



# ASHEVILLE INTEGRATIVE MEDICINE

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## ADD and Lead

The incidence of Attention Deficit Disorder, or ADD, is skyrocketing in America. However, instead of seeking possible underlying causes of ADD to treat or reverse, our conventional medical therapy is to suppress the symptoms with medications that are closely related to amphetamines.

An alternative approach is to investigate these kids carefully for imbalances that might hinder their ability to control their impulses. One area fertile for investigation is the search for toxic metals such as lead.

The Center for Disease Control, or CDC, estimates that more than three million children have lead toxicity at any point in time in America. Their criteria for diagnosis is a serum lead level of ten mcg/dl or higher. Children get lead toxic easy since they absorb fifty percent of the lead they're exposed to, while adults only absorb about ten percent. In our homes, twenty percent still have leaded water pipes, while many more still have lead solder.

However, three million kids may be just the tip of the iceberg, as the blood level of lead does not stay elevated for long after exposure to lead. Our bodies clear it from the blood stream and try to hide it away. However, the lead still does damage even if it no longer shows on blood tests.

A large number of studies suggest that our burdens of lead toxicity are actually higher than suspected, and that even very low levels of lead exposure can cause behavioral and developmental challenges remarkably similar to ADD.

For example, when a mother's blood has low levels of lead, even below the CDC's cut-off level of 10 mcg/dl, their neonatal babies show a dose-effect trend towards both poorer attention and poorer motor control.(1)

By age two, low levels of lead still below 10 mcg/dl are directly correlated with decreased IQ.(2)

Preschoolers with blood lead levels from 10 to 25 mcg/dl show measurable behavioral changes when compared to those with levels less than 10 mcg/dl. (3)

In first graders, hair lead levels correlate with children's attention-deficit behavior in the classroom. (4)

From ages seven to eleven, bone lead levels correlate with antisocial and delinquent behaviors, aggression, and attention deficits.(5)

At age twelve, hyperactive kids have higher blood lead levels than non hyperactive kids. They also have higher urine lead levels after given a binding agent for lead.(6)

At ages eleven to thirteen, lifetime low-level lead exposure correlates with emotional and behavioral deficits.(7)

At ages eight thru thirteen, hyperactive kids have higher urine lead levels after being challenged with a lead-binding agent than their own siblings.(8)

Although these are remarkable studies, most of us think that we've probably created a safe and lead-free environment for our kids. In reality, parents do not have the knowledge to prevent childhood lead poisoning.(9)

One important step to take is to have your house tested for the presence of lead paint dust. You can also test your drinking water for lead, or you can filter it for safety.

A lead blood test is important for screening for on-going lead exposure. To assess a past exposure, a hair analysis can also give useful hints. (4) To estimate a person's total body burden of lead, a urine test after giving a lead-binding agent may be the most accurate test we have so far.(10)

After all, our children deserve to have us look for underlying and reversible causes for their developmental and behavioral challenges.

*References:*

1. Emory E. Neurobehavioral effects of low-level lead exposure in human neonates. *Am J Obstet Gynecol* 1999;181:S2-S11)
2. *Reuters Health*, May 5, 2000
3. Mendelsohn AI. Low-level lead exposure and behavior in early childhood. *Pediatrics*1998; 101(3):E10.
4. Tuthill RW. Hair lead levels related to children's classroom attention-deficit behavior. *Arch Environ Health* 1996;51(3):214-220
5. Needleman HL. Bone lead levels and delinquent behavior *JAMA* 1996;275(5):363-369.
6. David O. Lead and hyperactivity. *Lancet* 1972;2:900-903)
7. Burns JM. Lifetime low-level lead exposure to environmental lead and children's emotional and behavioral development at ages 11-13 years. *Am J Epidemiology* 1999;149(8):740-749
8. Gittelman R. Lead and hyperactivity revisited. *Arch Gen Psychiatry* 1983;40:827-833
9. Mehta S. What do parents know about lead poisoning? *Arch Pediatr Adolesc Med*1998;152:1213-1218
10. Lin JL, Chelation Therapy for Patients with Elevated Body Lead Burden and Progressive Renal Insufficiency. *Annals Int Med.* 1999;130:7-13