

FEEDING THE SHOWJUMPER

Dr J H Stewart BVSc BSc PhD MRCVS Dip BEP AAIM

The correct feeding of the showjumping horse can support optimum performance. We will discuss how you can *improve performance through nutrition* by addressing factors such as energy, fatigue, heat, oil, protein, glycogen loading, roughage, feeding techniques and muscle recovery.

Energy

The single factor most likely to affect performance. The amount of energy required depends on: the type, speed and amount of work, condition of the horse and skill of the rider and the environmental conditions

Published feeding guidelines act as a starting point, but the 'eye' of the feeder must help determine whether the horse is being fed enough energy.

Energy is used by the horse in two ways:

1. During *low intensity* work, muscles convert glucose to energy using oxygen - this is called *aerobic* work. Aerobic work can be sustained for long periods.
2. During *high intensity* exercise, the muscles use energy so quickly that aerobic energy supply is exceeded and glucose must be converted to energy without using oxygen. This is called *anaerobic* work. Anaerobic work can only be sustained for a very short period and results in lactic acid production. Showjumpers use part of their energy anaerobically.

During low-intensity, prolonged work (ie aerobic), fatigue occurs due to depletion of energy and overheating. In high intensity work (anaerobic), fatigue is caused by lactic acid build up and energy depletion.

Fatigue

Fatigue is brought on by falling glucose levels and rising lactic acid levels - both of which reduce muscle function. This adds extra load onto tendons, joints and bones - increasing the likelihood of falls, fractures and other injuries. If we feed to increase aerobic and anaerobic energy, we can delay the onset of fatigue - because the horse will not have to rely so heavily on the processes that herald the onset of fatigue. *Feeding strategies should increase blood and muscle glucose and address heat production.*

Glycogen loading: Several studies have shown that muscle glucose can be increased by dietary manipulation. Research by Scientists has revealed that reducing the amount of fermentable polysaccharides (eg raw grains) entering the large intestine can improve glucose availability for the performance horse. Steam-extruded and micronised feeds are recommended for horses that require more than 3kg of grain per day, those prone to 'tying up' and to reduce heat load.

Heat: 'Heat' also contributes to fatigue. To cool itself by sweating, the horse must divert blood away from the working muscles, and send it to the skin. This reduces muscle bloodflow such that oxygen and glucose levels fall and acid levels rise - hastening the onset of fatigue. The heat produced by working muscles can be reduced by feeding highly digestible, high oil diets and reducing the amount of protein. Reducing heat produced during metabolism can be achieved by using feeds that are highly digestible in the small intestine, thereby reducing the amount of fermentation in the hindgut. **Mitavite steam-extruded and micronised feeds are advanced feeds** where more than 90% of the feeds are digested in the small intestine. This can be compared to the digestion of raw grains where only 21% of barley 55% of oats and 29% of corn is digested in the small intestine, the balance is fermented in the large intestine, adding to heat load and reducing the energy available for working muscles.

Mitavite Economix and **Mitavite Munga** are steam-extruded formulations, helping to reduce the heat of digestion.

Feeding Oils

High oil feeds offers enormous benefits for temperament heat load and performance. Oil provides a cool and steady supply of energy - allowing the horse to preserve blood glucose levels. This 'glucose-sparing' effect delays the onset of fatigue, so that although horses cannot increase their maximum effort, they can maintain it for longer, before falling blood glucose levels herald the onset of fatigue.

Roughage: Weight handicap or fluid and electrolyte reservoir?

By altering the amount of roughage, we can alter both the composition and weight of the gut contents. Each kg of roughage holds 6-8kg of water and electrolytes in the gut. This additional water can be drawn on as body fluid levels drop during sweating. During show jumping, this extra weight from gut 'ballast' presents the horse with an added load to carry over the jumps. Roughage intake can be reduced to 0.5-1% of bodyweight for a couple of days prior to competition to decrease the weight handicap and gut ballast.

When to Feed Roughage

Recent research on the feeding of hay and grains has revealed that if hay is fed with concentrates then the digestion of the starch in the small intestine is reduced and gas, heat and acid production in the large intestine is reduced. It is suggested that hay is fed either two hours before or two hours later than concentrates.

Time of Feeding

Large concentrate meals should be fed no less than 4 hours before competition. Blood glucose levels are lowest 90 minutes after feeding. If exercising at this time, fatigue comes on sooner due to low blood glucose.

Muscle Recovery

Hard training and competing cause muscle damage due to lactic acid and/or over exertion. Intense exercise is a catabolic process involving the breakdown of body stores. By supplying the correct balance of carbohydrate, specific essential amino acids and anti-oxidants after an intense workout, the catabolic state can be switched to an anabolic (rebuilding of tissue) state, enabling muscles to recover and respond more quickly to training and competition. Feeding 0.5-1kg of

Mitavite Promita after hard work will enhance glycogen synthesis and aid muscle. To be effective the concentrate must be consumed no more than 2 hours before or 1 hour after hard work.

Veterinary research consistently shows that what is in the feedbin impacts on both health and performance. Mitavite performance feeds offer the safest and 'coolest' way to provide a high-energy intake and meet all vitamin, mineral and electrolyte demands - without adversely affecting performance, health or temperament.