



# Mercury and Learning Disabilities

A PARENT'S GUIDE





**"Mercury can impair, damage, and even destroy functioning nerve tissue — much like lead. This brochure is designed to help parents identify the causes of mercury pollution and the dangers associated with this toxic chemical."**

*— Dr. Larry Silver, Former President,  
Learning Disabilities Association of America and Clinical Professor of  
Psychiatry at Georgetown University Medical Center*

# Mercury and Learning Disabilities

## A Parent's Guide

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**P**arents try to give their children every opportunity for success in life. We strive to keep them healthy, to ensure a safe, secure environment, and to provide a good education.

Yet despite our best efforts, some children seem “slow,” get easily frustrated, or exhibit behavioral problems in their interactions with other youngsters and adults. These reactions can be puzzling to parents who often don't know what to do. An early childhood assessment can help identify the problem. More importantly, it can identify a child's strengths and abilities and give parents the information and tools they need to provide a supportive environment and help their youngster succeed at school and beyond.

Of course, every parent's best choice is preventing learning disabilities in the first place.

## Causes and Prevention

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Although the causes of learning disabilities aren't completely understood, researchers have identified three basic factors.

- **Problems tend to run in a family.** Sometimes children who exhibit learning disabilities have parents or other relatives with similar difficulties.
- **Illness or injury during pregnancy and birth.** Learning disabilities may be related to illness or injury during or before birth. Problems may arise from exposure to environmental toxicants such as mercury, drug or alcohol use during pregnancy, low birth weight, lack of oxygen during birth, and premature or prolonged labor.
- **Incidents after birth.** Head injuries, poor nutrition and exposure to toxic substances in the environment (such as lead and mercury) can also cause learning disabilities.

Even if a child has not been exposed to harmful chemicals, maternal contact with these toxicants during pregnancy may still have adverse consequences.

Mercury is of special concern because during pregnancy it can be passed from a pregnant mother to her unborn child through the placenta.

As parents, we can reduce the risk of mercury exposure by knowing the facts about mercury and by minimiz-

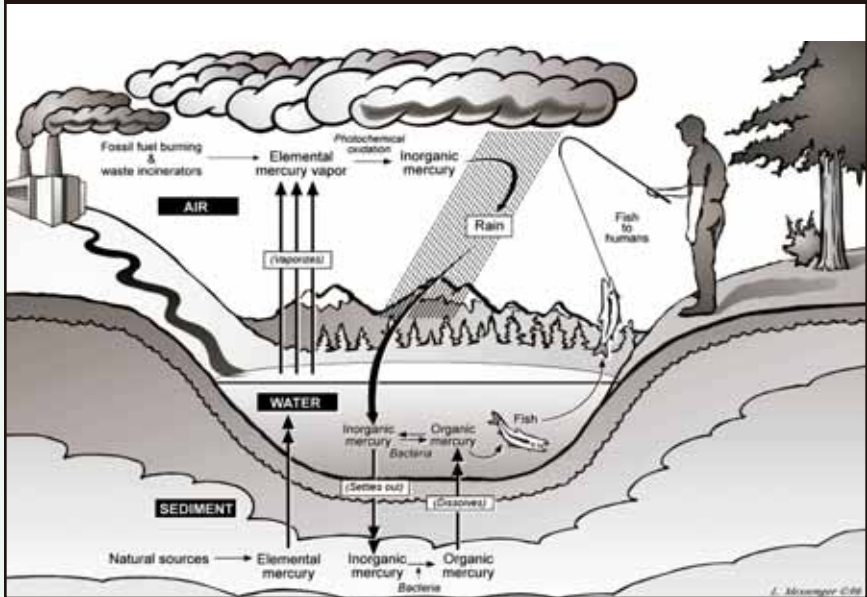
ing our — and our children's — contact with it before and after birth.

Prevention is the surest way to ensure a healthy, developmentally sound baby. Risks from life style choices, such as smoking or alcohol use, can be eliminated to reduce the threat of developmental and learning problems for children.

But exposure to chemical pollution in the environment cannot be entirely eliminated. This booklet is intended to help parents understand where mercury comes from and how to reduce the risk of exposure — and possible learning disabilities — for their child.



# The Mercury Cycle



## Where Does Mercury Come From?

Mercury, a heavy metal, occurs naturally in the earth's surface and is released to the environment by industrial processes such as mining and coal combustion and through its use in manufactured products. Coal-burning power plants are the nation's largest single source of uncontrolled mercury pollution, responsible for more than 40 percent of all air-borne mercury from U.S. industry. Most industrial sources of mercury are regulated by the federal government, yet coal-fired power plants remain a glaring exception.

Mercury from electric utility smokestacks eventually deposits to earth in

precipitation or attached to particles. Mercury that ends up in surface waters through rain or runoff can be converted by microorganisms to a more toxic form: methylmercury. Fish in the sea, lakes, and streams readily absorb methylmercury through their diet, and it can build up to high levels in their tissue over time. In the U.S., methylmercury exposure in humans is almost exclusively from eating fish and shellfish.

Mercury contamination in fish is so pervasive that health departments in 45 states have issued warnings for locally caught, freshwater and coastal fish. The U.S. Food and Drug Administration and U.S. Environmental Protection Agency (EPA) specifically warn pregnant women, women of childbearing age, nursing mothers, and young children not to eat any fish known to carry

high levels of mercury. These are: shark, swordfish, king mackerel, and tilefish (commonly called “golden snapper” and “golden bass”).

Federal warnings also caution women and young children to limit their consumption of albacore (“white”) tuna or tuna steaks to only one serving per week (six ounces or less). Finally, women and children are cautioned to eat no more than 12 ounces per week of fish with lower levels of mercury: shrimp, canned light tuna, salmon, pollock, and catfish.

## How Does Mercury Affect Children?

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The federal government classifies methylmercury as a neurotoxin — a chemical that damages, destroys, or impairs nerve tissue. Methylmercury poses the greatest threat to the developing fetus because it passes easily from mother to infant through the placenta. Even small doses can impair the brain and the developing nervous system. The effects of in utero exposure to mercury can take months, even years, to appear.

Infants who appear normal during the first few months of life, may later display subtle effects: shorter attention spans, poor fine motor function, slow language development, problems with visual-spatial abilities (such as drawing), and memory. These children will likely need extra help to keep up in school, possibly remedial classes or special education.

The EPA recently estimated that 1

in 6 women of childbearing age have mercury levels in their blood above the amount considered “safe” for the developing fetus. Nationally, this means that as many as 15 of every 100 babies could be at risk of developmental problems from exposure to mercury in utero.

A mother’s dietary exposure to mercury before pregnancy can be as serious as exposure during pregnancy because methylmercury stays in the body for months and is slowly excreted. Many of the critical developmental stages for the brain and nervous system in fetuses occur during the first two months after





conception. Because of this, women of childbearing age — generally between 16 and 49 years — and expectant mothers should especially avoid fish containing mercury.

Newborns and children can also be exposed directly to methylmercury. Nursing infants can ingest it from breast milk, and older children may be exposed if their diet includes certain fish. Health experts believe infants and children are more susceptible to the effects of methylmercury because their nervous systems continue developing until adolescence. Children also have higher methylmercury exposures because they eat more food relative to their body weight than adults do. Taken together, these factors increase the chances of exposure to mercury and raise the odds of adverse health effects.

## Advice for Parents

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Most of us have read or heard about the essential nutrients contained in “heart-healthy” fish. So how do parents reconcile this advice with findings that fish can contain potentially high concentrations of mercury? Common sense advice can help parents avoid unnecessary concern.

**Be informed.** Not all fish carry high amounts of methylmercury. Anglers who eat their catch should find out if warnings have been issued about lakes and rivers in their area or if a specific fish species has been listed on a consumption advisory. Your state health department is the best source of this information, and it can also put you in touch with other health departments if you are fishing elsewhere.

If you are planning to become pregnant, you can lower the level of mercury in your body to within normal limits by eliminating fish from your diet for about three months prior to conception.

If you are already pregnant, be careful about the fish species you eat. Especially avoid swordfish, shark, king mackerel, yellowfin tuna, tilefish and other species known to have high mercury levels. Remember that frequent exposure to small amounts of mercury from fish (more than once a week) will raise the total amount in your body through accumulation.

If you eliminate fish during pregnancy, ask your doctor about dietary supplements such as omega-3 fatty acids.





## Identifying Learning Disabilities

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Any unexplained, persistent problem in learning a basic skill may be a sign of learning disabilities in a child who is otherwise “normal.”

Learning disabilities should be considered as a possible cause if a child has trouble with any of the following:

- Thinking clearly
- Spelling accurately
- Learning to compute
- Remembering facts
- Putting things in sequence
- Writing legibly
- Learning to read
- Copying forms
- Following directions

Children with learning disabilities may also appear confused, clumsy, impulsive, hyperactive, disoriented, easily frustrated, rebellious, depressed, withdrawn, or aggressive.

If you suspect your child might have a learning disability, contact the Learning Disabilities Association of America (LDA) or your state or local affiliate for information on what to do. LDA also publishes an Advocacy Handbook: *A Parent's Guide to Special Education*, available for purchase on the internet at [www.ldaamerica.org](http://www.ldaamerica.org).



## When Learning is a Problem

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An estimated 10 percent of school children have some type of learning disability. More than half of all students in public school special education programs have been diagnosed with learning disabilities.

These problems become apparent if a child has trouble reading, writing, speaking, and/or doing math. Learning disabilities can also interfere with a child's social interactions.

Children who have difficulty learning are no less intelligent than others, but because of their disability there is a gap between ability and performance.

## Still Concerned?

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**Get tested.** Greenpeace and Aveda are sponsoring the Greenpeace National Mercury Testing Project. This simple, confidential, low-cost screening by an accredited laboratory measures your body's mercury level by analyzing a small sample of your hair.



Complete information is available on the internet:  
<http://www.cleartheair.org/mercurytest/>



## Stop Mercury Pollution at its Source

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To reduce the prevalence of mercury contamination as a factor in learning disabilities, we need to reduce mercury in fish. The only way to do this is to reduce the amount of mercury that is released into our environment. Because coal-fired power plants are our nation's biggest mercury emitters, we cannot solve this problem without reducing mercury emissions from these facilities. The Clean Air Act requires EPA to set a reduction standard in 2005 that would significantly decrease power plants' emission of mercury by 2008.

Independent studies have shown that 90 percent of the mercury from these facilities can be removed economically before it pollutes our air and water—in fact some power plants are already doing so. Yet alternative legislation under consideration would remove less mercury and delay action for an additional 15 years. Meanwhile, some power plants could be allowed to increase their emissions of mercury.

## Be Informed

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Parents have a big stake in reducing toxic chemicals such as mercury in our environment. You can learn more about this problem and its potential health effects on your child by visiting any of the following websites:

<http://www.cleartheair.org/mercury/>

<http://www.mercuryaction.org/fish/>

<http://www.mercuryhurts.org>

<http://www.nrdc.org/health/effects/mercury/index.asp>

