

Horse Mineral deficiency can create health problems

"The soil must be kept in good health if the animal is to remain in good health. The same is true for Man. Soil science is the foundation of protective medicine, the medicine of tomorrow. " Andre Voison in "Soil, Grass and Cancer" 1959.

Nearly 50 years later, we are still relying on pills, supplements and treatment of symptoms instead of addressing the cause. Trace minerals in soils vary enormously across the US, and around the world. Yet, how often have you seen a mineral supplement that addresses the specific needs of a certain bioregion? Rarely, because it's not cost effective. Add up what you spend on supplements that you may or may not need, in hopes of supplying the minerals that may or may not be present in your pasture. Horse owners that have even gone to the expense of hiring a nutritionist and analyzing their forage may still not know what is in their pasture soil, which is where these deficiencies start. How many have hired a soil scientist to address these problems at their source?

After analysis of the gorgeous, premium quality brome grass hay I used to feed, I found extreme imbalances and deficiencies of minerals that are important factors and essential components in the formation of enzymes that support glucose metabolism, hoof and hair formation, and a robust immune system. While some horses get these minerals from fortified grain products, our easy keeper horses that cannot have grain may have even more need. Some of the more important trace minerals that are commonly deficient are magnesium, chromium, copper, zinc, and selenium. Magnesium and chromium are often prescribed for human patients with type 1 or 2 diabetes. Selenium and Vit E work together to convert the storage form of thyroid T4, to the active form T3, and are very important anti-oxidants. Copper and zinc are important to many enzymes involved in metabolism, and are essential in the formation of superoxide dismutase, an important first line of defense for cleaning up the free radicals formed by inflammation. We do not need to feed grain, but we do need to make sure that our horses have sufficient minerals, in a non-grain carrier like unmolassed beet pulp or other low NSC feeds, to support optimum overall health. See the section on Safer feeds based on Safergrass for products endorsed by Safergrass.org.

There may also be excesses of minerals in hay, which can compete with the 'good' trace elements for absorption in the gut. It's also a basic tenant of plant nutrition that excesses of one mineral can cause or exacerbate a deficiency of another mineral. Absolute amounts of a mineral that may be adequate in isolation may become effectively deficient when paired with excess of a competing mineral. Hence excess of calcium will exacerbate a magnesium deficiency. <http://www.ker.com/library/advances/143.pdf>

The fact I was feeding the best quality grass hay available gave me false sense of security that my horse's nutritional needs were being met. My local vets acknowledge the need for additional magnesium and copper to ward off grass tetany and foot rot in cattle, but said that the extremely low levels of magnesium in my horse's blood was of no significance. Obviously the need for magnesium, as well as the other trace elements in horses, needs more publicity. In the meantime, I am trying to spread the word about the profound magnesium, copper, zinc and selenium deficiencies, and calcium and manganese excesses often found in hay in my area. While mineral supplementation is not sufficient treatment alone, there is anecdotal evidence that magnesium supplementation has reduced the size and hardness of horse's neck crests. Chromium is another trace mineral involved in glucose metabolism, and is the active ingredient in Glucose Transfer Factor, or GTF, sometimes referred to as 'chromium yeast'. Chromium supplementation significantly decreased insulin and cortisol in exercising thoroughbreds after a grain meal. <http://www.ker.com/library/advances/130.pdf> Individual needs may vary. I have found that 5 mg/day of chromium in yeast form will reduce the lumpy fat deposits in my older mare's neck, while her daughter seems to stay lean on 3 mgs.

This 'metabolic syndrome' of horses is complex, requiring a multi faceted approach to treatment. Even though my horse's insulin resistance is not completely controlled, as shown by periodic abnormal insulin levels, I feel that the mineral supplementation has contributed greatly to their overall health, as evidenced by their much improved skin and hair coat. While decreasing nonstructural carbohydrate (NSC) levels are the cornerstone of any diet for the insulin resistant horse; the minerals may provide 'fine tuning'. **Please do not fall into a false sense of security by believing that supplements are going to fix this problem.** While not the cause of glucose intolerance, I believe that deficiencies of trace minerals that support proper glucose metabolism, may exacerbate the symptoms produced by feeding forages with higher levels of sugar and starch to these susceptible animals. Obviously more research needs to be done in controlled clinical situations.

If you already have your horse on low NSC hay, got the feet properly trimmed and supported, and still need some help getting your horse stabilized, try a supplement for trace mineral support of glucose metabolism.

Then, get the soil tested in your pasture, and hire an agronomist and learn how to nurture your grass, so it can nurture your horse.