FITSTABLES

FITSTABLES

PREMIUM MTAZ

Natural Feed Supplement for optimum growth and Skeletal development

Excellence In Nutrition

Premium MTAZ is a specialist nutritional supplement, containing a balanced combination of health-promoting minerals and amino acids. It is also a source of bioavailable silicon in the form of calcium zeolite. It is a matter of concern for every breeder whether any newborn foal has the makings of a top athlete. Can they stand up, physically, to the demands of advanced training? Do they have the capacity to race eventually, to compete in related disciplines, for instance? An immature two-year-old will be expected to achieve galloping speeds touching on 35 miles an hour, at a time when their skeleton has not yet fully developed.

When used to augment the nutrition of young horses, including in-foal mares or mares with a foal at foot, Premium MTAZ promotes optimum growth and development.

Centuries of stud experience have established that it is possible to determine equine skeletal health before birth. Such a determination permits the making of accurate predictions to be made, which signpost an animal's future chances of demonstrating athletic prowess.

A sure-fire way to optimize the fitness of an in-utero foal is by guaranteeing that the broodmare enjoys a precisely managed intake of macro- and trace minerals and amino acids in her diet.

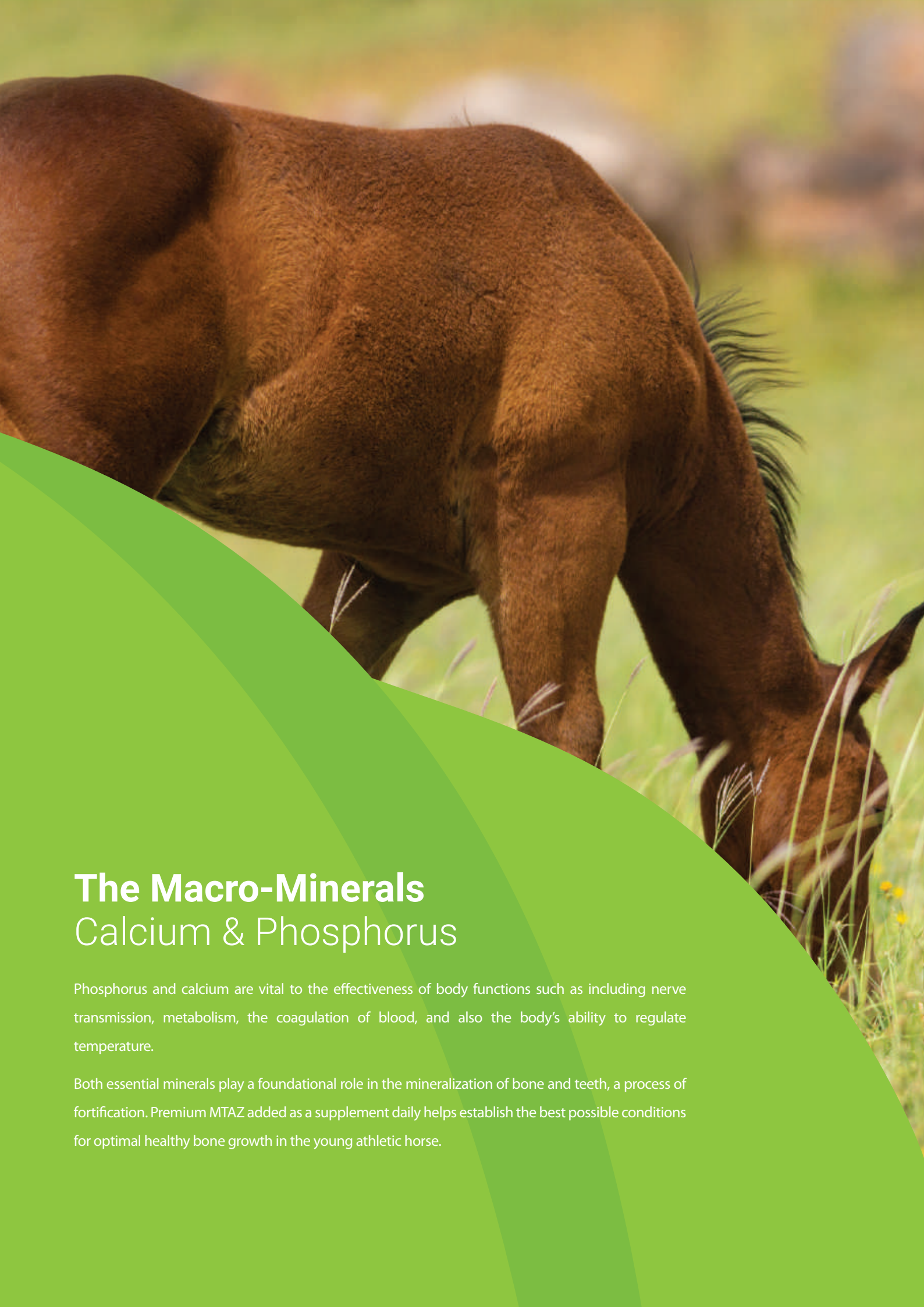
The health benefits of such rich nutrition are, of course, passed to the foal in utero and after birth through the dam's milk.

Premium MTAZ sets young horses off on a path to full fitness, starting with the supplementary feeding of the mare, and continuing with direct feeding to foals and young stock. Continuing to feed Premium MTAZ to young, fast-growing horses goes a long way to maintain healthy bone growth and development.

Racing is one thing, but events such as dressage and showjumping place entirely different stresses and strains upon the young animal's skeleton.

Epidemiological studies demonstrate the extent to which developmental orthopaedic disease (DOD), including conditions such as osteochondrosis dessicans and physitis, manifests in foals. One recent study (Lepeule et al. 2008), reveals a 60% overall prevalence of DOD in Thoroughbreds, Standardbreds, and Warmbloods, with Warmblood Breeds exhibiting the highest incidence of DOD (80%) compared to Standardbreds (63%) and Thoroughbreds (60%).

DOD risk factors are complex. Nevertheless, the availability of high-quality, scientifically-balanced mineral nutrition has been demonstrated to be of critical importance (McIlwraith, 2005).



The Macro-Minerals
Calcium & Phosphorus

Phosphorus and calcium are vital to the effectiveness of body functions such as including nerve transmission, metabolism, the coagulation of blood, and also the body's ability to regulate temperature.

Both essential minerals play a foundational role in the mineralization of bone and teeth, a process of fortification. Premium MTAZ added as a supplement daily helps establish the best possible conditions for optimal healthy bone growth in the young athletic horse.

Maximising Health & Vitality By

Often, the root cause lies in the imperfect conversion of cartilage into bone at the young horse's growth plates. Nevertheless, this is unlikely to be the only factor involved. Genetics undoubtedly plays a part, as does the incidence of developmental orthopedic disease, and a variety of nutritional risks.

What is of paramount importance is that nutrition is an area over which those with interest in horses have a high degree of control.

General agreement exists regarding the role of diet and DOD, that energy and protein drive growth. However, certain vital minerals are vital to sustaining growth: Calcium, manganese, phosphorus, copper, and zinc (among others) whenever there is insufficient mineral intake (relative to protein and energy intake), especially within the pool of genetically susceptible individuals.

Premium MTAZ contains uniquely developed macro and trace minerals in concentrated form, including calcium zeolite and critical amino acids. — which comes in pellet-form, offers a convenient means of supplementing broodmare, foal, and young stock nutritional needs through mineral enhancement proven to promote and sustain growth and development.

Trial Results
In Horses

Extensive trials with broodmares to screen for growth-related problems (in hocks and patella and fetlocks) carried out on around 40 foals from various stud farms, validated the efficacy of the Premium MTAZ formula. The trials monitored mares from the same foals during pregnancy, which had Premium MTAZ added to their regular, unchanged diet. Stallions were carefully scrutinized to filter out genetic effects, which might compromise results.

Around the same time of year, siblings of the first control group of foals, born to the same dam, were also scrutinized using an identical protocol. Results revealed a statistically significant fall in observed joint lesions.

Summary

Lack of nutritional balance in the diet of young, maturing horses is considered one of several potential factors in DOD development.

Premium MTAZ contributes to a balanced diet by introducing nutrients critical to healthy skeletal development. In still-developing horses, major nutrients include protein, calcium, energy, lysine, phosphorus, copper, zinc, and. The National Research Council (NRC, 1989) listed baseline requirements for each nutrient; however, in certain circumstances, intake optimized for healthy growth may be considerably higher.

Premium MTAZ supplies a full, nutritionally-balanced package of essential nutrients catering for the additional demands for vital essential nutrients for prime skeletal development and production of athletic horses.

Targeting Specific Nutritional Needs

Restriction of protein intake has been shown to limit the growth rate in young horses.

Protein requirement varies according to the life stage of the horse and the amount of exercise it undertakes.

Protein Need (Approximate)

Weanlings: 13%

Yearlings 10-11%

2-Year olds: 9-10% (the exact percentage depends on training).

Protein sources comprise differing amounts and combinations of amino acids. Protein quantity and quality significantly affect growth.

Amino acids are the chemical foundation stones for protein in the body. They are essential for healthy tissue growth and repair. It follows that in order to synthesize growth-promoting proteins, the horse requires a finely tuned balance of amino acids in the feed.

Of the twenty-two common amino acids, only eight are considered essential. The critical point here is that the body can not synthesize this small cluster of amino acids — they must be introduced via the diet.

The body synthesizes fourteen of the non-essential amino acids — if it has got an optimal supply of the essential 8. The production of a new protein can become unstable if essential amino acids in the feed fall short of the quantities required. Premium MTAZ offers high-quality protein and all the amino acids essential for growth.

Lysine

The nutritional plans of several horse diets are low in lysine. The National Research Council (NRC) considers lysine to be "the first limiting amino acid" in the diet of growing foals. Decreased growth and development of young horses have been demonstrated to result from a lack of protein or lysine.

Collagen and elastin are the critical building blocks in the formation of bone, tendons, skin, and cartilage. Cereals and forage crops such as hay and grass do not contain much lysine. Elastin and collagen need lysine to form. These are components of skin, bone, tendon, and cartilage in the arteries.

Premium MTAZ supplements as a source of lysine for all breeds, especially those still maturing or engaged in training.

MAXIMISING
HEALTH & VITALITY

In terms of mineral content, calcium and phosphorus make up 70% of the body's mineral content. More specifically, in terms of location, 99% of the calcium and approximately 80% of phosphorus can be found in the bones and teeth.

Furthermore, the calcium (0.1%) and phosphorus (0.06%) component of mare's milk, makes up about close to 50% of milk's mineral content, making milk a primary source of these minerals for developing foals.

The majority of horse feed used for breeding horses and young stock is quite adequate to provide calcium and phosphorus in recommended minimum amounts needed for growth. However, recent studies suggest that calcium and phosphorus requirements for bone density, and strength when in training, may well be considerably above thresholds prescribed by the NRC (Nielsen et al. 1998. ; Stephens 2004).

These studies show more cases of DOD in cases where calcium or phosphorus levels in the diet are deficient. This negative effect could also be seen where extreme ratios between these calcium and phosphorus could be detected in the diet (Knight et al. 1985).

Over nine-tenths of the calcium and phosphorus found in the body is laid down between the eighth and eleventh months of gestation, making this window critical for the mare's mineral intake (Coenen 2000).

Effects of Calcium & Phosphorus Deficiency

The body contains an intricate and highly-tuned balancing mechanism that contains the current blood calcium levels within optimal limits. Parathyroid hormones and calcitonin, exercise direct control of calcium balance by influencing intestinal absorption, the production of kidney waste and deposition/reabsorption from bone.

Any calcium-poor diet arising from such hormonal effects may lead to bone de-mineralization as the system attempts to reset the balance of calcium. Minerals so mobilised are supplanted by connective tissue, which is fibrous, causing osteodystrophia fibrosa and bone enlargement (Luthersson et al. 2005). No part of the skeleton remains unaffected, and it is readily noticed in immature horses around the growth plates of their legs and cervical vertebrae.

Clinical manifestations include the subtle leg movements, becoming lame, and a propensity to develop tenderness in bones and joints (Ramirez and Seahorn 1997). These clinical indicators show links to sub-epiphyseal micro-fractures, breakdown in the integrity of the bone, interference with cartilage in the arteries, and ripping or even the detachment of ligaments/tendons. In the worst-case scenarios, fractures may spontaneously arise (NRC 2007).

Daily Premium MTAZ supplements guarantees that horses will reach acceptable levels of calcium to reset the calcium/phosphorus ratio to optimal again — this includes horses whose diets contain many kinds of cereal, where there are higher quantities of phosphorus than calcium.

The supplementing of the diet with calcium & phosphorus requires thoughtful attention to detail. There are two key issues. The first is to ensure the supply of adequate quantities of these supplements. However, secondly, it is just as essential to get the ratio of these supplements to one another, just right.

A surfeit of phosphorus compared to calcium causes a diminution of calcium absorption within the small intestine resulting from the formation of calcium phosphate in the gut. This can give rise to severe problems when the intake of calcium is below standard. By contrast, having too much calcium affects phosphorus absorption to a lesser degree, because the large intestine chiefly absorbs phosphorus.

The ratios of each supplement, one to another, are critical, and it is essential to aim for the optimal mix. Phosphorus and calcium in the daily diet may fluctuate significantly according to feed content, the roughage/concentrate balance — even the quality of roughage can be affected. The optimal calcium/phosphorus ratio to aim for is between 1.5 and 2.1 to1 to guarantee the correct quantities for calcium and phosphorus (Harris 2008).

The majority of proprietary feed provides a calcium to phosphorus ratio close to 2 to1, but do bear in mind that adding other feed elements will most likely upset the balance of calcium/phosphorus.

Targeting Specific Nutritional Needs

The growth rate appears not to slow in copper-deficient diets. However, the lack of copper for bone and cartilage development can give rise to lower bone density.

There is considerable evidence, too, that taking steps to ensure adequate copper in the diet for weanlings, foals, and mares may lower the risk of some forms of DOD (Hurtig et al. 1993). Such action will also tend to encourage lesions incurred during growth to repair (NRC 2007).

Low Dietary Copper is, however, associated with several health concerns, including:

- The heightened occurrence of epiphysis in young stock.
- Dullness in the coat and poor hoof condition.
- Anaemia
- Rupturing of the uterine artery

Premium MTAZ with a calcium phosphorus ratio of 2.85 to1 is best placed to control the balance of these minerals, and in so doing, support the normal growth and development of robust and healthy bone in the young athletic horse.

Micoro-Minerals

Copper

Copper is critical to processes that strengthen bone collagen. It is necessary for the synthesis of elastin, a substance that confers the property of elasticity to a host of tissue types in lungs, arteries, cartilage, and ligaments.

In each of these processes, a copper-dependent enzyme plays a vital role. The availability and bio-availability of copper are, therefore, of prime importance. The mobilisation of iron through the body requires copper.

The hinderance of cartilage or elastin formation can cause DOD in immature horses. Sub-optimal copper levels in soil in which cereal grains and forages grow may explain low copper intake or even deficiency in the diet. On the other hand, attenuated copper uptake in plants may result from competition for other minerals, or perhaps unfavorable acidity or pH levels.

Zinc

Optimal metabolism of protein and carbohydrate depends to a high degree on zinc, which, of course, is an element of a large number of zinc-dependent enzymes.

Zinc also plays a critical role in growth — in cartilage maintenance, for example. Reduced growth rate may result from Inadequate zinc intake. Zinc supplementation has a role to play, in the context of an overall trace-mineral package, and has been demonstrated to enhance bone mineral density compared to an essential diet without supplements (Ott and Asquith 1995).

It is of paramount importance to include zinc supplements in any nutritional plan, in a balanced way, concerning trace minerals like copper. This is because too high a zinc/ copper ratio in the diet can have the unintended consequence of reducing copper absorption as they compete for absorption sites.

The body contains a large number of copper-dependent enzymes, including lysyl oxidase and superoxide dismutase. The knock-on effects of reduced activity by these enzymes — brought on by attenuated dietary copper intake can be significant. Some types of DOD show links to diminished copper intake (Mcllwraith 2005).

Manganese

Several manganese-dependent enzymes play an essential role in the body. Manganese is necessary too for carbohydrate and lipid metabolism and the synthesis of chondroitin sulphate (associated with cartilage formation).

Manganese deficiency in non-equine species uncovers side-effects such as abnormal cartilage formation. Young may be born that exhibit:

- A lack of coordination
- Deformities of the leg
- Enlarged joints
- Knuckled-over pasterns
- Twisted forelimbs
- Weak, thickened, brittle, and shortened bones giving rise to lameness, joint pain, bowed legs, and inertia.

Direct connections between manganese and health issues in horses are not evident, though equine nutritionists recommend an adequate manganese content without being excessive and risking a reduction of phosphorus absorption.

Calcium zeolite

Calcium zeolite is a bio-available compound containing silicon. Silicon is essential because of its role in improving bone calcification. Connective tissue contains silicon in quantity in connective tissue. Horses absorb silicon through grains and the soil they grow in, but crucially, these are not in an easily absorbable form.

Premium MTAZ contains silicon in the form of calcium zeolite, which stomach acid breaks down into monosilicic acid. In this

form, silicon is absorbed from the digestive tract directly into the blood.

Silicon is also linked to the formation of collagen. Collagen is a fibrous protein matrix, the role of which is to give support for cartilage and bone. Silicon and calcium are both needed for bone health.

Calcium zeolite and Bones and Joints

Bone derives its strength from silicon, which is vital for collagen formation and the calcification of bone. Silicon is a requirement in the maintenance of articular cartilage, too, and for ensuring the integrity of joints and ligaments.

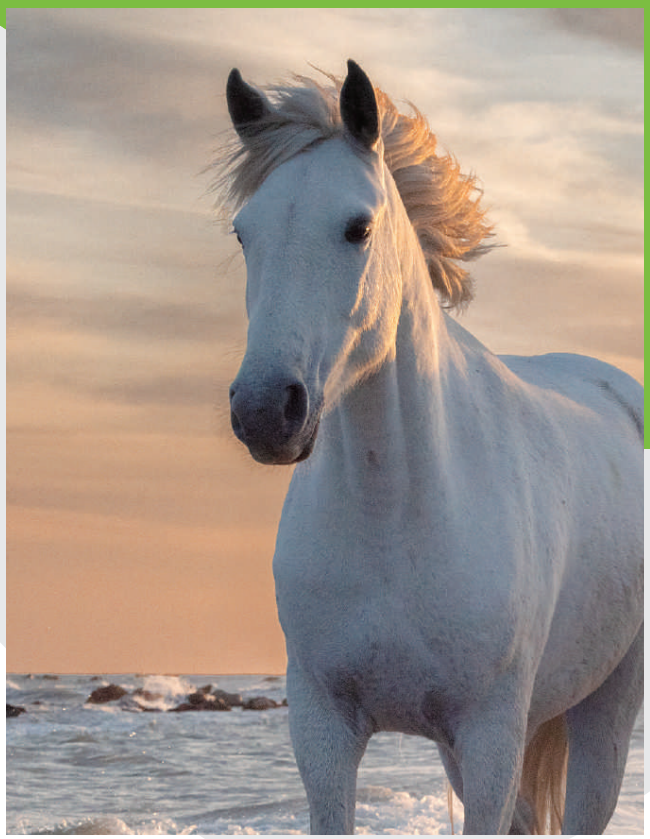
Calcium zeolite is an available source of silicon in horses (Lang et al. 2001). It can increase silicon concentration in mares' milk and in so doing, delivers additional silicon to the foal (Lang et al. 2001).

Most importantly, calcium zeolite as a daily supplement has brought about has Brough about significant reductions in the rate of bone-related injuries in young quarter horses in race training (Nielsen et al. 1993).

An earlier study also suggested increased bone density where silicon supplements were added to the diet as calcium zeolite (Frey et al. 1992).

A contemporary study in which two sources of bio-available silicon were compared, established the effectiveness of calcium zeolite in enhancing plasma silicon concentration, and making improvements to the digestibility and retention of calcium (O'Connor et al. 2008).

Premium MTAZ establishes a strong foundation for success. It provides calcium zeolite in combination with other essential nutrients and micro-nutrients needed to support proper bone development, mineralisation, and strength.



PROTEIN & AMINO ACIDS

Protein requirements depend on:

- The individual horse's protein requirement
- Amount consumed
- Protein digestibility
- The quality of protein present (its amino acid profile)

www.fitstables.com
hello@fitstables.com
Fitstamp Ltd
152 – 160 City Road
London
EC1V 2NX
United Kingdom