

EQUINE METABOLIC SYNDROME



Equine Metabolic Syndrome (EMS) is a hormonal condition mostly associated with insulin resistance. EMS usually develops in equines between five and 16 years old and affects ponies more than any other types. EMS can be a problem because it usually triggers laminitis, an inflammation of the laminae inside the foot. Laminitis can be extremely painful and have lasting repercussions for the equine.

Causes of Equine Metabolic Syndrome

Insulin is a hormone produced by the pancreas which regulates glucose (simple sugar) in the blood. When it's released, insulin attaches to the glucose so it can be absorbed into the muscle and liver cells.

Resistance means the cells in the muscles and liver don't respond well to insulin. Therefore, the cells can't use the glucose in the blood for energy.

This makes the pancreas create more insulin and over time the blood sugar levels go up. As the glucose isn't being used, the molecules bind together to make triglycerides and are stored as fat around the body. These fat pads are usually found along the neck, withers, loins, tailhead, ribs and behind the shoulders.



Overweight equines are more at risk of developing EMS

Signs

- Sudden bouts of laminitis
- Obesity, a body condition score above 4
- Abnormal fat pads around the body (excess adipose tissue)
- Thick, hard crest along the top of the neck
- Difficulty losing weight
- Dull demeanor
- Increased drinking
- Increased urination

Hyperinsulinemia, elevated levels of insulin in blood, creates a vicious cycle where the body releases more and more insulin. This action inhibits lipolysis which is the process of breaking down fat stores from the body for energy.

Other factors which influence insulin are thyroxine and adiponectin. Thyroxine is a thyroid hormone which affects metabolism. Adiponectin is a protein hormone which increases insulin sensitivity and regulates glucose levels. Obesity suppresses its secretion.

In some cases, the equine can still be thin but they will have a high amount of internal fat around the organs.

Testing

Testing is necessary to find out if your equine has EMS. Early treatment can prevent the negative consequences of EMS. If you notice any signs, contact your vet and a karo test will be administered.

The test will measure the equine's insulin response after eating karo light corn syrup (a sugar syrup).



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The test goes as follows:

- A blood sample will be taken after a minimal period of four hours of fasting. The equine can still eat hay but hard feed should not be given.
- An amount of karo syrup (according to weight) will be given to the equine by mouth using a syringe.
- After 70 minutes and 90 minutes (70 and 85 minutes for small ponies), a second and third blood sample will be taken.
- The blood samples will be compared to check the levels. If the results come back high, it means the equine has insulin resistance.

An equine that is diagnosed with EMS will be monitored closely and may be retested after four to six months. EMS can be controlled by diet and exercise alone, but if the risk of laminitis is very high then medication can also be used.

Try the following:

- Give hay that has been soaked in water for a minimum of six to eight hours. This process will allow the sugars to be extracted from the hay. **Dispose of the water and do not give it to your horse as it is very high in sugar content.**
- Give a fibre diet, no cereal.
- Treats should be reduced and kept to fibre or vegetables low in sugars such as carrots.
- Field turnout should be reduced to avoid the sugars from the grass but continue turnout in a school or a grass-free area.
- Increase daily exercise - it increases insulin sensitivity immediately and the effects can last two to 48 hours.
- If the equine was diagnosed due to a bout of laminitis, exercise will not be possible until the feet are under control. Medication can be given to help increase the insulin sensitivity

but this will only be a short-term aid.

Management is key

An equine diagnosed with the disorder will not have it forever if managed properly. It is also important to note that EMS can occur in conjunction with pituitary pars intermedia dysfunction (PPID - also known as Cushing's disease).

Prevention

- Focus on maintaining a normal weight.
- Increase exercise when equines are turned out on grass in spring or autumn.



Exercise is a key way to prevent EMS.



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