



Equine Metabolic Syndrome (EMS)

What is EMS?

Equine Metabolic Syndrome (EMS) is associated with excess secretion of insulin and predisposes to laminitis. Horses or ponies with EMS release far more insulin than normal horses when sugar is eaten. High levels of insulin cause damage to the laminae which may lead to weakening of the laminae which can lead to pain and laminitis. Certain breeds are at greater risk, including Welsh, Dartmoors, Arabians, Shetlands and Warmbloods, although any breed can be affected if management, particularly diet, is inappropriate.



How is EMS recognised?

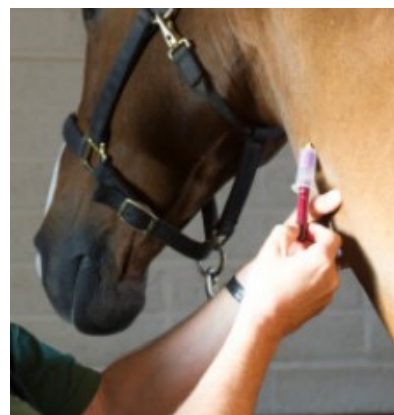
- A predisposition to laminitis is the commonest reason to suspect EMS
- Lameness is not always obvious and hoof damage often occurs gradually and apparently painlessly
- Obesity may be seen as being generally overweight, or as localised uneven distribution of fat (e.g. crest of the neck, above the eye, behind the shoulders or at the tail head) also known as regional adiposity

How is EMS diagnosed?

Your vet may be suspicious of EMS based on the body condition of the horse and a history of laminitis, but a definitive diagnosis requires demonstration of abnormal regulation of insulin.

Common testing methods include:

- **Karo Light Syrup Test (Oral Sugar Test):** The vast majority of EMS cases show abnormally high insulin values following this test, although a few other conditions can produce similar responses such as equine Cushing's disease (PPID), pregnancy, stress, anxiety and other generalised illnesses
- **Resting or fasting glucose and insulin blood test:** Normal results in these tests do not rule out EMS, but they do offer useful information regarding the suitability of the current diet
- **Adiponectin:** a hormone made by fat tissue that affects insulin actions. It is found to be abnormally low in most EMS cases





Kings Bounty Equine Practice Client Fact Sheet

How can I manage EMS?

Diet

The most crucial element of treating EMS cases is to ensure an appropriate diet; both with respect to what is fed as well as how much. It is important to realise that high insulin levels are the cause of damage to the laminae, so a diet must be given that does not stimulate excessive insulin levels. As sugars and starches are the major cause of insulin release, this must be restricted to no more than 10% of the diet. Most mixes and cubes will have much more starch and sugar than this, and it is not unusual for many hays to have higher values also. Any dietary changes should be made gradually (over at least 2 weeks). A sudden severe calorie restriction is potentially harmful.

Forage

Hay is generally preferred as some evidence suggests greater insulin release after eating haylage. Soaking for 1 to 12 hours (depending on ambient temperature) will reduce its sugar content although the magnitude of the effect is variable between hay batches. Weigh your hay before soaking! In order to achieve weight loss, most horses should receive 1.2-1.5% of their body weight in total food every day, comprising hay and also everything else that is fed.

Grazing

Access to pasture should be restricted or eliminated while EMS is being treated and rich grass definitely avoided, especially in the spring and summer. Turning your horse/pony out with a grazing muzzle and restricting grazing to a small area of the field, can be helpful in maintaining a healthy weight following on from a weight-loss program. Turning out in a sand or woodchip pen or paddock with hay is better still. Turnout at night might reduce high sugar intake as the sugars within the grass are often lower during this time, although this effect can be variable.

Anything else?

Any additional feeds that are offered (e.g. to carry medicine or supplements) must be low in calories, sugars and starches. Usually various non-molassed chaff-based products are good in this respect. A "feed balancer" is important to include in the ration to ensure adequate protein, mineral and vitamin intake, especially if the hay is being soaked and there is limited access to grass. Do not feed treats, apples or carrots as these are often high in sugar.

Exercise

As long as laminitis is not currently present, daily exercise helps weight loss and decreases insulin levels. At least 30 minutes of exercise that makes your horse work (i.e. sweat!) several times a week is required to make a difference.

Medications

Diet and exercise are the best way to manage EMS, but sometimes help is needed from short term medication. Metformin decreases glucose uptake by the intestine, and reducing blood sugar levels and the insulin response. Levothyroxine might aid in weight loss by increasing the basal metabolic rate but will also increase appetite so it is important that diet is restricted. Ertugliflozin has recently been found to lower insulin levels in horses and be useful in some cases.

Maintaining a fit horse, with a low sugar diet and a healthy weight is the best way to prevent EMS!