

# Orthopedic Center

## Hand and Orthopedic Upper Extremity Program

### Clinodactyly

Whether your child or loved one suffers a broken arm, a sports-related injury or the most complex spine condition, the Orthopedic Center at Boston Children's Hospital 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 13 specialty clinics, we are the largest in the country. We are also one of the busiest. Each year, our staff attends to about 100,000 patient visits and conducts about 6,000 surgeries.

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 clinodactyly?

The term clinodactyly is used to describe a bending or curvature deformity of the finger which occurs in the plane of the hand.

#### What causes clinodactyly?

Clinodactyly is typically caused by abnormal growth and development of the small bones of the finger (the phalanges). In many cases, there may be abnormal shape or orientation of the growth plate. Rather than grow perpendicular to the axis of the finger, therefore, these bones may deviate in their direction of growth, resulting in trapezoidal or triangular shaped bones (the so-called delta phalanx). This can cause a shift in the alignment of the finger joints as well.

#### How common is clinodactyly?

The exact incidence of this condition is unknown, in part because there is no precise definition of what is normal and abnormal. However, clinodactyly is estimated to be present in approximately 10% of the general population to varying degrees. It tends to be present more commonly in males and usually affects the small finger. Bilateral involvement is common. Clinodactyly can be an inherited condition and may present as a part of an associated syndrome. A significant percentage of patients with Down syndrome, for example, have clinodactyly.

#### How is clinodactyly diagnosed?

Clinodactyly is diagnosed by treating physicians after a thorough medical history and careful physical examination. X-rays are also used to confirm the diagnosis.

#### How is clinodactyly treated?

Mild finger curvature rarely causes pain or functional problems. For these reasons, surgery is not typically recommended

for patients with mild curvature and no functional problems. Because abnormalities in the growth plate often contribute to clinodactyly, it is important for affected children to be monitored throughout growth and checked for progressive changes.

If there is rapidly worsening deformity, or if the curvature progresses to the point where it interferes with hand function, surgery may be recommended. Surgical procedures typically involve making a cut in the bone (an osteotomy), correcting the deformity, and stabilizing the finger until the bone and soft tissue are healed. While surgery is usually successful in correcting the curvature, there is a risk for recurrence and need for future surgery.



Example of index finger clinodactyly.

## Clinical Team

Peter M. Waters, MD  
Donald S. Bae, MD  
Carley Vuillermin, MBBS, FRACS  
Andrea Bauer, MD  
Jessica Burns, NP  
Paula Donahue, RN, BSN  
Laurie Travers, RN

## Locations

**Boston Children's Hospital**  
300 Longwood Avenue  
Boston, MA 02115

**Boston Children's at Lexington**  
482 Bedford Street  
Lexington, MA 02420

**Boston Children's at Waltham**  
9 Hope Avenue  
Waltham, MA 02453

**Boston Children's at Peabody**  
10 Centennial Drive  
Peabody, MA 01960