Analysis of risk factors for horse falls in the cross-country test of FEI Eventing

Phase 1: Fence related factors

The Research Team

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Phase 1: Fence related factors

Research Question: Are there factors related to cross-country fences that may contribute to the risk of horse falls?

Fence related factors from TD reports e.g. –
- Fence type
- Terrain
- Related to water?
- Single or combination fence
- Off a bend or straight approach

Environmental factors from fence judges’ reports e.g. –
- Ground conditions
- Weather conditions
- Horse and rider behaviour e.g.
  - approach speed
  - fatigue levels
Data 2008 – 2014

- 1689 horse falls included in the main analysis
  - 274 Rotational horse falls
  - 1415 Non-rotational horse falls
- This equates to approximately 1 horse fall per 2000 jumping efforts
Preliminary Findings

Fence related factors associated with an increased likelihood of horse falls included:

- Corner fences
- Square spreads
- Upright post and rails
- Fences into and/or out of water
- Downhill terrain

Combining these often increased the risk –
- more horse falls at post and rails with downhill landing
- in one event a corner into water followed by a square spread out resulted in 3 rotational horse falls

Sourced from Google Images
Rotational versus non-rotational falls

- Very few fence related differences found – slightly higher risk of a fall being rotational at a post and rail or palisade

- Horses having rotational falls were more likely to have hit the fence hard, and on the way up

- Riders involved in rotational falls were more likely to have approached the fence at an inappropriate speed - either too fast or too slow (fence judge report)
Phase 1 Summary

- Much effort already invested into increasing fence safety
- Fence related factors currently account for < 10% of the variability in horse falls
- Minor modifications in course design may decrease the risk further, **but**
- We need to explore other factors to explain more of the variability

Factors contributing to risk of a horse fall:
- Fence type
- Water
- Terrain

Phase 2: Horse / rider factors and the qualification system