Ranvet Suggested Tying-Up Diet

Suggested Tying-up Ration (Daily/Per Horse/500kg)	
Feed Type	**Full Work**
Mixed Chaff	1kg
Extruded Barley	2.5kg
Cracked Corn	2kg
Tick Beans	250g
Lucerne Hay	Ad Lib (approx 4kg)
Supplements:	
Power Formula	600g
Racing Oil	250mL
Neutrolene Plus	90mL
Ration Balancer or Aminovite Plus	60g
Salkavite	60g
Salt	60g

Note; Full work includes various activities from 1 hour per week fast work to 6-12 hours per week slow work. This exercise intensity is considered 'racing level'. ^Ad lib Lucerne hay consumption of 4kg/day has been calculated according to the minimum daily roughage requirements of 1% bodyweight.

Recommendations

The most important point is to feed according to workload, and to feed for the work done, not for the work about to be done. Therefore, on rest days, a resting diet is appropriate, and as the workload increases, so too do the levels of each of the ration ingredients. For example on Sunday, when minimal work is completed (either swim or walk), remove all grain and feed only Power Formula, Mixed Chaff, Ration Balancer, Salt and Lucerne Hay.

- Reduce starch based energy sources immediately until muscle enzymes have decreased to acceptable levels
- Working horses twice daily if possible, with a thorough warm up. A thorough warm up is quite important to let horses (who have tied up previously) 'know" exercise does not lead to pain associated with 'tying up'.
- Neutrolene 45mL morning and afternoon
- One full BC% tube, given 1 hour pre-work and within 30 mins post work
- No complete rest days
- Monitor muscle enzymes AST and CK via bloods.

Further Notes

Electrolyte supplementation is paramount to reducing the occurrence of tying up. Electrolytes are required for electro-chemical stimulation and relaxation of muscle fibres to facilitate routine movement. Research conducted at the Animal Health trust in Newmarket found that in a study of 144 horses, which showed repeated signs of tying up, 69% had abdominal fluid electrolyte levels. Following suitable electrolyte provision, 84% of these horses showed no further signs of tying up.

Electrolytes are water-soluble, they are unable to be stored within the body and are excreted via the urine or lost through sweat on a daily basis. Daily electrolyte provision is therefore of importance to ensure suitable levels are present.

Electrolyte provisions should include:

- Daily supplementation with a comprehensive electrolyte such as 30-60g/day of Salkavite, which contains all key electrolytes in addition to trace minerals and B-Group vitamins for optimal performance during sweat.
- Adding 30-60g/day of salt to the diet provides a supply of sodium and chloride within the ration to replenish the high levels lost through sweat
- The evening before an event and immediately post hard exercise, provision of oral electrolytes (Electro Paste) will replenish the bodies electrolyte stores and stimulate the thirst reflex.
- 45-90 mL/day of Potassium Plus has also been widely used for exercise recovery and horses prone to tying up as it contains high levels of key electrolytes lost dung exercise and added Vitamin E and selenium, which are beneficial in reducing tissue damage following exercise.

Ant-oxidants and branch chain amino acids are used to reduce the damage to the muscle tissue, which occurs following exercise or an episode of tying up. Antioxidants such as Vitamin E and selenium reduce the actions of oxidative free radicals, which are produced as a by-product of energy metabolism. In absence of anti-oxidants, these free radicals damage cell structures (in particular muscle proteins and fats). Research has indicated that increased Vitamin E and anthocyanin intake is associated with improved finishing times and lowered white blood cell degradation.

- The use of 60g of Stamina & Recovery would be a beneficial inclusion within the diet of a horse prone to tying up to enhance anti-oxidant activity and reduce oxidative damage to muscle tissue via free radicals. Research has shown horses supplemented with Anthocyanin (the active in Stamina & Recovery) have low levels of the muscle enzyme AST and CK post work, highlighting the protective effect on muscle.

Branch chain amino acids (BCAA's) are considered 'essential amino acids' as they are unable to be synthesized and must be obtained via the diet. Their addition within the diet may aid to reduce the breakdown of muscle protein, detoxify peroxides, provide anti-oxidant activity, improve energy metabolism and protein synthesis, and facilitate glucose availability to the brain, nervous system and exercising muscles. Research into the administration of BCAA's has found that they are beneficial in reducing blood lactate and muscle enzyme concentrations (CK & AST) in exercising horses. The use of BCAA's is therefore beneficial for horses prone to tying up due to the elevation of CK & AST levels, which occurs during an episode of tying up.

- Provision of 1 syringe of BC5 Amino Acids both pre and post exercise provides a concentrated source of 5 BCAA's for reduced blood lactate, reduce muscle tissue damage and improved muscle recovery following exercise or an episode of tying up.