



## **Cushing's Disease and Equine Metabolic Syndrome**

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Cushing's disease is often diagnosed after a horse owner questions the vet about why an older horse is not shedding their winter coat or has an abnormally long coat during the warmer months of the year. This long coat, frequently curly, that does not shed is called hirsutism and is often accompanied by frequent urination, increased thirst, weight loss, abnormal fat distribution (cresty neck and fat pads near tailhead) and laminitis. Some other signs that often accompany Cushing's disease and may not be recognized by the owner are; increased susceptibility to infection, delayed wound healing, infertility, sinusitis, dental abnormalities and decreased immunity to gastrointestinal parasites.

Diagnosis of Cushing's disease is achieved by examination and blood tests. The most common blood test is the Dexamethasone Suppression Test. The test requires a blood draw in the afternoon, followed administration of dexamethasone. The following morning (17-19 hours later) a second blood sample is taken. Studies have proven this test to be one of the most accurate methods of diagnosis, but it does require two farm calls which increases the cost for the owner. It is also recommended that blood work be performed on horses that are suspected to have Cushing's disease to look for underlying infections or disease processes.

Once diagnosed, treatment is managed by good husbandry and medication. Good husbandry efforts are aimed at improving the condition of affected horses. Some of the recommendations are; body clipping, regular deworming, dental exams, regular hoof care and improved nutrition. The current medication of choice is pergolide which is administered daily in an oral form.

Equine Metabolic Syndrome (EMS) is characterized by obesity, laminitis and insulin resistance. For many years horses with EMS were thought to have an early form of Cushing's disease; however, they were often younger in age, lacked the long coat and tested negative for Cushing's disease. The abnormal fat deposition and laminitis were the only common threads. Research for an answer to the mystery of obesity and laminitis turned to human medicine where a similarity to the risk for type-2 diabetes mellitus and obesity in humans was examined. Research revealed that like humans, equine obesity directly causes insulin insensitivity. This leads to a hyperglycemic state (elevated glucose in the blood stream). Although the mechanism by which insulin resistance leads to laminitis is not clear, the association is evident-obese horses are more susceptible to laminitis and obesity leads to insulin resistance.

Diagnosis of EMS includes a physical examination, history of laminitis and blood work to evaluate insulin and glucose levels. It is also recommended to test for Cushing's disease as both diseases can present as an obese horse with laminitis. Horses with Cushing's disease will respond to pergolide administration while EMS horses will not. Also, it is possible that a horse may have both Cushing's disease and EMS.

Treatment of EMS focuses on diet and exercise. Obesity must be addressed. Grass hay should be the primary component of the diet. Soluble carbohydrates such as sweet feed, carrots, apples and fresh grass should be eliminated from the diet. Once obesity is under control, dietary energy may be increased with beet pulp or rice bran. An exercise program should be initiated on an individual basis according to the degree of laminitis.

Equine Cushing's disease and Equine Metabolic Syndrome have some similarities in clinical signs, but the disease processes are quite different. While research continues to provide new information on these two diseases, we have enough information to diagnose and treat each disease. Early diagnosis and treatment improves the prognosis and can lead to a longer, healthier life for your horse.