



Why are there so many instances of

## INSULIN RESISTANCE and METABOLIC DISORDERS

in our horses and ponies?

Did horses not have these disorders 20 years ago, or did they just go unnoticed ?

Are we, as horse owners, more aware of these conditions now because of access to data via social media and information being shared by vets and those who have experienced problems, thereby giving the wider horse community greater awareness?

Or, is there a greater prevalence of insulin resistance and metabolic disorders now occurring in the horse population and, if so, is this related to the feeding and lifestyle choices owners make for their horses and ponies?

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*Hair Assessment system in the 90s which forms the foundation of her work in healing horses.*

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**INSULIN RESISTANCE (IR)** is a condition in which the horse's body fails to respond to the hormone insulin. IR horses don't metabolise sugars properly and usually have difficulty losing weight.

The concept of **EQUINE METABOLIC SYNDROME (EMS)** was first proposed into veterinary science in 2002. It was described as a disorder associated with an inability to regulate blood insulin levels, which in turn, puts horses and ponies at a much higher risk of developing laminitis. Insulin resistance reduces entry of glucose into the laminae cells, which have a high requirement for glucose.

EMS may be a predisposing factor for Pituitary Pars Intermedia Dysfunction – PPID (Equine Cushings).

One of the problems horse owners find with these conditions is diagnosis but researchers are striving to improve testing techniques to give more accurate diagnoses for insulin disorders.

### Diet, pain and stress

These factors can affect blood glucose and insulin levels so any diagnostic testing should be performed in a low stress environment where the horse is most comfortable. There is no point in testing a horse that has laminitis until they are pain free and resting.

A singular blood insulin measurement should only be regarded as a screening measurement. If this is in the high range then your vet may want to have the horse fast overnight with a small biscuit of hay only, collecting the blood early the next morning. If that tests over 20 then that is suggestive of insulin resistance.

The vet may then wish to do an oral glucose test (OGT). This entails fasting the horse overnight then giving a small amount of chaff with dextrose powder (carbohydrates obtained from starch, usually from maize, its sweetening power is about 0.5-0.8 times that of sugar (sucrose). A blood sample is taken two hours later. If the insulin is higher than 87 then that indicates an abnormality.

A test for PPID (Equine Cushings) measuring endogenous ACTH (a thyroid releasing hormone) concentration may be suggested.

Clover and increased pasture starch is not recommended for horses and ponies at risk of insulin-induced laminitis.





Many of our horses and ponies are being fed energy dense feeds, presented in the show ring overweight and not penalised by judges.

Too much of the hormone endogenous ACTH (and a few other hormones) are produced by the pituitary gland, that sits at the base of the brain when the gland becomes enlarged.

PPID is thought to exacerbate insulin resistance in horses previously affected by Equine Metabolic Syndrome.

EMS horses, when sick and not eating, mobilise their fat stores into the blood stream where it goes to the liver to be broken down and used as energy.

*If there's a lot of stored fat the liver can become saturated and diseased so the horse feels worse and doesn't want to eat.*

This is a horrid downward metabolic cycle and veterinary assistance is required as soon as possible.

## What does EMS look like in the horse?

These signs are obesity, often with abnormal fat deposits in the crest and tail head particularly. The normal hollows above the eyes may be full, the coronets may bulge and there may be unexplained bruising on the feet. Increased appetite, excessive thirst and urination.

## Why does it happen?

Some breeds are more pre-disposed to this ailment than others, with Thoroughbreds and Standardbreds affected less often.

The most common cause is poor dietary choices and lack of exercise.

Management of feeding regimes and exercise is so important, particularly for our horses that are managed in confined areas,

as is the situation with lifestyles of many of today's equines. Many of our horses and ponies are being fed energy dense feeds for years. Show horses particularly are presented overweight in many breeds as that's how the judging standard appears to be set. Obviously fat can disguise or enhance conformation from some judges so when a competitor sees the overweight horses winning they then present their horse in this 'fat' condition.

Pastures produce more fructans at particular times of the year and differing weather conditions. Fructans are non-structural carbohydrates which cannot be broken down by the digestive enzymes in the stomach and small intestine so they have to be digested by the microbes in the hind-gut, leading to production of volatile fatty acids and lactate.

Research has shown a flush of clover and increased pasture starch is not recommended for horses and ponies at risk of insulin-induced laminitis. Clover does not contain fructans. If fructans were the only culprit in inducing laminitis then all horses and ponies would be at risk.

Pasture-improved paddocks are often too high in sugars for horses. High carbohydrate feeds such as grains or commercial feeds with molasses (most contain molasses for improved palatability) can cause more problems for susceptible horses and ponies.

## Movement

Most horses and ponies that suffer metabolic disorders don't move enough. Horses were made to move – they do not do well in a stable or yard if they do not have enough exercise. Nor do they do well if they move little in a paddock.

## What can you do?

More exercise!!

Make sure your horse has a low carb, high fibre diet, talk to an equine nutritionist to make sure your horse has a correct ration of vitamins and minerals. Grazing muzzles are useful as your horse can still move around the paddock with its mates – this alleviates depression.

## Make sure the gut is in good order, same for the liver.

Herbs with proven efficacy in the treatment of Metabolic Syndrome are Aloe barbadensis, Cinnamon, St. Mary's Thistle, Goat's Rue and Gymnema amongst others.

Seek the services of a fully qualified equine herbal practitioner for advice on herbal treatments, one who will work in conjunction with your vet to help your horse or pony back into balance and help you develop good management skills so these conditions can be either managed or prevented.



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