HONEYCHOP

Feeding a Horse with Equine Metabolic Syndrome

Dr Victoria South MA VetMB CertAVP(EM) DipECEIM MSc(EBHC) MRCVS

Equine Metabolic Syndrome is a condition with several risk factors that cause a horse or pony to be prone to laminitis. The problem stems from issues with the body's blood insulin concentrations that are increased above the healthy levels. High insulin levels damage the laminae in the feet, causing laminitis.

One of the key ways to prevent EMS (or control the condition once it gets started) is to make management and feeding changes to reduce the soluble sugars in the diet, and (if the animal is overweight) to reduce their obesity. But it is important that, as we start to think about changes to the diet and perhaps some degree of restriction, that we make sure our horses and ponies still have high welfare and wellbeing.

A key part of those changes is to continue to provide forages and high fibre feeds that have a very high fibre content which prolongs feeding times, but also have a low enough sugar/starch content. We know that fibre is one of the most important elements of the equine diet, and it can be tricky to find out what best suits an individual horse. Join Victoria South, an internal medicine specialist, as she investigates how best to provide horses with the fibre they need whilst also meeting diet recommendations for EMS.

Hay can be soaked to reduce the soluble sugar levels. A small-holed hay net will also slow eating time, making hay last longer.

Reducing soluble sugars - forage

Soluble sugars are the carbohydrates in feed that are water-soluble, such as starches and simple sugars; they are also called non-structural carbohydrates (NSCs). Horses and ponies eating a relatively high NSC diet are prone to EMS and high insulin levels, leading to laminitis.

It is fairly easy to spot the soluble sugar content of the feeds given to your horse- this information is usually found near the ingredients section of the feed bag or on the company's webpages. Look for NSC%, sometimes written as sugar% and starch% - the total of both should be less than 10%.

We also need to think about the soluble sugars in the hay or haylage we feed our horses. This can also be sent for analysis, where a laboratory tests and measures the concentrations of the main nutritional components in the forage. Alternatively, you could ask your supplier if they have had their forage analysed. Hay can be soaked to reduce the soluble sugar levels; it is worth talking to your vet about the best way to do this, so that the hay is still palatable, and safe to eat.

HONEYCHOP

Reducing soluble sugars - feeds

It maybe that a diet balancer, pasture and forage is all that a horse or pony with EMS needs. Sometimes, though, you may want to offer a larger feed, perhaps for medication or to provide some extra fibre. In these situations, it may be suitable for the horse to be offered short-chop fibre that is low in soluble sugars, such as chaff which could be made from high quality straw, meadow grass or alfalfa. Your vet might also recommend soaked unmolassed sugarbeet pulp.

An unmolassed chaff is typically a suitable option to feed a horse with EMS.

Sometimes, an EMS horse or pony might not be overweight, or obese, but still has problems with regulating their insulin. In this case, the calories being given must meet their energy needs, and maintain body condition. But, because of the EMS, it is still important that those feeds are low in starches and other soluble sugars. In these cases, your vet may suggest using vegetable oil, unmolassed sugar beet pulp, low sugar grass nuts or similar feeds, to maintain bodyweight whilst keeping the sugar levels down.

One last tip, make sure you check the feed analysis rather than relying on phrasing such as “safe for laminitics.” This sort of wording is vague and the feed may not actually be aligned with the EMS guidelines that advise what is best to be fed.

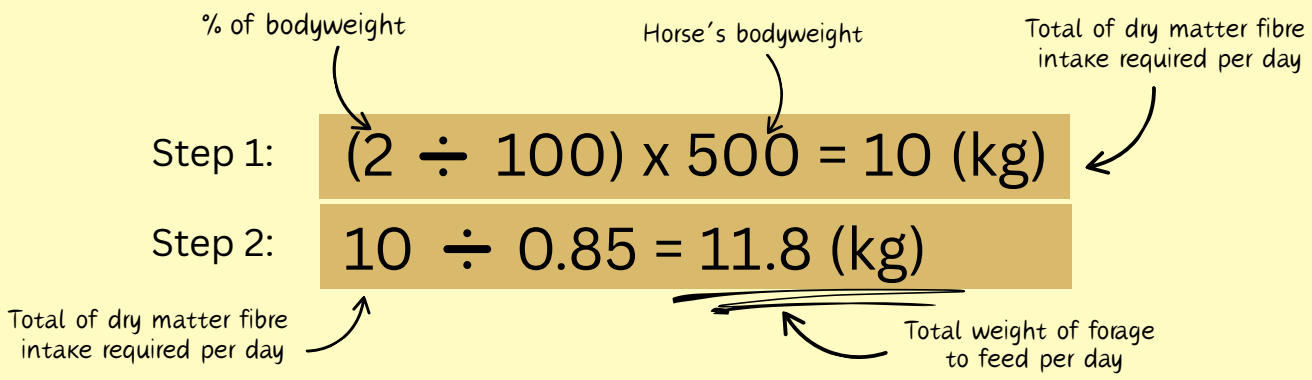
How much fibre is needed?

Horses and ponies out at grass will probably have access to as much fibre as they need from the grass they consume. However, if this is restricted such as after a laminitis episode, or when EMS has been diagnosed, we may be substituting some of our horse’s whole daily dietary requirements of fibre with something other than pasture. The minimum amount of fibre that ought to be aimed for is approximately 1.5% of their bodyweight as dry matter intake per day (Harris & Dunnett, 2018). Below this level (at 1% DM/kg bwt/day) horses have an increased risk of behavioural changes, general colic and gastric ulceration (Dugdale et al., 2010).

For a 500kg horse, this works out as roughly 10kgs of dry matter fibre intake per day, and since most forages have some water in them (around 85% DM), this works out as approximately 11.8kgs of forage as fed. So, if we need to reduce the amount of hay being fed, then we need to be careful not to be too restrictive and be sure we are meeting their minimum daily requirements. Your vet will be familiar with these sorts of calculations, and can help you adjust your horse’s or pony’s diet in a safe and sensible way.

Calculating how much forage to feed per day:

1) Find out your horse’s bodyweight, by using either a weighbridge or weigh tape.
2) Decide on the % of bodyweight in forage required per day. Eg. 2% for a horse in ideal condition, 1.5% if the horse needs to lose weight, or up to 2.5% if the horse needs to gain weight.
3) Follow the calculations below, it is important to do both to work out the total weight of forage to feed per day.



Should we be adding anything else?
It may be suitable to consider adding a supplement or diet balancer to make sure that the diet meets your horse's daily requirements of vitamins, minerals and protein.

How to slow down the speed of eating
If we have to restrict the volume of forage and feed being offered to our horses and ponies with EMS, we must pay attention to their wellbeing by making sure they have something to eat and occupy them for as much of their waking hours as possible. We can use double, small-holed haynets, so that it takes longer to pull out the forage and eat it. If horses and ponies are being fed in a dry feedlot/bare paddock, there are also field-safe, slow feeders so that the forage isn't consumed too quickly.
We can encourage EMS horses and ponies to chew more when they eat their feeds by adding in a low sugar chopped fibre feed made from straw or meadow grasses. This also helps to buffer the feed going down to the stomach as, the more chewing and mixing, the more saliva mixes with the food.

A dry lot is a grass-free turnout area, that allows the horse turnout while limiting pasture-related risks.

Don't forget to check your horse's body condition regularly
When we make any changes to horses' diets, it is a good idea to check body condition regularly. We can do this using a body condition score, which looks at different parts of the body and adds this information together to make a score. Alternatively, to be a little more accurate, it can be handy to use a weigh-tape, or a weigh-bridge if you can arrange access to one. It is ideal to check bodyweight or condition every week especially when restriction or careful monitoring is needed such as in a horse or pony with EMS.

How to use a weigh tape:

1. Stand your horse square on a flat surface.
2. Simply place the 'zero' end of the weight tape at the lowest point of your horse's withers.
3. Bring the tape all the way around the horse's girth, passing behind the elbows.
4. Pull the tape up to meet the 'zero' for the approximate weight of your horse.

If you don't have access to a weigh-bridge, a weigh-tape is a helpful tool to assess your horse's weight and condition.

References
Dugdale, A. H. A., Curtis, G. C., Cripps, P., Harris, P. A., & Argo, M. M. (2010). Effect of dietary restriction on body condition, composition and welfare of overweight and obese pony mares. Equine Veterinary Journal, 42(7), 600–610. https://doi.org/10.1111/j.2042-3306.2010.00110.x
Harris, P., & Dunnett, C. (2018). Nutritional tips for veterinarians. In Equine Veterinary Education (Vol. 30, Issue 9, pp. 486–496). Equine Veterinary Journal Ltd. https://doi.org/10.1111/eve.12657

Dr Victoria South MA VetMB CertAVP(EM) DipECEIM MSc(EBHC) MRCVS

Victoria graduated from Cambridge University in 2006, and worked as an ambulatory equine vet for several years before becoming a resident in Equine Internal Medicine, in March 2009. She became a European and RCVS recognised specialist in Equine Internal Medicine in 2013, and was part of the medicine referral team at Liphook Equine Hospital for more than a decade. More recently, she runs a mobile specialist medicine and ophthalmology service, providing flexible access to specialist skills, knowledge and equipment. In Mar 2025, she graduated from University of Oxford with an MSc in Evidence Based Healthcare. Victoria also works for the FEI and is a Level 1 OV, and Level 2 endurance vet.