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INTRODUCTION

Most competition horses get too unsound, not too old. In theory, it is easier for a well-conformed horse to stay sound. However, many horses with conformation defects are able to perform quite well. It is important to know, for each occupation, which conformation faults are likely to cause problems because what is bad for one occupation may be acceptable or even desirable in another. It is also important to know that research contradicts some often repeated statements about conformation.

FOOT

For years, we have been taught that the normal angle of the front foot should be between 45-50 degrees. However, many competent observers over hundreds of years have found hoof angles to range from 47-57 degrees, with 54 degrees being the average. Research shows that lower angles:

- influence the position of the foot on landing, causing the toe to land first, which is undesirable.
- do not increase the length of stride or flight path of the foot as has been commonly illustrated.
- increase tension in the deep digital flexor tendon, causing more compression of the navicular bone and decreasing circulation to the back of the foot
- cause the heel to bear more weight

Many experts have pointed out that small feet, with their lack of hoof mass and sole depth, are an important factor in contributing to foot lameness. There has even been specific research to show that, above a certain amount of weight or force, there is significantly more "caudal hoof syndrome" (which includes navicular disease).

PASTERNS

It is frequently stated that long, sloping pasterns in the front leg predispose the horse to strains of the suspensory ligament and superficial digital flexor tendon. While there is a certain appeal to this, it is the author's experience that the opposite is more likely. That is, that long, upright pasterns in racehorses lead to a high incidence of suspensory injuries. Top dressage horses must have some length and slope to their pasterns otherwise the suspension and cadence required in their gait is not possible. Upright (especially short, upright) pasterns predispose to pastern joint disease, significant in jumpers and other performance horses.

SHOULDER

Almost all books on conformation mention the desirability of a sloping shoulder. However, poorly defined terms in this area make understanding what is meant by a sloping shoulder difficult. Some measure from the point of the shoulder to the start of the mane hair on the withers. Others measure the angle of the joint itself between the scapula and humerus. A third technique is to measure the slope of the spine of the scapula. These are three very different measurements and can lead to different results.

For example, most elite show jumpers, and many top thoroughbred racehorses have relatively upright scapulas but their shoulders are considered to be sloping when judged by a line from the point of the shoulder to the top of the withers. The combination of a long, upright scapula, a shoulder joint angle of about 105° and a laid-back wither are ideal to provide the vertical propulsion from the front legs that is necessary for jumping big fences. While some have stated that an upright scapula leads to excessive front leg wear, stumbling and jarring gaits, this has not been the author's experience.

HOCK

There are a great deal of unsupported statements about hock conformation. The author believes that a range of angulation, as viewed from the side, is compatible with superior racing performance. An even wider range of hock angles is compatible with jumping and soundness in general.

Although hocks with an angle of less than 150° (sickle-hocks) are more prone to disease of the lower hock joints and more likely to get a curb, many will be sound, especially if effectively managed. Extremely angulated racehorses may "run down" (abrade and bruise the ergot region).

Straight hocks (post-legged conformation), where the angle is over 170°, are more prone to strain of the flexor tendon sheath (thoroughpin) and upper portion of the suspensory ligament. When accompanied by a long, sloping pastern, strain of the middle and lower portions of the suspensory ligament are more likely. Although the last condition is common in older broodmares, it can occur with middle-aged performance horses and can be career-ending.

The term "cow hocks" is used to describe a deformity where the horse stands with its feet wider than its hocks. It also used to describe a horse where the hocks are close together but the cannon bones are vertical. While this second conformation (slight "X-legged" or knock-kneed) is not a cause for concern in the author's opinion, hocks that are bow-legged are unlikely to withstand serious collection. As collection (or speed) increase, the hind legs go more to the center line, accentuating stresses.

Bog spavin (swelling of one of the hock joints) is usually related to an osteochondrosis dissecans (OCD) lesion. A study showed that, overall, the inheritance for OCD in the hock was quite high. In a study of 39 stallions, offspring with OCD ranged from 0 to 69% in one stallion.

SUMMARY

Conformation is frequently referenced in vague generalities: how short is a short back?

what angle makes a horse sickle-hocked? at what angle is a stifle considered straight? We have to try to define our terms better; make our measurements more consistent; and try to quantify or put numbers to, normal and abnormal anatomical structures whenever possible. An understanding of conformation may assist the owner, farrier and veterinarian in a number of way, but only if all involved are speaking the same language.

If we read some of the texts on conformation and totally adhered to their suggestions, we would buy few horses and certainly miss some very good ones. Anyone with modest information can fault a horse's conformation. The smart horseman is the one who first, knows what a good one looks like and second, plays the percentages on the conformation defects.

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