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Feeding to Improve Hoof Quality

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Hooves can deteriorate for many reasons: an unbalanced diet, laminitis, hindgut acidosis, grain overload, incorrect dietary supplements, a poor hoof maintenance program or the genetic make-up of the horse can all predispose to poor quality hooves. The nutritional causes of hoof problems can be addressed by feeding a correctly formulated, well digested, balanced concentrate.

Dietary imbalances can affect the structure and strength of hooves. Most people are aware of the effects of deficiencies in the diet on the structure and function of the hoof and try to avoid or correct such problems by feeding supplements designed to improve hoof horn quality. It is now 16 years since the effects of feeding supplementary biotin to horses was first described and 12 years since the need for adequate calcium to support growth of good quality horn was reported. There is often the underlying, unspoken belief that if 'some is good, more is better' but recently, the damaging effects of feeding excess quantities of certain nutrients have become apparent. Analysis of the hoof trimmings from horses with poor quality horn, slow hoof growth or defects in the hoof wall, such as sand cracks and white line separation, has yielded much valuable information on how to avoid errors so we can better care for our horses feet.

Small amounts of vitamins and trace elements are essential for health and, in some cases, for life. But, equally if fed in excess, these same nutrients can damage the body and in some cases be fatal. Selenium is essential for muscle function, the immune system and skin and hoof health. However, the safety margin is narrow and slight excesses can be toxic. The results of hoof analysis from horses monitored for 1 to 2 years found 19 horses were receiving excess dietary selenium. Four horses suffered acute selenium toxicity after receiving multiple supplements containing selenium. These horses had severe inflammation and bleeding at the coronary band and developed laminitis. The other 15 horses did not have clinical signs of toxicosis, but were receiving marginal excesses, sufficient to damage the hoof wall and cause the cells to shrink. Once the selenium supplements were withdrawn from the diet and replaced with nutrients which promote hoof growth, the feet improved dramatically after 3-6 months.

A further 27 horses were intermittently lame, had sore feet, difficulty holding the shoes on and a sudden onset of crumbling hoof horn on the inner layers of the wall. Of these, 17 were fed a fashionable supplement containing high levels of methionine. The other 9 horses and a donkey were fed straight methionine as a supplement and all developed white line disease. The onset of hoof deterioration occurred shortly after the supplement feeding commenced and when the supplement was withdrawn and the horses fed a diet balanced for copper and zinc, the changes were reversed.

Hoof samples from another 34 horses on diets containing grain and bran had weak, crumbly horn, collapsing of the heels and flaking of the wall, especially at nail holes. Secondary infections of bacteria and fungi were common. These hoof weaknesses were due to calcium deficiency and phosphorus excess. By reducing the grain and bran (both very rich in phosphorus and deficient in calcium) and balancing the diet, a dramatic improvement was seen within 12 weeks.

Diet analysis is the easiest way to determine if nutrient excesses or deficiencies are occurring. Surveys have found that excess levels of nutrients occur 10 times more often and significantly unbalance the diet in 78% of horses fed supplements. Feeding Mitavite feeds such as ***Mitavite Economix*** at recommended levels and with adequate roughage ensures that Calcium, Zinc, Biotin and essential amino acids are provided in the correct quantities so the risk of deficiencies and excesses is minimised.

Laminitis, hindgut acidosis or grain overload in the caecum and large intestine can occur when diets high in raw grains are fed. Low-grade laminitis can disrupt the bond of the laminae, which helps support the pedal bone in the hoof. Founder, which is the next step on from laminitis, describes a foot in which the pedal bone has moved.

Starch digestion must occur in the small intestine to prevent a build up of acid in the caecum. For centuries, horsemen and women have boiled, ground, cracked, cooked, crushed and pelleted feeds for horses. They have done this for 2 reasons:

- To improve nutrient uptake and availability
- To improve digestion in the small intestine and minimise the amount of concentrate passing to the caecum and large intestine.

However, these older more crude methods of processing do little to improve digestibility and have largely been replaced by steam-extrusion. By fine-tuning and advancing the time-honoured practice of cooking feeds for horses, steam-extrusion enables the horse's natural digestive enzymes to work up to 100 times faster, increasing digestion in the small intestine to over 90%. Feeding ***Mitavite steam extruded grains and complete feeds*** such as ***Mitavite Promita***, ***Formula 3*** etc reduces the risk of laminitis, colic and diarrhoea and improves nutrient availability. Dietary ***Omega 3*** supplements have been shown to have a protective effect against laminitis in horses, which is why Mitavite has directed research effort to develop PERFORMA 3. PERFORMA 3 is a scientifically formulated blend of all 3 Omega 3 fatty acids. Because ***PERFORMA 3*** contains the correct types and ratios of Omega 3 oils, 60ml provides more Omega 3 oils than 300ml of single-type Omega 3 supplements containing flaxseed or linseed oils.

Correct hoof care is a combination of regular cleaning and trimming. Stabled horses should have their hooves cleaned out daily. An inspection for overall health of the hoof, rocks, nails and bruises should be done at cleaning. A healthy hoof can grow up to 1-1.5cm in a month. Hooves should be trimmed approximately every 6-8 weeks. If corrective trimming is required this may need to be done more regularly.

A careful program of feeding, exercise and maintenance is required for healthy hooves. Mitavite feeds have been formulated to take the 'guesswork' out of feeding. Each Mitavite feed has been scientifically formulated and prepared, such that supplements are only necessary on veterinary advice. Containing enriched levels of pure cold-pressed oils to provide the correct balance of fatty acids and chelated proteinates to maximise mineral absorption, the range of Mitavite feeds reduces the risks of dietary imbalances for horses - whether paddocked or stabled, spelling or competing, breeding or growing.

To select a feed which best suits your horse refer to the ***'Find the Right Mitavite'*** table.