

Part 2. Of the No. 1 cause of Laminitis and Founder:

This month, I continue with “part 2” regarding Insulin Resistance as it is the main cause of Laminitis and how it is often brought on by the feeding habits we impose on our horses. There has been so much information learned and tested over the last 15+ years, I have chosen to list some of the important notes and recommendations which I have gleaned from the USA Veterinarians and their worldwide research studies. There are reams of reading on their many sites.

I would like to make a special note on a common mistake I see made in putting horses on very short grass. Very short grass, as for most plants, contains a huge amount of sugar in its break through the ground and for the initial grown spurt. Therefore it is an error, as horse teeth are made to be able to push down on short plants and to be able to get below ground level to get at roots. Grass, once it's an average of 3 to 5 inches tall contains much less sugar Horses will generally eat the tops.

-----Important Points to keep in mind -----

- 1.** Insulin Resistance is the #1 Fastest Growing Cause of Laminitis in the World. Sometimes called “Equine Metabolic Syndrome”, should not be confused with Cushings.
- 2.** Equine Insulin Resistance puts your horse on the edge of a cliff. Any stress such as surgery, vaccines, mild colic, diet change, weather changes, or infections can push them off the edge into Laminitis. By being proactive, you guide them away from the edge.
- 3.** It is now thought that, as in humans, horses also may have nerve damage in the nerves to the feet and as a result the feet become desensitized which could delay the pain and thereby delaying recognition of having laminitis and/or poor circulation. If the horse shows no pain, Laminitis can spread until it is critical. Therefore it is important to watch for other factors such as being overweight and/or having a crest above the neck.
- 4.** Insulin resistance is a reduction in the sensitivity to insulin that decreases the ability of glucose to be transported to body cells and horses fed diets high in sugar or starch (such as a high concentrate diet, or wheat or fed with long periods of time between meals) are more likely to become insulin resistant even if they are not obese.
- 5.** **The Laminae columns do not grow back once destroyed and loss of about 1/3^d can be crippling. Even when caught early enough to slow it & generate some healing, the scar tissue will not be as strong as the original Laminae columns. So this is a very serious problem which we need to try preventing by learning more.**
- 6.** Horses swallow 10% more grass in early spring & may need muzzling to reduce intake speed.
- 7.** Exercise, even just walking, will lower Insulin levels maintained in the blood stream.
- 8.** Don't cut the pasture grass to low. The longer the grass (4” is a good height) the lower the sugar content. When it is just sprouting it is heavy with sugar as is early morning grass.
- 9.** Horses behave in a self destructive manner by eating too much and too quickly once we feed them “following the fasting they feel between meals”. This feeling comes as a result of us not feeding in the manner that they are built for, which is constant ad-lib grazing. This rapid eating causes a surge of carbohydrates, which in turn causes a surge in insulin (to as much as 300% of normal) and the insulin is not able to be properly metabolized by their liver so it remains much too high and too long in their blood stream, inducing resistance by their cells.
- 10.** An important recommendation **once insulin resistance is suspected** is to begin testing for insulin resistance (glucose tolerance monitoring testing) and re-testing once a

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control program is started, periodic testing is important when balancing your horses feed input regime. The veterinarian and laboratory bills could be well worth it in saving your horse from undue discomfort and preventing untimely immobility and worse.

11. Veterinary glucometers is a new type of device that can provide accurate / precise blood glucose measurements in healthy and sick horses and foals, as reported by a Colorado State University research team led by Eileen Hackett, DVM, MS, Dipl. ACVS, Dipl. ACVECC. Hypoglycemia, hyperglycemia, and glucose variability are able to be measured much more quickly and frequently. The advent of the devices makes it easier to conduct testing, is more cost effective and requires little blood.

12. There is a new product that has been developed in the USA, by Equine Medical & Surgical Associates in conjunction with Antech Diagnostic Lab (the largest commercial veterinary testing lab in the USA), Cornell University Veterinary School Diagnostic Testing Lab and Michigan State University Veterinary School Diagnostic Lab. It is named "**HEIRO**" (**Healthy Equine Insulin Rescue Organical™**) and has proved very helpful in correcting insulin level numbers, within 60 days on average.

13. All of the information I have written/outlined/listed is by no means the limit of causes for laminitis which has become so prevalent a problem. The chemicals used on feeds are now suspected and under scrutiny (being researched) in order to learn how they affect our horses.

-----*Navicular Problems*-----

A Separate foot health problem that we need to keep a watch out for is Navicular problems, where the navicular bone and/or the surrounding soft tissue are inflamed and/or degenerating. A short note for preventing and/or dealing with this that it is generally caused by poor circulation in the feet or lower limbs. Not always an impact issue. A couple of options with better than average success in preventing and dealing with the problem of poor circulation are (a) plastic shoes, which flex and allow more normal foot flexion and circulation, or (b) no shoes which allows more natural circulation. Metal shoes can cause a restriction in circulation. Unfortunately some foot problems may require shoeing support for the hoof and the plastic shoe would be the best choice in such cases whilst still maintaining the best possible circulation. In the early stages of navicular problems (as well as other foot problems such as initial laminitis), the problem can be spotted when the horse leaves the stable lame but becomes sound with work.

Re: Controlling weight: The weight loss needed in overweight horses is a **therapy** and **not just** a way to take weight off the Laminae of the hoof. Typically it is stated that "*The fatter you are, the more Insulin Resistant you can become and self defeat your own normal Insulin produced by the nervous system*". Even a small weight loss helps a lot. Food also moves through the digestive tract faster if there is regular, not extreme, exercise which means less will be absorbed and/or stored. Due to our often unavoidable situation of causing the horses to be without food for 3 to 4 hours or longer, they are fasting and learn to wolf down available food. So when we put them out to graze, we often need to use muzzles. This problem can be corrected if we re-teach them that grazing is the norm via ad-lib "small / multiple" hay nets in stables is a good way.

I hope this "part 2" information will cause some re-thinking and positive changes in methods of feeding and care.

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