



Orthopedic Care Center Hand and Orthopedic Upper Extremity Program Syndactyly

Whether your child or loved one suffers a broken arm, a sports-related injury or the most complex spine condition, The **Orthopedic Care Center** at Children's Hospital Boston is committed to providing comprehensive and compassionate care. Established in 1903, we are among the world's most experienced pediatric orthopedic programs, treating a high volume of some of the most complex orthopedic conditions. And with 10 specialty clinics, we are the largest in the country. We are also one of the busiest. Each year, our staff attends to about 80,000 patient visits and conducts about 5,000 surgeries. In 2010, we were ranked #1 in pediatric orthopedics by *U.S. News & World Report*.

The **Hand and Orthopedic Upper Extremity Program** provides comprehensive care for infants, children and adolescents with a wide range of complex upper limb conditions. Multidisciplinary care involving occupational and physical therapy, splinting, casting and reconstructive surgeries is provided for congenital, neuromuscular, sports-related oncologic, traumatic or post-traumatic conditions.

What is syndactyly?

Syndactyly is a term used to describe webbed or conjoined fingers. In general, syndactyly is classified as complete (fingers that are joined all the way to the finger tips) or incomplete (fingers that are joined only part way up the fingers). Additionally, syndactyly is classified as simple (fingers that are joined by skin and soft tissue only) or complex (fingers in which underlying bones are also joined together). Some patients may also have a "complicated" syndactyly that involves extra bones and abnormal tendon and/or ligament development.

What causes syndactyly?

During normal embryonic development, the hand initially forms in the shape of a paddle, and then eventually splits into separate fingers. Syndactyly results when one or more fingers fail to separate during this time.

Research continues into further understanding why this happens. Many cases seem to occur without an apparent cause, while some may occur due to a genetic (inherited) defect. Syndactyly may also occur as a part of an underlying hereditary syndrome.

How common is syndactyly?

Syndactyly is considered the most common congenital hand difference, occurring in approximately 1 out of every 2,500 births. It tends to

occur in males more than females and in Caucasians more than people of African or Asian descent. The space between the middle and ring fingers is most commonly involved.

How is syndactyly diagnosed?

Syndactyly is diagnosed by the treating physician after a thorough medical history and careful physical examination. X-rays are often used to confirm the diagnosis and identify any underlying involvement of the bones of the fingers and hand.

How is syndactyly treated?

Syndactyly is treated by surgically separating the joined fingers. In general, the skin is split evenly between the two fingers with zig-zag incisions. Skin grafts to provide skin coverage of the newly separated fingers are usually taken from the lower abdomen and leave minimal scars.

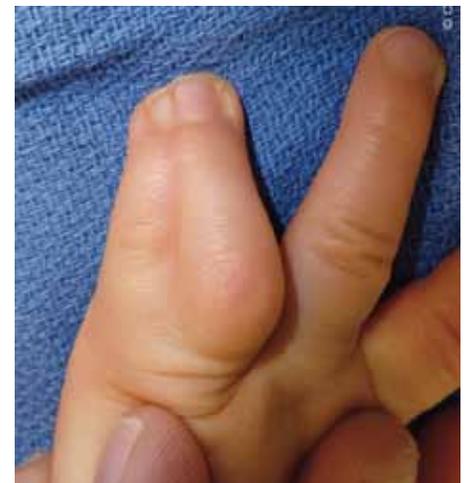
These procedures are typically performed when your child is between 12 and 18 months old. Only one side of a finger is separated at a time in order to avoid complications related to the skin coverage and blood supply of the affected finger. For this reason, if your child has multiple fingers involved more than one surgical procedure will be needed.

Follow-up

After surgery, your child is usually placed in an above elbow cast for three weeks to help immo-

bilize the hand and protect the grafts. Once the cast is removed, an interdigital spacer (a splint made to slide in between the fingers and keep them apart) is used for an additional six weeks. During this time, occupational therapy (OT) to improve hand function is recommended.

We will also want to see your child for follow-up visits to ensure that healing has gone well and function has returned. In some cases, follow-up will continue for years to evaluate whether additional surgery is required to improve the function or appearance of the hand. It is important to note that some children may have "web creep", or recurrent syndactyly, if there are complications with the grafts or flaps healing.



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