

Are you and the family still experiencing heavy metal exposure causing issues ?

written by Pure Living | November 17, 2025



The Hidden Dangers of Heavy Metals: A Threat to Children's Neuropsychological Development

Exposure to heavy metals has become an increasing concern due to their detrimental effects on physical and mental health, particularly in children. As their developing neurons are highly sensitive to toxins, heavy metals can cause potential impairment in their neuropsychological development. A recent study investigated the association between heavy metal exposure and neuropsychological functions in children with and without attention-deficit hyperactivity disorder (ADHD). And the number of those affected by [heavy metals and other toxins](#) can come from unlikely sources.

The Study's Findings

The study, [Exposure to heavy metals and neuropsychological performance in children with and without attention deficit hyperactivity disorder \(ADHD\)](#) analyzed urine samples from 205 children aged 6-16 years, consisting of 139 ADHD children and 66 non-ADHD children. The results showed that

copper (Cu) was negatively associated with processing speed in the overall sample, with a more pronounced effect in ADHD children. Lead (Pb) exposure was also negatively associated with processing speed in ADHD children. Furthermore, mercury (Hg) exposure was linked to inattentiveness, as measured by the Conners Continuous Performance Test (CPT).

The Impact of Heavy Metals on Neuropsychological Development

The study's findings suggest that exposure to certain heavy metals may contribute to the severity of cognitive deficits in ADHD children and may even play a role in their neuropsychological development. The results showed that:

- **Copper (Cu):** Elevated levels of Cu were associated with impaired processing speed and higher omission errors in ADHD children, suggesting a link to inattentiveness.
- **Lead (Pb):** Pb exposure was associated with decreased speed of processing performance and a higher number of commission errors, which are hallmark neuropsychological characteristics of ADHD.
- **Mercury (Hg):** Hg exposure was linked to inattentiveness, as measured by the CPT.

Keep in mind that there are several other metals, such as cadmium and others that are typically evaluated when testing hair and urine. At Pure Living, we firmly believe that given the newest urine testing, including additional contaminants, should become available as part of your primary medical care. This approach would really help to evaluate and ultimately change the course of many disorders.

The Importance of Monitoring

Environmental Exposures

The study highlights the importance of monitoring environmental exposures in vulnerable pediatric populations and reinforces the need for public health policies aimed at reducing heavy metal exposure. Heavy metals can be found in contaminated food, water, and the surrounding environment, making it essential to take measures to minimize exposure.

Hair Analysis, Urine Testing, and Blood Tests

If you're concerned about your body's burden of heavy metals, consider getting tested. There are two common functional approaches to measuring heavy metal exposure: hair analysis and urine testing. While both methods have their pros and cons, they can provide valuable insights into your body's toxic load.

Hair Analysis: A Simple yet Variable Method

Hair analysis has been used for decades to measure heavy metal exposure. It's a simple and cost-effective method that involves analyzing a sample of your hair. However, its downside is that there is a high degree of variability in hair growth rates and excretion among individuals. This means that the results may not accurately reflect your body's actual burden of heavy metals.

Urine Testing: A More Accurate Method

Urine testing, on the other hand, provides a snapshot of your body's current heavy metal exposure. A simple urine sample can show what's being expelled from your body, but it may not give a complete picture. To get a more accurate reading, a chelated urine collection can be done. This involves taking a prescription agent, such as DMSA or DMPS, which helps to mobilize heavy metals from your tissues into

your urine. A second urine sample is then collected and compared to the first one. If the levels of heavy metals are significantly higher in the second sample, it indicates a higher body burden.

Blood Tests: Limited Usefulness

You may wonder if a blood test is a better option. Unfortunately, blood tests are not as useful for measuring heavy metal exposure unless you've been recently exposed (within 72 hours of the test). This is because your body stores heavy metals in your bones and fatty tissues to protect itself, and a blood test may not reflect your actual body burden.

Choosing the Right Test

So, which test is right for you? It depends on your individual situation and concerns. If you're looking for a simple and cost-effective method, hair analysis may be a good option. However, if you want a more accurate reading, urine testing with chelation may be a better choice.

Conclusion

Understanding your body's burden of heavy metals is an important step in maintaining your overall health. While there are different testing methods available, each with its pros and cons, they can provide valuable insights into your toxic load. By choosing the right test and working with a healthcare professional, you can take the first step towards reducing your exposure to heavy metals and promoting optimal health.

The study provides evidence on the potential association between postnatal exposure to specific heavy metals and cognitive performance in children, both with and without ADHD. The findings suggest that exposure to certain heavy metals may contribute to the severity of cognitive deficits

in ADHD children and may even play a role in their neuropsychological development. Therefore, it is crucial to take steps to reduce heavy metal exposure and promote optimal neuropsychological development in children.

Take Aways:

Consider the sources: Is your water, food , cosmetics, hobbies or your home the problem ?

Testing: Consider some of the newest urine tests that include a full spectrum of metals, pesticides, phthalates, and much more.

Have a very young infant, consider hair analysis.

Locating: Our multiple blogs highlight areas of concern from junk jewelry to toys, air and water and much more.

Need an expert to do an evaluation or consult on your situation, please drop us a line for a referral.

The good news: You can reduce many of the toxins when you know what and where the problem/s are located.

By taking these steps, we can work towards creating a safer and healthier environment for children to grow and develop.

Kaur, S., Canals-Sans, J., Morales-Hidalgo, P. *et al.* Exposure to heavy metals and neuropsychological performance in children with and without attention deficit hyperactivity disorder (ADHD). *Sci Rep* **15**, 40070 (2025). <https://doi.org/10.1038/s41598-025-24319-7>