



# Orthopedic Care Center Hand and Orthopedic Upper Extremity Program Symbrachydactyly

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 symbrachydactyly?

Symbrachydactyly is a congenital (present at birth) hand disorder characterized by abnormally short fingers that are sometimes webbed or conjoined.

Most children with symbrachydactyly have the "short finger" type in which the thumb is essentially normal but the remaining fingers are short, stiff and may be webbed. In other cases, only the thumb or the thumb and little finger are present. In more severe cases, all fingers are missing and small nubbins of skin and soft-tissue (little stumps) are located where the fingers would have developed.

In most cases of symbrachydactyly, the underlying muscles, nerves, tendons, ligaments and bones of the hand are also affected.

## What causes symbrachydactyly?

During normal embryonic development, the hand initially forms in the shape of a paddle, and then eventually splits into separate fingers. Symbrachydactyly results when one or more fingers fail to form properly during this time. Research continues into further understanding why this happens. Many cases seem to occur without an apparent cause. It is not believed to be hereditary.

## How common is symbrachydactyly?

Symbrachydactyly occurs in approximately 1 out of every 32,000 births. Most frequently, only one hand is affected.

## How is symbrachydactyly diagnosed?

The majority of cases of symbrachydactyly are diagnosed at or shortly after birth. It is often confused with a hand disorder called constriction ring syndrome. The diagnosis is typically made by the treating physician after a thorough medical history and physical examination. X-rays of the affected limb are often used to help assess the degree of involvement.

Diagnosis of symbrachydactyly can often be puzzling because many of its physical characteristics are similar to those of constriction ring syndrome.

The chief difference is that symbrachydactyly often involves malformation of underlying structures of the hand (muscles, nerves, bones, etc.), while constriction ring syndrome occurs when an amniotic band constricts a normally developed digit or limb.

## How is symbrachydactyly treated?

Treatment of symbrachydactyly varies from child to child. In some cases, no surgery or only minor skin and soft-tissue corrections are needed. Other children may need to have bones transferred (often from the toes) to add length to the affected fingers.

These procedures are usually performed when your child is between 6 and 18 months old. In some cases, a toe or multiple toes may be transplanted to the affected hand so that your child will eventually be able to pinch, pick up and hold objects (usually done later in childhood 2-4 years of age).

Treatment also includes follow-up visits, which are necessary to ensure that healing has gone well and function has returned to your child's hand. 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.



## Clinical Team

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