

Laminitis

Laminitis is damage and inflammation of the tissue between the hoof and the underlying coffin bone (distal phalanx, P3). This tissue, the laminae (also called lamellae), is actually folded layers of tissue, contacting the surface of the bone on one side and the inside of the hoof wall on the other, connecting the two.

Depending on how severely these attachments are weakened, the outcome can range from mild foot soreness to separation of the coffin bone and hoof (founder). The front hooves, which bear the majority of the horse's weight, are most commonly affected, but it can also occur in the hind hooves.

Laminitis can be the outcome of excessive grain intake, access to pasture high in sugars, compensatory weight bearing due to injury of the opposite limb (supporting-limb laminitis, or contralateral limb laminitis), ingestion of toxic plants (such as black walnut shavings), and excessive work on hard surfaces (road founder). Laminitis often occurs due to diseases such as [equine metabolic syndrome \(EMS\)](#) or [pituitary pars intermedia dysfunction \(PPID, aka Cushing's Disease\)](#) (endocrinopathic laminitis), sepsis or systemic inflammatory response syndrome (SIRS) (sepsis-related laminitis).

Ponies and older horses make up more laminitis cases than younger horses and those from other breeds.

The clinical signs of laminitis

The clinical signs of laminitis vary depending on the amount of damage to the laminae. Lameness with variable severity in one or more hooves is common. Affected horses may be reluctant to move or unwilling to rise (recumbent). When standing, they may shift their weight from one hoof to another, or stand with their front feet camped out in front of them and hind feet under their bodies ("sawhorse stance"). They may exhibit increased respiratory and heart rates and may have systemic diseases such as [EMS](#) or [PPID](#).

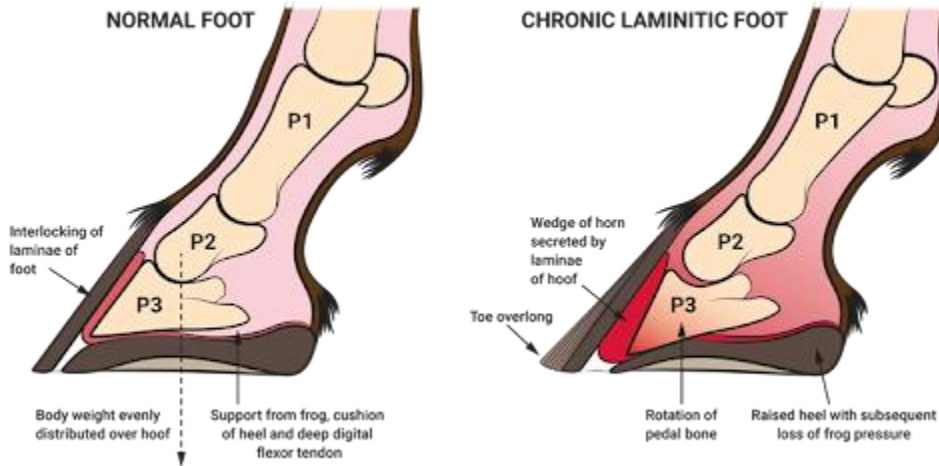
Diagnosed the laminitis

Laminitis is diagnosed based on clinical signs, although this can be challenging in mild cases.

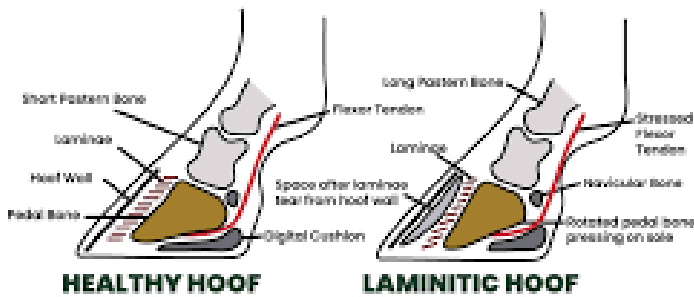
Laminitis is commonly divided into three phases: developmental, acute, and chronic.



X-ray of the hoof of a horse with laminitis showing displacement of the coffin bone.



What is Laminitis



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- *Developmental*: The developmental phase is the beginning of the injury to the laminae. Horses typically do not show clinical signs, but the primary disease and pathological processes are underway.
- *Acute*: During this phase, which can last hours to days, the first signs of lameness are observed. Rotation and displacement of the coffin bone may occur, but not all horses develop bone displacement. Horses may exhibit increased digital pulses, increased hoof temperatures, swelling in the limbs, constant weight shifting, subtle or obvious lameness, a stance indicating discomfort, unwillingness to move, and reluctance to rise.
- *Chronic*: Clinical signs that last more than a week are diagnosed with chronic laminitis. During this phase, pain and lameness are caused by displacement of the coffin bone, the extent of which may be observed on radiographs. Affected horses exhibit increased digital pulses, varying degrees of lameness, and weight loss. Hooves may have a cleft at the coronary band and a characteristic “dished” appearance. Growth rings on the hooves may be noticeable in longstanding cases. Some horses develop white line separation, seedy toe and abscesses. In severe cases, the coffin bone can penetrate through the sole of the hoof.

Treatment

Laminitis is irreversible and once clinical signs are observed, the damage is already underway. At this point, it is important to minimize further progression. Treatment largely involves pain management and supportive care. Successful management is dependent upon good relationships between owners, veterinarians, and farriers.

Horses may be placed on stall rest with deep bedding, and sling support in severe cases. Non-steroidal anti-inflammatory drugs (NSAIDs) are often used for pain relief and to control inflammation, and opiates may be administered in more serious cases. Cold therapy in the form of ice baths or boots may also be utilized to minimize inflammation.

Regular farrier care is required to provide mechanical support and encourage normal hoof growth. Radiographs may be used to guide trimming and shoeing to redistribute weight from the hoof wall to other structures and minimize tension on the deep flexor tendon.

Dietary management is required for horses concurrently diagnosed with [EMS](#) or [PPID](#). This includes hay with low non-structural carbohydrate (NSC) content and a low calorie ration balancer, along with treatment for the primary condition (i.e. pergolide for PPID).

Prognosis for laminitis

The prognosis for horses with laminitis can vary widely from horse to horse. Horses with a mild episode of laminitis may recover, especially if the coffin bone is not displaced. Once founder occurs, recovery is lengthy and the outcome is uncertain. Some cases are euthanized due to pain that cannot be adequately managed. Early identification is ideal for recovery. Call your veterinarian immediately if you suspect that your horse is developing laminitis.

How can laminitis be prevented?

The following may aid in the prevention of laminitis:

- Limit access to lush pasture (high in sugars), especially for high-risk horses (those with [EMS](#) and/or [PPID](#)).
- Minimize sugars and carbohydrates in the diet of horses that have had episodes of laminitis, are insulin resistant, or otherwise high-risk.
- Schedule regular farrier care to ensure hooves are properly balanced.
- Keep horses at a healthy weight (overweight horses are more likely to develop laminitis). Weight tapes and [body condition scoring \(BCS\)](#) can be used to track weight over time.
- Provide support for a limb opposite one that is injured to avoid supporting limb laminitis.