



RW EQUINE VET LTD

EMS (Equine Metabolic Syndrome)

What is EMS?

Equine Metabolic Syndrome or EMS is a condition associated with the excess production of insulin, which can result in a horse or pony being predisposed to Laminitis.

Individuals with EMS are prone to releasing far more insulin than normal when they consume sugar, which can cause damage to the sensitive structures in the foot, known as laminae. This damage can then lead to weakening of the laminae, resulting in pain and potential laminitis.



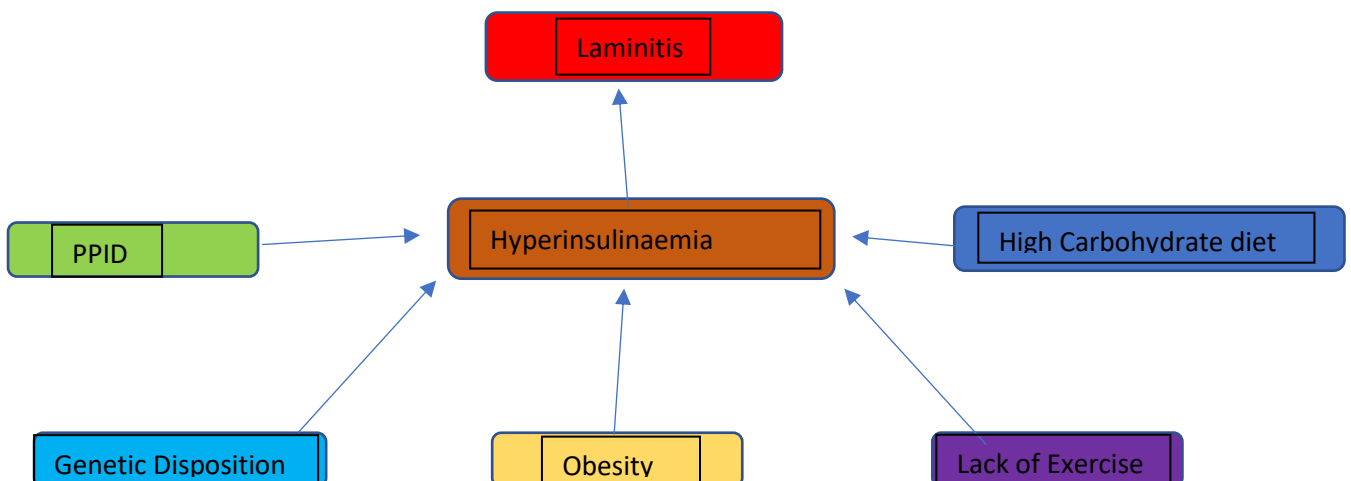
Symptoms of EMS

Horses and ponies suffering from EMS may display one or more of the following symptoms:

- A predisposition to laminitis
- Obesity whether this is in the form of being generally overweight or uneven distribution of fat, e.g. fat deposits on the crest of the neck, above the eye, behind the shoulders or at the tail head.
- A history of easy weight gain with a good appetite and/or poor exercise tolerance
- Lethargy/lack of energy

Insulin Resistance

When glucose levels increase in the blood after eating, in a normal response, insulin moves glucose out of the blood and into muscle, fat and liver tissues. In cases of insulin resistance, a normal amount of insulin doesn't remove glucose out of the blood, so the pancreas sends out more insulin, further increasing the resting insulin levels. This is known as hyperinsulinaemia.



How is EMS diagnosed?

- *Clinical signs* – if the horse has a history of laminitis or a higher body condition score with regional fat deposits
- *Blood tests* – if EMS is suspected then certain levels can be measured in the blood, such as resting/fasting glucose and insulin. Adiponectin, a hormone made by fat that is often lower than normal in EMS cases, can also be measured in a blood sample.
- *Oral Sugar Test* – EMS cases frequently demonstrate elevated insulin levels after being given a sugar syrup. Blood samples are taken before and after taking the syrup to compare the insulin response.

Medication

There are now a number of medication options for the short term management of EMS:

- *Metformin powder* – reduces blood sugar levels and the insulin response.
- *Levothyroxine paste* – increases the metabolic rate although can increase appetite so care must be taken with diet restrictions.
- *Ertugliflozin paste* – decreases insulin levels and recent studies have shown it may hasten recovery from laminitis as well.

EMS Management

Diet

As sugar and starch in the diet can cause insulin release, dietary management to keep carbohydrates below 10% is important. A sudden severe calorie restriction or deficit can cause more harm than good and any changes should be done gradually, whilst ensuring the ration provides adequate protein, mineral and vitamin levels. Many concentrate mixes or cubes have high levels of sugar and starch so it's important to check these levels plus feeding treats can also cause an unintentional increase in sugar consumption.

Soaking hay can reduce the sugar content and should be weighed prior to soaking. Horses should receive around 1.2-1.5% of their bodyweight in total feed each day in order to achieve weight loss. Using a weight tape or having access to a weighbridge can be useful to get a more accurate starting weight to adjust weight-loss feeding regimes. The use of grazing muzzles and restricted grazing is important in ongoing EMS management. Whilst treating EMS, access to grass should be restricted and closely monitored. There is also now a laminitis phone app, which can predict the grass sugar levels locally to help guide turnout times during low grass sugar periods. Different paddock options also include track systems, strip grazing.

Exercise

Providing there isn't a recent flare-up of laminitis, exercise can aid with a weight loss programme, as well as reduce insulin levels. Exercise should be adjusted to the individual horse, depending on their fitness levels, age and condition. Turning horses out with a suitable companion who will encourage them to safely move around the field may also help increase field exercise levels.

Overall the best prevention for EMS is maintaining a low sugar diet, good fitness levels and a healthy weight.

