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MANAGING EQUINE METABOLIC SYNDROME

What is Equine Metabolic Syndrome?

Equine metabolic syndrome (EMS) is a disease similar to type II diabetes in people, where the body becomes resistant to insulin. There are two common symptoms of this disease.

1. Abnormal fat deposits in areas such as the crest of the neck, around the tail head, back, prepuce, or mammary gland region
2. Predisposition to laminitis (founder)

What is the difference between Equine Metabolic Syndrome and Equine Cushing's Disease?

In EMS, horses of all ages (ages 8-18 are most prone) do not respond normally to insulin. Cushing's syndrome is usually a disease of older horses in which part of their brain, the pituitary gland, over produces glucocorticoids (steroid hormones involved in metabolism and also cause immunosuppression). Signs of Cushing's disease include long hair coat, laminitis, pot bellied appearance, excessive water consumption and urination, and predisposition to infections, such as sinus and respiratory. Many horses with Cushing's disease also develop insulin resistance; part of their management involves diet changes similar to horses with EMS.

How is Equine Metabolic Syndrome diagnosed?

EMS is diagnosed by testing a blood sample for elevated insulin and glucose levels. It is sometimes diagnosed based on the symptoms discussed above. Repeat blood samples may be used to monitor the patient's response to treatment.

How is Equine Metabolic Syndrome managed?

The most important treatment for EMS is weight loss and diet management. Other treatments that may help your horse include thyroid and other supplementation discussed below. A weight tape can be used to objectively monitor your horse's weight. Please contact Colts Head Veterinary Services or your feed provider to obtain a weight tape.

1. **Diet is the most important aspect of managing EMS**
 - a. Hay should be fed in an amount equivalent to 1.5% of current body weight or, if horse needs to lose weight, 1.5% of target body weight
 - i. The average 1,000 lb horse should be fed 15 lb of hay a day
 - ii. Weighing your horse's ration is an extremely important part of managing this disease. Flakes and scoops can vary widely
 - iii. Diet changes should be made every 2 to 4 weeks
 - b. Hay fed to overweight horses or insulin resistant horses should have a lower (<10-12%) nonstructural carbohydrate (NSC) content. Timothy hay usually has the lowest NSC content in our area, followed by grass hay, and alfalfa hay having the highest.

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- i. The only way to know the nonstructural carbohydrate content is to have the hay analyzed. Dairy One, based in Ithaca, NY will analyze hay for less than \$20 plus shipping. Their website is www.dairyone.com Please contact Colts Head Vet Services or Dairy One if you have hay sampling questions.
 - c. A multivitamin and mineral supplement should be provided
 - i. Example: Purina Nature's Essentials Enrich 12
 - d. Most insulin EMS horses do not need any grain at all, but if they are getting too thin on hay alone, they can be fed a commercial pelleted feed with low nonstructural carbohydrate content.
 - i. These feeds contain beet pulp, which has a minimal effect on glycemic response
 - 1. Purina WellSolve L/S
 - 2. Triple Crown Lite
 - 3. Nutrena Safechoice
 - 4. Buckeye Safe'n Easy
 - 5. Equi-Pro Carb-Safe
 - 6. Blue Seal Carb-Guard
 - ii. Molasses free beet pulp can also be fed alone as a less expensive option (must be soaked prior to feeding)
 - iii. Rice bran or corn oil at ½ cup twice a day can be added
 - iv. Smaller, more frequent feedings decrease glycemic response
 - e. Horses with EMS are at greater risk for developing pasture associated laminitis, a life threatening disease. They must be kept off pasture when the grass is in a dynamic phase.
 - i. Dynamic phases occur when the grasses grow rapidly in the spring and early summer, after heavy rains, or when the grass stores energy in preparation for drought or winter.
 - ii. Re-introduction to pasture can be accomplished by using a grazing muzzle, restricting grazing time (<2 hrs/ day), or confining the horse to a small section of pasture.
 - iii. Many horses with EMS cannot be allowed to graze at all and must be kept on dry lots.
2. **Exercise, exercise, exercise!**
3. Medical Therapy
- a. Persistent elevated insulin levels in the face of appropriate diets changes may be treated with thyroid supplementation. Thyroid supplementation increases the metabolic rate and can help horses respond to insulin again.
 - i. Thyroid supplementation is also useful in helping obese horses lose weight who are too sore to exercise
 - b. Supplements containing magnesium and chromium have also been used, but there are no published studies on efficacy.
 - i. Example: Metaboleeze, Smartpak's SmartControl IR pellets
 - c. Antioxidants, such as vitamin E, cinnamon and omega 3 fatty acids may also be beneficial
 - i. Example: Smartpak's SmartControl IR pellets, Elevate (vitamin E)

The most important aspect of managing horses with Equine Metabolic Syndrome is diet and exercise!