



## **DAVIE COUNTY LARGE ANIMAL HOSPITAL**

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### **Equine Insulin Resistance**

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#### ***What is Equine Insulin Resistance?***

Horses with equine insulin resistance (IR) suffer from a reduced sensitivity or failure of cells to respond appropriately to physiologically normal insulin levels. In a non-IR horse, insulin is secreted by the pancreas in response to increases in blood glucose after eating. This stimulates tissues to uptake glucose and store it as energy in the cells. In horses suffering from IR, excess levels of insulin are secreted by the pancreas making it harder for fat, muscle and liver cells to transport glucose out of the bloodstream and store it as glycogen.

Horses with IR generally also suffer from: hyperglycemia (elevated blood glucose levels); weight loss due to muscle loss; a cresty neck; regional deposition of fat at the tailhead, behind the shoulder and over the loin; lethargy; chronic, ongoing or recurrent laminitis. If a horse has IR it also might have Pars Pituitary Intermedia Disease (PPID) or Equine Metabolic Syndrome (EMS). While there is no cure for IR, a horse can be successfully managed with diet and exercise.

#### ***What horses are at risk for Equine Insulin Resistance?***

All horses are at risk for IR, but there are certain factors that predispose a horse to developing IR. The first consideration is diet. Horses that are given diets high in sugar and/or starch are at higher risk for IR especially when in conjunction with other risk factors such as obesity and age. Older horses are generally more susceptible to IR, but the disease has also been seen in horses as young as 5 years old. Body condition score (BCS) is another contributing factor that can lead to insulin resistance. If a horse is at or above a 7 out of 9 in BCS they will exhibit the regional adiposity characteristic of an IR horse. The last factor to be aware of is breed. While not all horses of these breeds develop IR, they have a genetic predisposition to obesity and includes Saddlebreds, Morgans, Tennessee Walking Horses, Paso Finos, Quarter Horses, and most pony breeds.

#### ***What tests do I need to run to find out if my horse is suffering from Equine Insulin Resistance?***

There are a couple of options to test your horse for IR:

1. Blood test to measure blood glucose and blood insulin levels. While this test is an option, there are a lot of variables including diet, feeding, fasting, stress, season, time of day, sample handling, and technique that can skew the results.
2. Combined Glucose-Insulin Tolerance Test (CGIT) is a more involved process, but yields more accurate results. In this test, a veterinarian gives an intravascular injection of glucose and insulin to the horse in question. They then take blood samples over several hours to determine how the horse is able to process the hormones.

### ***What treatments are available to treat Equine Insulin Resistance?***

Equine IR is an incurable condition that can only be managed through diet and exercise. They must be kept off lush pasture and only be fed low-sugar, low-starch grass hay and no grain. If they are on pasture, a grazing muzzle must be kept on at all times. They will require regular exercise to lose weight and close monitoring for laminitic episodes. If they have already suffered from laminitis, they will also need corrective shoeing and trimming due to rotation of the coffin bone. Treating equine IR is a slow process but can be successfully done with the help of your local veterinarian.

### ***How can I prevent Equine Insulin Resistance?***

If you own a horse at high risk for equine IR, you can institute the dietary and exercise recommendations listed above to help avoid the development of IR in your horse.

### ***What is the prognosis for a horse with Equine Insulin Resistance?***

While there is no cure for IR, a horse can be successfully managed through diet and exercise. The main challenge for a horse with IR is to manage and prevent recurrent bouts of laminitis, which will require more aggressive management.

***If you are concerned your horse might be suffering from Equine Insulin Resistance, please contact Davie County Large Animal Hospital to set up an appointment or talk to one of our veterinarians. In addition to testing and management, we provide a hay analysis and nutritional consultation that can help you give your horse the best care possible when dealing with this disease.***

If you wish to know more about Equine Insulin Resistance, please read the following article from our partners at Cargill: <https://www.vetnutritioninfo.com/page/equine-insulin-resistance>