W1324

Equine Conformation and Performance Evaluation: Evaluating Conformation and Applications in Horse Judging

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Overview

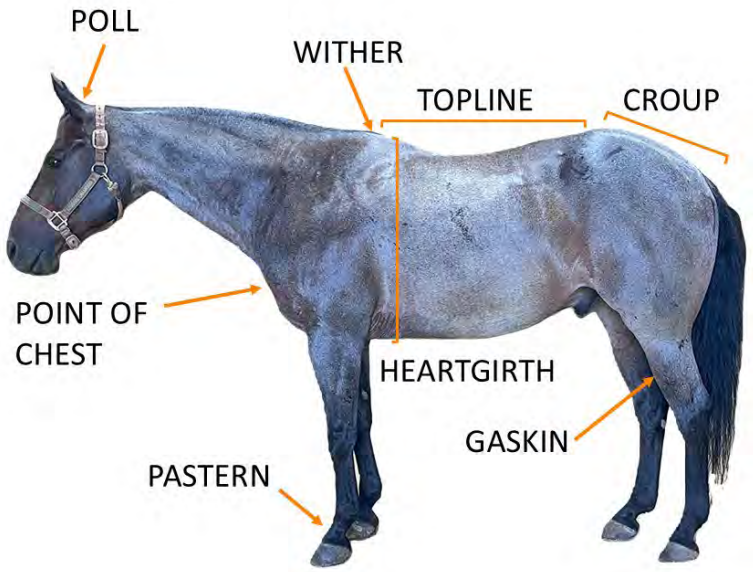
Conformation is the shape and structure of the horse, including balance, muscling and structural correctness, which can relate directly to the horse's athletic ability and performance potential. Generally, good conformation will be reflected in the horse's overall health and performance. Likewise, a horse with substandard conformation is more susceptible to lameness and poorer athletic ability.

Every breed of horse has distinct characteristics that make it unique. Therefore, each breed's ideal conformation differs slightly and has been identified by the breed organization in its rulebook. Judging can be used in competition or as a tool in selecting a horse. The purpose of judging is to find the individual horse within a group that most closely fits the mold for the ideal horse of that breed. Unfortunately, the "ideal" horse may not be the best candidate for all performance events. Therefore, one should not attempt to judge the horse's potential performance based upon its conformation alone, though it can certainly help during the initial evaluation of an animal.

It is necessary to have a thorough knowledge of normal, sound structure to recognize not only structural correctness but also deviations from the normal structure. Unsoundness is defined as any deviation in structure or function that interferes with the intended use or performance of a horse. Blemishes are abnormalities that do not affect the intended use or serviceability. Serviceably sound is a term used to indicate that a horse may have a structural problem or deviation, but it may have only limited effect on the horse's ability to perform. Horses that are unsound have limited performance capabilities and should not be used for riding or showing.

Developing an Evaluation Framework

Figure 1: *Before evaluating a horse, one must first be familiar with the parts of the horse as well as the functions of those parts.*



Balance

A. Thirds

Balance, which is determined by the skeletal structure, is the most important characteristic in equine evaluation because it forms the basis for movement. When judging, one must attempt to visualize and evaluate the skeleton of the horse underneath muscle and other tissues.

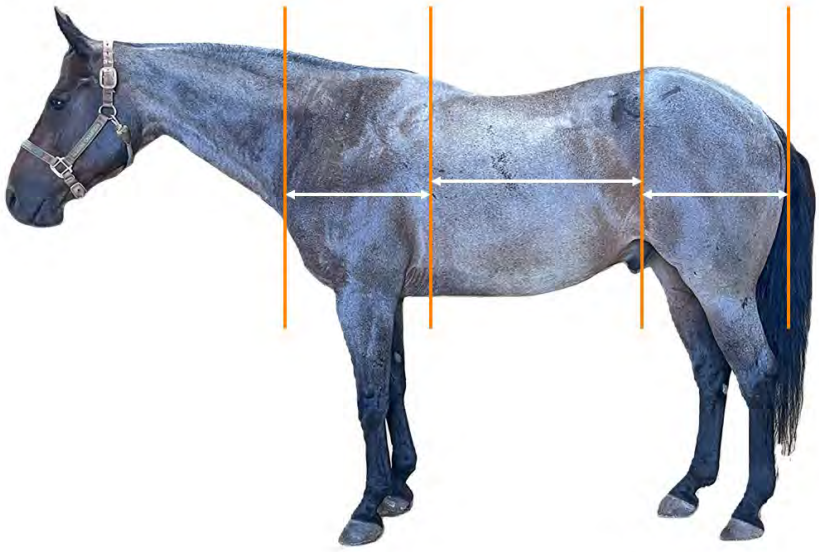


Figure 2

To begin, the first aspect of balance that must be evaluated is the thirds of the body (Figure 2). The first third is the width between the point of the shoulder and the middle of the wither. The middle third is the width between the middle of the wither and the point of the hip. And the last third is the width between the point of the hip and the point of the buttock. A horse should be easily divisible into thirds, and each third should be very closely even in width. Often, horses are longest through the middle third. This can be excusable as long as it is not severe. A horse with a severely long back will often have severe weakness over the topline and in its core, inhibiting the horse from performing well (Figure 3).

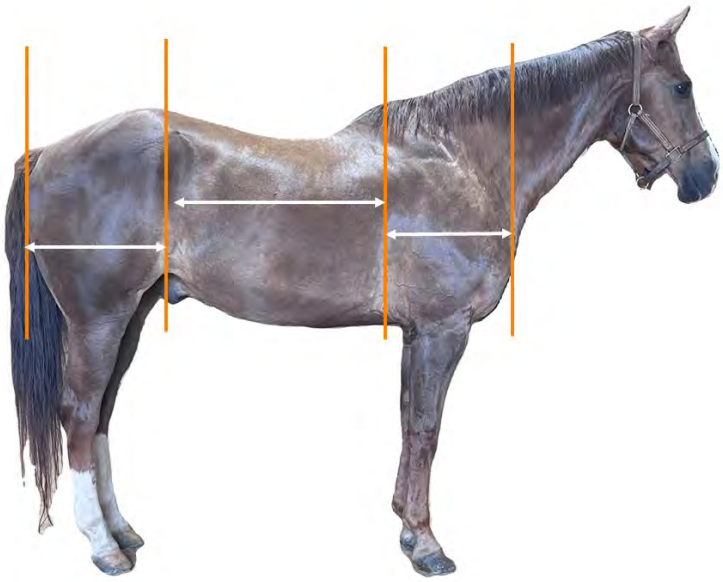


Figure 3

B. Angles and Slope

Next, the slope of the shoulder and hip are critical aspects of the overall balance of the horse. The ideal slope of the shoulder is approximately 45 to 50 degrees but will vary from animal to animal. Visualization of slope of shoulder along with slope of hip is illustrated in Figure 4. As the shoulder becomes straighter/steeper, the withers move forward and the point of the chest becomes

lower. When the slope of shoulder is steep or straighter, the horse is unable to move as freely through its shoulder and thus is unable to display a long, flat stride. On the other hand, with an ideal shoulder slope, a horse is expected to have a longer, more freely flowing stride as it can reach forward and backward with its front leg with more ease and length. In the same way, the angle of the hip determines the structure of the entire hind leg, thus determining the length and quality of stride. A horse with a steeper hip will often have a straighter stifle and a more angled hock, creating a shorter, choppier stride. A horse with an ideally angled hip will have a more ideally angled stifle and hock, allowing for a longer, flatter stride.

In general, the angle of the pastern will correspond to the angle of the shoulder. A horse that has too much slope to its pasterns is undesirable, as this steep angle puts more stress on tendons and ligaments and leads to a weaker pastern and possible lameness issues. Additionally, a horse with a short, steep pastern will endure more concussion on the pastern and ankle.

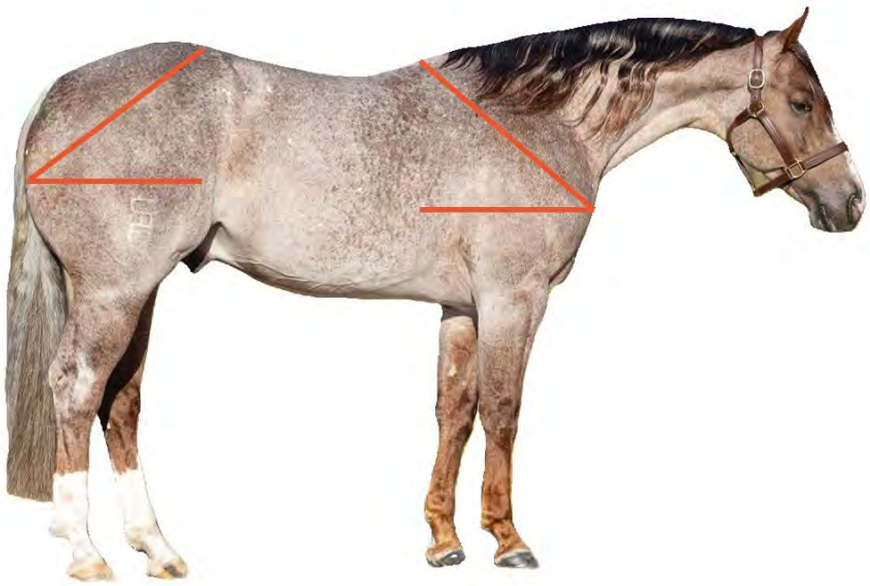


Figure 4

Ratios

There are two important ratios to consider when assessing the horse from the side. The first is the ratio of the topline to the underline. The topline of the horse for this purpose consists of the back and loin. The topline should be half the length of the underline of the horse, making a 1:2 ratio of topline to underline (Figure 5). A horse with a similar topline and underline length will have a weaker back and a weaker core, affecting its ability to perform and connect to the rider.

Figure 5

The second ratio is that of the neck (Figure 6). The topline of the neck is from the poll to the middle of the wither, and it should be half the length of the underline of the neck, which is from the throatlatch to the conjunction of the neck and chest.

Figure 6

Both ratios are greatly affected by the slope of the shoulder. A steeper shoulder creates a wither that is more forwardly located, creating a longer topline. However, the slope of the shoulder does not affect the length of the underline. When the topline is lengthened, this is what creates a ratio more similar to 2:2 for the topline and underline. Similarly, a steep shoulder will create a shorter neck topline due to the more forward location of the wither. This creates a ratio closer to 1:1 for the topline of the neck and the underline of the neck.

Topline

Figure 7

The topline of the horse is made up of the withers, back, loin and croup. Strength of topline, which includes prominent withers, short, strong back and well-muscled loin, has a positive influence on soundness and athletic ability. When viewed from the side, a properly balanced horse will be even in height in both the withers and croup or slightly higher at the withers (Figure 7). When the withers are higher than the croup, the hindquarters are positioned more under the body, which enhances the athletic ability of the horse. The withers should be sharp and well defined to help hold a saddle onto the horse's back without excessive tightening of the cinch. Horses with rounded or flat withers (mutton withers) require more cinch pressure and subsequently are less comfortable for

the performing athlete. The loin (also known as the coupling) is the area between the last rib and the croup, which serves as a pivot point of the horse's back. The loin area should be short and well-muscled to carry power from the hind legs forward. The croup should be long and gently sloping, which adds length to the stride as well as dimension and muscling to the hindquarter. Stock horse breeds (Quarter Horses) are more sloping in their croup than pleasure breeds (Arabians and Morgans).

Figure 8

When a horse's topline is uneven with the withers being lower than the point of the hip, it creates a downhill look (Figure 8). Being downhill can impede a horse's ability to lift itself off its front end and can create a heavy-fronted moving horse.

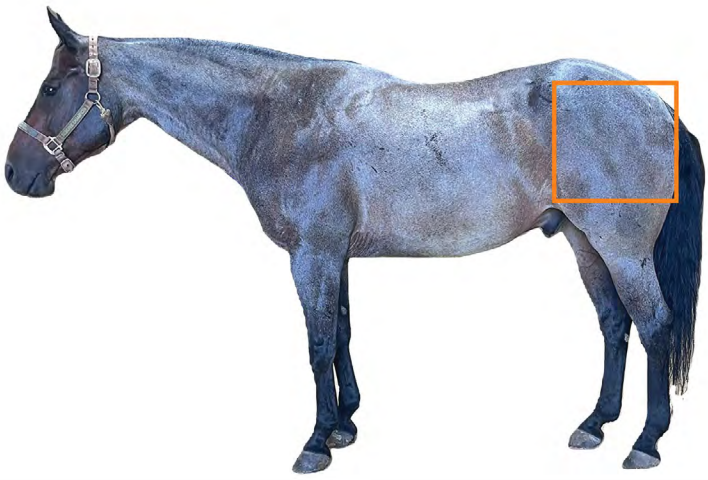
Figure 9

Horses with a weak topline will sometimes present with a "sway-back" appearance. However, it is important to note the difference between a weak topline and a horse with the disease Lordosis, as this is unavoidable (Figure 9).

Figures 10 and 11

Barrel

The barrel should be evaluated both by the spring of rib (Figure 10) and depth of heart girth (Figure 11) since these are indicative of capacity for reproductive and athletic performance. Spring of rib indicates width or curvedness of the horse's barrel while depth of heart girth indicates depth of the horse's chest. Both width and depth of chest indicate total volume in the thoracic cavity. However, some horses will be pinched in the heart girth and have less of a rounded, convex look to their rib cages. Depth of heart girth and spring of rib indicate more strength.



Figures 12 and 13

Hindquarters

Regardless of breed, the hindquarters should appear square when viewed from the side (Figure 12). However, the extent to which upper corners of the square are filled in will depend upon breed. The flatter and more level the croup, the more likely that horse will move with a vertical action rather than horizontal. If a horse has a steep croup, it will move with the legs more collected under the body. The angle of the croup will have a great influence on the position of the hock. Moreover, these two factors together will dictate a collected, balanced horizontal movement. When a horse has a V-shaped quarter, it is due to limited muscling and/or a straight stifle. When viewed from the rear, the hindquarters should appear square and show signs of strong muscle (Figure 13).

Front Legs

The horse's forelimbs bear about 65 percent of the horse's weight. It is, therefore, extremely important to have straight, structurally correct front legs with proper bone length and angle. Due to the amount of weight on the forelimb, there are more front leg injuries as a result of trauma and concussion.

When viewed from the front, a straight line from the point of the shoulder should bisect the entire front leg all the way to the toe. Although this is actually rare, the toes and knees should point straight forward. Additionally, the width of the toes on the ground should be the same width as their origin in the chest. The cannon bone should be centered on the knee and fetlock. There are several deviations from correct column of bones as viewed from the front. Any deviation from normal has the potential to affect movement and subsequently, performance. Horses whose toes point inward (toed-in) are referred to as "pigeon-toed" while horses that have toes that point outward (toes-out) are called "splay-footed." These conformation faults as compared to an ideal situation can be seen in Figure 14.

Figure 14

An additional structural deviation in the front leg is base-narrow, meaning horse's feet stand closer together at the ground than at the origin of the legs in the chest. This is typical of horses with larger muscle mass. The base-narrow horse is predisposed to landing on the outside of the hoof wall, placing extra weight on the outside of the hoof. Therefore, base-narrow horses are predisposed to develop conditions such as ringbone, sidebone and heel bruising. Horses with this conformational problem can be either toe-in or toe-out.

Conversely, base-wide conformation positions the horse's feet farther apart at the ground than their origin at the chest. This condition is seen in many narrow-chested horses and is usually accompanied by feet that toe-out. Unlike the base-narrow horse, this condition allows more weight to be distributed to the inside of the horse's hoof, which also predisposes them to ringbone and sidebone.

Bowlegs, knock-knees and bench knees are examples of poor conformation that may affect soundness. Bowlegged horses exhibit knees that are angled outward when viewed from the front. This condition causes increased tension on the outside of the leg due to the unequal distribution of concussion and force. On the other hand, knock-kneed or close-kneed horses have the entire knee set to the inside of a straight line from chest to toe. This condition is generally accompanied by horses being toed-out and with some degree of outward rotation of the cannon and fetlock. Again, this condition is predisposed to unsoundness due to an unequal line of concussion. Bench or offset knees are characteristic of a horse with the cannon bones set too far to the outside of the knee. This conformational problem increases the possibility for horses to develop splints.

Some horses are camped under in front (Figure 15), which refers to a horse whose forelimb is too far under the body. This campe-dunder effect will prevent a horse from having a long fluid stride and predisposes horses to unsoundness. These horses typically have excessive wear on the hoof with increased pressure on ligaments and tendons. Camped-out refers to horses whose entire forelimb is too far forward and away from the body. These horses will have excessive concussion and stress on the knees, ankle and hoof and are therefore predisposed to navicular disease and laminitis.

Figure 15

Two primary structural deviations exist in the knees of horses as they are viewed from the side. The most prevalent condition is “over at the knees” or commonly referred to as buck-kneed (Figure 16), which is a forward deviation of the knee or a knee set too far forward in the horse’s leg. Although a structural deviation from the normal, buck-kneed horses are capable of a long performance life. The opposite condition to buck-knees is “behind the knee” or calf-kneed, where the knees are set behind or back in the horse’s leg. Calf-knees allow the knees to bend backwards (hyperextend) and predispose the horse to unsoundness.

The most structurally correct pastern conformation places the angle of the pastern at approximately 45 degrees in the front and approximately 50 degrees in the rear pastern, with a moderate length to the pastern. Short, steep pasterns will not allow for the normal cushion effect on the forelimb. Long, weak pasterns allow the horse to injure ankles, tendons and ligaments.

Figure 16

Rear Legs

Figures 17 and 18

When evaluating a horse for structural correctness from the rear, you should draw an imaginary line from the point of the buttocks to the ground (figure 17). This line should bisect the gaskin, hock and hoof, indicating equal distribution of weight, equal bone pressure and equal strain on ligaments. It is not critical that a horse be perfectly straight from the ankles down as viewed from the rear. In fact, most horses naturally stand with the cannons parallel and toe-out slightly from the ankles down. This allows a horse's stifle to clear the rib cage in flight, giving the horse longer strides and more free movement. Horses that are closer at the hocks, with the cannon bones not parallel, are referred to as "cow-hocked" (Figure 18). These horses have hindlimbs that are narrow from the buttocks to the hocks and wide from the hocks to the toes. The horse that is "cow hocked" will tend to be weak in the major movements that require work off the haunches such as stopping, turning and sliding. Occasionally, there are horses that toe-in behind and are "out at the hock" (bowlegged). Toed-in horses have hocks that are too far apart and are generally base-narrow. These horses have added strain

on the bones, ligaments and joints, resulting in movement inference. Most toed-in horses are very poor athletes.
Figures 19 and 20

When examining rear leg conformation from the profile view, draw an imaginary line from the point of the buttocks to the ground (figure 19). Ideally, that line should touch the hocks, run parallel to the cannon and be slightly behind the heel. A horse with too much angle in the hock joint is sickle hocked, which predisposes that horse to curbs or enlargements below the point of the hock (Figure 20). Many of these horses tend to be outstanding athletes for a brief period of time. Excessively straight-hocked horses have correspondingly less set (or angle) in the hock joint and are referred to as post-legged. Many halter horses, especially stock types, tend to be post-legged. These horses typically have poor movement, with little flexion, which causes limited drive and impulsion from their hind legs. This predisposes the horse to bog spavins (inflammation or swelling of the soft tissue of the hock) and increases the chance for injury and unsoundness.

Overall Quality

When evaluating the conformation of a horse, all the aforementioned principles must be considered to make an accurate judgment of the overall quality of the animal. Balance, muscling and structural correctness are the primary criteria used when evaluating conformation, and it is of utmost importance to consider all parts of the animal utilizing the concepts presented in this manual. These evaluation methods should be used when selecting a horse or predicting its performance abilities.

A system of evaluation that works for many people includes the following steps:

1. **Profile View: Assess the horse from both sides (profile) at distance to visualize the entire horse**
    a. Evaluate the horse's balance first by dividing the body into thirds, comparing the ratio of topline to underline, estimating the degree of angle in the shoulder and hip and comparing the ratio of the topline of the neck to the underline of the neck.
    b. Evaluate the head, throat latch, shoulder and front column of bone for straightness and soundness

Evaluate the croup for ideal slope and adequate tail set, hindquarters for squareness and muscling, and rear column of bones for straightness

2. **Approach the horse from the head for a front view**
    a. Evaluate the chest, muscling and structure of the front leg and hoof

3. Approach the horse from behind for a rear view

a. Evaluate muscling of the entire hindquarter and hind limb structure

4. Move away from the horse to observe from a distance

a. Further evaluate balance, structural correctness and muscling

5. Track (walk and trot) the horse to check for soundness, structural deviations and movement. This can also be used to ensure conformation assessment matches the movement of the horse.

The example above is one system that is helpful when evaluating the conformation of horses. However, any system that is consistent and repeatable will work if it is practiced enough and well developed.

A consistent evaluation plan or framework is a critical tool in horse judging. A well formulated framework will allow for increased consistency when approaching a class to be evaluated and when developing oral reasons as well. In the following sections, we will look at the criteria used to evaluate equines. These concepts will fit into the evaluation plan developed previously to increase success when judging.

For more information on evaluating horses, considerations for purchasing, and other equine information, contact your local Extension office or visit UTHorse.com.

Example Judging Class

Figures 29, 30, 31 and 32: *Stock Horse Geldings*

Figures 33, 34, 35 and 36:

Figures 37, 38, 39 and 40:

Officials: 3-4-2-1
Cuts: 3-4-2

Example Reasons: Sir/Ma'am, I place this class of stock horse geldings 3-4-2-1. I found the class had a clear top horse and bottom pair. I began with the sorrel with three white socks as he displayed the shortest, strongest topline and a greater volume of muscling to his total frame. His neck rose out of a more upright shoulder which allowed more dimension to his pectoral muscling. His more prominent

wither extended further into his back where he was tighter across his loin. He displayed more length to his hip while standing on a straighter column of bone. Sure, the grey was shorter eye to muzzle, but 3 had more strength and eye appeal to his overall frame.

In my middle pair, I had an easy decision with the 4 over 2 as the grey was cleaner through his throatlatch and more slender through his neck. He v'd deeper through his chest and was stronger behind his wither. He also carried his muscling deeper through his hip. Yes, 2 may have been more dimensional through his shoulder but lacked the strength across his topline to place above the grey.

In my bottom pairing, I selected 2 over 1 as 2 was more level across his topline along with having more bulge and ripple to his total frame. This left 1 to round out the class today as he stood taller at the hip than the wither and was steeper through his shoulder, though he did display refinement through his head. Thank you.

Figures 41, 42, 43 and 44: *Stock Horse Mares*

Figures 45, 46, 47 and 48:

Figures 49, 50, 51 and 52:

Official Placings: 3-2-1-4
Cuts: 3-2-3

Example Reasons: Sir/Ma'am, I place this class of stock horse mares 3-2-1-4. Beginning the class was 3, as she best combined balance, structural correctness and muscling. She displayed femininity about her head. She was longer and leaner in her neck and stood taller at her wither allowing for more depth around her heart girth. She was more sloping through her shoulder and was the tightest across her topline which rounded into a more gently sloping croup. Yes, I would have like her to be straighter from hock to heel, however, she was more refined in her total outline.

In my closer middle pair, I have the bay over the sorrel. 2 showed more fluidity over her topline and was more rounded over her croup. She also stood more squarely underneath herself, especially from hip, hock to heel. Yes, 1 stood wider from stifle to stifle, but lacked smooth blending across her topline that the bay displayed.

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