



Diseases and Conditions

Legg-Calve-Perthes disease

By Mayo Clinic Staff

Legg-Calve-Perthes (LEG-kahl-VAY-PER-theez) disease is a childhood condition that affects the hip, where the thighbone (femur) and pelvis meet in a ball-and-socket joint.

Legg-Calve-Perthes disease occurs when blood supply is temporarily interrupted to the ball part (femoral head) of the hip joint. Without sufficient blood flow, the bone begins to die — so it breaks more easily and heals poorly.

To keep the ball part of the joint as round as possible, doctors may use a variety of treatments to keep it snug in the socket portion of the joint. The socket acts as a mold for the fractured femoral head as it heals.

Signs and symptoms of Legg-Calve-Perthes disease include:

- Limping
- Pain or stiffness in the hip, groin, thigh or knee
- Limited range of motion of the hip joint

Legg-Calve-Perthes disease usually involves just one hip. Both hips are affected in some children, usually at different times.

When to see a doctor

Make an appointment with your doctor if your child begins limping or complains of hip, groin or knee pain. If your child has a fever or can't bear weight on the leg, seek emergency medical care.

Legg-Calve-Perthes disease occurs when too little blood is supplied to the ball portion of the hip joint (femoral head). Without an adequate blood supply, this bone becomes

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unstable, and it may break easily and heal poorly. The underlying cause of the temporary reduction in blood flow to the femoral head is still unknown.

Risk factors for Legg-Calve-Perthes disease include:

- **Age.** Although Legg-Calve-Perthes disease can affect children of nearly any age, it most commonly occurs between ages 4 and 8.
- **Your child's sex.** Legg-Calve-Perthes is up to five times more common in boys than in girls.
- **Race.** White children are more likely to develop the disorder than are black children.
- **Family history.** In a small number of cases, Legg-Calve-Perthes appears to run in families.

Children who have had Legg-Calve-Perthes disease are at higher risk of developing hip arthritis in adulthood — particularly if the hip joint heals in an abnormal shape. If the hip bones don't fit together well after healing, this can cause the joint to wear out early. Hip replacement surgery eventually may be required.

In general, children who are diagnosed with Legg-Calve-Perthes after age 6 are more likely to develop hip problems later in life. The younger the child is, the better the chances for the hip joint healing in a normal, round shape.

You'll probably first bring your concerns to the attention of your child's doctor. After an initial evaluation, your child may be referred to a doctor who specializes in bone problems in children (pediatric orthopedist).

What you can do

Before your appointment, you may want to write a list of answers to the following questions:

- When did these symptoms begin?
- Does any particular leg position or activity make the pain worse?
- Did any of your relatives have similar symptoms when they were children?
- Does your child have any other medical problems?
- What medications or supplements does your child take regularly?

What to expect from your doctor

Your doctor may ask some of the following questions:

- What are your child's symptoms?
- Have they gotten worse over time?

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- Do the symptoms seem to come and go?
- Is your child active?
- Has your child experienced an accident or injury that might have caused hip damage?
- If your child's symptoms include pain, where is the pain located?
- Does activity make your child's symptoms worse?
- Does resting ease your child's discomfort?

During the physical exam, your doctor may move your child's legs into various positions to check range of motion and to see if any of the positions cause pain.

Imaging tests

These types of tests are vital to the diagnosis of Legg-Calve-Perthes disease and may include:

- **X-rays.** Initial X-rays may look normal because it can take one to two months after symptoms begin for the damage associated with Legg-Calve-Perthes disease to become evident on X-rays. Your doctor will likely recommend several X-rays over time, to track the progression of the disease.
- **Magnetic resonance imaging (MRI).** This technology uses radio waves and a strong magnetic field to produce very detailed images of bone and soft tissue inside the body. MRIs often can visualize bone damage caused by Legg-Calve-Perthes disease more clearly than X-rays can.
- **Bone scan.** In this test, a small amount of radioactive material is injected into a vein. The material is attracted to areas where bone is rapidly breaking down and rebuilding itself, so these areas show up on the resulting scan images.

As Legg-Calve-Perthes disease progresses, the ball part of the joint (femoral head) weakens and fractures — losing its nice round shape. The goal of treatment is to keep the femoral head as round as possible.

Surgery usually isn't needed for children younger than 6. They still have a lot of growing left to do so the femoral head has more time to repair the damage caused by Legg-Calve-Perthes. Most of this younger age group heal well with conservative treatments.

Therapy

If your child is younger than 6 or 7, your doctor may just recommend observation and symptomatic treatment with stretching, limited running and jumping, and medications as needed. Other nonsurgical treatments include:

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- **Physical therapy.** As the hip stiffens, the muscles and ligaments around it may shorten. Stretching exercises can help keep the hip more flexible and keep the hip in the socket.
- **Crutches.** In some cases, your child may need to avoid bearing weight on the affected hip. Using crutches can help protect the joint.
- **Traction.** If your child is in severe pain, a period of bed rest and traction may help. Traction involves a steady and gentle pulling force on your child's leg.
- **Casts.** To keep the femoral head deep within its socket, your doctor may recommend a special type of leg cast that keeps both legs spread widely apart for four to six weeks. After this a night-time brace is sometimes used to maintain hip flexibility.

Surgery

Most of the orthopedic treatments for Legg-Calve-Perthes disease are aimed at improving the shape of the hip joint to prevent arthritis later in life.

- **Contracture release.** Children who have Legg-Calve-Perthes often prefer to hold their leg across the body. This tends to shorten nearby muscles and tendons, which may cause the hip to pull inward (contracture). Surgery to lengthen these tissues may help restore the hip's flexibility.
- **Joint realignment.** For children older than 6 to 8, realignment of the joint has been shown to restore a more normal shape to the hip joint. This involves making surgical cuts in the femur or pelvis to realign the joints. The bones are held in place with a plate while the bone heals.
- **Removal of excess bone or loose bodies.** In older children with painful, restricted motion, trimming extra bone around the femoral head or repairing damaged cartilage may ease motion and relieve pain. Loose bits of bone or torn flaps of cartilage can be removed.
- **Joint replacement.** Children who have had Legg-Calve-Perthes sometimes require hip replacement surgery later in life. These surgeries can be complicated because of a higher risk of bone fracture and nerve damage.

Home care measures to reduce pain and prevent damage include:

- **Activity modification.** Your child should avoid high-impact activities, such as running or jumping, because they can increase the amount of damage to the weakened bone and worsen symptoms.
- **Pain medication.** Over-the-counter medicines such as acetaminophen (Tylenol, others) can help relieve pain. Don't give your child aspirin as it's been linked to a rare, but serious, condition called Reye's syndrome.

- **Heat or cold.** Hot packs or ice may help relieve hip pain associated with Legg-Calve-Perthes disease. Using heat before stretching exercises can help loosen tight muscles.

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