Microcephaly in Children

What is microcephaly in children?

Microcephaly is a condition where a baby's head is much smaller than normal. It is most often present at birth (congenital). Most children with microcephaly also have a small brain and an intellectual disability. Some children with small heads have normal intelligence.

What causes microcephaly in a child?

Microcephaly may be caused by problems during a woman’s pregnancy. These include:

- Exposure to toxic chemicals
- Methylmercury poisoning
- Not enough vitamins and nutrients
- Infection with cytomegalovirus, rubella, varicella virus, Zika virus, or toxoplasma
- Prescription medicine use
- Illegal drug use
- Drinking alcohol
- Untreated phenylketonuria
- Stroke

In some cases, microcephaly may be caused by inheriting an abnormal gene. One cause of microcephaly is an autosomal recessive gene disorder. Autosomal means that boys and girls are equally affected. Recessive means that two copies of the gene, one from each parent, are needed to have the condition.

Some genetic disorders that cause microcephaly are X-linked. This means the faulty gene is on the X chromosome. Girls can have the faulty gene on one of their X chromosomes but not have any signs or symptoms of the disease. They are carriers for the condition. Boys have only one X chromosome. If their X chromosome carries a faulty gene, they will have symptoms.

In some cases, microcephaly may occur after birth. This is known as acquired microcephaly. It can happen because of injury to the brain. This may be caused by lack of oxygen or an infection.

Which children are at risk for microcephaly?

A child is more at risk if they have a parent or sibling with microcephaly, or who carries a faulty gene.

Any of the following during pregnancy put a child more at risk:

- Exposure to toxic chemicals
- Methylmercury poisoning
- Not enough vitamins and nutrients
- Infection with cytomegalovirus, rubella, varicella virus, Zika virus, or toxoplasma
- Prescription medicine use
- Illegal drug use

- Drinking alcohol
- Untreated phenylketonuria

Microcephaly can also occur if the newborn has any of the following complications:

- Stroke
- Lack of oxygen or bloodflow to the brain
- Malnutrition
- Complications from other medical conditions

What are the symptoms of microcephaly in a child?

Symptoms can occur a bit differently in each child. They may include:

- Very small head
- High-pitched cry
- Trouble feeding
- Seizures
- Shaky movement of the arms and legs (spasticity)
- Developmental delays
- Intellectual disability

The symptoms of microcephaly can be like other health conditions. Make sure your child sees their healthcare provider for a diagnosis.

How is microcephaly diagnosed in a child?

Microcephaly may be diagnosed before birth by prenatal ultrasound. This imaging test uses high-frequency sound waves and a computer to make images of blood vessels, tissues, and organs. Ultrasounds let healthcare providers see the internal organs as they function and measure the size of the head. They also show blood flow through blood vessels. In many cases, microcephaly may not be seen with ultrasound until the third trimester.

After birth, the healthcare provider will ask about your child's health history. They may ask about your pregnancy and health history, and your family's health history. The provider will give your child a physical exam.

Your child may have tests, such as:

- **Head circumference measurement.** The measurement is compared with a scale for normal growth and size.
- **Ultrasound.** Sound waves form a picture of the brain and other structures.
- **CT scan.** This test uses a series of X-rays and a computer to create images of the inside of the body. A CT scan shows more detail than a regular X-ray.
- **MRI.** This test uses large magnets, radio waves, and a computer to make images of the inside of the body.
- **Blood tests.** These include genetic tests. Genetic tests check for conditions that tend to run in families.
- **Urine test.** This is done to look for a substance that may show a certain type of microcephaly.

How is microcephaly treated in a child?

There is no treatment for microcephaly that will return the baby's head to a normal size or shape. Microcephaly is a lifelong condition that has no cure. Treatment focuses on preventing or reducing problems and maximizing a child's abilities.

The healthcare team will give support and teach you how best to manage your child’s health. Over time, your child may see healthcare providers, such as:

- **Pediatrician or family healthcare provider.** This is a child’s primary healthcare provider.
- **Neurologist.** This is a healthcare provider who treats conditions of the brain, spinal cord, and nerves.
- **Rehabilitation team.** This includes physical, occupational, speech, and audiology therapists.

Talk with your child’s healthcare providers about the risks, benefits, and possible side effects of all treatments.

How can I help prevent microcephaly in my child?

Your healthcare provider may advise genetic counseling. You can learn more about the risk of microcephaly in a future pregnancy.

Parents who have one child with autosomal recessive microcephaly have a 1 in 4 (25%) chance for another child with microcephaly with each pregnancy. For X-linked microcephaly, mothers who are carriers have a 1 in 2 chance that a son will have the disorder. Daughters have a 1 in 2 chance of inheriting the gene and the same risk of passing it along to their children.

If your provider believes the microcephaly was caused by environmental factors and you are still exposed to the toxic substances, ask for referrals to agencies that can help change the situation. Also talk with your healthcare provider before and during pregnancy about how to limit your child's risk for the disease.

How can I help my child live with microcephaly?

The full range of issues are usually not known right after birth. Issues can be revealed as a child grows and develops. Children born with microcephaly need to see their healthcare team often. It's important to keep all scheduled appointments. They will need tests to track the growth of the head. Their motor, social, intellectual, and language function will be tracked over time. If needed, the provider will give you referrals for more support services during these evaluations.

You can help your child strengthen their self-esteem and be as independent as possible. Your child may need physical and occupational rehabilitation. They may need extra support in school. The healthcare team will talk with you about community resources and the best ways to help your child. Let your providers know if you are having trouble caring for your child so they can help you find support systems.

When should I call my child’s healthcare provider?

Call the healthcare provider if your child has:

- Symptoms that don’t get better, or get worse
- New symptoms

Key points about microcephaly in children

- Microcephaly is a condition where a baby's head is much smaller than normal. It is most often present at birth (congenital).
- Most children with microcephaly also have a small brain and intellectual disability. Some children with small heads have normal intelligence.
- Microcephaly may be caused by problems during a woman’s pregnancy. In some cases, it may be caused by inheriting an abnormal gene.
- Microcephaly is a lifelong condition that has no cure. Treatment focuses on preventing or reducing problems and maximizing a child's abilities.

- Children born with microcephaly need to see their healthcare team often. They will need tests to track the growth of the head. Their motor, social, intellectual, and language function will be tracked over time.
- Depending on how severe the microcephaly is, you may need different combinations of community support services to help you and your child.
- Your healthcare provider may advise genetic counseling. You can learn more about the risk for microcephaly in a future pregnancy.

Next steps

Tips to help you get the most from a visit to your child's healthcare provider:

- Know the reason for the visit and what you want to happen.
- Before your visit, write down questions you want answered.
- At the visit, write down the name of a new diagnosis and any new medicines, treatments, or tests. Also write down any new instructions your provider gives you for your child.
- Know why a new medicine or treatment is prescribed and how it will help your child. Also know what the side effects are.
- Ask if your child's condition can be treated in other ways.
- Know why a test or procedure is recommended and what the results could mean.
- Know what to expect if your child does not take the medicine or have the test or procedure.
- If your child has a follow-up appointment, write down the date, time, and purpose for that visit.
- Know how you can contact your healthcare child's provider after office hours. This is important if your child becomes ill and you have questions or need advice.