UNDERSTANDING HYDRATION

**SWEAT: MORE THAN JUST WATER**

**BICARBONATE AND SWEABING**
Excess bicarbonate in the body is thought to have performance enhancing effects. For this reason an upper acceptable limit has been set by the majority of competition jurisdiction bodies. Provided bicarbonate sources are fed according to the manufacturer’s instructions and the practice of pre-race drenching is avoided, it is unlikely that one would exceed these limits.*

**GLUCOSE**
Glucose is a simple sugar used as an energy source within the body. Together glucose and sodium are actively pumped into the body by a transporter pump to aid/speed their absorption process. The practice of adding glucose to electrolyte preparations assists with the rapid absorption of sodium.

*Owners are advised to seek advice from relevant authorities and nominated veterinary surgeon. Individual circumstances and metabolic changes may result in positive swab results. In thoroughbred racing, it is against the rules to administer any alkalisating agent, by any means, during the one ‘clear day’ prior to race day.

**ACIDOSIS AND ALKALOSIS**
A horse’s blood has a pH of 7.4 – 7.45, making it very slightly alkaline. It is very important that a horse’s blood pH is kept within these levels for the horse to function correctly. Fortunately a horse’s system is very good at maintaining this, but to do so it requires the right electrolytes and fluids to be available.

**THE PH SCALE**

- **pH 1** ACIDIC
- **pH 7** NEUTRAL
- **pH 14** ALKALINE

- Horse’s blood dropping below 7.4 is called Acidosis
- Horse’s blood rising above 7.4 is called Alkalosis

**Example of different levels of electrolytes lost in different sports**

<table>
<thead>
<tr>
<th>Sport</th>
<th>Sweat rate</th>
<th>At risk of:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barrel Racing</td>
<td>Light</td>
<td>Acidosis</td>
</tr>
<tr>
<td>Cutting</td>
<td>Light</td>
<td>Acidosis</td>
</tr>
<tr>
<td>Racing</td>
<td>Light</td>
<td>Acidosis</td>
</tr>
<tr>
<td>Showjumping</td>
<td>Moderate</td>
<td>Alkalosis</td>
</tr>
<tr>
<td>Showinng</td>
<td>Moderate</td>
<td>Alkalosis</td>
</tr>
<tr>
<td>Dressage</td>
<td>Moderate to Heavy</td>
<td>Alkalosis</td>
</tr>
<tr>
<td>Racing</td>
<td>Moderate to Heavy</td>
<td>Alkalosis</td>
</tr>
<tr>
<td>Polo/Polocrosse</td>
<td>Moderate to Heavy</td>
<td>Alkalosis</td>
</tr>
<tr>
<td>Western Pleasure</td>
<td>Moderate to Heavy</td>
<td>Alkalosis</td>
</tr>
<tr>
<td>Endurance</td>
<td>Heavy</td>
<td>Alkalosis</td>
</tr>
<tr>
<td>Eventing</td>
<td>Heavy</td>
<td>Alkalosis</td>
</tr>
<tr>
<td>Stock work</td>
<td>Heavy</td>
<td>Alkalosis</td>
</tr>
<tr>
<td>Horses kept in hot, humid conditions</td>
<td>Heavy</td>
<td>Alkalosis</td>
</tr>
</tbody>
</table>

All these electrolytes play a vital role in the horse’s body function and all are lost in the horse’s cooling processes in differing amounts depending on the activity being undertaken. This is why it is necessary to supplement with a complete electrolyte which contains the right balance for the requirements of the horse.

**WHAT HAPPENS TO A HORSE’S BODY WHEN IT SWEATS?**

**THE SWEATING PROCESS**
As the concentrated sweat solution leaves the body and evaporates, the horse’s electrolytes supplies are depleted. If the horse does not have enough stores, or if the electrolytes lost are not replaced immediately, reduced functionality occurs performance and lack of stamina.

Sweat loss is determined by three factors:
1. Exercise intensity
2. Exercise duration
3. Climatic conditions
The longer a horse sweats, the greater its electrolyte losses.

**ACIDOSIS**
Horses exercising at a very high intensity for a shorter period of time will lose less sweat, but will produce excess lactic acid in their muscles which can lead to acidosis. This lactic acid is transferred to the blood causing it to become more acidic. Acidosis results in muscle fatigue and soreness, lack of stamina and can lead to ‘tying up’.

**ALKALOSIS**
Hypochloraemic alkalosis results in poor performance, blowing or ‘thick windedness’ or nervousness as a result of an increased ratio of bicarbonate to chloride in the blood.

**HYDRATION AND RECOVERY PRODUCTS**

**HYDRATION PRODUCTS**

**REHYDRATE.**

**DAILY MAINTENANCE.**

**REFRESH.**

**RECHARGE.**

**COMPETITION/RACE DAY.**

**HYDRATION AND RECOVERY PRODUCTS**
FOR HARD-WORKING PERFORMANCE HORSES.

**SWEAT: ELECTROLYTES LOST IN A LITRE OF SWEAT**

- CHLORIDE 6.2g
- SODIUM 3.2g
- PROTEIN 2.5g
- POTASSIUM 1.4g
- CALCIUM 0.3g
- PHOSPHATE 0.14g
- IRON 0.24g
- MAGNESIUM 0.1g

**SKIN SURFACE**
Latherin helps to spread sweat into a thin film across skin aiding evaporation and cooling.

**BLOOD VESSEL**
To expel heat, the blood transfers electrolytes and water into the sweat gland to produce diluted sweat.

**WATER CHLORIDE SODIUM PROTEIN POTASSIUM CALCIUM PHOSPHATE MAGNESIUM**

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