

# Grass Founder

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Spring might be the best time of the year, but if we have horses that are prone to developing grass founder, this season may be the beginning of serious problems for some of our horses. Horses that are over the age of 10, easy keepers, and/or suffering from insulin resistance are especially vulnerable to grass founder and should be the focus of founder prevention. Laminitis or founder, as it is commonly called, results in the destruction of the sensitive, blood-rich laminae that connect the horse's hoof to the soft tissue of the foot. The sensitive laminae interlock with insensitive laminae lining the hoof, much like interlocking fingers to keep the coffin bone in place within the hoof.

Laminitis can be triggered by repeated concussion on hard ground (road founder), grain overload, a retained placenta, hormonal imbalance (Cushing's syndrome), certain drugs (corticosteroids), obesity, and lush grass.

Most horses suffering from grass founder are predisposed to the condition because they suffer from Equine Metabolic Disease and insulin resistance. Insulin moves sugar into the horse's tissues where it is needed for proper function. In the case of insulin resistance, there is a failure of the horse's tissues to respond appropriately to insulin. The result is the destruction of the blood vessels to the horse's foot, which in turn decreases the blood flow to the laminae, which results in laminae destruction and hoof wall separation, rotation of the coffin bone and extreme pain. In severe cases, the coffin bone may rotate through the sole of the horse's hoof where it becomes infected and can ultimately

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In the case of grass founder, which usually occurs in the Spring, pastures are lush, grass is growing rapidly, and producing large amounts of carbohydrates in the form of fructans. The sustained carbohydrate absorption from high carbohydrate levels in the grass and the prolonged insulin response cause insulin dysregulation in otherwise healthy, normal horses. The result is the cascade of events discussed earlier that result in the horse foundering.

Veterinarians and nutritionists have known for some time that plants store energy in their seeds in the form of starch that can cause laminitis if the horse is introduced to grain too quickly or eats too much grain. Only recently have researchers discovered that grasses not only store energy in their seed heads, they also store energy in their roots, leaves, and stems as fructan. If during the warm spring daylight hours rapidly growing grass produces more energy than it needs, it stores the excess as fructans. The fructan is converted back to energy that is required for the grass's growth at night or on cloudy days.

In the spring when there are sunny days followed by cool nights, the grass stores large amounts of fructans in the stems and leaves, especially those near the ground. Later in the year, when the daylight and nighttime temperatures, are more consistent, most of the fructan produced by the plant during the day is used up each night. This information provides us with a number of strategies to reduce the intake of fructans by grazing horses and the incidence of grass founder.

**To avoid grass founder:**

Keep your horse's weight down through routine exercise and diet management.

Keep 'easy keepers' and ponies off lush, fast-growing pastures until the grass has slowed in growth.

Graze your horses on pastures containing a high percentage of legumes, such as alfalfa or clover as they do not contain fructan.

Avoid grazing horses on pastures that have been grazed very short during the winter as there will be a high concentration of carbohydrates in new, rapidly growing grass.

Keep cresty-necked, overweight horses in the stall or paddock until the pasture's rate of growth has slowed, then introduce them to the pasture slowly.

Allow the horse to fill up on hay before turning out on grass for a few hours.

Place a grazing muzzle on horses predisposed to foundering to limit their forage intake. Grazing muzzles limit grass intake but allow the horse to exercise throughout the day.

As in all health-related issues, your local veterinarian is your best source of information on grass founder.

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