The Clubfoot and Metatarsus Adductus are common musculoskeletal disorders in the newborn babies. The etiology is not well known but is considered a combination of genetic and environmental factors. Both these disorders are slightly different from each other; Metatarsus Adductus is a milder condition and has higher chances of spontaneous resolution than the clubfoot. The common treatment options involve the manipulation and casting. Surgery is reserved for severe and resistant cases.

Discussion of Clubfoot (Talipes Equinovarus) and Metatarsus Adductus

Clubfoot and Metatarsus Adductus are the congenital anomalies in the pediatric population. They become apparent at the time the baby is born. The foot is turned inwards and resembles the shape of the kidney. As a result of the stiff tendons and
ligaments in these conditions, the foot becomes restricted and cannot maintain the normal range of movements.

Metatarsus Adductus and clubfoot occur in almost 1–2 out of 1000 live births, more common in the first born babies. Male babies are more frequently affected than females.

**Talipes Equinovarus** is a term used for clubfoot. Both the forefoot and the heel part are curved inwards. The sole of the affected foot faces the sole of a normal foot.

**Metatarsus Adductus** is known as one-third of the clubfoot. It is a less severe condition than the clubfoot as only one part, forefoot, is turned inwards. The treatment options vary for both of these conditions.

**Etiology of Clubfoot (Talipes Equinovarus) and Metatarsus Adductus**

The exact etiology is still unknown. The largest number of cases is termed as idiopathic. Clubfoot and Metatarsus Adductus can be isolated or associated with other congenital anomalies like AMC, myelodysplasia, Spina bifida and other defects.

The nervous system disorders constitute the second largest percentage of etiological factors for clubfoot, which includes myelomeningocele and arthrogryposis. Any unit from muscle, nerve, brain or spinal cord can be affected. There are many theories for the idiopathic causes of these conditions.

**Some common assumption**

- Genetic Factors, almost 25 % of the total cases are familial.
- Environmental factors, which include various procedures like early amniocentesis or amniotic fluid problems such as oligohydramnios. Maternal factors like cigarette smoking and viral infections have also been studied.
- The positioning of the baby in utero, for instance, breech position.
- The abnormal insertions of muscles.

**Symptoms of Clubfoot (Talipes Equinovarus) and Metatarsus Adductus**

It is a painless condition in itself unless some complications like a fracture or an inflammation occur on the affected side. The symptoms of both the conditions include:

- In Clubfoot, the ankle is curved inwards and the foot is pointed downwards. The heel of the affected foot is smaller. The condition can be unilateral or bilateral.
- In Metatarsus Adductus, the front is bent towards the middle of the foot. It is often bilateral.
- The affected foot is shorter than the normal.
- The shoes do not seem to fit and the child cannot enjoy normal playing activities due to a narrow range of motion.
Diagnosis of Clubfoot (Talipes Equinovarus) and Metatarsus Adductus

Clubfoot and Metatarsus Adductus can easily be diagnosed by following the simple protocol

- Ultrasound scanning during the in utero can detect the condition, but it is mostly diagnosed at birth.
- **Physical examination**: The doctor observes the foot and the movements that can be made. A complete birth history and family history is also important as the genetic factors play the major role in the causation.
- Diagnostic procedures like X-rays are done to view the structures in detail.

Treatment of Clubfoot (Talipes Equinovarus) and Metatarsus Adductus

The treatment option is selected upon the basis of certain factors.

1. Child’s age, other congenital anomalies, and the medical history.
2. Extent and severity of the condition.
3. Tolerance ability of the child for various procedures and medications.
4. The expected duration of a specific treatment option.
5. The preferred option by the parents or guardians.

The treatment options can be broadly divided into four categories.

Observation

**The Metatarsus Adductus**

- good prognosis even without treatment
- estimation: majority of the cases can resolve spontaneously.

**Clubfoot**

- mostly requires a suitable treatment procedure.

Stretching Exercises

The doctor will recommend certain stretching exercises that must be practiced **multiple times a day**. The foot of the baby is turned in the normal position. The changes in the sleeping patterns are also recommended, for example, a side-lying position.

Casts

When the child does not respond to the above options, casts are applied to the affected foot. They are changed every one–two weeks depending on the child’s progress rate. **Straight shoes** are also given to stabilize the foot. Besides the casts, adhesive tapes and splinting are also done to keep the foot in a normal position. It is continued for **2–4 months** and the foot is moved closer to the normal anatomical position.

There are two types of casting methods used for clubfoot, one is traditional and the other is Ponseti method.
**Ponseti method** is an outpatient procedure and if correctly initiated at the right time, it has an excellent prognosis. It has also lessened the struggle associated with the traditional methods.

**Achilles tenotomy**, also known as the percutaneous heel-cord tenotomy and foot abduction braces, are the most common techniques used for the idiopathic cases of Clubfoot.

**Surgery**

Surgery is done in cases of **rigid Metatarsus Adductus and clubfoot**, which cannot aptly respond to other options. After the surgery, casts are applied to stabilize the foot. It is usually done when the child is four-six years old.

The common surgical procedures employed are the **lengthening of the ligaments and tendons or releasing the soft tissues, and repositioning of the deformed bones**. Wires are used for the position of the bones which can be removed after four to six weeks.

**Physical therapy** is also required after the surgery. The affected foot somewhat remains smaller than the other side but it does not cause any problems and the child can continue to play and run.

**Prognosis of Clubfoot (Talipes Equinovarus) and Metatarsus Adductus**

Both these conditions carry an **excellent prognosis**, provided that the treatment is started at the earliest possible time. The management should be started **soon after birth, as the tissues are softer and the manipulation is much easier at that time**.

**References**


**Legal Note:** Unless otherwise stated, all rights reserved by Lecturio GmbH. For further legal regulations see our [legal information page](#).