



How We Can Help

BRACHIAL PLEXUS CENTER



Our team has advanced training in a variety of areas, allowing us to provide the best approach to treat children who have brachial plexus injuries.

ABOUT THE CENTER

Established in 2002, the Brachial Plexus Center at Cincinnati Children's Hospital Medical Center is one of only a few centers in the country offering a coordinated, interdisciplinary team approach to diagnose and treat children who have brachial plexus injuries. Prior to that, our team members cared for children with brachial plexus injuries in their own respective areas.

Cincinnati Children's
Brachial Plexus Center

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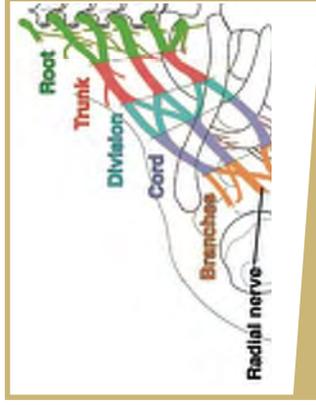
What makes us unique?

- Our team includes a combination of specialists in plastic surgery, pediatric orthopaedic surgery, hand surgery, therapy and rehabilitative medicine working together – so families get the coordinated care they need in one place.
 - The care and treatment we provide to our patients and families are based on the best scientific information and medical practices.
 - We are actively involved in clinical and laboratory research to advance the quality and effectiveness of care for children with brachial plexus injuries.
- Each patient is thoroughly evaluated by our team of specialists who work closely with the patient and family to develop a treatment plan. Based on survey feedback provided by patient families, we have a 97 percent satisfaction rating for the care received in our clinic.

UNDERSTANDING BRACHIAL PLEXUS INJURY

A birth brachial plexus injury is thought to be caused by a stretch injury of the brachial plexus nerves during birth. This stretch results in incomplete sensory and/or motor function of the upper extremity. A brachial plexus injury may occur in 1.5 of every 1,000 live births. Traumatic brachial plexus injuries may occur due to motor vehicle or all-terrain vehicle (ATV) accidents, as well as sports injuries.

Kevin Yakuboff, MD, and Allison Allgier, OTR/L, examine 6-week-old Sha'mond. If needed, microsurgical nerve repair can be performed as early as 3 months of age.



The brachial plexus is a network of nerves that provides movement and feeling to the shoulder, arm and hand. The nerves supporting the arm exit the spinal column high in the neck; those that support the hand and fingers exit lower in the neck.



HOW OUR SERVICES CAN HELP

After an initial assessment, we create an individualized treatment plan and therapy program. Our goal is to optimize function for every child in our care. We practice evidence-based medicine with care and treatment based on the best scientific information and medical practices.

- Non-surgical options may include the use of Botox® to better balance muscle strength and/or therapy. Therapy may include aquatics, constraint-induced movement therapy (CIMT), orthoses, therapeutic taping and neuromuscular electrical stimulation (NMES). Family education and home exercise programs are important aspects of treatment. While up to 64 percent of kids with a brachial plexus injury may recover with minimal intervention, most benefit from therapy.



Aquatic therapy at Cincinnati Children's Drake combines the benefits of physical therapy and occupational therapy with the advantages of warm-water exercise.



Orthopaedic hand surgeon Mohab Foad, MD, examines 9-month-old Eden during clinic.

We offer appropriate intervention that maximizes motor function, promotes increased signals to the brain and minimizes development of deformity.

- If surgery is needed, we offer microsurgical nerve repair – including nerve grafts and nerve transfers – as early as 3 months of age. As children grow, we perform secondary surgeries as needed, including:
 - Nerve transfers (may be used in primary or secondary surgery)
 - Sensory nerve transfers
 - Anterior capsule release
 - Arthroscopic/Open release of the subscapularis
 - Open release of the pectoralis minor
 - Transfer of the latissimus dorsi
 - Humeral osteotomy
 - Free gracilis transfer
 - Steindler flexorplasty
 - Forearm osteotomy
 - Tendon transfers at the wrist and hand

RESOURCES FOR FAMILIES

Cincinnati Children's provides families with numerous services to make things as easy as possible while in our care.

Social Work

Our social worker can help patients and their families cope with the practical and emotional concerns that accompany a brachial plexus injury.

Parent-to-Parent Support Program

This network offers a meaningful source of support, allowing parents to:

- Connect with parents who have faced similar challenges
- Feel more confident about caring for their child
- Learn practical, everyday tips from shared experiences

Online Educational Information

At www.cincinnatichildrens.org/brachial-plexus, families can find extensive information about brachial plexus injuries.

Highlights include:

- The Brachial Plexus Encyclopedia
- An online information request form
- Brachial plexus patient stories

Guest Services for Out-of-Town Families

Guest Services at Cincinnati Children's works with out-of-town families to help plan travel details, arrange complimentary ground transportation, assist with lodging arrangements, and provide complimentary or discounted admissions to area attractions.



Laimie Holman, MD, and Melissa Miller, RN, BSN, work with 9-month-old Reece and her mom, Tenille. The Brachial Plexus Center team believes in the comprehensive, compassionate and respectful care of every patient and family.



Three-year-old Davione's aunt discusses his care with team members. We maintain consistent communication with families and referring physicians regarding the health and progress of each patient in our care.

OUR CLINICAL AND LABORATORY RESEARCH

Our research goals are to answer questions related to the problems seen in children with brachial plexus injuries and determine how to minimize these so we can improve child health. Current and ongoing research includes:

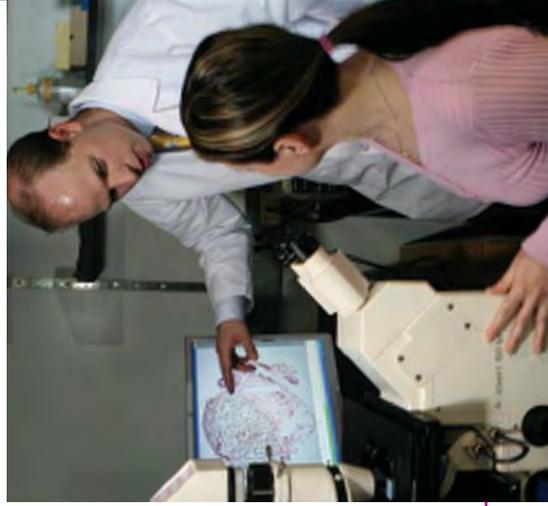
- Basic science research in the lab focusing on the impact of brachial plexus injury on the growth and development of muscles, with investigation of medications to preserve muscle tissue and prevent contractures
- Multi-center studies focusing on appropriate timing of nerve repair surgeries as well as social functioning in adolescents
- Clinical research with focus on surgical outcomes, use of EMG testing to help guide operative and non-operative management, MRI analysis, outcomes following Botox® injections and aspects of therapeutic intervention

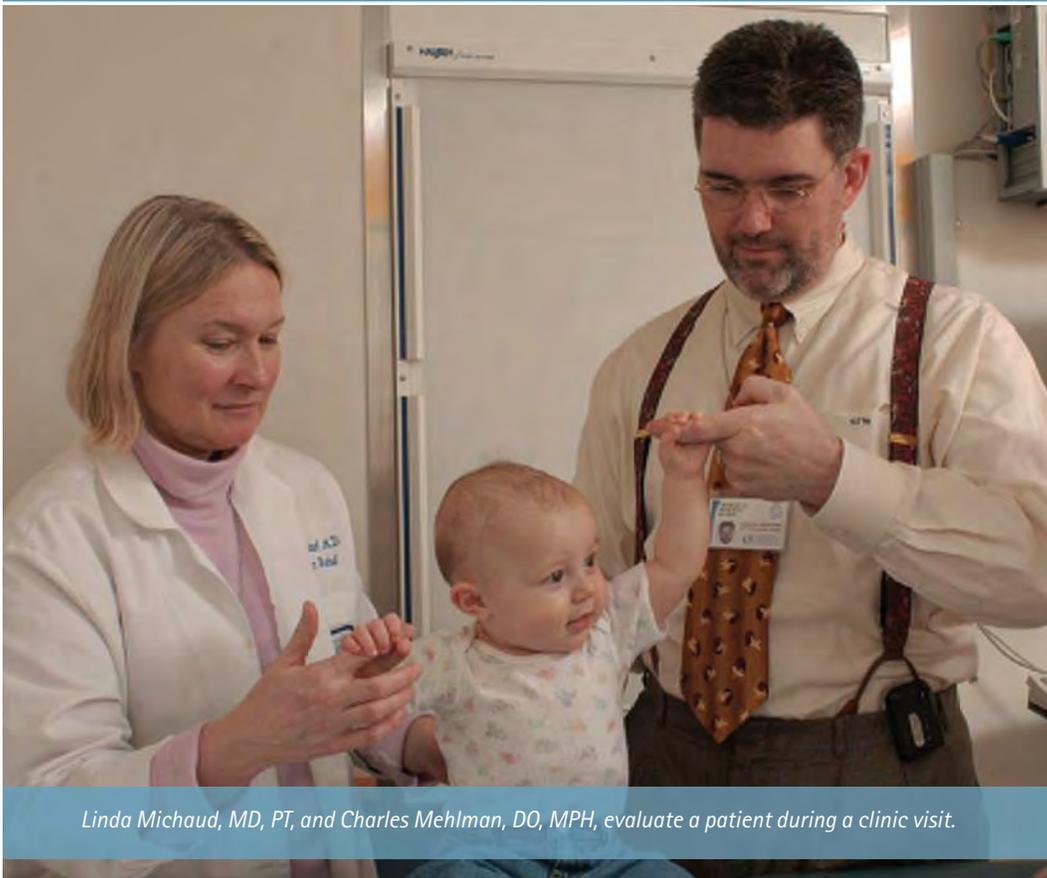
COLLABORATION WITH REFERRING PHYSICIANS, THERAPISTS AND FAMILIES

At Cincinnati Children's, our specialists partner with primary care physicians, therapists and families in making medical decisions. Our team will communicate regularly with referring physicians, therapists and with the patient's family.

- We fax patient encounter reports to the referring physician and/or primary care physician.
- New patients are scheduled quickly.
- Patients with urgent problems are seen immediately.

We believe in evidence-based practice with use of research findings to guide our treatment. Here Roger Cornwall, MD, and Sia Nikolaou, PhD, examine muscle tissue in the lab.





Linda Michaud, MD, PT, and Charles Mehlman, DO, MPH, evaluate a patient during a clinic visit.

"Our team is committed to improving the quality of life for every child we treat. Whether treatment involves therapy, surgery or a combination of the two, we aim to do what's best for each of our patients and their families."

- Charles Mehlman, DO, MPH
- Linda Michaud, MD, PT
Co-directors of the Brachial Plexus Center