

# The Misdiagnosis of DSLD and Injury in the Peruvian Horse.

A NAPHA SUB-COMMITTEE REPORT

2007

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## **Issue Being Evaluated**

The purpose of this report is to alert both Peruvian Horse owners and veterinarians of the reported growing incidence of misdiagnosis of Peruvian Horses. Because of the increasing proliferation of misinformation, some veterinarians are applying a different standard to the Peruvian Horse when diagnosing routine injuries. We also want to provide information to owners about some of the most common equine injuries and their effects, in order to assist them in seeking diagnosis and treatment for horses that may have been injured.

**Disease:** Illness or sickness often characterized by typical patient problems or symptoms and physical findings or signs. Any condition that prevents the body from working as it should other than direct injury.

**Injury:** may be applied in medicine to damage inflicted upon oneself or someone else. The term "injury" may be synonymous with a wound or with trauma.

## **History of this Issue**

The Peruvian Horse breed in the United States has done such a good job of making the general public aware of DSLD that it has become, in many peoples minds, the number one characteristic associated with the Peruvian horse. Peruvian horse owners have spent close to three-quarters of a million dollars in the last six years to discover just what DSLD is, with very little success. The fact is, DSLD has not even been scientifically isolated as a disease.

In the latest privately-funded research from the University of Georgia (see attached charts # 1) that cost Peruvian Horses breeders over two hundred thousand dollars, bio-chemist Dr. Jaroslava Halper, writes about how they "suspect" an accumulation of "unidentified" proteoglycans as being the cause of DSLD. However, on closer examination, there is as much accumulation of this proteoglycan in the connective tissue of the unaffected Peruvian control horse, as there are in the affected ones. A nuchal ligament test that a worldwide press release claimed was successful turns out to test positive in six of the seven unaffected control horses. No one seems quite sure what the normal level of this proteoglycan is because it is yet to be identified. Proteoglycans occur naturally in connective tissue and are beneficial in healing injuries; they have never before been associated with a disease in equines. The use of glucosamine can raise the level of proteoglycans by over 150% in some horses, making this study even more confusing.

A quarter of a million dollars was spent by Peruvian horse breeders on a two-year genetic study, completed at the University of Kentucky in 2005. Researchers found no genetic cause or link between the affected and unaffected horses they were given. Dr Cothren's co-researcher Kathryn Graves states, "Initial results identified a promising area containing several genes associated with ligament structure. However further testing did not support any of these initial findings." And yet, we still hear from many people talking about having a genetic test and isolating the DSLD gene. Dr. Cothren would, of course, like more money to try again. However, the real fact of this issue is, scientists would first have to discover what causes DSLD, before a gene could be isolated.

The most widely-read study (see attached study #2: *Veterinarian Database Search*) used to prove the Peruvian Horse has a higher incidence of this "disease" than other breeds, was actually a veterinary data search for suspensory ligament injuries-not disease or DSLD-over a ten-year period from 29 veterinary hospitals across the United States. They found only 24 reported suspensory injuries in Peruvian horses from 1987 to 1997 or a little more than two a year, compared with 707 of these injuries for Standardbreds, 469 for Thoroughbreds and 443 for Quarter Horses. Though this study claims that these injuries are codes for disease and tries to relate these injuries to the population of Peruvian horses, there is absolutely nothing in this study that relates these injuries to the general population.

However, Dr. Jeanette Mero (see attached letter #3) still used this study to solicit funding from Peruvian horse breeders and validate her claims that the Peruvian Horse breed was "predisposed" to this condition, completely ignoring the nine other breeds that had many more of these types of injuries than the Peruvian Horse. Even though the veterinary data search was for injuries, Dr Mero's study of twenty Peruvian horses gives no consideration to injuries, hoof care, conformation or nutrition deficiencies and assumes these horses have a disease that she states "is particular to the Peruvian Horse." This misleading- study can be found in several places on the internet today and has been the constant source of confusing and negative articles about the Peruvian Horse. (see attached article #4)

The fact is,, we really don't know any more now, than we did seven years ago. All the researchers, in order to get funding have promised a test: the protocol from Dr. Mero, a DNA test from Dr. Cothren, a nuchel ligament test from Dr. Halper. However, so far, there is no test. As Dr. Halper clearly states in her 2006 study "Presently, there is no reliable method of diagnosing DSLD in asystematic horses."

So what have we purchased with all our time and money? We now have a public relations disaster of such gigantic proportions that it threatens the very existence of the Peruvian horse breed in the United States. At a recent all breed equine fair in California, 80% of the questions about Peruvian Horses were about the "Peruvian horse leg disease." A researcher at the University of Kentucky was "confidentially" told that some ranches had 40% of their horses affected with DSLD. Paso Finos and other gaited breeds are warning people to not buy our horses because "most Peruvian Horses have DSLD, and all the bloodlines are all infected." (see attached letter #5) Dr. Jeanette Mero, who is described in the American Association of Equine Practitioners magazine as "an activist in promoting DSLD," has written several articles, for major equine publications unfairly connecting this condition with the Peruvian Horse. These articles claim, with absolutely no proof, that the Peruvian Horse is "predisposed" to what is described as an incurable, deadly disease, rampant in the bloodlines of our horses. Many of these publications are delivered free to veterinary clinics across the country and in some cases they go around the world.

While other gaited breeds are growing and enjoying unparalleled financial success, including the Peruvian Horse in Central America and in its native country of Peru, this negative publicity has had a drastic effect on our numbers here in America. We now have only 1200 two, three and four yearold registered Peruvian horses in the United States compared to 2200 eight, nine and ten year-olds. This means that in three years we will be trying to support our shows and a \$300,000 NAPHA budget, with half as many horses.

This negative publicity has, of course, reached the veterinarians, who diagnose our horses and think of DSLD with regard to every Peruvian horse they examine, along with a horse-owning public who now thinks every abscess or swollen fetlock in a Peruvian horse is DSLD.

The following are some actual case histories of how this results in the misdiagnosis of our horses. We picked these three cases out of the many we have received information on, because we could document their stories and also because some of the members of this committee have had similar experiences with this kind of misdiagnosis.

## **Cases**

Case # 1 Gloria Eby had shoes put on her six year-old trail riding gelding for the first time in his life, and now he was lame and she was worried.

A well-known lameness clinic was only a mile or two away from her boarding stable, so she took her gelding there and ultrasounds were done. The veterinarian had no experience with Peruvian horses, so he sent the ultrasounds to Dr. Jeannette Mero for a second opinion. They came back confirmed positive for DSLD. Gloria was shocked and heartbroken. The vet wrote a full-page diagnosis explaining DSLD and informing her that the prognosis was eventual euthanization. Gloria, grief stricken, gave the horse away; she could not bear to have him put down and couldn't afford to keep a horse she couldn't ride.

The new owners treated the gelding as an injured horse and took one year to rehabilitate his injury. They sent the ultrasounds to their veterinarian and to a clinic in California without revealing the breed of the horse. The diagnosis from the ultrasounds came back from the two other vets as suspensory desmitus, an injury. When the original vet was asked about the other two diagnosis, he said, "That's what I saw too, but it was a Peruvian horse. I thought there could have been something else going on." The gelding two years later remains very sound and strong and has been winning gait classes in shows.

Case # 2 Jenee DeMers' twelve year-old mare was lame and one of the fetlocks was swollen. She wanted a vet to examine her. She took the mare to Washington State Veterinary School in Pulman, Washington. When she got there, a vet started examining her mare and was describing the injury and treatment. When a second vet appeared and asked her what breed of horse she had, she responded, "Peruvian." At that point, everything changed. She was told her mare had a confirmed case of DSLD and was given forms from DSLD Research, Inc. to fill out. Jenee, in disbelief, took her horse to the Peruvian farrier, Coco Fernandez, who trimmed her horse and put orthopedic shoes on her to stabilize the injury and gave it six months to heal. Nine months later Jenee was showing her horse.

Case # 3 Tina Woodworth's eighteen year-old Peruvian horse was diagnosed with DSLD by her vet, and she was told he may have to be "put down." Tina took her horse to another vet to get a second opinion, she had some blood work done and discovered his problem was a selenium deficiency. Tina started using a selenium supplement; her gelding is fine now.

The tragedy of these cases of misdiagnosis is significant, not only for our breed of horse but for the individuals who euthanize their horses because they were incorrectly confirmed with DSLD.

## **Facts Considered**

### **WHY IS THE VETRINARY COMMUNITY CONFUSED ABOUT DSLD?**

Here are some quotes from research papers and articles explaining injuries and DSLD. These veterinarians are all describing exactly the same symptoms, only Dr. Mero is describing an incurable *disease* in Peruvian horses and the other veterinarians and researchers are describing suspensory *injuries* in all equines. In the first example, Dr. Mero is doing both.

#### **Example # 1**

##### **Dr. Mero's Protocol for Diagnosis of DSLD**

*"These four steps: palpation of the suspensory ligaments, observance of baseline lameness, fetlock flexion tests, and sonographic examinations of the suspensory ligament at mid-cannon and both branches. These four steps accurately provide the information needed to make a diagnosis of degenerative suspensory ligament desmitis [DSLD] in Peruvian Pasos Dr Mero; Journal of Equine Veterinary science*

- 1. Palpate the leg for pain**
- 2. Observe the leg for lameness as he moves freely**
- 3. Assess his soundness using a flexion test.**
- 4. Perform an ultra sound examination**

**"These steps aren't unique; they are all part of the normal, standard physical exam" Dr. Mero, from Equus Magazine: Oct. 2005**

**"This protocol was not designed as a screening tool.... At this point we do not have any good means to screen large numbers of horses for DSLD - the numbers of false positives and false negatives would be too high."**

**Dr. Mero, DSLD Research Inc. website.**

#### **Example #2**

##### **Dr Mero explains bilateral and quadrilateral involvement in DSLD**

*"One key component to diagnosis (in Peruvian Paso's) is that unlike injury or other diseases, DSLD occurs bilaterally (both fronts or both hinds) or quadrilaterally (all four legs). It often starts in one limb only and appears to be one-legged (often causing a misdiagnosis at that point), but given time, always spreads, " Subtle behavioral changes may be early indicators. Some horses resist having their legs touched or feet picked up. Many resist having their legs extended to the front or rear for trimming. Some just seem "off" or "cranky.*

### Bilateral Involvement in Suspensory Ligament Injury

Sarah E. Powell, MA, VetMB, MRCVS, Deidre M. Carson, BVSc, MRCVS and Sidney W. Ricketts, LVO, BSc, BVSc.

"Clinical signs vary with the site of the injury and the severity of the damage. When the origin of the suspensory ligament is damaged (known as 'Proximal suspensory desmitis'), the condition is often 'bilateral' i.e. in both fore or both hind limbs. There is usually no heat or swelling but there may be some pain when the area just below the back of the carpus ('knee') or hock is pressed firmly with the leg in a flexed position. In these horses the lameness may be subtle and (especially in the hind limb) often develops gradually and goes undiagnosed for some time."

### **Example # 3**

Dr Mero: Suspensory ligament enlargement from her 2002 study on DSLD *"What is unique to Peruvians is the progressive enlargement of the suspensory ligament, primarily involving both branches over time in more than one limb. There is a diffuse loss of echogenicity and poor fiber pattern images noted throughout the affected portions of the ligament. "*

### UC Davis, Diagnostic Ultrasound and Musculoskeletal injuries in horses

"The clinical signs of a tendon or ligament injury can be quite varied. Lameness can range from mild to severe and may be somewhat transient, sometimes lasting only a few days. Chronic injuries often result in persistent thickening of the tendon or ligament and an intermittent or persistent lameness."

### Suspensory Ligament Damage

Sarah E. Powell, MA, VetMB, MRCVS, Deidre M., Carson, BVSc, MRCVS and Sidney W. Ricketts, LVO, BSc, BVSc.

"With injury to the branches, there is usually thickening of the affected region. Warmth and tenderness may or may not be present. If the ligament is ruptured, the fetlock will 'sink' towards the ground, fully or partly, depending on the completeness of the rupture. Ligaments are made up of fibers that run along their length in a regular, well-organized manner. When the fibers are damaged some heal in an irregular, crisscross pattern rather than lengthways. Also, the repaired tissue is different in structure and mechanical properties than the original, healthy ligament tissue. Therefore the ligament will always be compromised in structure and function rendering it susceptible to re-injury."

#### **Example #4**

**Dr Mero: the cellular changes with DSLD (Gaited Horse Magazine)** *"Changes first occur at the cellular level. In the first line of repair, cells called fibroblasts lay in a form of collagen known as TYPE III - a small, weak, not very pliable molecule. As damage increases, they progressively buildup to installing stronger, larger, more elastic TYPE I collagen. But for some unknown reason, these cells change in DSLD horses. They fail to lay in the stronger type of collagen. As the suspensories in DSLD horses become dominated by type III collagen, they weaken."*

#### **The Tendinosis Cycle: Cellular Changes with Tendinosis (Tendinosis. Org)**

**Tendinosis is a slow accumulation of little injuries that are not repaired properly and leave the tendon vulnerable to yet more injury. The tendinosis cycle begins when breakdown exceeds repair. Repetitive motion causes microinjuries that accumulate with time. Collagen breaks down and the tendon tries to repair itself, but the cells produce new collagen with an abnormal structure and composition.**

**The new collagen has an abnormally high Type III/Type I ratio. Experiments show that the excess Type III collagen at the expense of Type I collagen weakens the tendon, making it prone to further injury. Part of the problem is that the new collagen fibers are less organized into the normal parallel structure, making the tendon less able to withstand tensile stress along the direction of the tendon.**

#### **Cellular Changes: The Pathogenesis of Tendinopathy. A molecular Perspective G. Riley, Oxford Journal of Equine Medicine**

**"Collagen Matrix changes in tendon pathology could be attributed to intrinsic factors, such as changes in cell activity with age, or extrinsic factors, such as 'overuse', repetitive strain and micro trauma injuries. In degenerate tendon there is an increased rate of collagen matrix remodeling, leading to a qualitatively different and mechanically less stable tendon, which is susceptible to damage. Thus tendon degeneration may result from a failure to regulate specific MMP activities in response to repeated injury or mechanical strain."**

**How the Equine Superficial Digital flexor Tendon Responds to Physiologic Challenges and Physical Therapy, Yi-lo Lin and, A. Barnveld, Prof. Phd, Dvm University of Utrecht** **"The scar tissue that is induced is of inferior quality compared to the original tissue due to alterations in biochemical composition and structural organization, compromising the functional restoration of pre-injured structure. This leads to high re-injury rates when athletic activity is resumed."**

**"The equine superficial digital flexor tendon and suspensory ligament can be considered as the most vulnerable structures of the entire equine body." Dr Yi-lo Lin.**



Most ligament and tendon injuries are accumulations of smaller injuries or micro-injuries that lead to a breakdown, and not one traumatic event. Dr James Hamilton, DVM of South Pines Equine Associates in North Carolina, describes it this way, "damage [to tendons and ligaments] most often, is cumulative, starting with minor traumas that weaken tendon fibers and cause mild inflammation without lameness or detectable soreness." He likens the process to a rope with individual fibers breaking; "Eventually" he says, "you would reach a critical threshold of weakness." At that point the horse becomes lame swelling begins around the injury and the horse will then need a lot of care and a long recuperation.

Any injury will degenerate if it is not stabilized. Any injury in one leg may become bilateral, unless both legs are stabilized. In other words when one front leg is injured and wrapped, you must always wrap the other one so the horse doesn't overload the sound leg. The race horse, Barbaro, was put down because of complications in his left leg. His right leg was the one that was broken, but Barbaro's condition quickly became bilateral. As Pulitzer prize winning equine author, Jane Smiley, writes about equine injuries, "[Horses] are engineered so close to the margins of what is physically possible that when one thing fails, it can cause the failure of the whole animal."

Injuries to suspensory ligaments can be hard to diagnose and lameness can come and go, but the injury is still there. Suspensory ligament injuries are also hard to heal. Many will take months, not weeks or days, and when they do heal they are often easier to re-injure, resulting in a chronic, recurring problem. A second opinion and long recuperation periods are always good ideas. Because there is no test for DSLD and no study has ever been done that states the Peruvian horse is more prone to any disease or injury, finding out exactly what DSLD is, can be very confusing for horse owners and vets alike.

## Recommendations

What's better than the successful rehabilitation of a tendon or ligament injury? The answer is: preventing an injury from happening in the first place. Peruvian horses, with their tremendous brio and willingness to please, make it even harder to detect injuries. While it's impossible to completely avoid injury in athletic horses, these precautions might help to minimize your horse's chance for injury. Tendon and ligament injuries take the longest to heal, and some never do, so prevention is key.

- Good horses are good horses in any breed. Learn the principles of conformation and breeding. What are good angles? What does a post legged horse look like? Why is a short back better than a long one?

As the veterinarians at Alamo Pintado say, "The simple answer to this problem is to not breed bad-legged horses to bad-legged horses, or to breed any horse with a severe inherited conformation fault. Once that becomes obvious, the problem goes away."

- Learn to recognize the subtle signs of an injury before it becomes severe. Identify any abnormal heat or swelling in your horse's legs by carefully feeling his legs every day before you ride and taking note of any changes. You should also pay close attention to any lame steps or obvious changes in his behavior. If you think something feels wrong when you ride, call your vet. By doing so, you'll prevent a minor strain from becoming a catastrophic injury.

- Proper, timely trimming is perhaps the most important thing you can do to safeguard the health of your horse's feet and legs. Not all farriers are created equal, so get recommendations from someone you trust. Many Peruvian horses hooves grow forward and can become unbalanced quickly. Bad trims can cause micro-injuries to accumulate while your horse is standing in his stall or walking in a pasture by increasing pressure on suspensory ligaments. As soon as you suspect a problem, address it. Horses should never be sore after a trim; master farrier, Coco Fernandez, trims horses the day before a show. He says, "They should be better after a trim, not worse."

- Careful conditioning is critical. Regular long, slow, distance work--walking--helps keep tendons and ligaments tight and healthy. And, even though you want your horse to look good, you are not his friend by feeding him too much. Excess weight stresses joints, tendons, and ligaments.

- Work footing needs to be deep enough to lessen concussion, but not so deep that it strains tendons or ligaments. Avoid rocky or slippery surfaces and footing you can't see.

- Always warm up your horse thoroughly before you ride. Plan to walk him a minimum of 10 to 15 minutes before you start to work.

- Protect your horse's legs with polo wraps or sports medicine boots; they provide good support and protection when applied properly. Ask your vet about recommendations for your horse. He/she can also advise you on measures such as icing, and applying stable bandages after stressful workouts.

We can all agree that educating our members to these steps would be beneficial, but just listing them in a paper is not the answer. We need to be pro-active in educating our members. NAPHA needs to sponsor and support activities like the Peruvian Horse Congress held in Lompoc, California, in 2006. At this Congress several successful breeders and experts in their equine specialties came together and shared their knowledge.

Prominent breeders, judges, veterinarians, and farriers, altogether in one place answering questions, demonstrating good and bad conformation with real horses, a farrier demonstrating a good trim and educating owners to the needs of Peruvian horses, trainers talking about conditioning and good equitation, showing us the proper way to wrap our horses legs, veterinarians talking about injuries and showing members how to correctly palpate tendons and ligaments for soreness. This should be going on every year in a different part of the country with local veterinarians invited to attend.

We also need to have a positive educational presence on the internet. A place that promotes the same values that are demonstrated in these congresses and are displayed for the general horse owning public to reference. The breed very much needs a central website that is dedicated to just these issues and is promoted by NAPHA.

And finally, we need to stand up and support our horses, to other breeds, to other owners, and especially to the veterinary community that is misdiagnosing our horses.

## **Conclusion**

We have a strong, wonderful horse that is getting some very bad publicity. We need to educate the veterinary community as well as the owners of these great horses and not let a small group of negative people be the only thing the public hears. Alamo Pintado is a world renown veterinary clinic that sees more Peruvian Horses than probably any clinic in the world, and after thirty years, following is what they have to say about Peruvian horses:

"In our experience, the Peruvian Paso, as a breed, is a very tough, durable and sound breed of horse when compared to all the other breeds of horses we see at Alamo Pintado Equine Medical Clinic." Doug Herthel DVM, Mark Rick DVM, Greg Parks DVM Ed Hamer, DVM. Judy Carter DVM

## ATTACHMENTS

## **Attachment #1**

These charts are the summary of Dr Halpers study.

According to Dr Halper, the accumulation of unidentified proteoglycans throughout the body is what makes DSLD a systemic disease and the accumulation of this proteoglycans in the nuchal ligament is where a biopsy can be taken for a DSLD test. This test was described as a breakthrough in a national press release.

However, by simply looking at Dr Halper's own charts we can see that the unaffected Peruvian control horse has this accumulation in as many places as the affected horses and five of seven of the unaffected control horses would test positive with a nuchal ligament biopsy. Also all of the young horses had one or both of their parents broken down, which could only mean that these breeders were breeding broken down horses to each other and producing broken down offspring... a not very surprising result. As the vets at Alamo Pintado say " don't breed bad legged horses, to bad legged horses and the problem goes away"

Also included is a e-mail from someone who had a necropsy done by Dr Halper and was told her mare had extensive DSLD but had no accumulation in the nuchal ligament or any of the other organs

Table 3

**Control horses**

	age, sex, breed	onset of symptoms	clinical	family affected	legs	patella	heart	PA	aorta	eyes	other tissues	Ultra-sound
<b>1</b>	young, F, quarter	NA	healthy	no	2 fibr. tendons, mild	ND	-	ND	-	ND	ND	ND
<b>2</b>	5 mo, M, Percheron	NA	healthy	no	foci in 4 legs	ND	-	ND	-	-	nuchal+	ND
<b>3</b>	6 y, F, quarter	NA	Cushing	no	fibrosis in four, mild	-	-	ND	-	-	lung +	ND
<b>4</b>	8 y, F, quarter	NA	healthy	no	foci in 4 legs	-	-	ND	-	-	-	ND
<b>5</b>	8 y, M, Tennessee walking	NA	slight fever	no	fibrosis in four, mild	-	-	ND	-	-	nuchal+	ND
<b>6</b>	9 y, F, Arab	NA	healthy	no	foci in 4 legs	-	-	ND	-	-	nuchal+	ND
<b>7</b>	9 y, F, Per Paso	NA	healthy	no	four, mild	+	cor +	ND	-	-	nuchal, lung +	ND
<b>8</b>	10 y, M, pony	NA	healthy	no	foci in 4 legs	-	cor +	ND	-	-	nuchal, lung +	ND

Age: age at necropsy; ND: not done; legs: SDF, DDFT and SL; cor: coronary artery; PA: pulmonary artery; nuchal: nuchal ligament

Mild, mod (moderate), severe: describes the average severity of pathology in examined leg tendons and ligaments; +: accumulation of proteoglycans in other tissues; -: no proteoglycan accumulation

**Table 1**

## Peruvian Paso horses affected with DSLD

	age, sex	onset of symptoms	clinical	family affected	legs	patella	heart	PA	aorta	eyes	other tissues	ultrasound
1	1 y, M	6 mos	four	sire	4 mod	ND	cor +	ND	+	both+	nuchal+	2/2 front SLs
2	1 y, F	6 mos	four	sire	4 mild	ND	cor +	ND	+	-	nuchal, lung +	2/2 front SLs
3	18 mo M	6 mos	four	parents	4 mild	ND	ND	ND	ND	ND	nuchal+	ND
4	18 mo M	6 mos	four	parents	4 mod	ND	ND	ND	ND	ND	nuchal+	ND
5	1.5 y, M	at 1 y	four	dam	4 mild	+	-	+	-	both+	lung +	4 SLs
6	2 y, F	birth	four	sire	4 mod	ND	ND	ND	+	ND	ND	¾ SLs
7	3 y, F	6 mos	rear	parents	4 mild	+	cor +	ND	+	both +	nuchal, lung +	4 SLs
8	3 y, M	1 year	front legs	no	4 severe	ND	cor +	ND	+	ND	nuchal+	ND
9	7 y, F	years	four	dam	4 severe	ND	valve+	+	+	ND	lung +	2/4 SLs
10	8 y, M	years	four	sire, foals	1 SL exam, mod*	ND	ND	ND	ND	L eye	nuchal+	4 SLs
11	9 y, F	at 9 y	rear	dam	4 severe	ND	valve+	+	+	ND	lung +	4 SLs
12	9 y, M	at 6 y	four	no	4 mild	+	cor +	+	+	both+	-	4 SLs
13	9 y, M	years	fallen crest, legs	dam	4 mild	ND	cor +	ND	-	both +	nuchal, lung +	ND
14	11 y, F	years	four	no	1 SL exam, mild*	ND	ND	ND	ND	R eye	nuchal+	2/2 hind SLs
15	15 y, F	years	four	no	4 mod	ND	ND	ND	+	ND	ND	4 SLs
16	15 y, F	years	front	foal	4 mod	+	cor +	PA+	+	both +	nuchal+	ND
17	15 y, F	years	four	sire, son	4 mod	ND	cor +	ND	+	both +	nuchal, shoulder+	ND
18	18 y, F	years	four	no	1 leg exam, severe*	ND	ND	ND	ND	ND	ND	4 SLs
19	18 y, F	years	rear legs	foals	4 mild	ND	ND	ND	-	R eye	nuchal, lung +	4 SLs
20	21 y, M	late onset	four	no	4 mod	+	cor +	-	-	R eye	-	4 SLs
21	21 y, M	years	legs	no	4 severe	ND	cor +	ND	+	R eye	lung +	4 SLs
22	unknown	unknown	unknown	no	4 mild	ND	-	ND	-	ND	-	

**Necropsy results on my mare**

**Posted by: "caballosnodinero" caballosnodinero@yahoo.com**

**caballosnodinero**

**Thu Nov 9, 2006 3:48 pm (PST)**

**Hi All,**

**I just got the detailed necropsy from Dr. Halper. Her diagnosis (reported previously) is "extensive dsld".**

**The findings were interesting.**

**"Accumulation of proteoglycans is quite extensive in both front and right rear tendons and suspensory ligaments, but only mild in the left rear leg. Nuchal tissue, liver and aorta appear normal."**

**Is it usual to find this in tendons? Or this extreme in the legs with normal nuchal tissue? 'Bless her heart, she always did have a mind of her own -- did her poor little body do things differently too?**

**Janet**



## **Attachment# 2 Veterinarian database Search**

Here is an example of how faulty research creates misinformation and how it can hurt our Peruvian horse breed for years.

This is a data base search of suspensory *injuries*; suspensory ligament desmitis, suspensory ligament sprain and suspensory ligament rupture, in veterinary colleges in North America. These are injuries, they are not codes for disease, and there is nothing in these statistics that normalizes them to the population, only to the horses injured. However, by the time we have finished reading this survey, these horses have been diagnosed with suspensory ligament *disease* and Peruvian horses have the second highest percentage of this disease, just below Standardbreds.

What do these statistics really show? That there were only 24 suspensory injuries reported to these veterinary colleges for Peruvian Paso horses, over a ten year period... and that's all.

This research was done in 2002 and was taken from the DSLD/ESAD information web page in 2007.

This misinformation has been referenced many times, including the PPHRNA RAM meeting in 2003 and, most recently, in an article on gaited horses in Horseman News (October, 2005). It is part of the Golden Gaited web site and is used in describing Peruvian Horses

## Veterinarian Database Search

Below are results of a query of the Veterinary Medical Data Program, done by Alice M. Wolf, DVM, DACVIM, DABVP. Information is compiled from veterinary colleges in North America. The data below represents a survey of 10 years of data from 1987-1997. The percentages come from a comparison of all the horses of each breed that were brought to these schools for any problem to the number that were subsequently diagnosed as having suspensory ligament disease. That normalizes the percentages to the number of horses in the population.

The query specifically searched for the following diagnoses: Suspensory Ligament Desmitis, Suspensory Ligament Rupture, Suspensory Ligament Sprain, and Suspensory Ligament Laxity. At the time of this query, there were the only codes for suspensory ligament disease in the veterinary computer database. Breeds are listed by frequency of incidence for these problems. Breeds where no individual was diagnosed with suspensory ligament disease are not listed. Breeds with less than 10 individuals seen per year are also not listed as the number is statistically insignificant.

Vet database

[Return to the Equine Suspensory Apparatus Dysfunction home page.](#)

<b>Breed</b>	<b>Total # Seen</b>	<b># with Diagnosis</b>	<b>% with Diagnosis</b>
<b>Standardbred</b>	13,271	707	5.3274
<b>Peruvian Paso</b>	516	24	4.6512
<b>Foreign Warmblood</b>	929	38	4.0904
<b>Westphalian</b>	121	4	3.3058
<b>Hanoverian</b>	789	24	3.0418
<b>Trakehner</b>	874	20	2.2883
<b>Hunter</b>	138	3	2.1739
<b>Haflinger</b>	275	5	1.8182
<b>Thoroughbred</b>	27,981	469	1.6761
<b>Grade (Mixed Breed)</b>	8846	139	1.5713
<b>Paso Fino</b>	641	10	1.5601
<b>Holsteiner</b>	546	7	1.2821
<b>Arab</b>	12,670	139	1.0971
<b>Quarter Horse</b>	49,191	443	0.9006
<b>TWH</b>	4181	31	0.7414
<b>Missouri Fxotter</b>	621	4	0.6441
<b>Saddlebred</b>	3281	20	0.6096
<b>Appaloosa</b>	5963	33	0.5534
<b>Belgian</b>	2040	11	0.5392
<b>Morgan</b>	2074	10	0.4822
<b>Paint</b>	5704	22	0.3857
<b>Pinto</b>	263	1	0.3802
<b>Ponies</b>	2484	9	0.3623
<b>Mule</b>	564	2	0.3546
<b>Clydesdale</b>	651	2	0.3072
<b>Percheron</b>	798	2	0.2506
<b>ALL</b>	147,884	2199	1.4870

### **Attachment # 3**

The original letter Dr Mero used on her website where she uses the fraudulent veterinarian's database research to claim Peruvian horses have this "disease" more than other horses and then asks for donations.

*The following is the original Dr Mero letter published on original DSLD inc. website in March 2002*

DSLSD Research, Inc.

Jeanette L Mero, DVM

Vista Ranch ~ 5256 Kings Corners Rd ~ Romulus, NY 14541

Phone 607-280-2305 ~ Fax 607-869-9396 ~ Home Phone 607-869-9221 ~ Email vista@capital.net

March 03, 2002

Degenerative Suspensory Ligament Desmitis (DSLSD), is a progressive, degenerative condition that affects the suspensory ligaments of the equine lower limb. DSLSD is either bilateral (two limbs) or quadrilateral (four limbs) and is characterized by pain, lameness, thickening of the suspensory ligaments and in many cases swelling of the ankles and a sinking of the ankles towards the ground. At the microscopic level DSLSD appears to be a disruption in the normal repair process of collagen in the suspensory ligaments. This defective repair process leads to abnormal tissue production in the ligament resulting in an enlarging and a weakening of the ligament making it unable to sustain normal weight bearing. Due to the progressive nature there is no cure or treatment that is effective, with the outcome often resulting in euthanasia due to the severe pain associated with the syndrome. Though DSLSD is seen in many breeds, a data search of the medical records of 29 North American veterinary school hospitals revealed that Peruvian Pasos and Warmbloods of many breeds are the most affected. Peruvians Pasos are unique in that the syndrome affects all ages and is unrelated to their level of work or exercise.

DSLSD Research, Inc. was founded in October of 2000 by Jeanette L. Mero, DVM an equine veterinarian and breeder of Peruvian Paso horses, as a not for profit research project dedicated to discovering the source of DSLSD and its eradication in Peruvian Pasos. Dr. Mero has been working in collaboration with several researchers and clinicians. E. Gus Cothran, Ph.D., head of the Animal Genetics Lab at the University of Kentucky, and his lab are attempting to locate the hypothesized gene responsible for DSLSD and develop a genetic test to easily identify normal, carrier and affected horses. If developed this test will then be made available to the public through their lab. In addition to the gene work currently underway Dr. Mero in collaboration with: Dr. Steve Derwelis of New Mexico and several other researchers at Cornell University, is studying the clinical aspects of DSLSD. Their work is aimed at a better understanding of the clinical signs, rate of progression, histopathology, and at developing better techniques for the diagnosis of DSLSD.

The clinical work completed so far has yielded a diagnostic protocol for DSLSD, along with an accompanying examination form, as an aid to owners and their veterinarians. This protocol was not designed as a screening tool, it is useful and accurate in diagnosing DSLSD cases when a horse is exhibiting some or all of the typical DSLSD symptoms. At this point we do not have any good means to screen large numbers of horses for DSLSD - the numbers of false positives and false negatives would be too high. We are hopeful that the next phase of the research will address the need for a stepwise method that includes physical and ultrasound exam as a screening process for DSLSD. Since there has been no treatment to date that has been successful, little research time has been directed at treatment. The eventual prevention of this disease has been the crux of the entire project. It is anticipated that some or all of the clinical research completed by Dr. Mero and her colleagues will be published in the appropriate peer reviewed journals. All information including items such as horses names, pedigrees, and owner information will be kept in the strictest confidentiality and will never be released.

The third portion of the project, aside from the genetic research and the clinical research, is a pledge to help educate the owners, breeders and veterinarians of Peruvian Pasos, as well as the general horse public about DSLSD. Once the actual research is completed DSLSD Research, Inc. intends to continue on as an advocate and educational voice in the fight against DSLSD.

The starting funding for this project has largely been at the generosity of a handful of dedicated admirers of the Peruvian horse. Recently in an unprecedented act the largest Peruvian Paso registry in the world, the PPHRNA, has openly endorsed this project and gives it its full approval. In addition the second US registry, the AAOBPPH, has pledged to work with the PPHRNA in support of research into the syndrome. Steps are being taken to win the approval and support of both the Canadian and the Peruvian registries as well. This kind of unification is essential if we are going to unite together to solve this problem and demonstrate to the public our open and honest desire to preserve the strength and health of our horses.

Please if you wish to become part of the solution in solving this crippling syndrome consider donating to DSLSD Research, Inc. in whatever amounts you can (any amount is useful). We are in need of immediate funding to keep this project solvent and functional for the next one to two years at least. Checks can be made out to DSLSD

Research, Inc. and forwarded to Dr. Mero at the above address. Secondly we are always in need of cases of DSLSD and anyone wishing to either enter a horse in the study, or directly donate a case to Dr. Mero, please contact her at the above numbers to make arrangements. Please be assured that this study is being conducted in an objective and scientific manner, that will in no way target or blame particular horses, breeders or farms. We have the complete interest of the breed at heart - not in slandering or defaming certain horses or individuals. We hope that you will join us in our efforts to protect this truly unique and special breed of horse.

*Underlines by Ovenburg*

#### **Attachment # 4**

Once these websites and articles are placed in the public record they stay there forever doing damage daily and creating a false impression of our horses. The second article is from the American Association of Equine Practitioners database and can be accessed by any vet looking into DSLD. Once again this information is based on the Veterinarians Database Research.

Dr. Mero used this research to validate her claims that the Peruvian Horse "is the most affected" and is predisposed to this disease. Dr Halper used Dr Mero as a resource to make the same claims about the Peruvian Horses being the "most affected" and the authors of these and several other articles have used these two doctors and the Veterinarians database research as their resource to make the same misleading claims about our horses.

And it all came from 24 injured horses.

## Types and Talents of Various Gaited Horses

I frequently remind people that a horse’s saddle gait is more dependent upon conformation than upon registration. This is equally true of any kind of inherent trait or characteristic. We cannot deny, though, that breeding for a particular type of horse over time does result in overall physical and temperamental differences among various breeds. This may cause one breed of horse to be more or less suited to a particular use than another. Here is a brief overview of some of the characteristics intrinsic to the various gaited breeds. Please keep in mind that these are generalities only. Any individual horse may break some or all of the rules for that specific breed. There may even be an entire subculture within a breed that differs from typical standards. What may add to the confusion of someone seeking a gaited horse for a specific purpose is that those who own and love a particular breed tend to claim—and believe—that their breed can be ‘all things to all people.’ This is simply not true of any breed of horse, gaited or otherwise. It helps if you know going in what breeds are more suited to your endeavor so that you don’t waste a lot of time trying to make a square peg fit into a round hole.

### Tennessee Walking Horse

The Tennessee Walking Horse is bred for its signature running walk, which is an average length, lifting and rolling stride in front and a long, lower stride behind. A good running walk horse can really cover ground efficiently and smoothly! The conformation required to produce this gait includes a neck of medium length, shoulder of average angle, a long sloping croup, high stifles and relatively long hind limbs. In fact a TWH may appear quite gangly behind—in regard to its gait, this is a good thing.

Many of these horses can produce speed either at gait or in a canter, thanks to their length of limb—and temperamentally are happy to do so, yet without getting too hot and difficult to handle. Sports requiring a collected, fast gallop over a short course—as in 1/4 mile sprints, pole bending, etc.—would not be such a horse’s strong suit. A TWH may be able to clear medium height jumps, but be limited by conformation from competing at higher levels of hunter-jumper competitions. A cow horse? Perhaps—but again, mostly on a limited basis. Conformation considerations aside, they simply haven’t had ‘cow sense’ bred into them the way some other breeds have. On the other hand, they tend to be very intuitive and responsive to people—a particularly endearing quality.

### Missouri Fox Trotting Horse

If you’re looking for a gaited horse with a lot of cow sense, then you might investigate the Missouri Fox Trotting Horse. These animals were originally bred by cattlemen in the Ozarks. These men required horses as rugged as they were, who were smooth gaited, sure-footed and quick enough to round up cattle from the hills and hollers of the mountains. These horses had to outsmart and out maneuver a wily ‘hills’ cow.

The typical Missouri Fox Trotting horse boasts these characteristics. They often have greater muscle bulk than their TWH cousin—appearing more akin to an American Quarter Horse than to an American Saddlebred, for example. The standard fox trot gait has a long, low stride in front and a higher, lifting and shorter length stride behind. Fox Trotters generally have strong loins, broad chests, low set stifles and hocks, and short cannons. They excel at sports requiring quick spurts of energy, tight turns, and quick thinking. Some lines still demonstrate a lot of cow sense.

### Peruvian Horse

The good news is, if it’s endurance you’re looking for, there are plenty of great gaited horse contenders for you to consider. One of these is the Peruvian Horse, with its strong natural innate gait and tremendous stamina. Peruvian Horses are known for possessing plenty of ‘brio,’ which translates literally into ‘controlled fire.’ They generally do demonstrate a great deal of energy, and are willing and smart horses—for inexperienced or timid riders, they may be a bit too willing and smart. Peruvians tend to be very strong for their size, which usually tops out at about 14.2hh. They move with a characteristic ‘termino’ action with their forelegs, each leg swinging out from the shoulder and describing a small circle before the foot sets down. This swinging action sometimes upsets other types of horses in a crowd. One day while riding with someone mounted aboard a Peruvian I saw dozens of horses giving this energetic fellow a very wide berth! This might be a detriment to someone planning to do a lot of big planned trail rides, especially at speed. Termino also limits the horse’s ability to jump efficiently. However, if you’re looking for a fast, willing, strong, brave and exceedingly natural smooth riding horse that possesses plenty of stamina for the long haul, you would do well to consider the Peruvian Horse.

**One problem commonly associated with Peruvian Horses is suspensor ligament breakdowns and injury. Peruvian owners will often try to refute this issue, but statistics demonstrate that more than 5% of Peruvian Horses suffer from suspensor ligament diseases, second only to the Standardbred.** Whether this is an inherited tendency or the result of traditional shoeing practices which leave the toes much too long and the heels much too low, is a hotly debated issue. There’s little doubt in my mind that the traditional manner of gaiting these fine horses—head cranked into a severe bit, back hollow, at speed—is also a contributing factor. It would be my advice for those considering the purchase of a Peruvian Horse to carefully investigate its background to determine whether either parent suffered from suspensor problems, to have the horse vet-checked with an emphasis on suspensor ligaments, to be diligent in maintaining correct hoof angles—even if it means ignoring the advice of ‘traditionalists’—and to always ride the horses in good form in comfortable tack. Of course, I would make most of these suggestions regarding the purchase of any type of gaited horse.

### Paso Fino

Though an entirely different breed, the Paso Fino possesses many of the same fine qualities as the Peruvian—not surprising considering their similar Spanish backgrounds. There are actually several distinct types of Paso Fino horses, depending upon their country of origin. Pasos in the United States issue primarily from Columbia and Puerto Rico. The Columbian horses are known for their rugged physical characteristics, but often their gaits—all a variation of the stepping or broken pace—aren’t as reliable as those of most Puerto Rican horses. Like the Peruvian, many of these animals possess ‘brio,’ have great heart, and courage. Because they tend to want to move very quickly in gait, it may be a temptation for riders to allow these horses to rush out with their noses to the sky and their backs hollowed out. It is a smooth, fast and exhilarating ride! But this type of riding ought to be done only after a horse has been worked into good condition over many, many miles in gait in good form—and even then fast all-out gaiting should be practiced in moderation. This kind of riding is very physically demanding on the horse, and will lead to a variety of unsoundness issues if overdone.....



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ONLINE NEWS

**AAEP 2002: Suspensory Ligament Desmitis in Peruvian Pasos**

by: *Christy West, Website Editor*

December 27 2002 Article # 4049

Certain breeds of horses are predisposed to certain health problems, and it appears that the Peruvian Paso is no different. In her presentation "Twenty Cases of Degenerative Suspensory Ligament Desmitis (DLSD) in Peruvian Paso Horses," Jeanette Mero, ...

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## GAITS OF GOLD

About Gaits of Gold, Inc.

In this section, you can learn all about Brenda Imus & Gaits of Gold, Inc. Find out how we got started, and where we stand in the gaited horse community today!

Meet Brenda Imus PDF Print E-mail

Brenda Imus is the world's most widely recognized authority on the subject of gaited riding horses, as well as a professional author, inventor, breeder, trainer, and gaited horse clinician. Her equestrian titles include *From the Ground Up: Horsemanship for the Adult Rider*, (named by *Equus* magazine as one of the top five new equestrian titles in 1992), *Heavenly Gaits: The Complete Guide to Gaited Riding Horses*, and *Gaits of Gold: Selecting, Fitting, and Training the Naturally Gaited Horse*.

Peruvian Horse

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Underlines by Ovenburg

Attachment #5

This is a letter from NAPHA member Doris Loeffler explaining how other breeds are using DSLD to sell their horses

Rich

I feel we are discussing a true crisis here that needs to be addressed before this breed is lost to ALL in the USA.

We all need HELP with this!! I for one am loosing my trail riders to this DSLD frenzy and cannibalism of this breed.

Everyone is turning on each other, including my riders. I hear this is going on all over the states and if we don't do something, then we won't have any good or bad horses or good or bad breeders, period! It is so bad up here in Oregon that the Paso Fino and Tennessee Walkers folks are talking everyone out of Peruvians.

I just had a new possible member come on a ride with us and the next thing I knew, a Paso Fino gal sold a Paso Fino to the new gal, saying that she thought the new gal's Peruvian has DSLD, that Peruvians are well known for it.

When the judge heard that my 2 year old filly was going to the all gaited show this last May, he asked, does it have DSLD? He said They are well known to have it. He had never seen her. Then she took all those little blue ribbons. After that, he told my trainer what great confirmation my filly had and he loved her gait.

I even had one Peruvian gal tell everyone that another gal's stallion had DSLD. Was the owner of that Stallion mad and shocked! Especially since the other gal had been breeding her mares to the others' stallion. Needless to say that stallion did not have DSLD. When I set up my Peruvian Booths, we hear the same thing!! Oh! I will never buy a Peruvian they have DSLD

Now, I could go on and on, but the that won't help except to let you know that I will be having to close down my website and disappear into the woods with my fabulous horses, if something isn't done to promote, so please stop talking and do something and FAST!!

Thank you for listening!

Doris Loeffler  
PeruvianPasoFun

**<http://www.PeruvianPasoFun.com>**