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# Understanding Angles

by Cheryl Aldrich

Until the late 1900's Mother Nature was the judge of equine conformation as it relates to soundness and performance. Always impartial in her selections, sweet personalities, current fashion or pretty heads did not sway her judgments. Only animals with good mental capacity and built correctly to withstand the stress of daily survival lived to reproduce. This style of natural selection developed tough strong animals. After man made horses his servants, the selection process did not differ much at first from that of Mother Nature. Every animal had to do its job, if he couldn't work, it was turned out in the wild to survive on its own. Only the strong survived.

No longer is it a necessity for the horse to work. The '90's see horses used as pets, yard decorations and for showing. Many are even treated as part of the family. When a horse has an unsoundness hundreds or thousands of dollars are spent to keep him rideable. If that is not successful, he is then used for breeding. The impartial selections of Mother Nature and necessity have been past on to man.

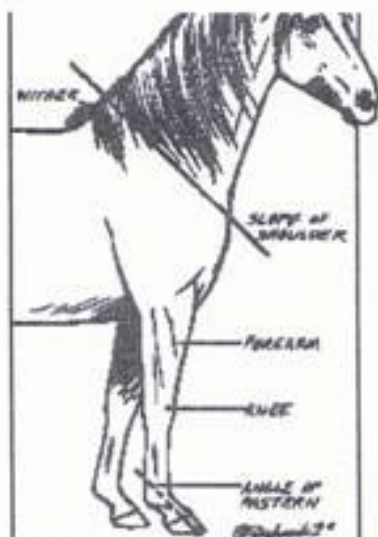
Good breeding programs based on an educated understanding of correct conformation for the intended purpose of the horse can save the owner countless dollars in vet bills and years of grief. There are horses in every breed that are literally nails in the coffin of that breeds genetic pool. A breeders eye must be as impartial as Mother Nature. Unless the horse has the capacity for a long and useful life, it should not be bred. It takes a year to produce a foal, three years before training to saddle with at least two more years to finish the horse. The minimum cost at \$1200 a year times six years is \$7200, plus your time, care, and training. Breeders have a responsibility to the breed to educate themselves.

Most new "want to be owners" of Peruvian horses look for a horse with the conformation they are familiar with. There are scores of books that describe correct conformation, but the build of a trotting horse does not always compute into a well gaited Peruvian Paso horse. Fernando Grana, once said, "The Peruvian is the animal that most closely resembles the horse." The Peruvian's unique way of moving-necessitates a somewhat different conformational look which has caused horsemen from other breeds to call them, funny looking little horses. In general Peruvians are not as tall as many of the light saddle breeds. Their bodies and necks are heavier with more angle to the hocks, more flex in the pasterns and lighter bone compared to other types of horses. Just standing, the Peruvian Paso is a rather ordinary looking horse. He must be ridden to be fully appreciated.

Looking at correct conformation for soundness is generally the same in all breeds. The commonly accepted conformational standard in trotting horses is 1/3 shoulder 1/3 back 1/3 hindquarters, which also holds true for Peruvians. But each breed has a conformational standard that delineates its own distinct look and use. How the horse is put together in relationship to the angles, determines soundness and athletic abilities. Balance is the key to soundness in any type of horse and the conformation must be balanced in relationship to what the horses intended function will be.



## HEAD, NECK AND SHOULDERS



The head, neck, and shoulders which act as a balancing pole, accounts for 60-65% of the total weight of the horse, the majority of which is carried by the front legs. A large headed heavy necked horse is difficult to collect because of the weight being all in the front. A Peruvian head should be of medium size, wide between the eyes, with a straight to slightly concave profile. The nostrils need to be large and elastic to take in air. The jowls need to be well defined with adequate width between them for the wind pipe. Although the Peruvians neck is somewhat heavier than other light saddle horses it should not be crusty. How the neck is set into the shoulder and back is crucial to the look and performance of the horse. A neck set low on the shoulders will have a humble appearance while even a short neck set up right will have a look of arrogance. The neck of medium length with a clean throat latch set high on a long, well laid back shoulder will allow the horse good balance in order to obtain proper collection. The poll should be the highest point of a well arched neck, with a clean throat latch which allows the horse to flex at the poll without restricting breathing.

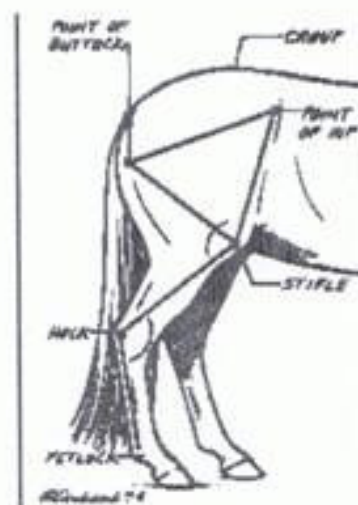
The shoulder angle will determine the stride of the front legs, a short straight shoulder (upright) will give lift with a short choppy step while a long laid back shoulder allows the horse to reach forward with a smooth advancing stride. The front legs and shoulders are not attached to the horse by bone but with cartilage, ligaments and muscles. A laid back shoulder places the rider behind the front legs which absorb the shock in this cradle arrangement. The weight bearing surface of a long shoulder is also greater, lessening stress on the muscles and tendons of the legs and shoulder areas. There does not seem to be any particular conformational differences that relate to terming. It is thought that terming is caused by the arrangement of the chest cradle that holds the fore legs in place along with genetically set neurological impulses.

## BACK

Half leg, half body gives the Peruvian a low center of balance. Adding a high degree of collection creates the gliding appearance of the lateral gait. Horses that are over 15 hands or as the Peruvian breeders say, show a lot of daylight under their body, are not as athletic. Seldom is their gait natural or well defined. The girth or circumference around the body houses the heart and lungs. A deep body allows room for large lungs to supply an abundance of oxygen and a strong heart muscle giving the horse endurance. A correct length of back is measured from the withers to the point of the hip and has weight carrying capacity. Long, weak backed horses can be smooth, but many have trouble capping their front prints. Mares need a slightly longer back for carrying foals.

## HINDQUARTERS

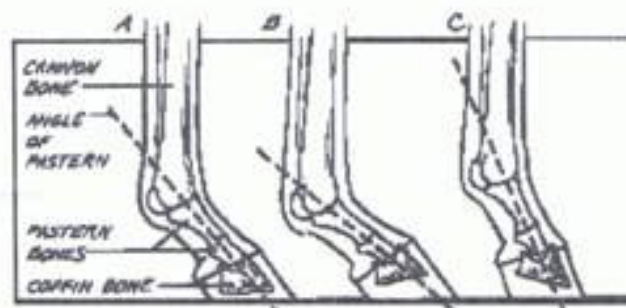
The Peruvian horse should push from the rear, not pull from the front. Visualize a ski boat moving slowly away from the docks. From the bow to the stern it is in the water with the center of balance more or less in the middle of the boat. As the throttle is pushed forward, the impulsion raises the bow out of the water changing the center of balance to 3/4 of the way back on the boat. This is the effect you are trying to achieve with proper collection. The tail set of the Peruvian is low and held quietly between the buttocks. The croup must be level with the withers or slightly lower otherwise the rear end will not be able to properly engage. Unlike the shoulders, the hindquarters are attached with bone by the pelvis to the spine. This complex system of muscles tendons and bone act as a system of levers and pulleys supplying impulsion for the horse. A triangle can be formed from the point of the hip, to the seam of the muscle above the cheek bone to the dimple in the stifle and back up to the point of the hip. If this triangle is unequal on any side there will be a loss of driving power. Without a muscular,



well developed length of hip and rounded rump, the horse will lack the strength necessary to collect properly while in gait. Mechanically correct muscles and tendons connected to a properly aligned bone structure permit the horse to enjoy a long sound working life.

## REAR LEGS

A well developed stifle, a good length to point of hock and a short cannon bone combine to create strength and impulsion. Without correct angles and strong suspensory apparatus to soften concussion, there will be break downs in those joints that suffer the most stress. Post legs combined with short, broken angled pasterns are a serious fault. The lack of flexibility in the hock joint creates a short rough stride which directs the concussion of each stride down to the pastern joint area. What would be considered a correct angle in a trotting breed would be too straight for the laterally gaited Peruvian to obtain proper collection without damaging joints. The Peruvian horse needs more angle in the hocks. Many other breeds would call this angle Sickie Hocked. As the horse moves, the hocks and pastern joints flex, acting as shock absorbers. Most trotting breeds look for hocks with lift. The Peruvians' hind legs move in a sliding manner with little or no hock action and land in the front hoof print or slightly ahead of it. Proper hock angle must also be combined with correct cannon bone length. Short cannon bones can be brought under the horse with ease to produce the desired driving impulsion, while long cannon bones cause the horse to camp out behind, robbing him of impulsion and causing wobbly hocks. Smart trainers can teach this type of horse to draw its rear legs under itself, but the long cannon bones tend to wobble, and collection is easily lost. Greater stress is placed on the flexed hocks and the hyperflexed pasterns.



## FRONT LEGS AND HOOVES

The front legs of the Peruvian Paso horse, like all other breeds, should bear weight equally. A line dropped from the point of the shoulder joint should divide the leg. The legs should stand an equal distance apart from the top of a well developed chest to the toes of the hoofs, which point straight forward.

Looking at the legs from the side the forearm should be muscular and well developed with short cannons and proper pastern length, all in proportion to the horses' body as a whole.

The hoofs of the Peruvian horse are extremely dense with good elasticity allowing them in most instances to not wear shoes. Because of the Peruvians unusual gait, many uninitiated farriers feel they must trim them differently. Trimming the Peruvian horse is full of folklore, one of the most damaging stories is that the heel must be low, with a long toe, to enhance terming. Termino is an inherited ability originating in the shoulders, knees and pasterns, not in the angle of the hoof. Hooves trimmed with the heels low and toes long can subject the flexor tendons to unnecessary stress causing many horses to have a very reduced useful life span. Another common problem among Peruvians is being level from side to side. Looking down the back of the hoof it should be equal on each side, allowing the horse to land with equal force on the entire hoof not first on the inside hoof wall and than the outside wall. Again, unbalanced stresses will cause a myriad of problems in the joints above the hoof. Trimming the Peruvian is the same as any other horse. The hoofs must be balanced side to side, front to back and the hoof wall trimmed to the same angle as the slope of the pastern and shoulder.

## EPILOGUE

The Peruvian horse has been bred in the U.S. for about 25 years which means that the largest majority of the breed is not more than 5 generations from their home country. Not yet long enough for the American breeders to make drastic changes in the horse. The effects of natural selection are still apparent in the lack of navicular and hock problems, weak hoofs, and other problems caused by conformational defects. Not that the Peruvian is without problems. Post legs, camped out behind and overly long pasterns need to be carefully bred out. But

breeders must make a conscious decision to become knowledgeable about what makes a mechanically efficient Peruvian by breeding toward conformation that lends itself to the natural lateral gait. Never lose sight of the fact that without the four-beat lateral gait, it is not a Peruvian Paso horse.

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**Photo 1:** The head, neck and shoulders account for 60-65% of the total weight of the horse. The angle of the pastern should match the slope of the shoulder.

**Photo 2:** A well developed, balanced rump combined with correct angles of the rear legs provide impulsion. Unequal length on any side of the triangle will result in a loss of driving power.

**Photo 3:**

**A:** Correct hoof and pastern angles absorb concussion more effectively.

**B:** Low sloping pasterns predispose a horse to injuries due to greater stress on the flexor tendons, sesamoid bones and the suspensory ligaments.

**C:** Injury of the fetlock joint and ringbone of the pastern joint may be caused by upright pasterns.

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