Analysis of Successful Completion of Endurance Horses Undergoing the Tevis Cup 160-km Ride From 2016 to 2021

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Introduction

- 1950’s Calvary Tests
- Modern Day Tevis Cup [1]
- Veterinary Health Checkpoints
- Varying Type I Vs. Type II Oxidative Muscle Fibers found within the postural muscles [3]
- Less muscle fatigue and enhanced performance

- Arabian breed suitability [2]

- Previous Study:
  - Epidemiological analysis of risk factors preventing completion of the Tevis Cup from 1997 to 2004
- Current Study:
  - Analysis of successful completion of endurance horses undergoing the Tevis Cup 160-km ride from 2016 to 2021

Conclusion

- Completion rate had no drastic changes [4]
- No statistical change for the age and sex of horses
- Increase of Arabian and Arabian cross Completion Rates
- Most common causes for elimination: Lameness and Metabolic Conditions
- Breed and Anatomical significance [5]
- Finishers well conditioned

Comparison to Historical Data: 1955 - 2004, lowest number of starts was 5 riders, with a peak of starts at 271

Overtime increase of riders: 2016 - 2021, least amount of horse starts was 133 riders with the highest of 184 riders

Ultimate conditioning and anatomical factors impacting the equine industry

Methodology

- Comparative analysis of consistent patterns within completion and pulled results
- Online Data Collection: Tevis Cup Website
- American Endurance Ride Conference: 2016 - 2021
- Holistic Performance Variables
- Reasons for getting pulled from ride
- Repeated Multivariate and Univariate ANOVA Measures

- Bhatt, Priya Nihkil, Epidemiological analysis of risk factors preventing completion of the Tevis Cup, 2004

Reference Table

<table>
<thead>
<tr>
<th>Horse Overall 160 km Starts</th>
<th>Pulled</th>
<th>Finishers</th>
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</thead>
<tbody>
<tr>
<td>Horse Overall 160 km Completions</td>
<td>105.07</td>
<td>42.01</td>
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<tr>
<td>Horse Overall Rides</td>
<td>12.73</td>
<td>6.15</td>
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<tr>
<td>Horse Overall Kilometers</td>
<td>7.57</td>
<td>4.54</td>
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<tr>
<td>Horse Overall Kilometers</td>
<td>7215.58</td>
<td>3115.35</td>
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</tbody>
</table>

Figure 1. Tevis Cup Map 160 km ride from Truckee to Auburn, California spanning through the Sierra Nevada Mountain range

Figure 2. Arabian Horse and rider traversing through terrain in the Tevis Cup

Figure 3. Anatomical comparison of Type I Vs. Type II Muscle Fibers. Type II fibers acquire a darker coloration due to high mitochondria density

Figure 4. Tevis Cup Completion Rates from 2016 – 2021 showing a steady rate of completion overtime.

Future Directions

- Conditioning horse and preferable breed in endurance heavy activities
- Environmental terrain and weather
- Nutritional diets and supplement affects

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