

# Management of 'Bent Legs': What you need to know.

*The purpose of this article is to provide information to broodmare owners of the common limb deformities encountered in foals and provide advice and guidance on how these need to be managed to optimise the chances of producing a functionally sound individual with correct conformation.*

Limb deformities can be divided into two categories: flexural deformities ('contracted' or 'lax tendons') and angular limb deformities ('bent legs') or a combination of the two can be present.

## **Flexural limb deformities**

Most people know this as '**contracted tendons**' meaning tightness of the tendons down the back of the leg resulting in an inability to straighten the limb. This most commonly occurs in the forelimbs, in most cases the problem is seen in both legs, one being affected more severely. Contraction of the knee (forward at the knee), fetlock (straight pastern), coffin joint (upright – 'ballerina foals') or a combination of all three can occur. In mild cases the foal is able to stand and suckle but due to the excess forces on the flexor muscles in the back of the forearm the foal tires easily and often spends a lot of time lying down. These cases are best discussed with your vet within the first 24 hours of birth.



*One day old foal with fetlock contraction struggling to suckle. This foal was managed with intravenous oxytetracycline on two occasions 48 hours apart and application of a padded splint changed every 24 hours for 4 days.*

Occasionally cases can be severe and the foal cannot stand and is unable to suckle. These cases require prompt attention (before 6 hours) to assess the foal and administer colostrum. In very rare cases a bony abnormality exists such that the leg will not straighten.

## **Therapy for contracted tendons**

Administration of up to 3g of oxytetracycline intravenously results in the ligaments and tendons becoming more susceptible to stretch under normal weight bearing, which results in relaxation within 24 to 48 hours. This is an extremely useful treatment but in some cases repeat injection, bandaging, splinting and even temporary casting is necessary for the foal to stand and walk more normally. Some contractions can persist for a week or even several months and these need careful management with controlled exercise.

Some almost correct foals can become 'contracted' due to over exercise of the flexor muscles. Stretching of the muscles and tendons results in a painful spasm, such foals tend to lie down a lot which can aggravate the contractural problem. These individuals can be managed with low doses of non steroidal anti-inflammatory painkillers (NSAID's) and concurrent anti-ulcer medication.

Foot (and fetlock) contractions can also be acquired when the foal has a growth spurt and its bones grow rapidly, almost outgrowing the tendons, in my experience this is common in draft foals. These cases need careful management with restricted exercise regular and gradual trimming of the heels, protection of the toe, NSAID's and possibly early weaning.

*A four month old foal with upright foot and straight pastern (contracted coffin & fetlock joint), after a growth spurt. If conservative therapy does not resolve the problem surgery should be considered.*



In cases where the heel persistently lifts off the ground or the hoof wall steepens approaching 90 degrees to the ground surgery in the form of cutting the accessory (check) ligament of the deep digital flexor tendon is recommended. This surgery is best performed on foals less than 8 months of age.

Foals can also be born with '**lax tendons**'. This problem is caused by flaccidity of the flexor muscles and most commonly occurs in the fetlocks in the hind legs but also occurs in the fetlocks in the fore, the

coffin joints and the knees ('back at the knee'). The problem usually corrects itself in a few weeks however careful management is required to avoid trauma to the bones, soft tissues and skin.



Left) shows a one day old foal with laxity in the fetlock (dropping to the ground) and coffin joint (lifting of the toe). It was managed by light daily bandaging and monitoring and right) shows the foal on day 8.



Left) a three day old foal which is back at the knee. These foals need strict confinement and bandaging to prevent damage to the knee bones. These foals should be checked for bone ossification with radiographs. Right) shows the foal at 4 weeks of age.

#### Therapy for lax tendons

Foals with mild laxity are often referred to as 'weak' foals; these do not need treatment but should be carefully observed for signs of worsening (becoming weaker). Some exercise is indicated and access to pasture allowed for short periods. When the laxity results in contact of the fetlock or bulbs of the heel with the ground treatment needs to be immediate to avoid trauma to the skin. Light bandaging is necessary but heavy support bandages or splints are contraindicated as they offer too much support to the limb further weakening the flexor muscles. Application of glue on flaccidity shoes with heel extensions help maintain the hoof sole on the ground thus lifting the fetlock and/or heels. This effect is immediate and shoes are left in place for approximately 10 days allowing the foal to get some exercise and strengthen on its own.



This shows a Dalric® flaccidity shoe, used on a week old foal. This foal began to traumatise its heels and so a shoe was fitted and left in place for 11 days.

#### Angular limb deformities

Foals are seldom born 'correct'. Most newly born foals are weak, thin chested, and, in relation to their size long legged. As a result nearly all newborns have an outward rotation of the entire limb resulting in a toe out posture. With increasing strength and age the chest fills out there is an inward rotation of the limb and a natural correction of posture.

Some foals are however born with or develop angular limb deformities more commonly known 'bent legs'. The deformities are described by the joint they are bent from i.e. the knee, hock or fetlock and the direction of the bend; they can be bent in (varus) or out (valgus). Typically foals are bent out from the knee and hence have a knee valgus.

In the majority of cases the bend originates from the growth plate just above the knee (distal radius), or just above the fetlock (distal cannon). In some cases the bend originates within the joint or due to a bow in the long bone (bowed canon). It is beyond the scope of this article to discuss such cases but I must emphasise the need for experienced veterinary opinion in each individual case.

Foals have a capacity to grow out of the condition if allowed the correct conditions to do so. All foals that are bent should be boxed and given limited access to pasture and exercise.

#### Therapy of bent legs

Treatment needs to be carried out if the bend is severe, is being corrected too slowly, or it is leading to, or will lead to a secondary deformity or injury. As an owner you are not going to know what will straighten and what will not, so you should discuss cases with your vet at the earliest opportunity.

A combination of deformities may also exist with bends at the knee and fetlock and this may be combined with a tendon contracture.

#### The main points to know about bent legs are:

- 1). Bent fetlocks are more serious than bent knees as there is less time available to correct them.
- 2). A severe bend of greater than 12° requires early treatment, (Note: 5 minutes on a watch = 30°).
- 3). A bend in (varus) is more serious than the same degree of bend outwards (valgus).



Severe knee valgus (30°). This foal was treated surgically with a transphyseal bridge at two weeks of age.

Foals suffering from a varus (bent in) deformity of the fetlock need to be treated **within 4 weeks** of age, meaning that it will have to be evaluated and treatment begin before 2 weeks of age. Foals with a severe (>12°) deformity of the knee or hock need to be treated promptly within 4 weeks, mild deformities of the knee or hock can be treated up to 4 months of age.



Left) mild Knee valgus. In this case the foal of approximately 3 weeks will be allowed more time to correct with the aid of an equithane hoof extension. Right) this foal is also 3 weeks old and has a mild knee varus, it has been fitted with a Dalric® extension shoe to aid in the correction.

Trimming with or without the application of hoof extensions or extension shoes can aid in the

straightening of a mild deformity, in moderate cases periosteal elevation (p-strip) surgery can be performed to accelerate growth in the short side (inside curve of the bend). In severe cases the growth plate can be bridged surgically (transphyseal bridge) to retard growth in the long side (outside curve of the bend).



Hindlimb fetlock varus Left) shows a foal at 7 days of age with a severe fetlock varus. This foal was treated with a transphyseal bridge to slow the growth on the outside of the limb. Right) shows the foal 7 weeks later, 6 weeks after surgery, implants were removed when the leg was straight. Without surgery this foal would not have straightened.

#### Prematurity

Foals born prematurely (before 340 days gestation), especially those born more than two weeks early, may have incompletely ossified (calcified) bones in the knees and hocks which may lead to secondary deformities. This can only be diagnosed with radiography of the joints.



Radiograph of the knees of a four week premature foal with incomplete ossification of the cuboidal bones of the knee.

These foals require immediate veterinary attention to support the joints in the normal weight bearing position so that the bones may develop normally without being crushed or deformed by abnormal weight bearing. They

should be confined to the box and re-evaluated on a regular basis. One should also be aware of the foal born on or after its due date, that is still premature, known as 'dysmature' which may have all the same symptoms as a premature foal.

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