

Developmental Hip Dysplasia



Boston Children's Hospital
Child and Young Adult
Hip Preservation Program

bostonchildrens.org/hip | 617-355-6021

What is developmental hip dysplasia?

Developmental dysplasia of the hip (DDH) is a developmental condition in which the hip doesn't develop normally. It occurs when the top of the thigh bone (femur), which normally fits tightly into the hip socket (acetabulum), has an imperfect fit.

DDH can range in severity from a minor laxity (looseness) of the ligament holding the ball-shaped head of the femur (femoral head) in the socket, to a complete dislocation where the ball is entirely out of the socket.

What is it caused by?

The exact cause of DDH is unknown, but it is considered to be a "multifactorial trait," which means that there are many factors involved in its development. Higher risk of DDH is associated with breech babies, a family history of hip dysplasia and is known to occur more frequently in females.

Signs and symptoms

- The leg on the side of the dislocated hip appears shorter or is turned outwards
- The folds in the skin of the thigh or buttocks appear uneven

How is it diagnosed?

A diagnosis of developmental hip dysplasia should be confirmed by a pediatric orthopedic specialist. This diagnosis is determined from your child's history, a physical exam and imaging.

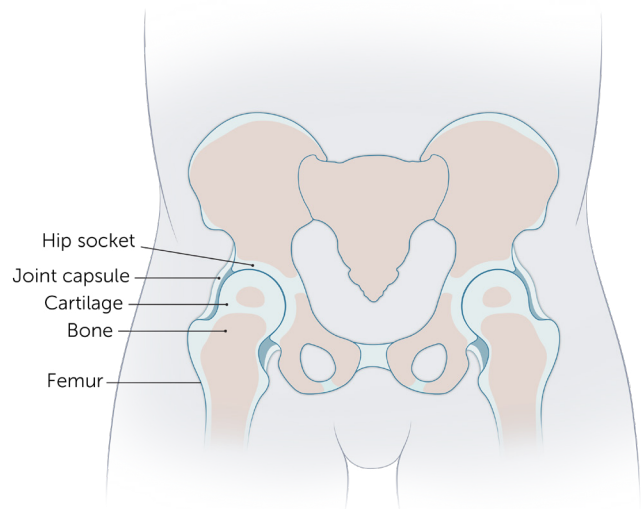
For your child's history, your doctor will assess the position of the baby during pregnancy and the family history. The physical exam is performed in order to feel the ball popping in and out of the socket.

In order to evaluate the structure of the hip joint, imaging diagnostic tests will be performed. This involves x-rays and ultrasound (sonogram). An ultrasound is the preferred way to diagnose DDH in babies up to six months of age. This technique uses high-frequency sound waves to create pictures of the femoral head and acetabulum.

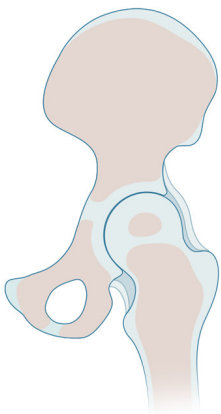
If your child is six months of age or older, x-rays are typically the most reliable test to determine if they have DDH. This is because additional bone forming into the head of the femur actually interferes with the accuracy of ultrasound imaging.

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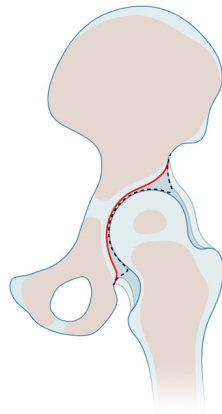
Infant Hip Anatomy



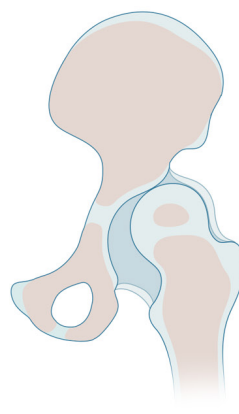
Hip Joint



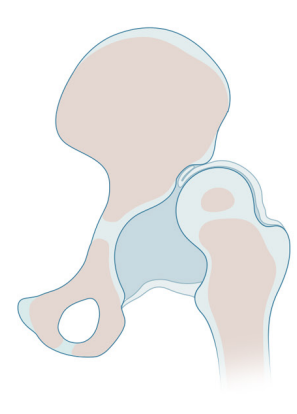
Healthy



Dysplastic

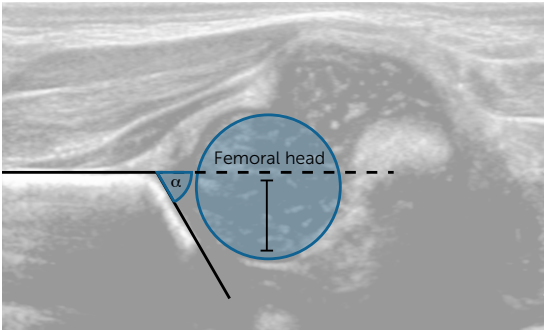
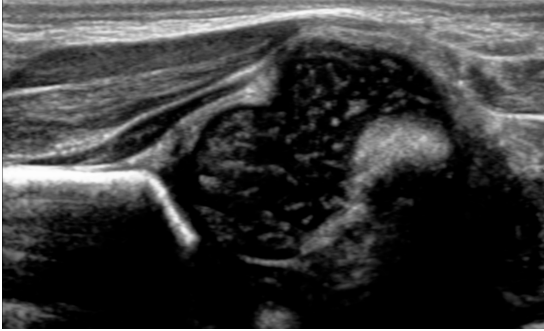


Subluxation



Dislocation

Diagnostic Ultrasound Imaging



How is it treated?

Treatment depends on the complexity and severity of your child's condition, as well as age, overall health, medical history, and the expectations for the course of your child's condition as they grow. The goal of all treatments for DDH is to put the ball back into the hip socket, so that future hip development can be improved.

Observation

If your child is less than 3 months old with none of the known risk factors for hip dysplasia and their hip socket is only slightly shallow with no instability, your specialist may choose to simply observe the hip closely over time. In these cases, the joint will often form normally on its own.

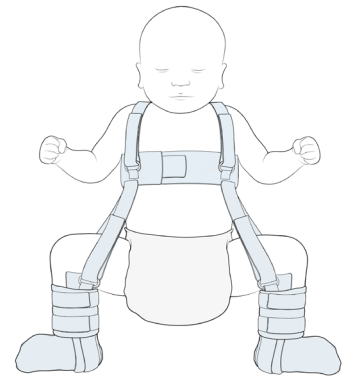
Pavlik harness

If your child's hip socket is observed to be unstable, your specialist may prescribe a Pavlik harness to hold the hip in place. This harness is worn full-time, and allows your child's legs to move a little until the hip is stable and confirmed by ultrasound. This treatment usually lasts for a few months for unstable hips, and involves frequent examinations with your specialist. Please see our Pavlik harness guide for detailed information on treatment and care.

Notes

In the majority of cases, a child's hip will be successfully treated with the Pavlik harness, but sometimes it may continue to be partially or completely dislocated. If this occurs, your doctor may decide to prescribe an abduction brace.

Pavlik Harness



Surgical treatment

- **Closed reduction** If nonsurgical treatment is unsuccessful and your child's hip continues to be unstable a cast may be required. Your doctor will perform an arthrogram, in which very fine needle is inserted into your child's hip under anesthesia, and contrast is injected in order to clearly view the ball and socket. The process of setting the ball back into the socket after the arthrogram is known as a closed reduction.

Once the hip is set back into place, a spica cast is applied. This cast covers from slightly below the armpits to the legs, and holds the hip in place. It is typically used for a few months and will be changed from time to time as your baby grows.

- **Open reduction** If closed reduction does not work, open reduction surgery is typically recommended. This surgery repositions the hip through an incision in order for it to function and grow properly. The specifics of the procedure will depend on the child's unique form of DDH.

Why choose Boston Children's Hospital?

The Child and Young Adult Hip Preservation Program at Boston Children's Hospital is at the forefront of research and innovation. Our team has treated thousands of children with every level of complexity and severity of DDH, combining the best surgical and non-surgical treatment options with care that is structured to your child's specific needs.

Our expansive team of pediatric orthopedic hip specialists provide world-class care throughout each patient's journey, collaborating over both common and complex hip disorders to provide you with comprehensive care. Your child's specialist will provide follow-up care as your child grows, in order to ensure that the repaired hip is developing properly and minimize risk of early arthritis. Our goal is the same as yours: to help your child get better so they can return to being healthy and pain-free.

Produced by the Child and Young Adult Hip Preservation Program in the Orthopedic Center at Boston Children's Hospital.

For more information or to request an appointment visit [bostonchildrens.org/hip](https://www.bostonchildrens.org/hip).

Reviewed by Eduardo Novais, MD, Orthopedic Surgeon, Boston Children's Hospital



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Until every child is well