

## SHOULD WE RACE 2 YEAR OLDS?©

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*'Why we should be racing 2 year olds'* was the title of a paper presented by Prof Leo Jeffcott at a seminar on equine fitness earlier this year. In his paper, Prof Jeffcott addressed the controversial argument that racing two-year olds places their future soundness in jeopardy. The premise on which this opinion is based is that the skeleton is not mature until a horse reaches 5-6 years of age. However, most skeletal disorders in growing horses are associated with overfeeding and lack of exercise. If nutrition is correct and exercise is controlled and both are based on an understanding of the major growth periods of bone, then exercise can in fact be beneficial to future soundness.

Bone mass increases until around 5 years of age, with the largest increases occurring in early foalhood and at 2 years of age. At the time racehorses enter training, bone mass is not sufficient to withstand the forces of fast exercise, however, the increase in strength and mass can be accelerated if a controlled exercise regime is implemented.

Racing fitness is in part determined by the adaptation of the skeletal system. Maximum bone strength may not be reached until 6 years of age so there is enormous potential for skeletal injury in young horses. Shin soreness occurs in 70-80% of 2 year old racehorses when they are exercised at speeds of greater than 12m/sec. Recuperation accounts for an estimated 12000 lost training days and millions of dollars annually. Higher weight and heavier tracks increase the strain by tiring the horse - bone strain increases by 26-35% when muscles become fatigued.

To prevent shin-soreness requires an understanding of how the equine skeleton responds to training. When a young horse enters training, resorption of bone occurs for around 30 days; then a slow reversal takes place and for 90 days the bone that was resorbed is laid down again. During this time, bone density fluctuates - it is lowest around day 56 then increases to day 112, leaving the horse susceptible to microfractures at a critical time when speed work is first introduced. Bone density is affected by nutrition. Excessive amounts of raw grains, chloride and sulphur, or deficiencies of sodium and potassium, can cause calcium, phosphorus and magnesium to be lost from the body. This can affect growth and skeletal soundness and, if prolonged, can lead to osteoporosis and weakening of the skeleton. The response of the skeleton to exercise can be supported by correct training and nutrition.

Mineral supplementation in early training improves bone strength, and increasing the 'available' calcium in the diet minimises the reduction in bone density. Chelation improves availability by 3-500% compared to naturally-occurring minerals, while trace mineral proteinates increase hip height and hoof growth in young horses. However, an excess of one mineral can induce deficiencies of others because of mineral interactions. Excessive levels occur up to 10 times more frequently when supplements are used and 78% of horses fed supplements have nutrient imbalances. The use of chelated mineral proteinates prevents mineral interactions.

In 1991, comparing timeform ratings of over 31000 three-year olds, Cunningham concluded that 35% of potential is due to genetic ability and 65% due to training and nutrition. Correct nutrition and controlled training are of paramount importance, because although inherited traits determine the ultimate limit to performance, nutrition and training determine how closely the horse approaches that limit. While major advances have occurred in breeding and veterinary medicine over the last 50 years, many horses are still fed and trained in a way that has not changed since last century. Poor nutrition has been termed the 'hidden handicapper'. However, research into nutritional management and exercise physiology have gained momentum and new feeding and training strategies are the result. Training is a combination of art and science and it is up to the trainer to apply the knowledge.

At MITAVITE, equine veterinarians, nutritionists and agricultural scientists combine their experience and knowledge to formulate the Mitavite range of feeds. Each feed within the range is individually formulated with an understanding of the major growth periods for bone and muscle and the demands of training and racing. The latest research results and advanced grain processing methods such as micronization and steam-extrusion are applied. Selected species-specific enzymes and natural cold-pressed oils chosen for their omega 3 levels are used. Inclusion of anti-oxidants, heat-stable vitamins, chelated mineral proteinates and regularly analysis and strict quality control procedures ensure that what is in the feed bin is supporting and protecting growth and performance