



Orthopedic Care Center Hand and Orthopedic Upper Extremity Program Polydactyly

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 polydactyly?

Polydactyly is a term used to describe extra fingers and/or toes. This is a fairly common condition and often runs in families. The extra finger may be located on the thumb side of the hand (radial), the small finger side of the hand (ulnar), or in the middle of the hand (central).

The extra fingers are usually smaller and abnormally developed. The extra finger can be comprised of skin and soft tissue connected to the hand by skin or can be a more fully formed finger with skeletal (bone) connections to the rest of the hand.

What causes polydactyly?

During normal embryonic development, the hand initially forms in the shape of a paddle, and then eventually splits into separate fingers. Polydactyly results when there is an error in this process and an extra finger forms after a single finger splits in two. 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. Polydactyly may also occur as a part of an underlying hereditary syndrome.

How common is polydactyly?

Polydactyly is one of the most common congenital hand differences, occurring in approximately 1 out of every 1,000 births. Usually, only one hand is affected. In the black population an extra finger on the little finger side (post-axial polydactyly) is most common. The most common congenital hand difference in the Asian population is an extra thumb (pre-axial polydactyly).

How is polydactyly diagnosed?

Polydactyly 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 polydactyly treated?

Treatment of polydactyly can range from a simple day surgical procedure to remove the extra finger to a more complex procedure involving bone, ligament and tendon.

While the treatment of polydactyly usually involves one surgical procedure, if your child undergoes a more involved surgical procedure an above-elbow cast may be necessary for three weeks and occupational therapy may be required to help manage scarring, stiffness, and swelling.

Follow-up visits may also be needed 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 as your child grows.



l-r examples of type B (simple) postaxial polydactyly; and preaxial polydactyly.

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