

Feeding the Fizzy Horse

Dr J H Stewart BVSc BSc PhD MRCVS

Some horses are fizzy due to a nervous temperament and others become more unpredictable as feed levels are increased or if the diet is unbalanced. Avoiding raw grains; feeding 'cool' feeds to ensure digestion occurs primarily in the small intestine; matching energy levels with workload and ensuring that the diet does not contain imbalances are feeding techniques which can be used to aid in lowering fizzy behaviour of horses.

Raw Grains: The heating effect of raw grains is primarily due to their poor digestion in the small intestine and rapid fermentation in the large intestine. The by-products of fermentation include lactic acid and ammonia. This wastes natural nutrients and goodness and leads to overload the digestive system which increases the risk of veterinary emergencies and causes a variety of side effects including fizzy behavior. Sudden surges in lactic acid and ammonia from fermentation affect blood glucose which in turn cause rapid changes in insulin and cortisol levels. These swings in hormones are largely responsible for the 'fizzy' behaviour characteristic of many horses on raw grain diets.

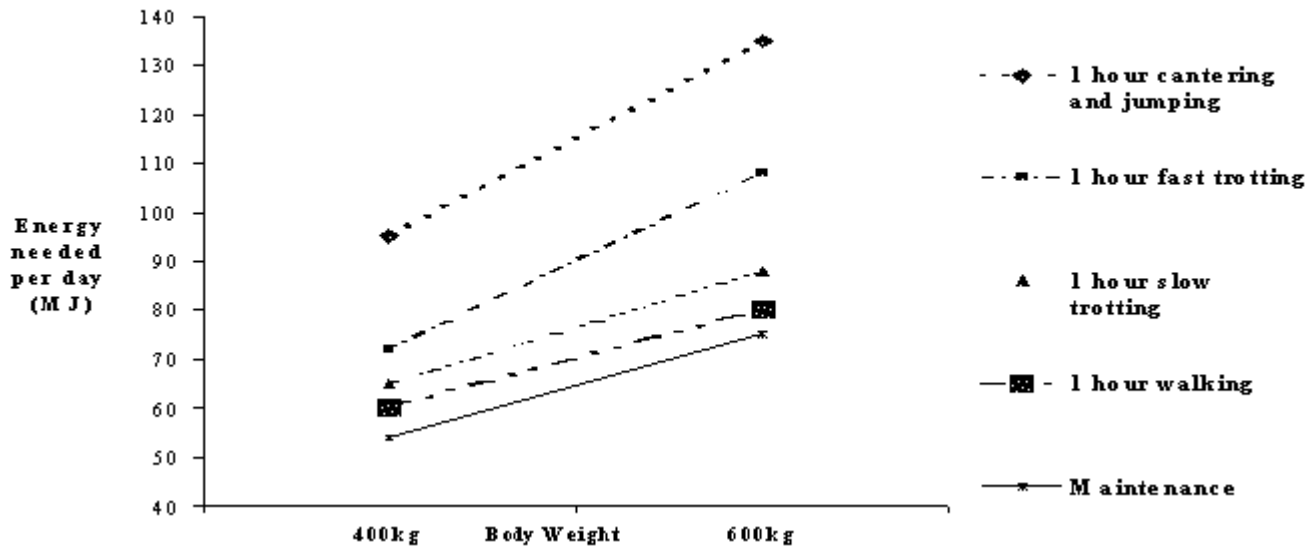
Because raw grains are poorly digested in the large intestine, horsemen and women have cooked, boiled, steam-rolled and pelleted feeds for horses for centuries. Whilst these older methods of feed preparation have a small effect on digestibility - improving barley digestion from 21% to 48% and corn from 21% to 50%, they damage many essential nutrients and have been superseded by steam-extrusion and micronization.

Mitavite steam-extruded and micronized feeds: are advanced feed processing techniques which improve digestion in the small intestine to over 90% - reducing the risk of small intestinal overload and flooding of the large intestine with readily fermentable starch and protein. Digestion of feed in the small intestine lowers the amount of feed fermented in the large intestine, decreasing the acid, ammonia, heat and gas which is produced. Ammonia is an irritant to the central nervous system, causing restless, fidgety behaviour. In addition, essential amino acids are rendered useless and lost to the horse. Workload on the liver and kidneys is increased in excreting the ammonia from the unusable protein. In addition, the loss of essential amino acids causes the horse to lose muscle strength, tone and condition and favours fat deposition at the expense of muscle and bone development.

Dry-extrusion results in loss of vitamins and destruction of proteins due to friction and shear in the extruder barrel. Studies in Switzerland have shown up to 50% lysine damage when dry extrusion is used. This means that the horse does not get the full value of the feed protein. Losses during steam-extrusion are negligible (around 5%).

Energy and workload: An imbalance between energy and work intensity will lead to excessive weight gain and/or 'fizzy' behaviour. As a rule of thumb, horses require around 1.5% of their bodyweight in feed per day. Of this, 1% should be roughage to ensure optimum functioning of the gut and avoid stomach ulcers and caecal acidosis. The chart below shows the energy required for different types and levels of work.

ENERGY REQUIREMENTS AND EXERCISE INTENSITY



Dietary imbalances: The dietary factors which may adversely affect temperament are listed below.

DIETARY FACTORS WHICH MAY AFFECT TEMPERAMENT AND BEHAVIOUR	
NUTRIENT	EFFECTS
Excess protein	Excess ammonia irritates nervous system, causing fidgety behaviour
Pellets	Eaten rapidly, short feeding time can increase bedding and wood-chewing
Magnesium deficiency	Restlessness
B-vitamin deficiency	Nervous, unsettled behaviour
Unprocessed grains	Can cause wide swings in blood glucose, insulin and cortisol levels
Large meals twice daily	Fluctuating blood sugar levels can cause changes in temperament
Oils	Slow, steady release of energy ; glucose-sparing effect delays fatigue

Oils are excellent sources of dense energy and are ideal as an energy source for the fizzy horse. Containing approximately 2-3 times more energy than the same weight of grain, horses can handle up to 1500ml per day, introduced gradually over a 3-6 week period, beginning with 5-10ml a day and increase it gradually by 10-20ml a day. Using high oil feeds and then top-dressing with extra oil as required, allows a degree of control over energy intake as work levels change. It takes about 3 weeks for the digestive system to fully absorb added oils and about 3 weeks for the muscles to fully utilize oil as an energy supply.

Vitamite Omega 3 oils have: an anti-inflammatory response and red blood cell membranes become more supple and flexible, improving circulation and oxygen delivery. The advent of steam-extrusion has enabled the inclusion of high oil levels in complete feeds. With older methods of processing, such as pelleting, oil could not be included at more than about 4 - 5%.

The Mitavite team of Veterinarians, Equine Nutritionists and Agricultural Scientists have formulated rations using scientifically balanced, steam-extruded and micronised feeds with the addition of oils, to enhance digestion in the small intestine. This decreases the amount of digestive by-products, which are produced by the large intestine, helping to lower fizzy behaviour

For further information on feeding horses please fill in our ***nutrition advice form***.