Wouldn't it be great if you could determine the gait or gaits of a horse by simply looking at it's conformation. Nice thought, but many factors determine the gait or gaits of a horse.

Conformation and Gait

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the TRAIL RIDER

Wouldn't it be wonderful if you could tell what gait a horse prefers by looking at his bone structure? To choose the perfect individual for a specific gaited breed, you could simply select the one with right proportions for that gait. Think how simple breeding and training would be! Seductive as the thought may be, conformation can offer only part of the answer when it comes to the question of a horse's gait preference. A horse moves in any gait as a result of the combination of his bone structure, muscle development, and nerve patterns. He can work only within the limits of his physical ability. It's up to us to understand what our own

individual horses are capable of, and to keep them sound and moving smoothly on the trail.

Bone vs. Muscle

Some types of bone structure predispose a horse to certain body positions, and those body positions, in turn, incline a horse to certain gaits. However, a horse can modify his basic body position by using his muscles. He may inherit a particular bone structure, but what he does with it depends on his physical condition and his nervous-system development. This is true both of the characteristics that incline to certain gaits and to others that affect the quality of those gaits.

So, is bone structure a good

indication of a preferred gait? There are obvious differences in bone structure between gaited and good nongaited horses, and additional subtle variations among the gaited breeds.
They may not correlate 100 percent to the gaits of choice of these horses, but they can give a good idea of whether an individual is capable of a particular easy gait and the style in which he will perform it. Conformation isn't the sole determinant of gait, but it is a major contributing factor.

Frame and Gait

Anyone who's ridden both gaited and nongaited horses in a light saddle or bareback eventually discovers that the way the horse's

back feels changes from gait to gait. The noticeable variations in the back are a direct reflection of the body position or "frame" the horse uses in each gait. This position ranges from extremely hollow in the hard pace to extremely round, or basculed, in the collected trot. Although some horses will trot in a hollow position, none will pace in a rounded one. A horse physically can't work in an easy gait with a rounded frame - that is, a sustained downward flexion of the lumbosacral junction in the lower spine, a raised back, increased flexion of all the joints in the hind legs (hip, stifle, hock, hind fetlock) and a raised root of the neck at the withers (i.e., in collection). He may work in a

shortened frame, as does a racking horse, but he won't achieve the same frame as a basculed horse. If he did, he'd trot.
Horses working in a hard pace or stepping pace travel in the most hollow (concave) frame. Those in a rack or corto/largo are slightly less hollow. Those that work in a running walk lose most of the hollow in their backs and travel in a neutral frame, neither hollow nor rounded. Horses that fox trot work in the least hollow position of any of the easy gaits, just a bit more rounded than those in the running walk. All these positions are influenced by bone structure.

Quality of Gait

In addition to inclining a horse to a particular body position, conformation can also contribute to the type or quality of the preferred gait. The shoulder/humerus assembly determines whether the horse will take a long, low step or a high short one with his front legs. The more laid-back the shoulder, the longer and lower the step of the horse. This structure requires less energy of a horse to execute this

long, low use of the front legs. The higher the shoulder angle, and the shorter and higher the humerus, the more likely the horse will be to have a high, short step. This more animated action burns more energy. Hind leg conformation determines how much the horse can overstride his front track. A relatively short and straight hind leg will allow the horse to convex, and to thrust himself forward efficiently with less possibility of injury to his hocks. A relatively long and angled hind leg allows the horse to reach forward and to track up or overstride easily. However, if the hind leg is too long and angled, the possibilities of joint injury increase. A happy medium between the two produces a horse that stays sound and still can

overstride if desired.

Breed Differences
Each of the gaited breeds is expected to be a specialist in a particular easy gait. It should follow that the conformation of these horses will be as different as the gaits they are expected to perform. Missouri Fox Trotters, performing in the least hollow or concave position should differ somewhat from Tennessee Walking Horses, which move in a more neutral position, and both should differ significantly from racking horses that perform the most concave of the easy gaits. All should differ from horses that prefer to pace or hard trot. Do they? One important caveat: Not all

horses within a given registry are capable of performing the signature gait of their "breed." Understanding how your horse's build affects his gait is a better guide than those papers.

Strength of Structure

Structure also affects how well a horse can carry the weight of a rider. Even though our gaited horses have the heart to put forth all that we ask of them, it can come at their own detriment if we demand too much. For instance, height is little indicator of how much weight he can safely carry.

Following are several weight-carrying factors.

- **Spring of ribs. Horses come in a**

wide variety of shapes, from a narrow, almost "tent-sprung" rib cage, to medium to wide, and even tube-shaped! The wider the rib cage is sprung, the better the horse's weight-carrying ability over time and terrain.

• Base of legs. The wider the base of a horse's legs, the better for carrying weight.

• Width of loin. Broad loins make for a strong back that can stand up to use.

• Diameter of cannons. Cannons should be eight inches around or better (as measured just below the knee or hock) for good weight-carrying ability.

• Hooves, knees, and hocks. Good size in proportion to the rest of the body and overall structure

contributes to strength and soundness.

Obviously severe conformational deviations - whether or not they're believed to contribute to gait - set a horse up for unsoundness, weakness, and injury. Recognizing even minor deviations helps us to understand what is reasonable to ask of our horse, and to keep him sound on the trail for many years. Conditioning is also critical. A horse without the muscle condition to support less-than-ideal bone structure suffers doubly.

Following are several soundness factors.

• Age. Horses under the age of 5 aren't fully mature physically,

regardless of appearances. Limit riding times and distance under the age of 5.

• Sickle hocks or camped-out hind legs. Horses whose hind legs aren't set well underneath them cannot fully support the hindquarters or back. They'll do okay in flat, even terrain, but on such horses it's safest to ride down steep hills at an angle, or zigzag switchbacks, as their hind ends may not "give" under excess pressure. Ride downhill at a walk. Never in gait!

• Tack. Be sure tack and bits fit properly to avoid interfering with your horse's natural movement.

• Gaiting time. Regardless of what some of the breed propaganda says, as comfy as gait is for you, gaited horses shouldn't be asked to

hold gait all day. The fox trot and running walk are the least stressful of the easy gaits (due to the lower lift of legs and neutral back) and burn the least energy, so they can be held the longest. Racking gaits or the stepping pace cause the horse's body to tighten overall, creating a more contained frame, concave back, and higher lift in the forelegs, using up a lot of energy in the process. Use these gaits over short distances, interspersed with walking, trotting, even cantering.

On the Trail

Buying a gaited horse for a trail mount includes taking on the responsibility for keeping him sound. A good trail horse will carry you over varying types of terrain,

over long distances through the elements, and come out safe, sane, and sound. Knowing what contributes to soundness in gait will ensure you many miles of smooth riding. It just takes a bit of understanding, conscience, and common sense to make it all happen with success.