

Birth Brachial Plexus Injury

What Is Birth Brachial Plexus Injury?

The brachial plexus is a network of nerves that begins at the spinal cord in the neck and delivers messages from the brain to the shoulder, arm and hand.

Birth brachial plexus injuries happen when this nerve network becomes damaged during birth. The injuries can cause problems with controlling movement and feeling sensations in the hand, wrist, elbow and shoulder.

What Causes Birth Brachial Plexus Injury?

Brachial plexus injuries happen whenever nerves get stretched or injured. Some of these injuries happen during the birth process. Most often the baby's shoulders may become wedged within the birth canal, causing nerve injury to the brachial plexus as the baby is delivered.

Types of Nerve Injuries

In general, there are four types of nerve injuries. All can occur at the same time in the same infant in different parts of the plexus.

Neuropraxia

A stretch injury that "shocks" but doesn't tear the nerve is the most common type. This type is called a neuropraxia. Normally, these injuries heal on their own, usually within three months.

Neuropraxia can happen in adults as well as infants. For example, when it happens to football players who are injured during play, it's called a "burner" or "stinger."

Neuroma

A stretch injury that damages some of the nerve fibers might result in scar tissue. The scar tissue might press on the remaining healthy nerve. This condition is called a neuroma. Some, but not total, recovery is usually possible.

Rupture

A stretch injury that tears the nerve apart (ruptures it) will not heal on its own. In this type of nerve injury, surgery will be necessary to re-attach the nerves.

Avulsion

An avulsion happens when the nerve is torn from the spinal cord. It is not possible to repair an avulsion from the spinal cord. This is the most severe type of nerve injury, and is not directly repairable.

Approximately two babies in every 1,000 experience brachial plexus injury at birth. Treatment for birth brachial plexus injury may be treated with physical or occupational therapy including splinting or stretching exercise. In

some children, treatment may include casting or surgery.

Difficult births, such as breech births or births involving a long labor, increase a baby's risk of brachial plexus injury. Many babies with brachial plexus injuries are larger than average at birth. However, newborns of all sizes (including premature babies) can have brachial palsy as well.

Birth Brachial Plexus Injury Symptoms and Effects

Regardless of the type of nerve injury, the symptoms are the same (loss of feeling and partial or complete paralysis). The severity of the injury helps determine treatment options and recovery possibilities.

Brachial plexus injuries have different symptoms and effects, depending on the child's age and the extent of the injury. A child who has a brachial plexus injury might:

- Be able to move the shoulder or elbow, but have trouble moving the wrist and hand (Erb's palsy).
- Be able to move the hand, but have trouble moving the shoulder or elbow.
- Not be able to move or feel either the arm or hand (global palsy).

Watch for these brachial plexus injury symptoms. By 3 months of age, children who have a brachial plexus injury might still be unable to:

- Squeeze your fingers.
- Bend their wrist.
- Bend and straighten their elbow.
- Raise their arm.

A brachial plexus injury that happens during or shortly after birth can result in lifelong problems, affecting the shoulder, elbow, arm, wrist and hand. Children who seem to have problems with movement should get tested by a specialist who can make a diagnosis and develop a full treatment plan.

Birth Brachial Plexus Injury Diagnosis and Treatment

Early identification and treatment of brachial plexus injuries is critical for reducing long-term effects and the need for surgery.

Babies who don't use an arm for an extended time might need extensive surgery to correct bone and muscle alignment. If you suspect your baby has a brachial plexus injury, have them tested by a specialist during the first few months of their life, if possible.

As part of a full evaluation, Gillette Children's uses one or more of the following tests to help diagnose a brachial plexus injury and determine its extent and severity:

- **Electromyography** with nerve conduction studies.

- [MRI of the brachial plexus](#).
- [CT scan](#) or [ultrasound](#) of the shoulder joint.

Therapeutic treatment is most effective for babies diagnosed between 3 and 6 months of age. Many children will regain full use of their arm and hand through [occupational therapy](#). If the condition doesn't resolve with therapy alone, Gillette offers brachial plexus surgery. Combined with postsurgical therapy, the surgery can improve motor and sensory function. Our surgeons might implant nerve guides, perform nerve grafts or perform neurolysis to increase input to muscles. Additionally, nerve transfer surgery may be recommended to bring an uninjured nerve to provide nerve supply in the area of nerve injury.

Our orthopedic surgeons might also need to correct secondary bone, joint and muscle deformities in children who:

- Don't regain motor function.
- Have severe brachial plexus injuries.
- Have injuries left untreated for too long.

Integrated Care

If your child has a brachial plexus birth injury, you'll work closely with a team of internationally recognized specialists to create a customized treatment plan. Our multidisciplinary team approach often means your child can see multiple specialists during one visit at one family-centered location.

Your child's care team will include the following experts:

- [Pediatric orthopedic upper extremity specialists](#).
- [Pediatric neurosurgeons](#).
- [Pediatric rehabilitation medicine specialists](#).
- [Pediatric neurologists](#).
- Rehabilitation therapists with extensive experience diagnosing and managing birth brachial plexus injuries.

[Appointment: 651-290-8707](#) [Refer a Patient: 651-325-2200](#) [Pediatric Expert Consult](#) [More Ways to Contact Us](#)

This information is for educational purposes only. It is not intended to replace the advice of your health care providers. If you have any questions, talk with your doctor or others on your health care team.

If you are a Gillette patient with urgent questions or concerns, please contact Telehealth Nursing at [651-229-3890](#).