



MANDARIN EQUINE VETERINARY SOLUTIONS

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Insulin Dysregulation/Equine Metabolic Syndrome

Insulin is responsible for the movement of glucose (sugar) into cells in the body so it can be stored as fat. Insulin resistance is the failure of tissues in the body to respond appropriately to insulin. The common factors that trigger this condition are:

- Grazing lush pastures, especially in the spring and fall.
- Feeding grains high in simple sugars and starches (sweet feeds, molasses).

CLINICAL SIGNS

- *Laminitis* - A common clinical sign that will often occur in the spring with rapid growth of grass.
- *Obesity/Regional Adiposity* - This most commonly presents as a cresty neck with fat deposits around the trailhead, sheath, and behind the shoulder.
- *"Easy keepers"* - Horses with IR/EMS are often referred to as "easy keepers" because they will put on weight easily, even with very little grain.

TREATMENT

MANAGING OBESITY

- Horses should be maintained on a simple diet of soaked hay and a low-calorie ration balancer.
- Hay should be soaked in cold water for 30 minutes prior to feeding to lower the sugar content. The water should be poured off before feeding the hay. As an alternative, hay can be steamed before feeding.
- If grain must be fed to maintain weight, feed a soaked molasses-free beet pulp or a low-starch and low-sugar specialty feed.

MANAGING INSULIN RESISTANCE

- Pasture access should be restricted or eliminated because of the large and variable concentration of sugar in the grass. Horses should be restricted to 1-2 hours of grazing per day. Grazing in the early morning is generally the safest as the grass is lowest in sugar during these hours.
- Grazing muzzles are a great alternative to restricting pasture access.
- Eliminate ALL treats, such as sugar cubes or cookies containing molasses.

EXERCISE

- Weight loss can be achieved by increasing exercise and controlling the diet.
- In addition to weight loss, exercise alone (even in the absence of weight loss) will improve insulin sensitivity.

MEDICATION

- *Metformin*: Metformin reduces the absorption of sugar in the intestines. It is commonly used in humans with diabetes.
- *Levothyroxine (Thyro-L)*: This is for short term use ONLY and should not be used for more than 3-6 months at a time. This should not be used as a chronic therapy for weight loss. Horses should be weaned off by lowering the dose slowly over the course of one month.
- *Chromium*: Chromium supplements have been reported to enhance insulin sensitivity in older animals. It is commonly used in humans with varying degrees of glucose intolerance.