



# Orthopedic Care Center Hand and Orthopedic Upper Extremity Program Cleft Hand

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.

The term cleft hand refers to a congenital condition in which the hand is missing the central fingers and bones. Not all cleft hands are the same, and there is a broad spectrum and variety of appearances and underlying bone or soft tissue abnormalities.

### What causes cleft hand?

Example of a cleft hand In the majority of patients, a cleft hand may be an isolated occurrence, affecting only the hand. In some patients, the presences of a cleft hand may be a part of a clinical syndrome with other systemic manifestations. In these situations, some patients with cleft hands may also have cleft lip, foot abnormalities, deafness, or congenital conditions affecting the heart and digestive systems.

The exact cause of cleft hand is unknown, though scientists and physicians continue to make progress in understanding the possible genetic causes of this rare condition.

### How common is cleft hand?

True cleft hand, in which there is no associated clinical syndrome or systemic illness, comprises less than 5% of all congenital hand differences. While the majority of cases are unilateral, in some patients both hands may be affected with a hereditary predisposition.

### How is cleft hand diagnosed?

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

### How is cleft hand treated?

Not all patients require surgery for cleft hand, particularly if the overall hand function is not affected by the underlying deformity. However, in cases of significant functional or cosmetic differences, surgery may be recommended.

Many different surgical procedures may be performed for cleft hand. In general, the goals of surgery are to "close" the cleft and provide improvements in hand function. Special consideration is made to create a good working space between the thumb and index finger to allow for pinch and fine motor function. Surgery for cleft hand often involves reorganizing the skin and soft tissue, stabilizing or transferring the bones of the hand, and correcting any deformities of the fingers or thumb.



## Clinical Team

Peter M. Waters, MD  
John E. Hall Professor of Orthopedic Surgery, Harvard Medical School  
Clinical Chief, Orthopedic Surgery, Children's Hospital Boston

Donald S. Bae, MD  
Assistant Professor of Orthopedic Surgery, Harvard Medical School

Apurva S. Shah, MD  
Clinical Fellow in Orthopedic Surgery

## Locations

Children's Hospital Boston  
300 Longwood Avenue  
Fegan 2  
Boston, MA 02115

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

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

Boston Children's North  
10 Centennial Drive  
Peabody, MA 01960