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STRAIGHT TALK ABOUT CROOKED LEGS

Conrad Boulton, DVM, DACVS, a former member of the equine surgical faculty at the University of Missouri and Washington State University, gives his views on identifying and correcting crooked legs in foals.

"Look at your foals as they hit the ground and be critical of them," spoke Dr. Conrad Boulton last month to a group of interested breeders and owners at the June meeting of the Washington Thoroughbred Farm Managers Association held at the Morris J. Alhadeff Sales Pavilion at Emerald Downs.

"Then look at them again a couple of months later," he added. "If they are not quite straight, be aggressive and do something about it."

Angular limb deformities fall into three categories: a) a lateral or medial deviation of a limb; b) valgus – a deviation of the distal part of the limb away from the midline (knock-knees); and c) varus – a deviation of the distal part of the limb towards the midline (bowed legs).

Boulton was quick to point out that some angular limb deformities are congenital, or present at birth. These are usually mild and will correct themselves within five to seven days. If foals are over 15 degrees off center or not improving, then further diagnostics and treatment is warranted.

. . . foals (should) be looked at immediately for limb deformities and, once recognized, aggressive action should be taken as soon as possible . . .

There are several risk factors for angular limb deformities. Younger foals are more susceptible, but deformities can affect foals of all ages. All breeds of horses can be affected, but these deformities are especially prominent in rapidly growing foals. While these problems can occur in both sexes, colts are slightly more affected. It was also noted that the deformities most often occur in the carpus (knee) and fetlock of the front limbs, and the tarsus (hock) of the hind limbs, both unilaterally and bilaterally, with the carpus valgus and fetlock varus being most commonly engaged.

Congenital deformation may be caused by a number of reasons, including intrauterine malposition of the foal, over nutrition of the mare, joint laxity and hypoplasia (incomplete development so that it fails to reach adult size) of cuboidal or splint bones which may be caused by prematurity, hypothyroidism or osteoporosis.

Angular limb deformities which are acquired may happen to foals which are born with relatively straight legs that begin to deviate within the first few days, weeks, or month of life. These usually require diagnostics and treatment.

These non-congenital deformities may show up due to excessive exercise at a young age, growth plate injury or infection, excess weight bearing second to lameness of opposite limb, over nutrition or inappropriate feeding, improper trimming, poor conformation or congenital angular limb deformities that become more severe.

The proper way to diagnose limb deformities is, first with a visual exam, then a physical exam, and lastly, a radiographic examination.

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"Observe the foal standing and walking," Boulton advised. "You must be able to distinguish rotation from angulation. Look for multiple limb involvement. Look for multiple sites in the same limb. Then make a rough estimate of degree and pivot point. Follow that by looking for lameness in the opposite leg. Lastly, look at the mare's legs. Is this something that was passed on by the mother?

"The physical examination begins by palpating for joint laxity. Can the leg be manually straightened? Also palpate for heat, pain and swelling, and make sure to check the opposite leg.

"Lastly, the radiographic examination will determine the degree of angulation by measuring at the pivot point, the center of deviation of the long axis of the limb. This comes after the AP (anterior-posterior) and lateral views are taken, then the pivot point. Weight bearing films are usually preferred.

Treatments for deformities include stall rest and re-evaluation. Rest may induce nonphysiologic loading of physis and allow limited loading to stimulate growth. Corrective trimming may be necessary for foals that have pointed toes. These need to be squared off. Trimming may be helpful if a hoof wears excessively on the convex side.

One method of treatment that is used involves tube casts, splints or braces. These usually prevent only the knee from flexing. They may be used for cuboidal bone collapse. They also provide support while allowing time for the ligaments and bones to mature and should limit further cuboidal bone crush.

Periosteal transection may be necessary in some foals. This is performed on the concave side of the limb. The transection releases heavy periosteum. This may also change the physeal blood supply. The transection stimulates growth on the operated side and may be repeated, if necessary. It may also be combined with a transphyseal bridge if it does not appear to overcorrect.

Transphyseal bridges are necessary if the deviations are greater than 18 degrees. Here screws are placed, proximal and distal, on the convex side of a growth plate and joined with wire or plate joining. This stops the growth on the operated side of the leg. The implants may be removed when the leg is straight. This prevents over correction.

The rate of correction with a transphyseal bridge is calculated of .4 to .5 degrees per day for a foal of 30 days and .05 to .1 degrees per day for a foal at 100 days. The total correction for an ankle is 10 to 12 degrees and for a knee is 20 to 25 degrees if the bridge is performed at 14 days of age.

Finally a wedge osteotomy may be necessary in more severe cases. This is performed on the convex side of the leg. A straightening is achieved by creating a break in the long bone and then repairing it in a straighter fashion. Two bone plates must be used and eventually removed. This procedure is reserved for diaphyseal deformity greater than eight degrees.

Timing is important in the treatment of limb deformities, since the majority of growth in a foal is complete at 12 months. Recommended treatment for the tarsal valgus or distal tibial physis is before four months of age. Most growth stops at 18 months. Radiographic imaging shows closure of the growth plate from 17 to 24 months.

Treatment of the carpal valgus or distal radial physis in the area of the knee is also recommended before four months. Again the majority of growth in this area is complete at 12 months and stops at 18 months. Radiographic imaging shows closure from 22 to 28 months.

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Treatment of deformities in the fetlock is recommended before the foal is one month old. This is because the majority of growth in this area is completed by three months and the growth stops at four months.

Boulton concluded his presentation by again advising that foals be looked at immediately for limb deformities and, once recognized, aggressive action should be taken as soon as possible to avoid further and aggravated problems.

There have been many cases of successful racehorses that were initially diagnosed and treated with corrective surgery to straighten legs during formative years.

"Break straight and true as early as possible," were Boulton's final words of advice.

Published in *Washington Thoroughbred*, July 2000

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