the nutrients we ingest through our diets, we also need oxygen and supplementation to support our body's ability to assimilate the fuel.

To begin with, it is essential to eat a good breakfast, rightly considered the most important meal of the day. The body uses glucose for energy; excess glucose is stored in the liver as glycogen, which can be released as needed. When a person skips breakfast after fasting all night during sleep, glycogen stores are depleted by mid-morning. Children who don't eat a good breakfast simply lack fuel to power their brains.

A 1998 study published in *Archives of Pediatrics & Adolescent Medicine* showed that children who ate breakfast regularly had better reading and math scores, lower levels of depression, anxiety and hyperactivity, better school attendance, improved attention spans, and fewer behavior problems. The type of breakfast eaten is equally important. A high-protein breakfast is preferable to a breakfast high in carbohydrates, and generally improved performance in all areas.

Get organic as much as possible, including lots of fruits and vegetables, whole grains and good proteins. A new study published in *Pediatrics* reveals that around 34 percent of the U.S. children tested had residue of organophosphate compounds, a class of pesticides. The most common route of organophosphate pesticide exposure in children is through eating foods that have a high pesticide residue. You can check out a list of the foods with the most pesticide residue at [ewg.org](http://www.ewg.org).

In a representative sample of U.S. children, those with higher levels of organophosphate pesticide metabolites in their urine were more likely to have ADHD than children with lower levels. Each twofold increase in urinary concentration of these metabolites was associated with a 53 to 73 percent increase in the odds of ADHD. The study suggests that exposure to organophosphate compounds in developing children might have effects on neural systems, and could contribute to behaviors such as inattention, hyperactivity and impulsivity.

Greening your environment will decrease toxic load to the brain and maximize your family's oxygen intake. Do not use industrial or heavily scented cleaning supplies. The blood brain barrier is delicate in the developing brain, and it is compromised in children with ADD (attention deficit disorder) and ADHD, as well as in children with ASD. Do not use scented candles or air fresheners. Limit your use of perfume, since 95 percent of the chemicals used in them are made from petroleum. Use organic fertilizers in your garden. Do not light fires. We may not have control of public environments, but we can control our own homes.

**Activated Minds**

Besides fuel, the developing brain also needs activation. Activation is any stimulation that elicits a response from the brain. All sensory stimulation, including light, touch,



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