

Equine Metabolic Syndrome:

Is it just fat ponies that founder?

What is equine metabolic syndrome (EMS)?

EMS is diagnosed when a horse or pony

- is overweight or carrying fatty deposits (or used to be like this but has been managed so is no longer overweight)
- has a history of or evidence of laminitis or being prone to laminitis
- **and** has insulin resistance

There are similarities between EMS and type-2 diabetes in humans. In both a metabolic state is reached when there appears to be a constant state of low-grade inflammation. In humans this seems to have effects on our arteries whereas with horses and ponies we tend to see signs in their feet; which shows up as **laminitis (founder)**.

How do we diagnose it?

We all know of fat, cresty-necked ponies or horses with ‘cellulite’ that are prone to laminitis and we always thought that there was not much we could do for them apart from put them in the starvation paddock and keep their feet trimmed.

Now we can test to see if they have excessive insulin resistance and if so there are some treatments that, together with all important diet and exercise programme, may help.

A blood test to show insulin levels after fasting overnight will diagnose a lot of cases as they will have high insulin levels but not all will show up on this test. A more accurate test is for the pony to be starved overnight then be fed a measured amount of glucose or dextrose powder in a small amount of chaff and a blood sample taken for insulin and glucose levels 2 hours later. This test has only recently been developed in the UK and we do not have enough information on the lab tests for horse insulin levels performed in NZ, nor do we have reference ranges for normal horses in NZ. The New Zealand Equine Research Foundation (NZERF) is funding the laboratory fees for an investigation in NZ where this test is performed on a normal and a suspected insulin resistant horse or pony at the same time and in the same area. This will enable us

1. To determine reference ranges of insulin levels for horses and ponies without equine metabolic syndrome and thus to determine a cut off for a diagnosis of EMS in New Zealand.
2. To determine the proportion of EMS positive horses that can be determined to be positive on a single sample in New Zealand (as compared to stimulation testing).
3. To determine the proportion of those suspected to be EMS positive that are found to be insulin resistant on testing in New Zealand

4. To assess the validities of proxies based on insulin and glucose levels from a single sample. If these work then in the future EMS will be able to be better diagnosed from one blood sample.

This research will give us important information on EMS in New Zealand horses and ponies that are subjected to different management factors than Northern Hemisphere horses in that most are kept outdoors all year round, and grass also appears to be a major factor in the onset of EMS. If we can diagnose and manage horses with EMS more effectively then it will prevent a lot of suffering due to laminitis and give these patients longer, healthier lives. It is not just ponies that can develop EMS, Standardbred, Warmbloods and Quarter Horses are amongst those that have been diagnosed with EMS in these early days of testing.

If EMS is diagnosed then your veterinarian will work with you to develop a treatment programme.

Treatment

The treatment is three fold and involves diet, exercise and medication. Also, of course, the feet need to be trimmed by a good farrier.

Diet-if your horse/pony is positive for metabolic syndrome you will be advised on feeding a weighed amount of hay together with a vitamin and mineral balancer. Regular monitoring with weigh bands and neck measurement will track the weight loss.

Exercise-As long as there is minimal lameness then an exercise programme has been shown to reduce insulin resistance. This can be either ridden work or lunging, building up to 20-30 minutes, 5-6 times a week. Just turn-out does not appear to be effective and there has to be a committed exercise programme.

Medication-Metformin is used in humans to increase insulin sensitivity. It is used widely in the UK for horses with EMS and has started to be used in New Zealand, although we have to remember that it is not yet licensed for horse use. It comes in the form of tablets, is given twice a day and is reasonably priced.

Monitoring

Ideally your horse/pony should be re-tested 3-4 weeks after starting the treatment programme to ensure there has been a reduction in the insulin resistance.

Several horses and ponies have already been tested and put onto treatment but there is funding for more to be tested. If you suspect that you may have a horse or pony with EMS please contact your local veterinarian for more information and mention the NZERF study which Dr Michelle Logan, NSVets, Riversdale [michelle_dicken@hotmail.com] together with Professor Joe Mayhew and Dr Erica Gee from Massey University are undertaking.

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