

## Mercury in Gym Flooring: Advice for Caregivers from Environmental Pediatricians

### KEY POINTS

1. Some older gym floors may contain phenyl mercuric acetate (PMA), which can release very low levels of mercury vapor.
2. The health risk from this low exposure to mercury vapor is small. Medical testing is generally not recommended.
3. Increasing ventilation and air movement is key to addressing this problem. To ensure a healthy learning environment, parents can advocate that their school adopt the EPA [Tools for Schools](#) Program, which has practical steps to reduce common air pollutants.

### Why is mercury found in some gym floors?

In the past, a form of mercury called phenyl mercuric acetate (PMA) was used in some gym floors, and over time, wear-and-tear of the floor can release low levels of mercury vapor into the air.

- In the past, a form of mercury called phenyl mercuric acetate (PMA) was used in polyurethane floors in some school gyms.<sup>1</sup>
- It was originally thought phenyl mercuric acetate (PMA) could not escape the floor because of a protective coating. However, it is now known that the **PMA can break down from daily use and release low levels of elemental mercury vapor into the air.**<sup>1</sup>
- In the past several years, school districts around New Jersey and New York learned about the possible presence of mercury in gym floors, and began to test school gym floors as well as indoor air.
- This situation is an example of how potentially harmful chemicals are found in a wide range of consumer products that are used in homes and schools. Stricter regulation of chemicals in commerce is needed to better protect the public. Learn more and get involved [here](#).

### What level of mercury vapor is allowed in schools?

While there are no laws or regulations controlling the amount of mercury vapor in schools, “guidance levels” for schools have been set at levels far below where health effects are expected to happen. Nonetheless, it is always advisable to limit exposure to mercury as much as possible.

- There are no laws or regulations controlling the amount of mercury vapor in schools or homes. However, there are recommended levels set by state health departments and federal agencies such as the Agency for Toxic Substances and Disease Registry (ATSDR). These levels are very protective, meaning they are set far below the levels expected to cause health problems (see Figure on page 3).
- Generally, people do not start experiencing symptoms of mercury toxicity until vapors reach levels of 25  $\mu\text{g}/\text{m}^3$  in the air.<sup>2,3</sup> In order to be protective of health effects, guidance levels for mercury have been set well below the levels at which health effects are typically seen. These protective guidance values range from 0.06  $\mu\text{g}/\text{m}^3$  to 3  $\mu\text{g}/\text{m}^3$ .<sup>2,3</sup>

- While the current risks are likely low, it is best to take steps to reduce mercury levels as much as possible, especially for kids and pregnant women. Increasing ventilation is key to reducing exposure.

### **What are the health effects from breathing in mercury vapor released by the gym floor?**

We do not expect any acute health effects from the low levels of mercury vapor levels detected.

- To our knowledge, **the mercury vapor levels detected in several schools (typically less than 1  $\mu\text{g}/\text{m}^3$ ) are not high enough to cause acute health effects, especially from intermittent exposure.**
- In contrast, health effects (such as tremors, insomnia, loss of appetite, rash) are generally seen in people who work directly with mercury or are involved with an elemental mercury spill in the home, and thus are exposed to much higher vapor levels.<sup>4,5</sup>

### **I am concerned that my child was exposed to mercury in the gym. What should I do next?**

While testing your child for mercury is not recommended for this situation, your pediatrician is always the best initial resource for questions regarding your child's health.

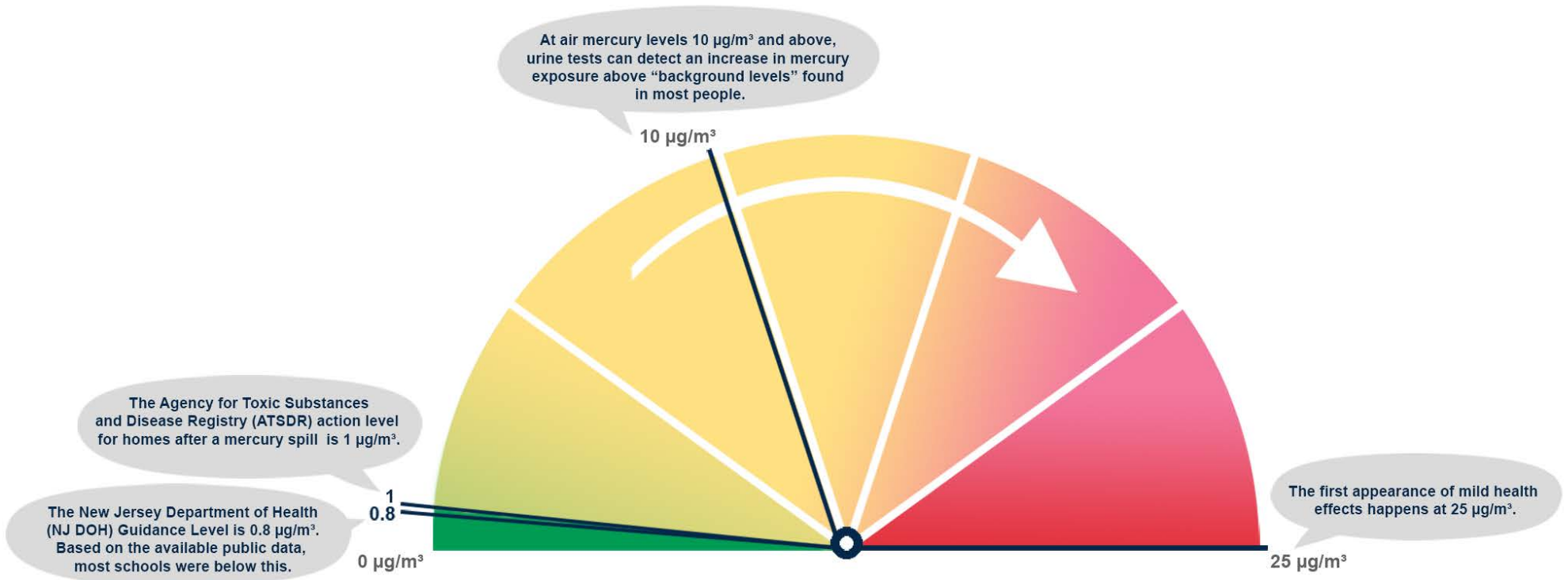
- Talk to your child's pediatrician regarding any specific health concerns.
- Testing your child's urine for mercury is generally not recommended if the gym has PMA flooring since the vapor levels in gyms are typically too low for the urine test to detect the exposure. An increase in urine mercury above typical background levels found in the US population is generally only seen when air mercury levels are above 10  $\mu\text{g}/\text{m}^3$ .<sup>6</sup>
- The most important next step is to work with other parents to advocate for your child's school to implement a healthy indoor air quality program (see below for more information).

### **How can I work with my child's school to reduce mercury exposure and promote a healthy school environment?**

As a parent, you can act as an advocate for improved indoor air quality in schools and safer consumer products. Resources exist to support parents and schools in creating a healthy environment.

- Regardless of the presence of PMA flooring, it is important that school administration, teachers, and parents work together to promote a comprehensive "Healthy School" plan that focuses on improving ventilation and reducing sources of common indoor air pollutants.
- The most important step a school can take to address concerns about PMA flooring is to reduce levels of mercury vapor. This can be done by either of the following:
  - Optimize the ventilation system- this will reduce mercury vapor levels (along with other common indoor air pollutants).
  - Replace the gym flooring- done with a certified contractor that will follow strict guidelines for safe removal and disposal.
- Parents can advocate for healthier schools: Encourage schools to adopt the EPA's [Tools for Schools](#) program, which provides guidance about how to improve indoor air quality by reducing sources of pollution and optimizing the ventilation system in school buildings.
- [Demand safer products](#) and building materials in homes and schools.
- Try these [simple steps](#) for healthier indoor air quality in your home.

## Air Mercury Levels in Schools Are Well Below Levels Where Health Effects Are Typically Seen



Keep your school in the “green”!

Parents, teachers, and schools can work together to promote a healthy school by implementing the “Tools for Schools” program that can improve overall indoor air quality! [www.epa.gov/iaq-schools](http://www.epa.gov/iaq-schools)

## Take Action!

Although we do not anticipate health effects from the low level of mercury found in the gyms, it is prudent to strive for mercury levels as low as reasonably possible, especially to protect children and pregnant women. Encourage your school to implement the EPA's [Tools for Schools](#) program, which provides guidance about how to improve indoor air quality by reducing sources of pollution (including mercury) and optimizing the ventilation system.

## For more information:

Environmental Protection Agency (EPA) [www.epa.gov/mercury](http://www.epa.gov/mercury)

Agency for Toxic Substances and Disease Registry (ATSDR) <https://www.atsdr.cdc.gov/mercury/index.html>.

Pediatric Environmental Health Specialty Unit <https://www.pehsu.net/>

New York State Children's Environmental Health Centers <https://nyscheck.org>

## References

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