

The logo for Nemours, featuring the word "Nemours" in a blue serif font with a red brushstroke underline.

Alfred I. duPont  
Hospital for Children

Nemours  
Children's Clinic

## ***TIBIAL DE-ROTATIONAL OSTEOTOMIES for TIBIAL TORSION***

### **Why does my child need this surgery?**

Growing children often walk with an in-toeing or out-toeing gait. This is sometimes caused by tibial torsion, although other causes involve the hips and even, feet. Tibial torsion refers to the twist in the tibia bone, which causes the knee and ankle to not line up properly, resulting in the feet pointing in or out. In the vast majority of children, with normal muscle pull and normal development of walking ability, this torsion corrects itself. However, children with spasticity do not develop this normal rotational pull. This results in the persistence of the torsion, which can negatively effect walking. Although some children have tibial torsion and it does not negatively affect their gait. Internal tibial torsion refers to the foot pointing in while standing and walking, while external tibial torsion refers to the foot pointing out. In either case, the malalignment is caused by the tibia bone.

There are no braces or treatments that have been successful in treating this. In a child without the normal forces of correction occurring with growth, surgery is the only means of correcting the problem. This is most often indicated for children who have some ambulatory ability. It is rarely indicated for a

non-ambulator unless foot placement on a wheelchair is severely impaired.

### **What does the surgery involve?**

The surgery involves “cracking” the tibia and the smaller fibula, usually at just above the ankle and then rotating the bone into proper alignment. This “cracking” is a surgically induced fracture made by weakening the bone first with several drill holes, also termed an osteotomy. This is done through a small stab wound at the level of the break. The rotational correction is held in place by both a pin through the tibia placed just below the knee and a cast, to and including the foot and incorporating the pin. This is the approach that is primarily used in our practice. An alternative surgical correction involves cutting and rotating the tibia at the top part of the bone, just below the knee.

### **What are the incisions like?**

This is a small stab –like incision just above the ankle and two pin sites (entry and exit) , on either

side at the top of the tibia. There are no actual incisions in the traditional sense.

## What happens immediately after surgery/casts?

The child is placed in a cast in the operating room. The cast is a short leg cast (below the knee) and it incorporates the pin (pin is inside the cast). Usually, within 24 hours the cast is trimmed and made into a walking cast in the Cast Room. As soon as the child is comfortable, walking is allowed and encouraged.

The pin will be removed from the cast in the Cast Room after an x-ray, usually four weeks after surgery. This is accomplished by removing a “window” of cast around the pin entry and exit site then pulling the pin out. The cast “window” is then replaced in the cast. The child remains in the cast for another two weeks.



This six-week course is typical, in some cases it may take a bit longer for the tibia to heal in its redirected position. If there isn't enough new bone to consider it to be strong, the cast will remain on longer.

## Will my child have pain?

Yes. However, the pain will be controlled with pain relievers and muscle relaxants. If, after your child returns home, you feel that he/she is having inappropriate pain or side effects from the medications, please call the office.

## Will my child be able to walk/activity at discharge?

The therapist will work with the child in order to start walking. The child will not be able to walk immediately and may temporarily need some previously unnecessary equipment, such as a walker. Activity at discharge will be dependent upon how much the child tolerates. Most children

are able to be up walking within two weeks after surgery.

## **Will my child be able to ride in the car?**

Yes. No special adaptations will be necessary.

## **Will my child need physical therapy?**

Yes. Typically the role of therapy is to help the child be able to walk as much as possible in the cast(s). When the cast is removed, the therapy will continue and now be focused on strengthening and gait training.

The social worker will help with arranging for therapy. However, individual insurance coverage will often dictate what therapy is possible. It is very helpful for families to inquire about their coverage prior to surgery in order to facilitate the process of obtaining what is needed for their child.

## **When will my child need to return to see the doctor/x-ray?**

The child returns at four weeks for an x-ray to determine whether enough healing has occurred and if so, the pin is removed. The next visit is two weeks later for removal of the cast. The typical total in cast is six weeks.

## **When will my child be able to return to school/bus?**

Your child may return to school as soon as he/she is comfortable. There are no restrictions regarding the School bus.

## **How long will it be until my child has completely recovered?**

This, of course, varies. Most children are not only having this procedure and may also have muscle releases or even foot surgery. It is reasonable to expect a period of three to four months until complete recovery.

## **Will this surgery ever need to be repeated?**

No, surgical correction of this type is typically permanent.

## **What are the possible complications associated with this surgery?**

Complications can include a broken pin or infected pin site. These are relatively minor issues. Correction of severe torsional problems can result in stretching of nerves and arteries. This can cause difficulty with nerve function and blood flow to the foot. This is a more serious complication that the surgeon uses great caution to avoid.

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