



WHAT IS EQUINE METABOLIC SYNDROME?

Equine metabolic syndrome (EMS) is a term used to categorise horses that possess the following three traits:

1. Obesity or abnormal fat deposition
2. Insulin resistance
3. A propensity to develop laminitis

This definition is useful as it helps us to identify horses which are at risk of developing laminitis and to make adjustments to the management of these individuals in order to reduce this risk.

WHAT IS INSULIN RESISTANCE?

Insulin is a hormone released by the pancreas in response to high blood sugar. When horses eat, food is digested and broken down into sugar this causes blood sugar levels to rise. Insulin is then released, stimulating the body to utilise sugar from the blood and causing blood sugar to return to a lower level.

When horses are insulin resistant, the cells of the body do not recognise insulin and the blood sugar level stays high. This results in even more insulin being released in an attempt by the body to bring blood sugar level under control. Studies have shown that these persistently high insulin levels directly cause laminitis.

WHAT DOES A HORSE WITH EQUINE METABOLIC SYNDROME LOOK LIKE?

When humans put on weight, some will lay down more fat around the belly, while others tend to lay down fat on bums and hips! A similar situation occurs in horses. Interestingly, horses with certain body shapes are at higher risk of being insulin resistant and developing laminitis i.e. they have equine metabolic syndrome. Looking out for this particular body shape is useful as it can raise our suspicions of whether a horse may have EMS and prompt us to do something about it.

When most horses put on weight, fat is deposited over the ribs, behind the shoulders, along the back and on the rump. Normal horses lay down fat relatively evenly in these locations as their weight increases. In horses with EMS, fat is deposited abnormally, commonly these individuals deposit fat disproportionately on their crest, behind the tail-head, behind the shoulder, in the mammary or sheath regions and behind the eyes (supra-orbital fat pads). Although, it is important



to remember that the more overweight a horse is, the more likely it is to have EMS, regardless of its body shape.

HOW IS EMS DIAGNOSED?

Not all horses that have EMS are obese and not all horses that are obese have EMS. Diagnosis of EMS is based on a blood sampling to show insulin resistance. Many horses with EMS have normal resting insulin levels and therefore dynamic testing either following a glucose meal or testing of blood glucose before and after injection of insulin is used to show insulin resistance. It is also important before making a diagnosis of EMS to rule out other conditions which can lead to insulin resistance such as pars-pituitary intermedia dysfunction (Equine Cushing's Disease).

HOW IS EMS TREATED?

Treatment of equine metabolic syndrome is aimed at improving the horse's insulin sensitivity so that blood insulin levels will return to normal. This is primarily achieved through weight loss and increased exercise.

Exercise: exercise leads to improved insulin sensitivity irrespective of its effect on weight loss i.e. the same horse will have better insulin sensitivity and therefore less risk of laminitis if it is exercising even if it does not lose weight. Obviously pain from laminitis must be under control before exercise can begin and remedial farriery can be extremely useful in improving foot comfort and allowing the horse or pony to get back on track with its exercise regime.

Weight loss: weight loss is the mainstay of treatment of EMS. Most horses with EMS are 'good doers' and will often maintain weight on surprisingly little grazing. As such, achieving weight loss can be difficult. In the initial stages of weight loss it is essential that all dietary intake is strictly controlled. This usually this means removal from grazing or use of a starvation paddock. Reducing turnout time is not usually effective as horses will often consume a high percentage of their dietary intake within the first 2-3 hours of grazing. Here are some useful tips for dieting horses:

- Weigh hay and feed – knowing the exact calorie intake of horses on a strict diet is essential. Luggage scales are useful for weighing hay nets. Remember to weigh hay before it is soaked!
- Double net hay nets and hang them in the middle of the stable away from walls– making the horse work harder to get hay out of the net prolongs feeding time and helps to reduce boredom.
- Feed a low calorie balancer – when limiting the horse's dietary intake it is possible to create nutritional deficiencies, a good quality balancer will ensure that your horse's diet contains all the vitamins and minerals it requires.
- Soak Hay – soaking reduces the sugar content of hay, thus decreasing the calorific value and reducing the potential for it to cause sharp increases in blood glucose in individuals at



risk of laminitis. Hay should be soaked for between 1 and 12 hours depending on the quality.

- Monitor body condition – body condition can be monitored in several ways. Girth and crest measurements are useful, it is important these are taken in exactly the same place each time, using the same person, at the same time of day. Clipping some hair or leaving a plait in the mane as a marker can help to ensure that the same part of the crest is measured each time. Learning to body condition score is also particularly useful. In addition measurements on weigh scales can be helpful in order to provide an objective marker of weight loss.
- Monitor Insulin sensitivity – of course the aim of weight loss in EMS cases is to reduce laminitis risk by improving insulin sensitivity. Blood sampling to test insulin sensitivity can be carried out at repeat intervals in order to assess the effectiveness of the weight loss in bringing EMS under control.

Remember very strict weight loss regimes may be necessary to treat horses with EMS however, it can be dangerous for horses to lose weight too quickly and we strongly recommend veterinary assistance in developing a weight loss programme.

If you are concerned that your horse may be suffering from EMS or would like help designing a weight loss regime, please contact the practice on 01373836186