

## Limb Problems in Foals

Foal limb deformities are divided into three different types:

**Crooked (angular limb deformity)**

**Contracted (flexural deformity)**

**Lax (flexural deformity)**

### Angular Limb Deformities

- Valgus = deviation to the outside of the normal limb axis
- Varus = deviation to the inside of the normal limb axis
- The deviation usually originates at or near a joint
- Knock-kneed (carpal valgus) = the most common angular limb deformity (**Figure 1**)
- Wind-swept = one leg with carpal (knee) or tarsal (hock) valgus and the opposite leg with carpal or tarsal  $\pm$  fetlock varus (**Figure 2**)



Figure 1

### Why Do Limbs Deviate?

- Uneven growth on the inside versus the outside of leg
  - Present at birth OR as the foal grows!
- Weak support structures around a joint
  - Usually resolves within the first week of life
- Weak "bones" within the joint
- Overload of weight bearing (i.e. another limb is injured)
- Injury! (not present from birth,  $\pm$  associated with lameness)



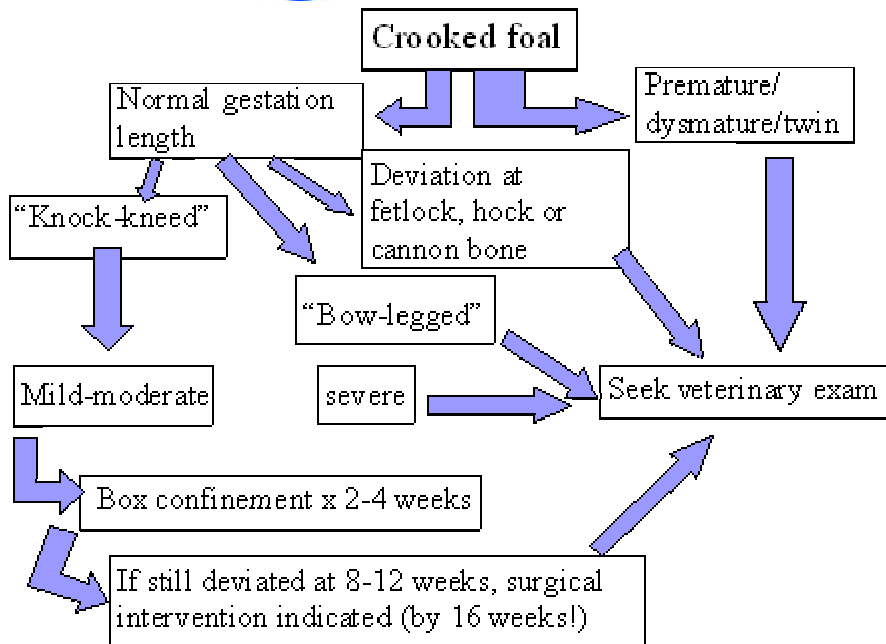
Figure 2

### What Should You Do if You Notice An Angular Limb Deformity?

- Take pictures! Monitor serially
- Controlled exercise is probably the best; no turnout!
- Do not crib feed!
- If there is widespread occurrence on your farm, consider mineral imbalances (test hay and pasture): excess zinc or inadequate copper.

### When Should You be Concerned?

- Start involving your veterinarian early (i.e. by 2 weeks of age if there is still significant deviation)
- If the foal is premature (i.e. <320 days) or has signs of dysmaturity/immaturity (floppy ears, silky coat) or is a twin, involve your veterinarian from birth
- Any varus ("bow-legged") deviation
- For severe knock-kneed appearance:
  - Bandages may be required to prevent rub sores
  - Surgical intervention should be considered EARLY! (within 2-4 weeks)



### Incomplete Ossification of Cuboidal Bones:

- Cuboidal bones are the bones within the knees (carpi) or hocks.
- These bones can still be soft cartilage in newborn foals
  - Particularly in premature, immature or twin foals
- If the cartilage template is crushed or deformed then the bone will be too, leading to permanent damage!
- Treatment involves confinement and splints or tube casts



### Corrective Farriery:

- Rasp the hoof wall every 2 weeks
  - Rasp the outside wall for outward deviation
  - Rasp the inside wall for inward deviation
- Can add glue-on extension shoes
  - An inside extension for outward deviation
  - An outside extension for inward deviation

### Surgical Intervention:

#### Periosteal "Stripping"

- What does it do?
  - It causes growth acceleration
- When should it be performed?
  - 2-20 weeks (best by 16) for the knee (carpus)
  - 2-16 weeks (best by 12) for hock
  - 2-12 weeks (best by 8) for the fetlock



### Transphyseal Bridging

- What does it do?
  - It cause growth retardation
  - It requires vigilant monitoring and second surgery for removal!
  
- When should it be performed?
  - For more severe deformities or older foals
  - It is often used in combination with periosteal stripping
  - Carpus – if >5 months of age
  - Hock – if >4 months of age
  - Fetlock – if >2 months of age



### Miniature Horses:

- Special circumstances!
- The growth plates close more quickly, so there is less time for intervention
- They often have an intact ulna, which contributes to carpal valgus
- Hock valgus is more frequent than in other horses

### What is the Role of Nutrition?

- Mineral imbalances are unlikely in grazed animals
- Supplementary feeding (grain) should be avoided to prevent excessively rapid (unbalanced) growth
- No definitive proof exists that correlates nutrition with angular limb deformities

### Flexural Limb Deformities

#### Contracted Tendons:

- Types
  - Clubfooted
  - "Upright"
  - "Over-at-the-knee"
- Often present at birth, but can be "acquired", especially with injury
- The exact cause is unknown
- If severe, may cause dystocia (foaling difficulties), and may require euthanasia



#### Management:

- If mild to moderate, may improve with age and exercise.
- If moderate to severe and not improving within the first 2-4 days of life, more treatment required
- Long-term consequences of abnormal position of pastern & coffin bones = lameness!



**Treatment:**

- Ensure there is no other source of pain in limb
- Exercise
- Splints
- Oxytetracycline
- Extended toe glue-on shoes, trim heels
- Surgery
  - Inferior check ligament desmotomy

**Tendon Laxity**

- Dropped fetlocks or back-at-the-knee
- Usually improve rapidly within the first week of life
- Extended-heel glue-on shoes
- LIGHT bandages if necessary, only as protection for back of fetlock but more so for the heel bulbs

