

# Spring Feeding and Insulin Resistance

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In many parts of Australia we have endured severe drought with the pasture base being totally destroyed. During winter we have had some rain and the temperature has remained quite mild. What this potentially means is that when a spring flush occurs horses that have not been consuming much pasture at all will be at risk of laminitis and other glucose metabolic problems.

Horse owners should be acutely aware and prepare to manage their horses accordingly to avoid problems.

## Laminitis Risk

The concern here is that some horses are heading into spring with less condition than they have done previously. If the meteorologists' predictions are correct we will have a longer spring this year which will produce an abundance of pasture and prolonged growth. If not managed correctly our horses without any metabolic concerns may gain condition rapidly and could be at potential risk of becoming obese and suffering from episodes of laminitis.

Horses and ponies that are known to be at risk of laminitis and suffer from equine metabolic syndromes will be at greater risk earlier and potentially for a prolonged period this year. Management and feeding practices need to be addressed now to reduce problems that may manifest later in spring. As many of us and our horses are on hiatus at the moment we are not unrugging our horses as regularly as usual. We need to be constantly monitoring the Body Condition Score of our animals. If you notice that your horse / pony is gaining condition it is time to enact a diet and management change.

## Weight Management

Early spring grass and constantly grazed pasture is constantly in a growth phase during spring. Nutritionally this means that it is going to be considerably high in sugars that are readily digestible. Rapid weight gains can occur if you are not altering your feeding plan. For owners that are supplementary feeding their horse I would suggest re-evaluating their diet.

You can look at several dietary scenarios from limiting pasture time availability. This may be thought of with danger as studies have shown that a horse will quickly adapt to consume as much pasture as a non-contained horse when ponies are restricted to 2-3 hours grazing time.

Another alternative is to introduce a lower calorie dense roughage source such as mature pasture hay. Potentially this will reduce the amount of pasture consumed during the day. As part of this feeding change we need to reduce the total amount of calories / energy consumed in a day. If you are feeding several kilograms of supplementary feed per day I would suggest consulting an equine nutritionist and rebalancing your horse's diet to recalculate the amount of nutrients your horse is receiving from pasture. This may mean changing from a full feed to a vitamin and mineral supplement with some chaff or a balancer pellet to still maintain sufficient nutrients such as vitamins and minerals but dramatically reducing the amount of calories your horse is consuming.

Some other management practices to assist in either reducing calorie intake is to put a grazing muzzle on your horse which we know they all love. Another practice is actually increase the horse's energy requirements. We do this by exercise. 30 -45 minutes of exercise can increase the horse's

energy requirements from 25-40%. If you are not intending to start riding your horse for another month or so it may be wise for their health to start this sooner.

### **Insulin Resistance (IR)**

Horses that are at great risk during this period are horses with insulin resistance. Insulin resistance (IR) in horses occurs when the cells that use insulin to regulate the uptake and metabolism of blood glucose become less sensitive to insulin's effects. This means that the amount of insulin required to keep blood glucose concentrations within normal amounts is dramatically increased, especially after consuming pasture high in starch and/or sugar.

We all have a basic understanding that sugars are relatively high in energy and too much sugar is bad for us and our horses. Simple sugars like glucose and fructose are relatively easily digested with the assistance of acids and enzymes in the stomach and small intestine. Fructans as people with EMS and IR horses will know about are basically a complex polymer of fructose molecules. These sugars are not digested in the small intestine but are eventually broken down in the large intestine to produce large amounts of lactic acid. This alters the pH (acidic) level of the hind gut and dramatically effects the bacteria population in the horse. As a result of this changed environment laminitis, colic and acidosis can occur very quickly.

For horses on pasture in certain times of the year sugar and fructan levels can be quite high and potentially quite harmful for your horse. Pastures that are in a rapidly growing mode or that have been stressed either from drought or more likely at this time of the year frost will have larger than normal amounts of fructans in them.

A few management practices for horses susceptible to IR and high fructan pastures is to limit pasture intake with either grazing muzzles or dry lotting in severe cases. This is not ideal but please consult your veterinarian or nutritionist before doing this. Feed a low sugar hay to encourage hay consumption and less pasture intake. You can have hay tested at a number of labs around Australia. Also soaking hay can reduce sugar levels by up to 30%. If you are going to limit pasture intake turn horses out during the morning 7-11 am as this time appears to have the lowest fructan levels. If you constantly rotational graze or move your pasture try and keep the pasture level around 15 to 20 cm high, as the sugar level concentration will be less than short actively growing pasture.

Late winter and early spring are key times to monitor your horses and pasture conditions. Remember to activate any plans early and ensure you monitor your horses condition regularly. Also remember this type of problem does not only occur during spring, be prepared during autumn and in Australia after droughts have broken and we get that first flush of pasture growth.

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