An online survey of feed management and electrolyte use in endurance horses in the United Kingdom

David Marlin
Cambridge UK

Susannah Sadler
Research Associate
Health Economics and Decision Science
University of Sheffield

Copyright David Marlin ©2015
Reasons for undertaking the study

• Limited information on electrolyte use in endurance
• Conflicting evidence on benefits of electrolyte use in endurance
Aim

• To investigate the use of electrolytes by endurance riders in the UK using an online survey

• To investigate if electrolyte use or other management influenced risk of metabolic failure
Methods

• Endurance riders recruited through Endurance GB website and UK endurance Facebook pages
• Online survey of 22 questions (Survey Monkey)
• Survey active for 6 weeks
Survey

1) General horse and rider information

- Rider age
- Location (region UK)
- Years involved with endurance
- Highest level competed
- Current level competing
- Number of horses currently competing
2) Horse health history

- Exertional rhabdomyolysis
- Colic
- Metabolic failure at a ride
- Thumps/SDF
- Arrhythmia
- Unexplained loss of performance
Survey

3) Diet

- Forage
- Alfalfa
- Hard feed
- Oil
- Salt blocks
- Electrolytes
Statistical analysis

- Logistic regression:
  - Log odds of metabolic failure given:
    - Level of alfalfa fed (categorical variable where 0 = none, 1 = occasional, 2 = regular, 3 = daily)
    - Number of rides over 90km entered in the last two years (discrete variable)
    - Highest current level of competition (categorical variable where 0 = pleasure, 1 = graded, 2 = competitive, 3 = national, 4 = international)
Results

• 316 complete responses (1 per horse) were received relating to 795 rides over 90km
• 50% of people had =>11 years of experience in endurance
• The majority (78%) of responses were from people competing in competitive rides
• 31% had entered a 160 km one day ride in the past year
• Completion rate at rides over 90km was 92% (n=291)
Rider experience
Highest level competed

% of respondents

Pleasure  Graded  Competitive  National  International

Copyright David Marlin ©2015
Number of horses being competed

% of respondents

1
2
3
4 or more

Copyright David Marlin ©2015
Forage

% of respondents

Hay+Pasture
Haylage+Pasture
Pasture
Hay+Haylage+Pasture
Hay
Haylage
Hay+Haylage

Copyright David Marlin ©2015
Feeding of alfalfa

% of respondents

Never | Occasionally | Frequently | Daily
--- | --- | --- | ---
35 | 25 | 20 | 30

Copyright David Marlin ©2015
Types of Feed

- Cereal based
- Nuts/Pellets
- High oil based
- Highly digestible fibre

% of respondents
Use of Oil as a supplement

% of respondents

Never | Occasionally | Daily

Copyright David Marlin ©2015
Electrolyte usage in training and/or competition

% of respondents

Copyright David Marlin ©2015
Type of electrolyte used

- Salt
- Salt+Lo Salt
- Commercial

% of respondents

Copyright David Marlin ©2015
Use of electrolyte pastes in competition

% of respondents

- Never: 70%
- Sometimes: 20%
- Always: 10%

Copyright David Marlin ©2015
Use of salt blocks

79% of horses were provided with a salt block
49% of owners reported it lasted =>6 months

Copyright David Marlin ©2015
Reasons for elimination
Reasons for elimination

- Lameness: 62
- Withdrawal by rider: 2
- Metabolic failure: 10
- Technical elimination: 2

Copyright David Marlin ©2015
Logistic regression

• OR for metabolic failure reduced by 0.10 for each additional ride > 90 km the rider had entered in the last 2 years ($P = 0.03$)
Logistic regression

- Trend ($P=0.11$) for risk of failure to decrease (OR $= 0.72$) for each increase from pleasure to graded, competitive, national and international.
Logistic regression

- Trend ($P = 0.08$) for odds of metabolic failure to reduce by 0.34 for each increasing level of alfalfa feeding

<table>
<thead>
<tr>
<th>Alfalfa Feeding Level</th>
<th>0</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>Occasional</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Regular</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Daily</td>
</tr>
</tbody>
</table>
Limitations

- Recall bias
- Selection bias
- Relatively low numbers of failures
- Low numbers of metabolic failures
- Not separating electrolyte use in training *versus* competition
- As yet we have not accounted for electrolyte “quality”
- Power – n=300 > n=500
Discussion

• Wide variation in nutritional management both in training and competition
• Experience of riders and or level at which they are riding appears to have a strong influence on risk of metabolic failure
• Preliminary – requires repeating with a sample size ~500