

Full work racehorse - Tying up ration, based on 500kg

Recommended Diet (Daily) Per Horse **Full work 'tying up' ration**

Feed Type	Total Daily (kg)	Total Daily (g)
Lucerne chaff	0.5	500
Wheaten chaff	0.5	500
Cracked corn	2.0	2000
Micronised barley	2.5	2500
Tick bean	0.25	250
Power Formula®	0.6	600
Racing Oil®	250ml	250ml
Neutrolene PLUS®	90ml (morning & afternoon)	90ml
Ration Balancer Pellet®	0.06	60
Salkavite®	0.06	60
Stamina & Recovery®	0.06	60
Salt	0.06	60
Lucerne hay	4 (4kg= 2 biscuits)	4000
TOTAL CONSUMPTION	11.02	11020

Calcium: Phosphorus Ratio 2.49

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 e.g. Sunday completely remove all grain and feed only Power Formula, Lucerne & wheaten chaff, Ration Balancer Pellet, Salt and Lucerne hay.

- Reduce starch based energy sources immediately for 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 Branch chain amino acid paste tube BC5, given 1 hour pre-work and within 30 mins post work.
- No complete rest days ie walk or swim Sunday.
- Monitor muscle enzymes AST and CK via bloods. I would recommend supplementation with anthocyanin (powerful anti-oxidant) if AST levels are high.

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 abnormal 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 exercise
- 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 (e.g. Electro Paste®)** will replenish the bodies electrolyte stores and stimulate the thirst reflex.
- **45-90m L/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 during exercise and added Vitamin E and selenium, which are beneficial in reducing tissue damage following exercise

Anti-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 the 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 **60 grams 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 the 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, 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, reduced muscle tissue damage and improved muscle recovery following exercise or an episode of tying up

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