Fat Horses and Founder:

Weight Control and Dietary Management of the Horse with Equine Metabolic Syndrome (EMS) (This is a recommended handout to horse owners).

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This is a discussion on the relationship between horses, obesity, blood insulin levels, and the diet—particularly how sugars and starches in hay or grasses can all combine in some horses to cause laminitis or "founder." The name for this condition is Equine Metabolic Syndrome (EMS) . Our horses and ponies depend on us to make healthy choices for them. If you have one of these "easy-keepers", there are certain steps you must take to reduce their risk of laminitis and help them live a healthy life.

Most cases of obesity reflect an imbalance between energy intake and expenditure—and, just like in people, "eating less" and "exercising more" are the key strategies to achieving a more ideal bodyweight and condition in horses and ponies. Here are 4 key steps to follow:

Step 1: Acceptance and acknowledgement

Recognize that the horse or pony in question is overweight or even obese. This is by far the hardest step in this process. Horses and ponies will never refuse an opportunity for a tasty meal when it is available so they have to rely on us to help them maintain an ideal body condition score (BCS) and to feed them appropriately. You are essential for the effectiveness of any weight loss program and achieving and maintaining a more ideal body weight for your horse is a long-term, probably even life-long commitment.

Don't get overwhelmed, your veterinarian can help you with the BCS grading scale and set you and your horse on the right track!

Step 2: Document and monitor weight loss

Document your horse's current body weight or BCS and girth circumference (measurement around the horse right behind the elbow) along with belly circumference (measurement around the barrel of the horse at the widest point) with a weight tape. Take these measurements monthly, and consistently in the same place, during the weight loss period and then every 2 months once desired BCS and body weight have been achieved. Appropriate levels of weight loss may not always be accompanied by a detectable change in BCS in the first few months so don't get discouraged!

Step 3: Dietary management—go buy a scale.... not for your horse, for the feed!

Horses with EMS are unique because they don't metabolize carbohydrates the same way that normal horses do so we need to restrict calories and reduce the calories that come from simple carbohydrates. So how do you do this? You must avoid feeds that cause sugar (and insulin) spikes that may make insulin resistance (like type 2 diabetes) worse. Remember, your EMS horse is like a person with type 2 diabetes so excess sugar must be avoided, and caloric intake must be restricted until ideal body weight and BCS have been achieved. In the case of obese horses at high-risk for laminitis, removal of calorically- dense feeds from the diet (this means sweet feeds, grains or any other commercial feeds/concentrates or treats you may be feeding your horse), and complete restriction from access to pasture (especially lush pasture) are critical.

So, what can I feed my horse?

Forage (more mature grass hays) should be the primary component of the diet, and should initially be provided at no more than 1 .5% of current body weight per day—just enough to meet energy needs. So, this means we have to do some simple math here to figure out how much to feed your EMS horse. If your weight tape says you have a horse that weighs ~1000 lbs and we recommend you feed it 1 .5% of its (BW) body weight in hay each day this means he or she should get 1.5% x 1000 = 15 lbs hay each day. This is where your scale comes in—you must weigh the hay as flakes vary in weight. Bear in mind, every horse is an individual and some may need less and some more in order to meet their needs . The goal is to get your horse or pony out of its obese state, but this doesn't mean they all have to become underweight!

If there has been minimal weight loss after 2 months, the feeding rate should be decreased to 1.25% BW and then to 1.0% BW. Never feed less than 1% body weight in hay as this may lead to hind gut dysfunction, gastric ulcers or wood- chewing from too little fiber in the diet. Substituting straw for up to 50% of the hay is one way to lower the energy of the diet and allow for fiber intake to keep the hind gut functioning properly. Straw that is clean and with minimal cereal head should be selected. When mature grass hays are fed, certain vitamins and minerals may not meet requirements and provision of a vitamin-mineral supplement is recommended. Many feed companies sell a low calorie 'ration balancer' feed for this purpose. In addition to vitamins and minerals, these products contain sources of high-quality protein, are low in sugars and starch, and are usually designed to be fed in small quantities—talk to your veterinarian or equine nutritionist about these products.

What about NSC (non-structural carbohydrates)?

Hay should be analyzed for sugar content by testing for non-structural carbohydrates (NSC content), which are simple sugars, starch and fructans. Ideally a horse with EMS should be fed hay with NSC content of less than 10-12%. Unfortunately, NSC content is not provided on any label or feed bag, it can only come from a feed analysis. We recommend that you use Equi-Analytical Labs in Ithaca, New York to analyze your hay. They will provide a detailed analysis of your hay samples for reasonable cost and in an easy-to-read format. If you own hay with a higher than 10-12% NSC that you need to use up, you can soak the hay in water for 30 minutes (hot water) or 60 minutes (cold water) to help remove some of the sugars but as you soak your hay and sugars are pulled out so are a lot of vitamins and minerals so this should not be a long-term management solution nor is it a reliable method as you still have no idea what the NSC content is. Bagged forages with < 10-12% NSC are available for insulin resistant horses or ponies if you can't get low NSC hay.

But, I only have pasture turn-out... what do I do?

Access to pasture must be restricted or eliminated when managing insulin resistant horses and ponies. It is tough to control sugar intake when horses are grazing on pasture . Pasture grass is one of the largest sources of sugar in the diet and the sugar content of pasture varies regionally, and depends on soil, climate, sunlight, season, time of day, and type of grass grown.