

Electrolytes: Administration to Racehorses

- Electrolytes ('salts') are one of the most abundant compounds in the body after water (in which they are dissolved). The major electrolytes include sodium (Na), potassium (K), chloride (Cl) and calcium (Ca). Red blood cells and nerve cells contain very high concentrations of potassium but the concentration in plasma is quite low. Calcium is low in plasma, but high in bone and muscle cells.
- Horses can not make electrolytes and so they must obtain them from their diet. A horse fed a natural diet including grains and hay/haylage, and particularly if given access to pasture, is unlikely to become electrolyte deficient. Most proprietary feeds contain supplementary electrolytes. Even so, many trainers prefer to 'play safe' and administer electrolyte supplementation.
- The body has very large stores of the different electrolytes. Even if a horse were not given any electrolyte supplements in its feed it would generally take several weeks for this to have an adverse effect.
- However, electrolytes are lost on a daily basis in faeces, urine, breath moisture, and of course in sweat and it is important to ensure that these losses are replaced in the diet. The harder a horse works, the longer it works and the hotter the weather, the more sweat is lost. Thus the horse will lose both water (this is termed 'dehydration') and electrolytes ('salt loss', which is not the same as dehydration).
- If sufficient electrolytes are provided in the diet on a regular daily basis, then it will not be necessary to administer additional electrolytes on the day of racing. Nor is it advisable to adopt a strategy of *not* feeding electrolytes in training and *only* feeding them on race-day.
- Extended travelling (exceeding 4-5 hours), especially in hot weather, should be avoided on race-day as sweating may be significant and you will *not* be permitted to administer electrolytes in the racecourse stables pre-race. Provided the horse has been fed a diet adequate in electrolytes, this will not affect performance. Of course access to water will be necessary for rehydration.
- Provided a horse is eating and receiving daily electrolytes in its diet, there is no benefit in giving concentrated electrolyte products in paste or soluble powder form as a routine in the pre-race period. In fact there are two serious potential adverse effects. Firstly, because the products are 'salty', the horse may drink *excessively* and as water equals weight, the horse would run at a disadvantage. Furthermore excessive water intake immediately pre-race could increase blood pressure and worsen lung bleeding. In the *absence* of available water, the concentrated electrolyte product can draw water from the body into the gut.
- Concentrated electrolyte products in paste or soluble powder form can be very useful in certain circumstances; for example following a particularly hard piece of work, or race. However, many products on the market are high on palatability and low in electrolytes. As such, they may be supplying very little in relation to the amount of electrolytes being consumed in the feed.
- Sudden addition of large quantities of electrolytes to drinking water is usually poorly accepted. The maximum concentration of pure electrolytes in water that horses will drink is usually of the order of 6-9 grams/litre or 90 to 135 grams in a 15 litre bucket. If electrolytes are provided in water then plain water should always be available. Providing electrolytes in water only may lead to reduced fluid intake and adverse effects on health and welfare.
- The most effective strategy for supplying electrolytes to horses is via the normal diet and this should be provided on a regular daily basis according primarily to the level of work and climatic conditions.