

Tacoma Equine Hospital

3112 – 156th Street E. Tacoma, WA 98446 ♦ 253.535.6999

LAMINITIS & FOUNDER

Of all the diseases in the horse, laminitis is one of the most devastating. Not only does it cause extreme and unrelenting pain, it can end your horse's performance career or even it's life. This is an emergency situation and a veterinarian must be called immediately. In general, laminitis is an inflammatory disease of the front feet. Its causes are many and the processes are poorly understood.

CAUSES

Grazing lush spring grass, over-eating grain, severe infections, metabolic disease (i.e. Cushing's disease), endotoxemia, excessive concussive trauma to the foot, and "support laminitis" (when one leg bears excessive weight for an extended period of time).

CLINICAL SIGNS/SYMPTOMS

Clinical signs of laminitis include, but are not limited to, shifting weight from one foot to the other, strong pulses and warmth to the feet, reluctance to walk, lying down and refusing to rise, "sawhorse" stance (the horse will rock back onto the heels of the front feet and take more weight in the hindquarters by shifting the hind feet forward and under the body).



ANATOMY

The foot of the horse is a complicated and amazing structure. The coffin bone (also known as P3) is encased and suspended inside the hoof wall. This hoof wall is similar to our fingernail in that it grows out from the coronary band (our cuticle) at a regular rate and requires periodic trimming. The coffin bone and hoof wall are held together by the thinnest of interdigitating membranes called the sensitive laminae. It is located along the level of the white line. This small membrane has the daunting task of not only suspending the weight of the horse off the ground, but also withstanding the pull of the deep digital flexor tendon that attaches to the tip of the coffin bone. The coronary band and sensitive laminae are entirely dependent upon a healthy blood supply to the foot. Laminitis starts when blood supply to the foot is cut off.

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For reasons that are poorly understood, the foot's response to a laminitis stimulus (see 'Causes') is constriction of blood vessels to the sensitive laminae, which causes inflammation and possible death of the laminae cells. Because of the anatomy of the blood supply to the foot, most of the damage is done at the front of the foot as opposed to the heel area. When the cells of the sensitive laminae begin to die, they can't hold together and the coffin bone detaches and moves away from the hoof wall. A "sinker" is a horse in which P3 drops straight down closer to the ground. A horse that "rotates" has the tip of P3 pointing towards the ground because the deep digital flexor tendon has pulled it downward.

CATEGORIES

Acute laminitis is when the horse first shows severe pain and either sinks or rotates the coffin bone. This can happen within hours and is why laminitis is a medical emergency.

Subacute laminitis is a milder version of the disease that usually does not involve movement of the coffin bone. These horses have warmth to their feet, shift their weight a lot, and walk stiffly.

Refractory laminitis occurs when the acute, severe disease does not respond to therapy in 7-10 days, or worse yet, progresses despite therapy. These horses are in danger of having the coffin bone rotate so far that it comes out through the bottom of the foot. These horses usually can't stand, develop an infected coffin bone and are in such severe pain that they are humanely euthanized.

Chronic laminitis is manageable. These horses have the appearance of having foundered, but are relatively sound and only occasionally in pain. They can be managed with therapeutic shoeing and occasional doses of anti-inflammatories. Their feet grow with divergent rings on the surface of the hoof wall (wider at the heel than the toe). This is because the heel with its normal blood supply grows faster than the toe with its damaged blood supply. The sole will appear flattened or convex. Due to the damaged laminae at the white line and the impaired blood supply, the horse with chronic laminitis may develop frequent foot abscesses.

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TREATMENTS

Treatment of laminitis needs to be very aggressive to prevent potentially devastating long-term damage. The treatments are centered around three main goals:

Relieving pain is essential and Phenylbutazone ('Bute') seems to be the most effective analgesic and anti-inflammatory in laminitis cases. Soaking the feet in ice water baths for 20 minutes, 3-4 times daily also helps relieve pain and inflammation.

Increasing the blood flow, which has been reduced to the foot, is accomplished in three ways. Acepromazine tranquilizers are vessel dilators and are moderately effective when administered twice daily in the muscle. Aspirin pills can be given orally to reduce clots in vessels. The newest drug used to increase blood flow to the foot is nitroglycerine, which comes as a patch or a gel. The drug is applied to the skin in the pastern area to increase blood flow within the underlying vessels that go to the foot.

Supporting the coffin bone to prevent sinking or rotation is accomplished in many ways. When the horse is acutely sore it can be bedded in sand, which packs into the sole and supports the foot. The newest support pads are a specialty Styrofoam that is taped to the bottom of the foot and molds into the sole surface for support. It can be changed easily every day. In chronic laminitis, support to the foot involves fiberglass casts and specialty shoes, like the Equine Digital Support (EDS) system.

In severe cases, various types of **surgery** are performed in an attempt to save the horse's life, including deep digital flexor tenotomies and dorsal hoof wall resections.