



How to use electrolytes correctly

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The Equine Nutrition Specialists

Why are many people scared of feeding electrolytes to horses?



What is an electrolyte?



Common name = Salt
Chemical name = Sodium Chloride
Chemical formula = NaCl

Salt (NaCl) = Sodium (Na) + Chloride (Cl)

Salt is a mix of two different electrolytes....Na & Cl

What is an electrolyte?

*“an electrolyte is a single, pure chemical substance that can have a **positive (+)** or **negative (-)** charge”*

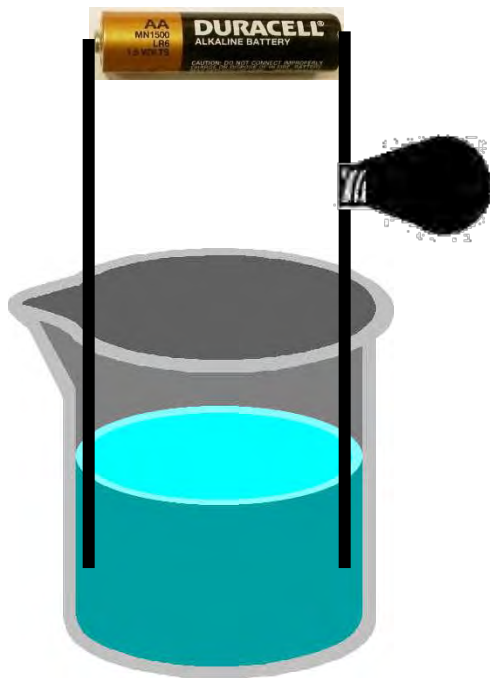


Salt (NaCl) = Sodium (Na⁺) + Chloride (Cl⁻)
Positive **Negative**

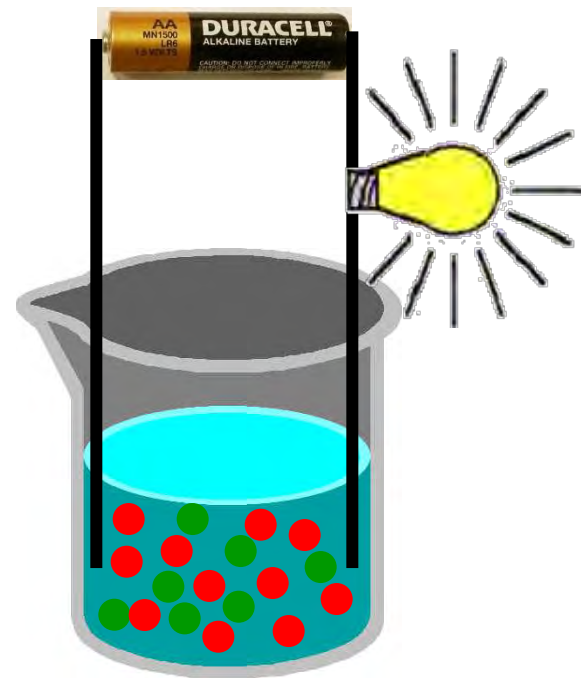
So we could write salt as Na⁺Cl⁻ or just as NaCl

What is an electrolyte? ...in biology

“an electrolyte is a substance that when dissolved in water produces a solution that will conduct electricity”

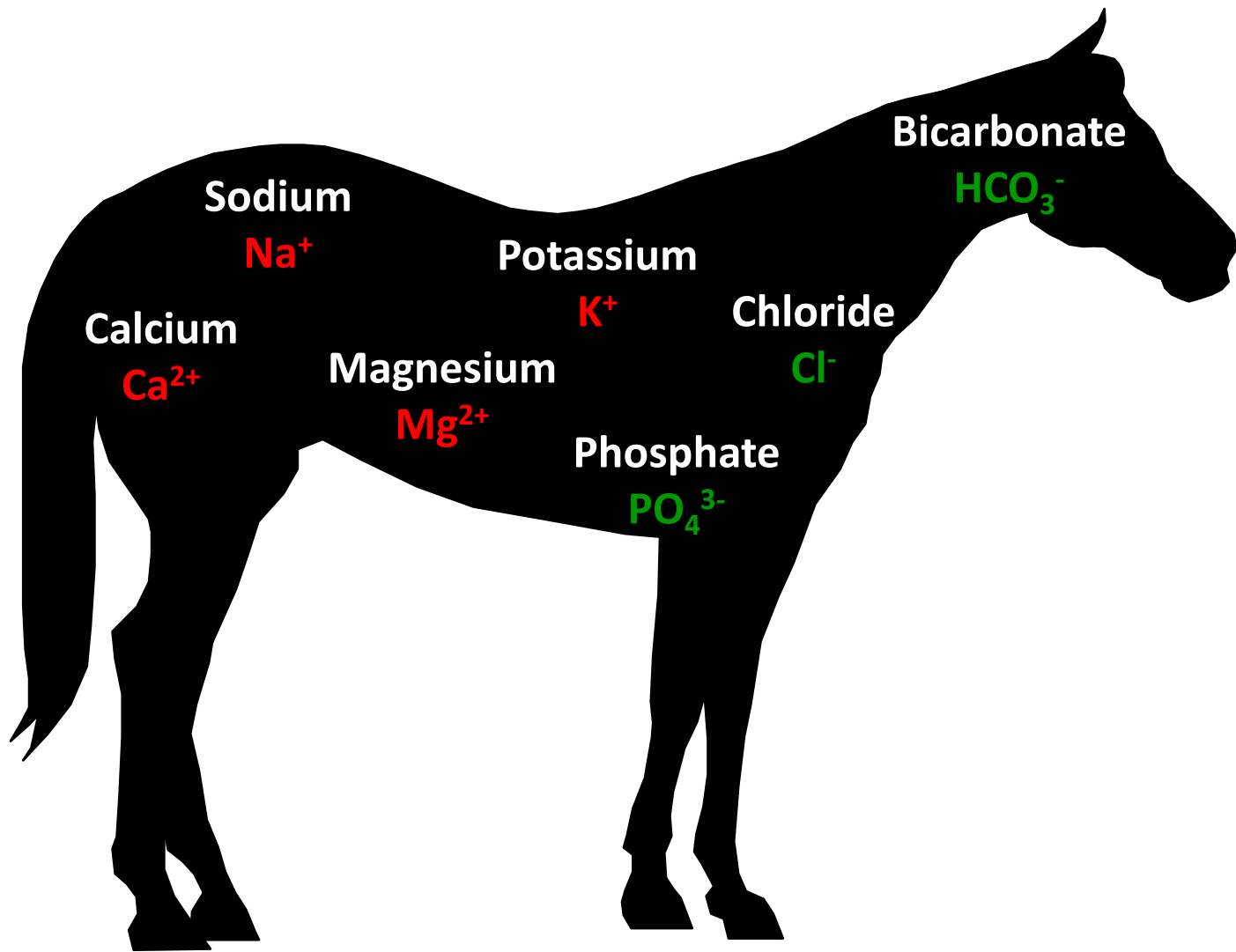


Water only



Water + NaCl

What are the main electrolytes?



Sodium



Potassium



Chloride



Bicarbonate



Calcium



Magnesium



Phosphate



What do electrolytes do?

- Regulate thirst e.g. **Na**
- Allow nerves to work e.g. **Na**, **K** and **Ca**
- Help muscles contract e.g. **Na**, **K** and **Ca**
- Bone and tooth formation e.g. **Ca**
- Energy and chemical reactions e.g. **Mg**
- Making DNA and RNA e.g. **Mg**, **PO₄**
- Making stomach acid e.g. **Cl**
- Digestion e.g. **Cl**

Electrolytes

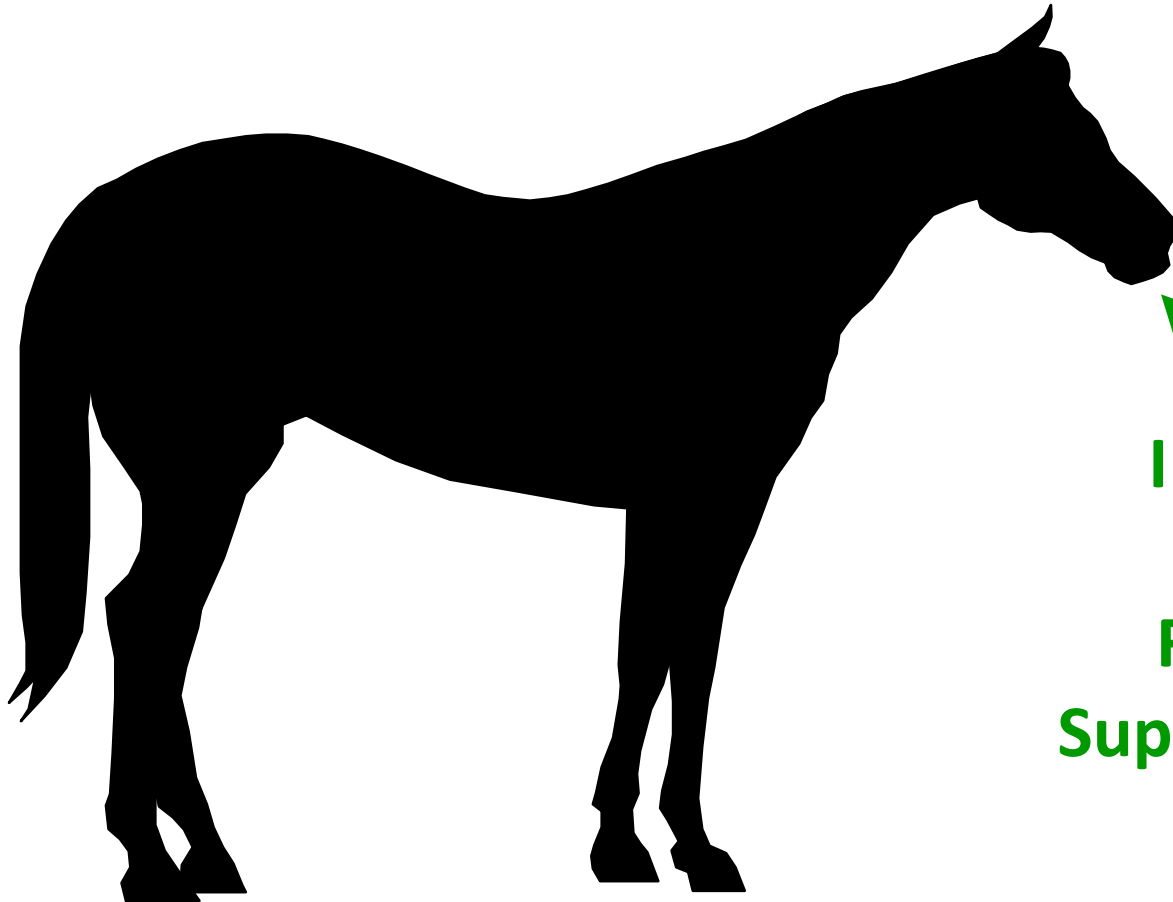
- Horse diets are **HIGH** in POTASSIUM (K)
- Horse diets are **LOW** in SODIUM (Na)
- **ALL** horses should receive a little salt each day (25g)
- Horses in work require supplemental electrolytes
 - SODIUM, POTASSIUM, CHLORIDE, CALCIUM, MAGNESIUM

Electrolytes

- **Horses DO NOT take in the correct amount of salt from salt blocks**

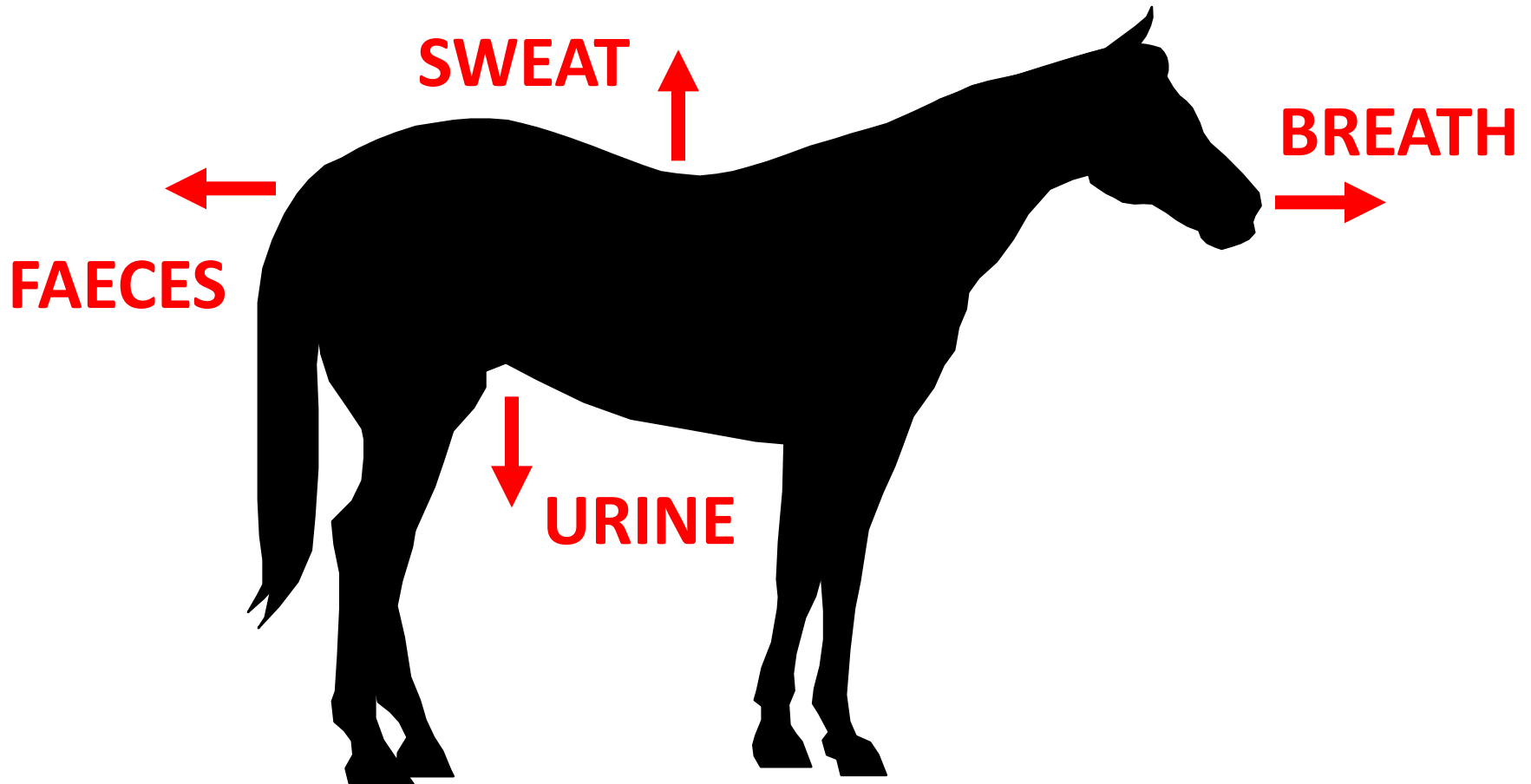


Electrolyte balance



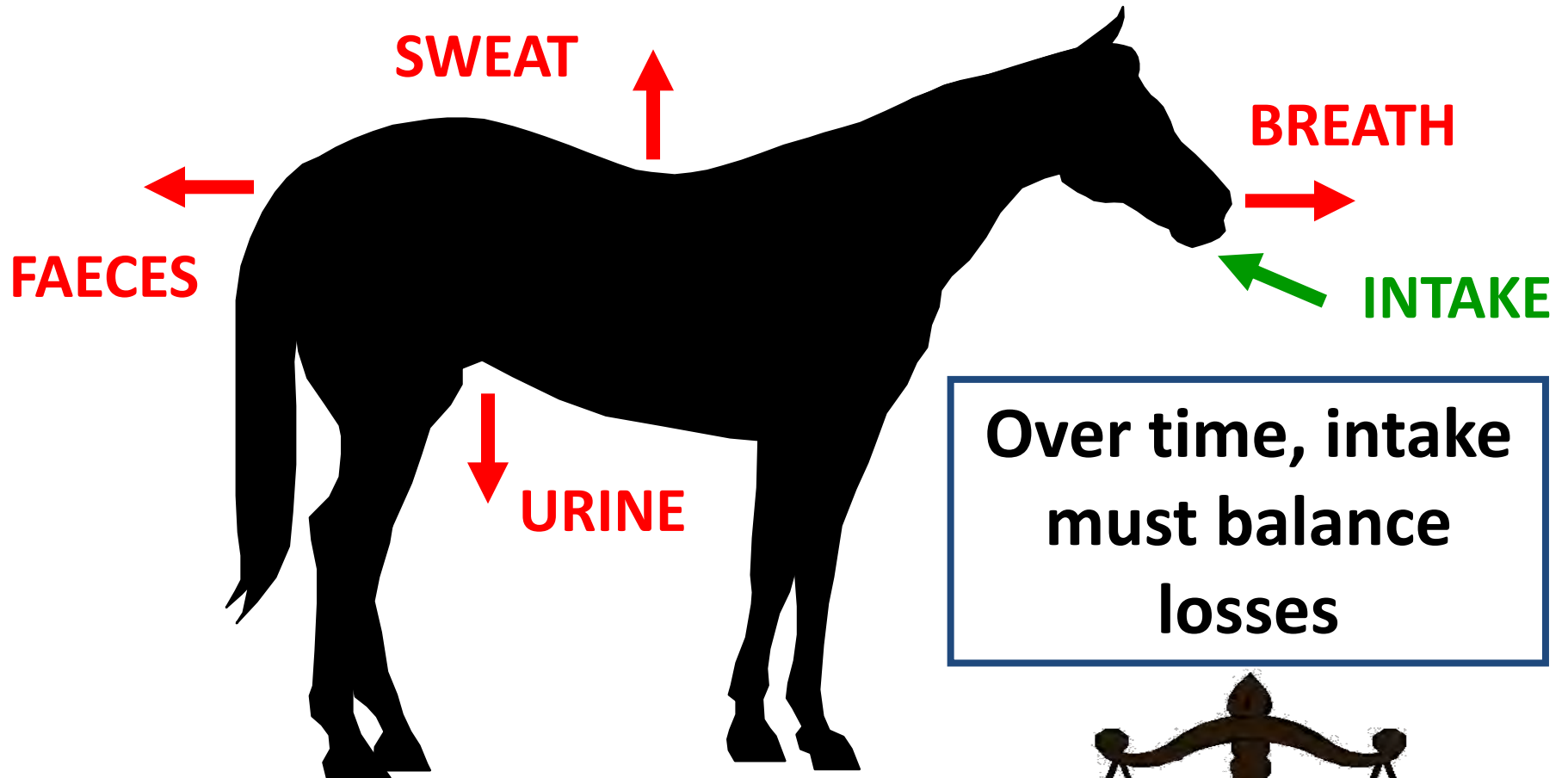
INTAKE
Feed
Forage
Supplements

Electrolyte balance



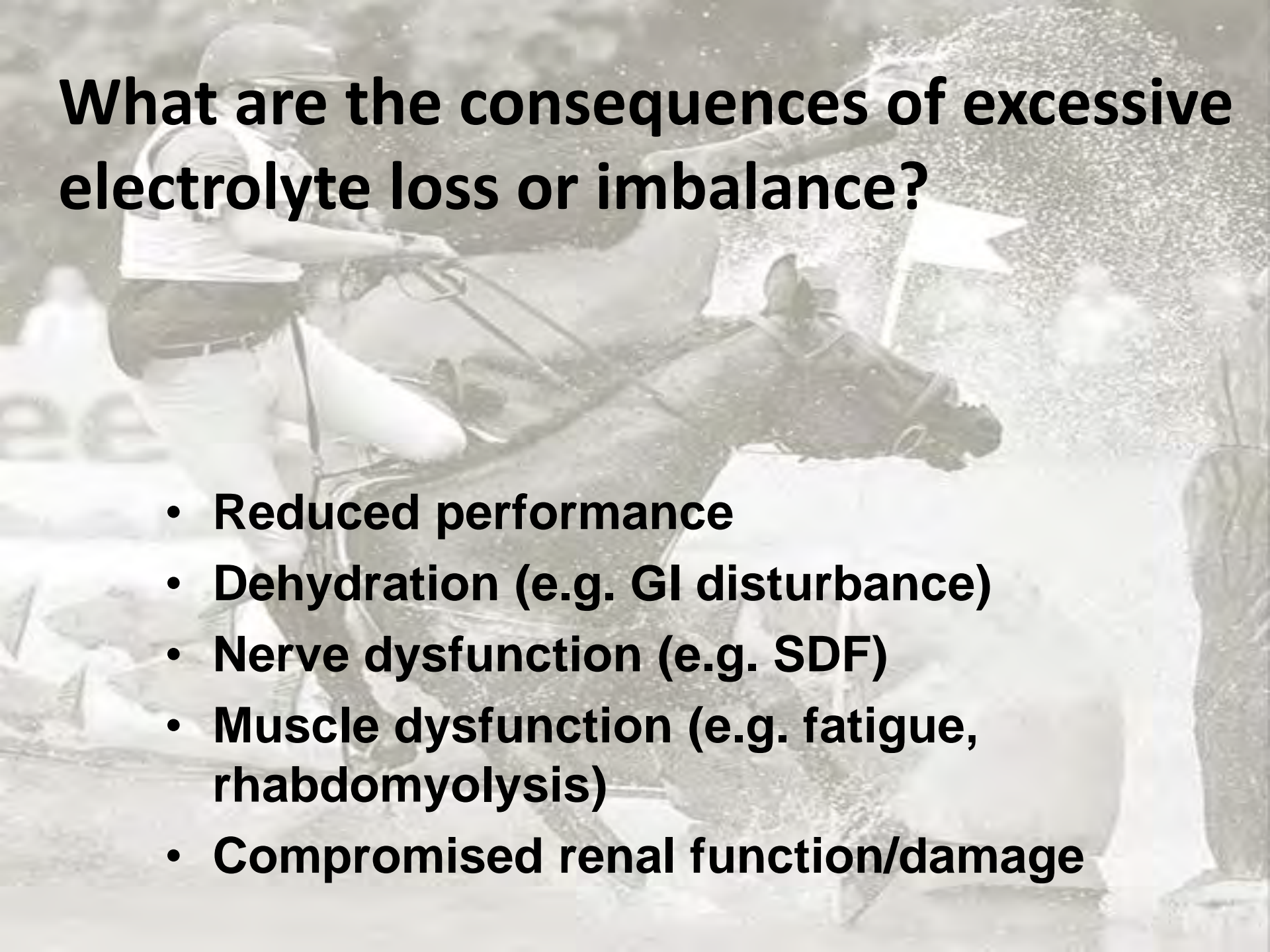
ELECTROLYTES are lost each day

Electrolyte balance



Over time, intake
must balance
losses

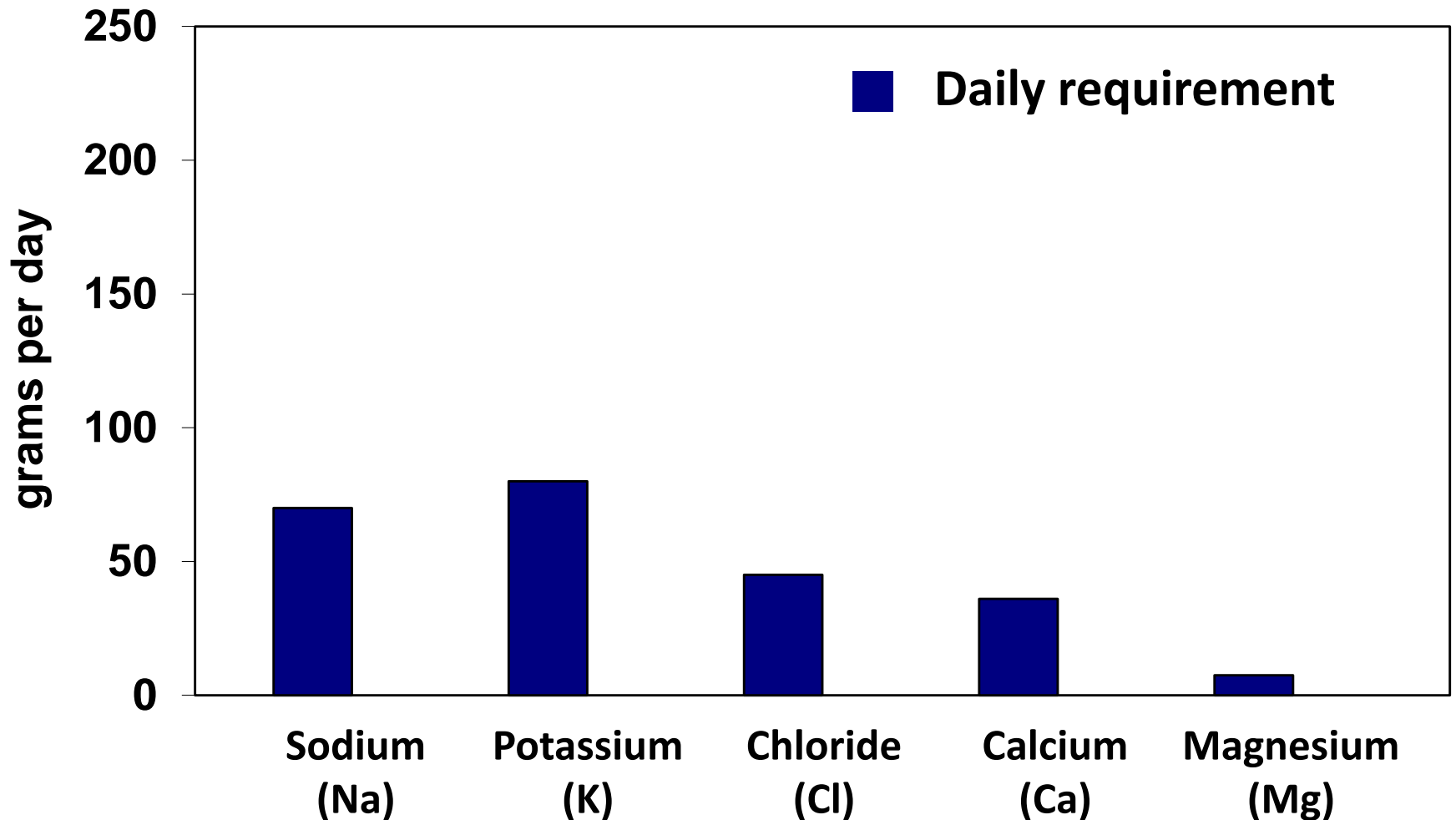


A person wearing a white tank top and light-colored pants is riding a dark horse in a field. The horse is in motion, and there is a white flag visible in the background. The overall scene is slightly blurred, suggesting movement.

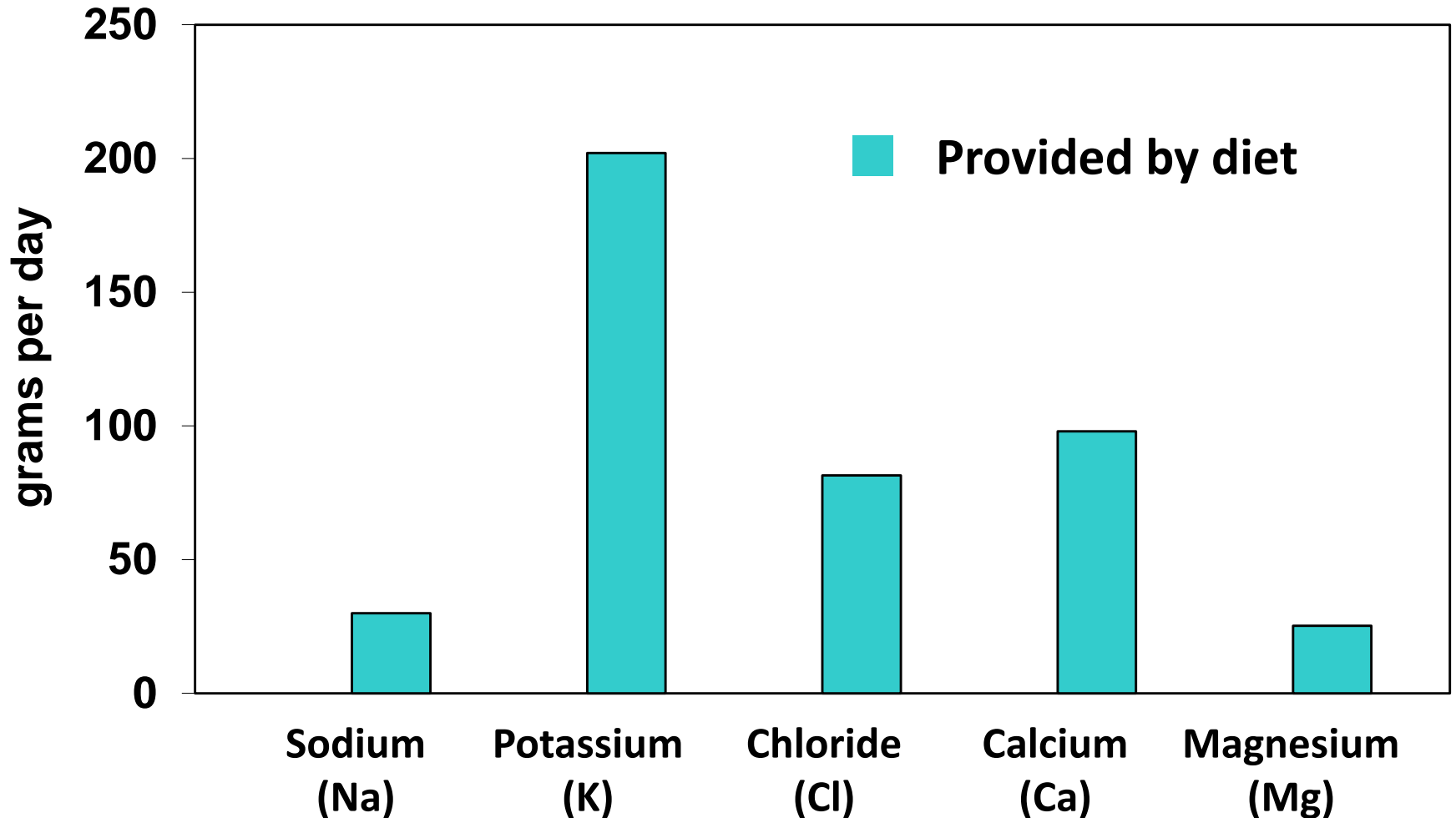
What are the consequences of excessive electrolyte loss or imbalance?

- **Reduced performance**
- **Dehydration (e.g. GI disturbance)**
- **Nerve dysfunction (e.g. SDF)**
- **Muscle dysfunction (e.g. fatigue, rhabdomyolysis)**
- **Compromised renal function/damage**

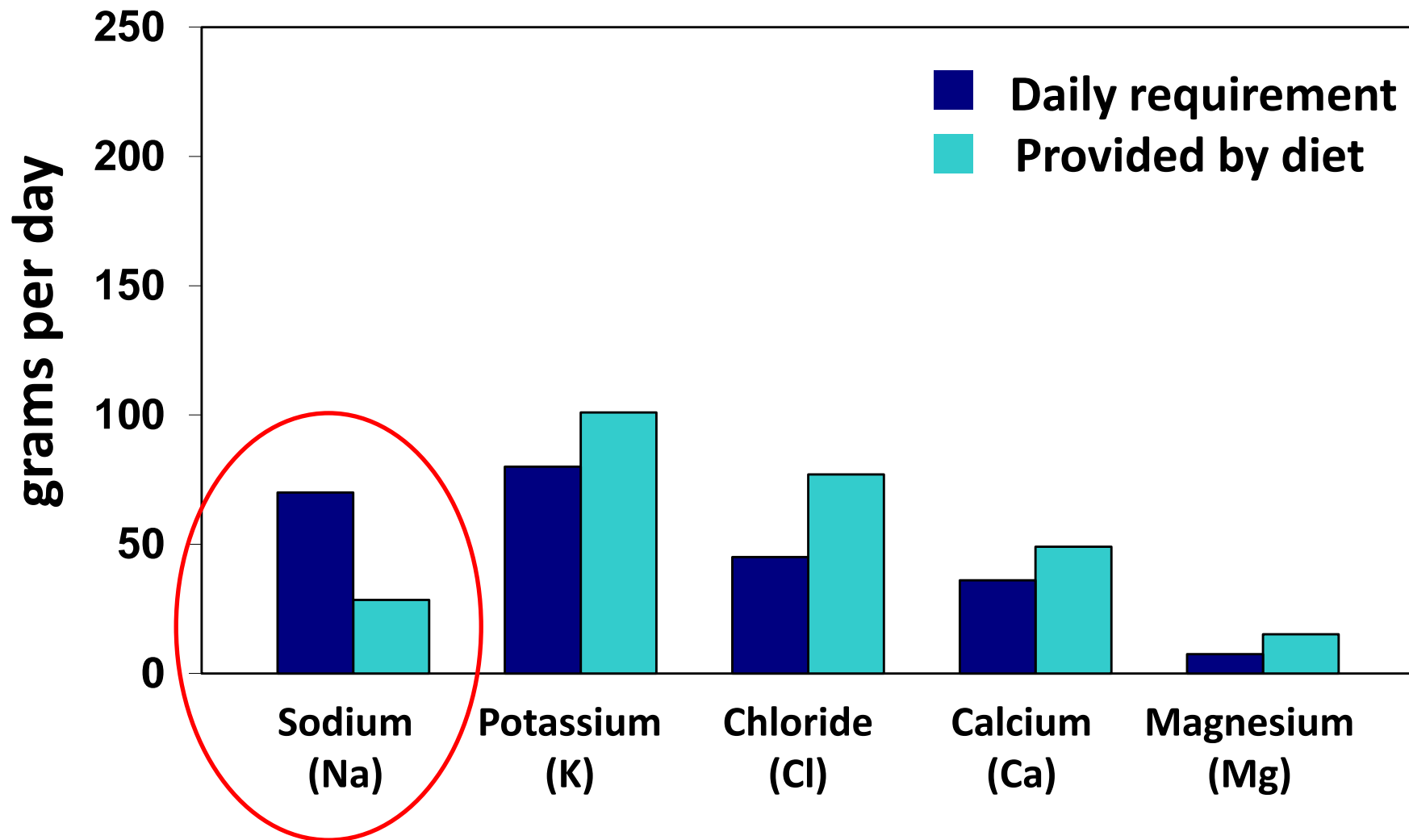
Electrolyte needs for a horse in light work



Electrolytes provided by a hay, alfalfa, oil diet



Electrolytes provided by a hay, alfalfa, oil diet...adjusted for "availability"



What determines how much electrolyte my horse needs?

- **How hard its working** (distance, speed, hills, going)
- **How much your horse sweats**
- **The weather**
- **What you feed**
- **Individual variation**



Electrolytes

- **Electrolyte problems**
 - Poor performance
 - Tying-up (muscle)
- **Take 1-2 months to develop**
- **Often seen in late Spring-Summer**
- **Take at least 2-3 weeks to correct**
- **Electrolyte deficiency is VERY COMMON**
- **Over-feeding electrolytes is VERY RARE**

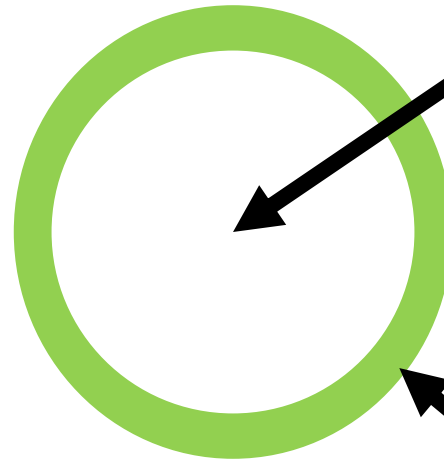
How to feed electrolytes

- **Feed a balanced electrolyte supplement**
- **Feed in feed, NOT in water**
- **Feed every day**
- **Feed same amount every day**
- **Do not try to load for comeption**
- **Split between 2-3 feeds**
- **Feed a slight excess – allow kidney to sort out what the body needs!**

Electrolytes



Electrolytes with Microbead™ Technology



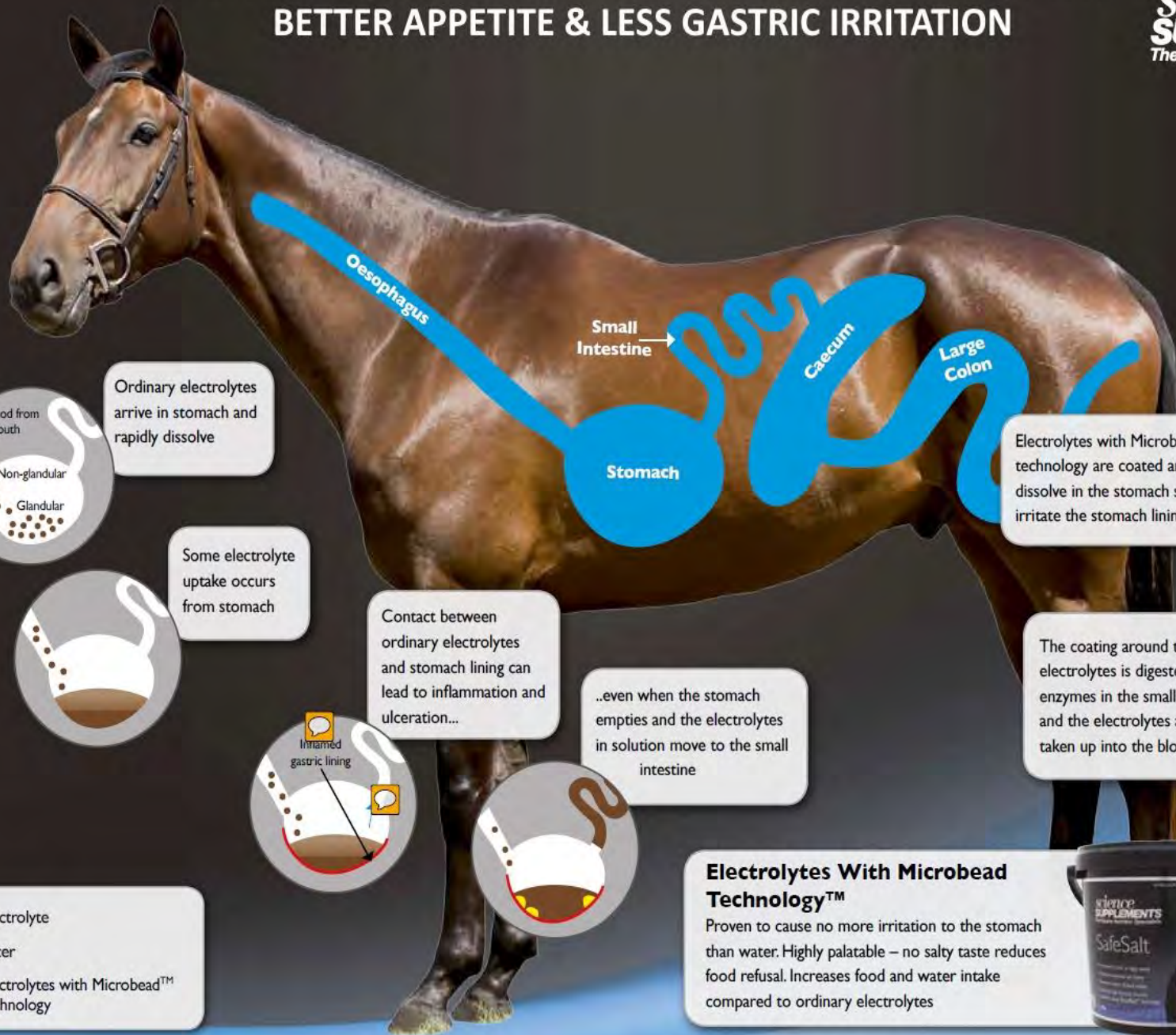
Salt grain

**Flavoured oil
outer coating**

**In independent trials, electrolytes with
Microbead Technology increased feed and
water intake by on average 33% compared
with ordinary electrolytes**

FAT COATED ELECTROLYTES FOR IMPROVED PALATABILITY, BETTER APPETITE & LESS GASTRIC IRRITATION

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Ordinary electrolytes arrive in stomach and rapidly dissolve



Some electrolyte uptake occurs from stomach



Contact between ordinary electrolytes and stomach lining can lead to inflammation and ulceration...



...even when the stomach empties and the electrolytes in solution move to the small intestine



Electrolytes with Microbead™ technology are coated and do not dissolve in the stomach so cannot irritate the stomach lining



The coating around the electrolytes is digested by enzymes in the small intestine and the electrolytes are then taken up into the blood

- Electrolyte
- Ulcer
- Electrolytes with Microbead™ technology

Electrolytes With Microbead Technology™

Proven to cause no more irritation to the stomach than water. Highly palatable – no salty taste reduces food refusal. Increases food and water intake compared to ordinary electrolytes



Electrolytes



**Coated with fat to increase palatability,
to be gentler on the stomach
and to preserve thirst and appetite**

SafeSalt



22.4g NaCl per 25ml (28g) scoop (80%)

Fat 20%

No Sugar

Complete Electrolytes



22g electrolytes per 25ml (28g) scoop (78%)

Na 5.6g, K 2.2g, Cl 10.9g, PO4 1.1g, Ca 0.2g, Mg 0.1g

Fat 17%

Sugar less than 5%

Standard sizes



2kg and 10kg



2kg and 10kg

Complete Electrolytes Paste



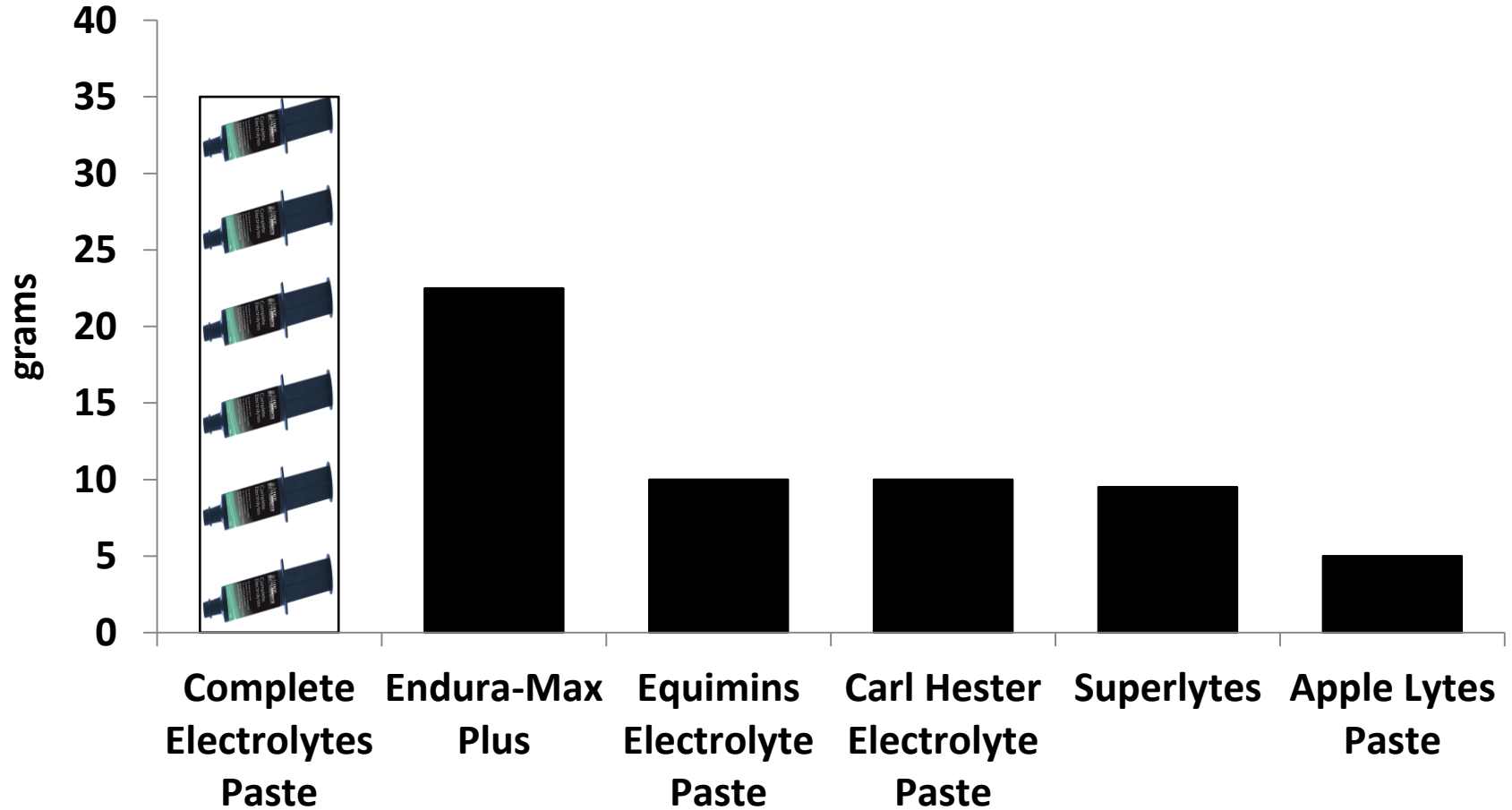
- A highly concentrated and balanced electrolyte paste
- Supplies sodium, potassium, chloride, calcium and magnesium in proportions lost in sweat
 - Each 60g syringe delivers 35g of electrolyte
 - Smooth flowing
 - Palatable with a strong mint flavour
- Sticky consistency to minimise loss from the mouth

Complete Electrolytes Paste

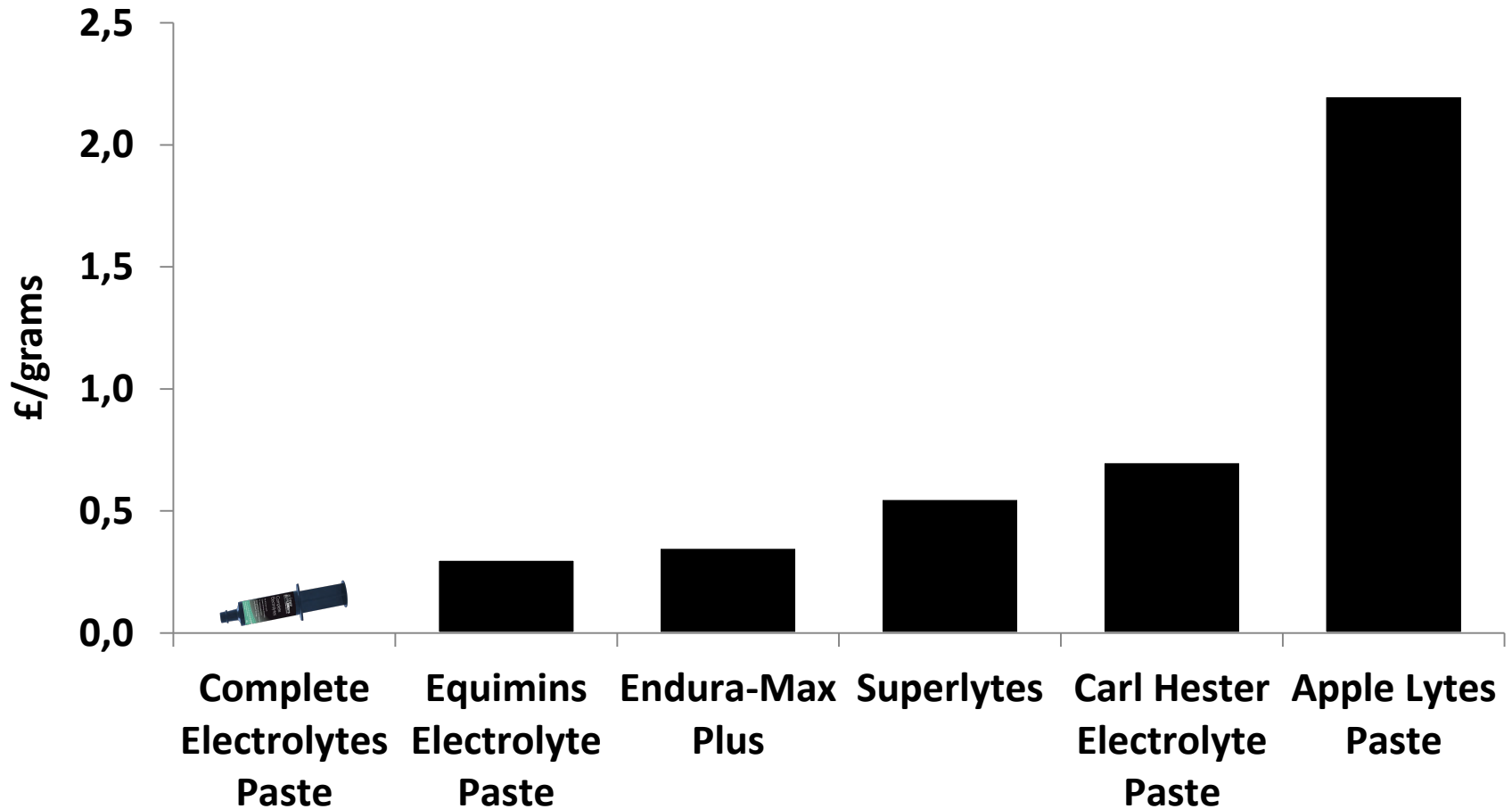


- Each 60g syringe delivers
- Na 10.0g, Cl 19.1g, K 3.8g, Ca 1.1g, Mg 0.2g
- Glucose <5%

Electrolytes per Syringe



Value for Money



[https://dl.dropboxusercontent.com/
u/43852398/Electrolytes%20explain
ed.pdf](https://dl.dropboxusercontent.com/u/43852398/Electrolytes%20explained.pdf)

Article on electrolytes by David Marlin

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