

9592 W. Moose Lake Rd
Hayward, WI 54843
715-462-4662

Dr. Ed Metcalf, DVM
Dr. Abigail Beaver, DVM

LEADING EDGE



VETERINARY SERVICES

Fall 2015

Equine Metabolic Syndrome & Laminitis

Equine Metabolic Syndrome (EMS)

Metabolic syndrome is a condition characterized by obesity or regional adiposity (deposits of fat) with subclinical (not noticeable) or clinical laminitis leading to lameness. The cause of laminitis in equine metabolic syndrome is not completely



Chronic laminitis

understood. One theory revolves around the fact that adipose tissue (fat) is associated with up-regulation of systemic inflammation which

manifests as laminitis (inflammation in the hooves). Horses that gain and maintain weight easily are more susceptible to this syndrome, such as: Morgans, Quarter Horses, Arabians, ponies and Saddlebreds. Not all horses that are overweight have metabolic syndrome and not all metabolic syndrome horses are overweight and there are many other causes of laminitis. For those reasons, it's important to consult with a veterinarian on this issue.

Laminitis

The word laminitis means inflammation of the laminae. Laminae are the soft tissue structures that exist between the hoof wall and the coffin bone. Think of the laminae and lamellar structures like velcro, attaching and suspending the coffin bone within the hoof capsule. Consider the hoof wall to be like a finger or toenail, the laminae to be the nail bed (the soft and very sensitive tissue



under the nail) and the coffin bone to be the very small bone at the tip of a finger or toe. Inflammation of the laminae is

extremely painful and can lead to permanent separation of the coffin bone from the hoof capsule.

Signs of Laminitis:

- Lameness, especially when a horse is turning in circles; shifting lameness when standing
- Increased digital pulse in the feet/ Heat in the feet
- Reluctant or hesitant gait, as if "walking on eggshells"
- A "sawhorse stance," with the front feet stretched out in front to alleviate pressure on the toes and the hind feet "camped out" or positioned farther back than normal to bear more weight.

Equine Metabolic Syndrome

Treatment:

There is no cure for Equine Metabolic Syndrome; however, it can be managed. Horses with laminitis secondary to EMS should have the laminitis addressed first. Laminitis is typically treated with anti-inflammatory drugs, rest and corrective shoeing. However, obesity and excessive fat on the horse must be corrected in order to be successful. Diet and exercise are key components to managing this syndrome.

Diet:

Non-structural carbohydrates (NSC), such as sugars and starches, are the key dietary components that trigger EMS and the laminitis associated with it. NSC are found in high amounts in pasture grass, sweet feeds, apples, carrots, candy, grains. Carbohydrates in the form of fiber are safe for horses with EMS. When feeding horses with EMS the goal is to have their diet restricted to less than 10% non-structural carbohydrates (sugars and starches).

Hay:

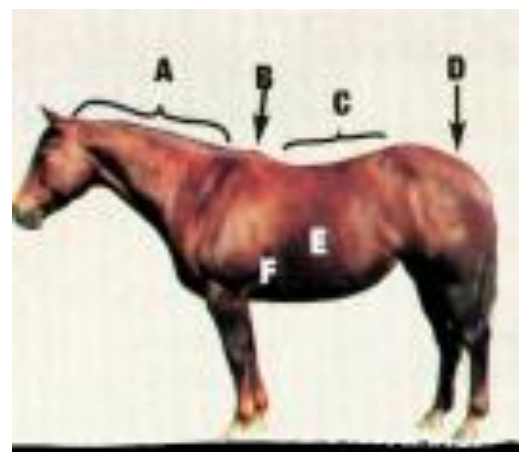
Horses with EMS should not be allowed to graze on pastures; the fresh, lush grasses are extremely high in non-structural carbohydrates. If your horse cannot be kept off pasture a grazing muzzle may be an appropriate management option. The hay your horse consumes should be roughly 1.5% of appropriate body weight. So, if your horse is overweight, the number used to calculate hay weight should be the ideal body weight, not the current overweight status. For horses weighing 1,000pounds, this works out to be roughly 15pounds of hay per day. To slow down hay intake, various feeders and hay nets can be used to increase eating time and decrease boredom. The hay source should be as low in non-structural carbohydrates as possible. For many, this meant old, dried out grass hay. Research has proven this is not the case. Alfalfa hay and high quality grass hay is much lower in non-structural carbohydrates than poor quality grass hay. In order to fully assess the carbohydrate sources in your hay, a hay analysis is required. Horses with EMS and a history of laminitis can founder even on

plain grass hay if the NSC concentration of the hay is high.

No matter the starting concentration; soaking hay for 1 hour decreases the amount of nonstructural carbohydrates to less than 10%.

Insulin Resistance:

Insulin resistance (IR) and obesity secondary to Equine metabolic syndrome go hand in hand. The exact relationship between the two is unclear but not all horses that are obese have IR and not all IR horses are obese. Thus, it's important to discuss concerns with your veterinarian and perform diagnostic tests to rule in/out this disease. Insulin resistance occurs when the tissues are less responsive to insulin. The tissues can act normally, but the action is delayed. Insulin is necessary for the uptake of glucose (energy) into the body, so when the body is less responsive it compensates by secreting more insulin or more glucose. Typically, horses secrete more insulin and have no abnormalities with their blood glucose. Less commonly, hyperglycemia (too much glucose in the blood) results and can lead to clinical signs such as: increased drinking, urinating and lethargy. The treatment for insulin resistance is the same for EMS. Medications exist that can aid in weight loss or regulation of blood glucose if necessary and are determined on a case-by-case basis.



Areas of fat deposits