



TESTING FOR THE CAUSE OF GLOBAL DEVELOPMENTAL DELAY

Global developmental delay means that a child is delayed in two or more important areas of development which include:

- Motor skills—such as rolling over, sitting up, walking, or picking up small objects
- Speech and language—such as identifying a sound, imitating speech sounds, or babbling
- Ability to learn new things and to reason
- Social and personal skills—such as exploring or enjoying interacting and playing with others
- Daily activities—such as eating or dressing

If your doctor thinks your child may have global developmental delay, he or she may want to check your child and do some special tests. These tests can help find out if the child has global developmental delay and possible reasons for the delay.

America's physicians specializing in diseases of the nervous system, who make up the American Academy of Neurology and the Child Neurology Society, believe you should know about and understand the medical tests your child may face. A group of doctors from these two groups studied current research on global developmental delay to determine the best types of tests to diagnose a child with such delays. Information comes from the best scientific evidence available.

You may have many questions about global developmental delay such as:

- How will the doctor notice any developmental delays?
- What causes global developmental delay?
- How will the doctor diagnose the cause of global developmental delay?

How will the doctor notice any developmental delays?

Your child's doctor will probably screen for any developmental delays at well-child visits. He or she will ask questions to see what your child is able to do at different ages. If your child's doctor believes there is a developmental delay, he or she may want to evaluate your child with more tests.

What causes global developmental delay?

Global developmental delay has a variety of possible causes. Delays may be due to how the child's brain was formed while in the womb. Causes can include premature birth, genetic and heredity disorders, and infections, but often the cause may not be determined. In general, global developmental delay does not worsen with time.

How will the doctor diagnose the cause of global developmental delay?

Tests that are used to diagnose and look for the cause of the delays in development may include:

Genetic, molecular, and metabolic tests

(usually done by blood or urine tests) Some causes of global developmental delay may be inherited—or genetic.

Standard genetic testing (chromosome testing)

can provide information about some inherited problems and genetic defects. Doctors should normally order these tests.

- *Special genetic tests* look for more uncommon genetic disorders. Doctors may consider these tests if other possible causes have been ruled out.
- *Fragile X* is the most common inherited disorder causing global developmental delay. Studies show doctors should screen both boys and girls for Fragile X if they suspect global developmental delay.
- *Rett syndrome* is a leading diagnosable cause of global developmental delay in girls. Girls with Rett syndrome appear to develop normally until six to eighteen months, then lose their developmental abilities. Doctors should consider screening girls with moderate to severe delay for Rett syndrome.
- *Metabolic tests* are blood and urine tests that can spot disorders of the body's chemistry. Doctor should order metabolic tests if your child is delayed and did not have these tests at birth, or if there is a family history of developmental delay.

Screening for other disorders

- *Lead* is the most common toxic substance in the environment that can harm the nervous system. Very high lead levels have been linked to mental deficits. Since children put everything in their mouths, your doctor may order a blood test for lead screening if your child is at risk for too much lead exposure.
- *Thyroid* blood tests are done to check if the thyroid gland is producing enough of its hormone. Thyroid problems may result in abnormal growth and development, as well as slower mental function. This test may be done if results of birth screening are not available.

Neuroimaging (CT and MRI)

Neuroimaging tests help doctors see if there is any damage to tissues inside the central nervous system by taking detailed pictures of the brain and sometimes the spinal cord. These tests can help figure out why your child has developmental delay.

Neuroimaging is recommended as part of the evaluating of some children with global developmental delay. Researchers found that *Magnetic Resonance Imaging tests (MRI)* are better at finding out causes for global developmental delay than *Computed Tomography scan (CT)* tests because they are more detailed. On the other hand, CT scans are faster and easier to do.

EEG

The neurologist may order an *EEG* if your child has spells that might be seizures. An EEG records the electrical activity of the brain. An EEG does not determine the cause of developmental delays, but it can help determine if a child has epilepsy.

Vision and hearing tests

Children with global developmental delay often have vision and hearing difficulties. These problems can interfere with the child's future development. The child's doctor may want to include tests for vision and hearing difficulties when doing other tests.

Talk to a doctor or a child neurologist

Together you and your child's doctor can choose the tests that work best for you and your child, based on the information you want and need. A child neurologist can provide more information and resources to help patients and caregivers make the best choices.

This is an evidence-based educational service of the American Academy of Neurology. It is designed to provide members with evidence-based guideline recommendations to assist with decision-making in patient care. It is based on an assessment of current scientific and clinical information, and is not intended to exclude any reasonable alternative methodologies. The AAN recognizes that specific patient care decisions are the prerogative of the patient and the physician caring for the patient, based on the circumstances involved. Physicians are encouraged to carefully review the full AAN guidelines so they understand all recommendations associated with care of these patients.



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