

Feeding and Management of the Insulin Resistant Equine

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There is an epidemic rising within our equine population that is similar to what is happening with our human populace – obesity. Better quality nutritional products and pasture management over the years has made it easier for horses to get fat and stay that way. Also, many horses get little to no exercise on a daily basis. Overweight horses are prone to many disorders including organ failure, intolerance to exercise, higher oxygen requirements, problem pregnancies, developmental orthopedic disease and laminitis. It is also speculated that a horse or pony that has been hefty for most of its life will be predisposed to developing Cushing's Disease as a geriatric, where a tumor or enlargement on the pituitary gland causes a dysfunctional metabolism.

Horses of all ages that are fat can become insulin resistant, meaning when any amount of starch or sugar (soluble carbohydrates) is consumed, the horse will not be responsive to the effects of insulin, the hormone responsible for storing the starch and sugar in the cells. As the body's cells become less and less sensitive to insulin, the body responds simply by producing more and more insulin. These higher levels serve to regulate blood glucose for a while, but eventually the body's cells fail to respond even to these increasing levels of insulin, and eventually lead to total failure of the insulin-producing cells. This condition is similar to Diabetes, one of the most common problems for humans that are chronically overweight, but for a long time it was thought that the problem did not exist in the equine world. That view point may be changing as the veterinary and research communities identify more and more horses that seem to be suffering from various stages of insulin resistance, the early stages of what will eventually lead to a condition similar to that seen in humans: Adult-Onset or Type II Diabetes.

All horses can develop insulin resistance but certain breeds are more predisposed to the condition. Cold blooded and pony breeds seem to pick up weight the easiest and therefore these breeds should be monitored and managed for proper weight from early in their life. It is easier to prevent insulin resistance than to deal with a horse that already is insulin resistant and will have to be treated as such for the remainder of its life. These horses usually have fat deposits that are a result of the body's inability to use glucose, and it is inappropriately stored as fat. It has been theorized that this fat storage ability may have helped these easy keepers to outlive their skinny herd mates. The ability to store fat while surviving on minimal amounts of feed is advantageous to a horse when there is drought or famine. Additionally, fatter horses

would have survived better and reproduced, so the genetics of these horses may have been selected for over those of other non-insulin resistant horses.

So what do we do to prevent our horses from becoming insulin resistant? More exercise is first on the list. Insulin resistance is reduced by exercise and any amount or increase will be useful. Also, start thinking of feeding the domestic horse more in terms of what a wild horse would eat; leaves, sticks, grasses, bark, dirt, and basically all low quality forages and roughages. That type of diet is fine for a wild horse that does not have to do much but roam and out sprint predators from time to time, but won't work for a high class dressage horse, reining horse or even a recreational trail riding horse that requires a much more balanced diet. But the premise does have some merit – sometimes less is more! The first place to fine tune your feeding program is by being more conscious of the forages and pastures being fed to your horses. If you have a horse you suspect is or could become insulin resistant, select forages that have been analyzed and are known to contain low levels of sugar. Look for a forage with lower calorie levels. This type of forage is actually better for the insulin resistant horse because they can eat more of it without gaining too much weight. They don't require super high quality forages. You can always add in protein vitamins and minerals with a supplement if need be. Remember – the forage is the basis of the diet.

Same for pasture – don't let the horse graze unrestricted on pasture, especially during bright sunlight when the plants are photosynthesizing. This is when the sugar content in the leaves and stems are the highest (the plant uses the sugar for energy while trying to grow). Limit grazing time to overnight or employ the use of a grazing muzzle (muzzle with a small hole through which the horse can bite off small amounts of grass) or a dry lot. This is preferable to subjecting the horse to a stall on a continuous basis.

It is imperative that the insulin resistant or prone horse be fed low sugar and starch concentrates and supplements. Many new and innovative products are now available that contain more fiber and fat as their main source of energy. However, products selected for the insulin resistant horse should contain as little fat as possible. These horses already have impaired fat metabolism due to the high levels of insulin they secrete (insulin suppresses fat metabolism and supports fat deposition). Many insulin resistant horses will begin to have heat in the hooves if they are fed rations that contain added levels of fat (signals beginning stages of laminitis), so stick to a product that supplies protein, vitamins and minerals with high levels of fiber and lower fat, such as Triple Crown Lite or 30% Supplement.

With careful management and product selection, insulin resistant horses can live long healthy lives. The key is to feed these horses less starch, sugar, calories, and fat, supplement for protein vitamins and minerals, and increase exercise.