

Influence of training, age at training onset and management on longevity in Icelandic sport horses



*Christine Weiß, Kerstin Brügemann,
Uta König v. Borstel*

Dept. Animal Breeding and Genetics, University of Giessen

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Background: age at first training / competition start

Subject to contentious debate

- Animal welfare agencies; authorities, practitioners with best intentions: legislate minimum age at training start
- High proportion of injuries/breakdowns/ back problems (racing) -> too much strain on young horses?
- Analysis of (population-wide) competition data: First start at minimum age (2 or 3 years) rather than later -> **longer** competition careers

(Reviewed by KvB 2018)

- But: bias due to preselection?



Age at first training / competition start

Subject to contentious debate

- Horses have evolved to move (walk) for ~20 km/day; modern housing conditions: ~ 2-5 (max ~12) km/day
- Growing cartilage/bones need certain level of strain to adapt to later level of strain
- -> additional exercise beneficial (KvB, 2018)!

Aim

- Obtain information on horses' training and husbandry conditions and assess relationship to longevity (duration of competition career)

Methods

- Competition data of 18,111 Icelandic horses with 296,723 competition starts
- registered 2006 - 2016 in central registry of the Icelandic horse riders' and breeding association of Germany
- 9348 primary caretakers (owner, rider, groom) of these horses contacted with a survey
- Survey: training, management and husbandry-related factors
- 1480 complete surveys were available for the present analysis

Analysis

- Semi-parametric and non-parametric survival analysis (SAS 9.4) accounting for right censoring
- Assessment of influencing factors from competition registry and from survey (training, housing and management factors)
 - Proc lifetest – median survival and survival plots
 - Proc phreg – hazard ratios, modeling of continuous effects, simultaneous influence of several factors

Termination of competition career

148(=10%) horses were no longer ridden

Reasons

- death of the horse: 31%
 - health problems prohibiting riding: 25%
 - of which n=8 (5%) were now used for breeding
 - retirement of the horse: 7%
 - use for breeding: 22%
 - other reasons: 12%
- } 56% Horse-related
- } 29% Owner-related

Termination of competition career

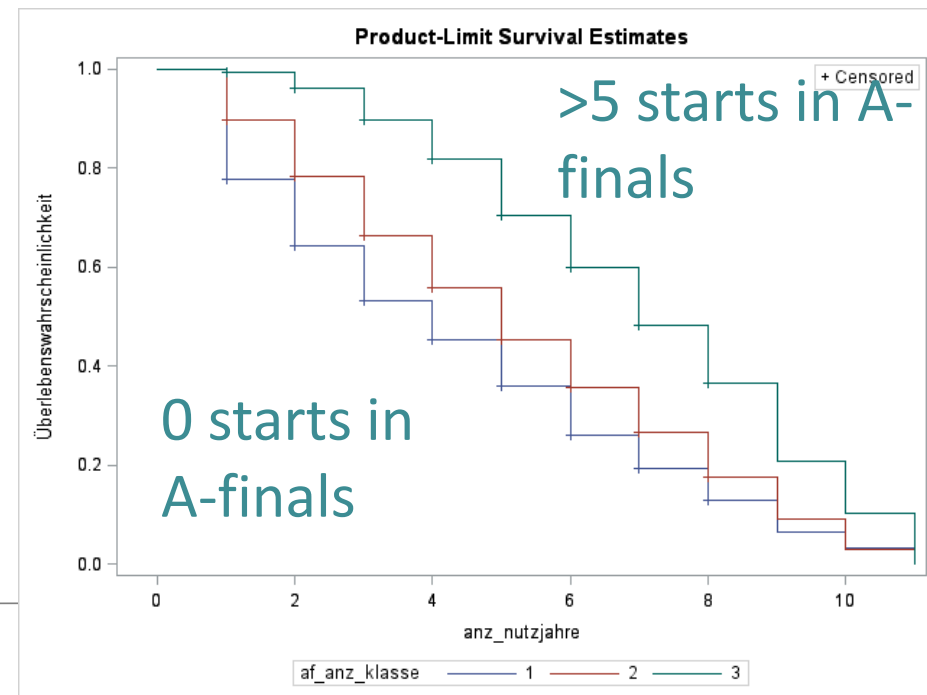
193(=14%) horses no longer registered as a competition horse

reasons for termination of competition career:

- rider's lack of time: 16%
 - lack of intentions to continue competing with that horse: 15%
 - horse health problems: 11%
 - horse deemed unsuitable for competition: 3%
 - poor performance: 2%
 - unspecified: 24%
 - other reasons: 9%
- 31% Owner-related
- 16% Horse-related

Results & Discussion – Longevity

- Overall median duration of competition career: 5 years
 - Dressage, Show-jumping, Racing: 2-3 years (Ricard & Fournet-Hanocq, 1997; Wöhlk & Bruns, 1999; Sobczynska, 2007; Friedrich et al., 2011)
- Horses starting in breeding horse performance test: higher probability to remain registered for at least 5 years (57.4 vs. 40.7%, $P < 0.05$)
- More successful horses used longer



Results & Discussion – Influence of Training

No influence on longevity ($P > 0.1$):

- Age at onset of training
 - Break after foundation training
 - Duration of yearly training breaks
 - Trainer's qualification for foundation training
 - Existence of a training plan
 - Duration of warming up
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- Frequency or duration of training sessions in foundation training
 - Duration of training sessions (adult horses)



Results & Discussion – Influence of Training

- Training intensity – probability to remain registered for ≥ 5 years:
Horses trained 1-4 times/week: (49.1 %)
5 times/week (35.8%)
6-7 times/week (39.7%) $P < 0.05$
- Age at first competition – duration competition career:
first start >10 years: 7 years
9-10 years: 6 years
7-8 years: 5 years
5-6 years: 4 years ($P < 0.05$)



Results & Discussion – Influence of housing management

- Majority of factors no significant influence ($P > 0.1$)
- E.g.: Qualification of barn owner; type + size of present or past housing system

BUT:

- Pasture turnout:
 - >5 hours/ day ↓ risk of terminating competition career
 - 1-5 hours/day ↑ risk ($P < 0.05$)
 - in agreement with KvB et al. (2015): turnout % surgery risk



Conclusion

- More Icelandics' competition careers are terminated due to owner- rather than horse-related reasons
- **Adequate turnout and training intensity are more important to functional longevity than age at training onset!!**



Acknowledgements

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148(=10%) horses were no longer ridden

Reasons

- death of the horse (n=47/31%)
- health problems prohibiting riding (n=37/25%)
 - of which 8 were now used for breeding)
- retirement of the horse (n=11/7%)
- use for breeding (n=32/22%)
- other reasons (n=18/12%)

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[The purpose of the present study was to identify factors affecting the success and duration of the competition career (longevity) in Icelandic horses.

Competition data of 18111 horses with 296723 competition starts registered between 2006 and 2016 in the central registry of the Icelandic horse riders' and breeding association of Germany were used in the present analysis. Furthermore, 9348 owners, primary caretakers or riders of these horses were contacted with a survey to obtain information on various training, management and husbandry-related factors for these horses. 1480 complete surveys were available for the present analysis. Survival analysis accounting for right censoring of data revealed that overall median length of competition career was 5 years. However,

horses starting in breeding horse performance test classes had a higher