



63rd Annual Meeting
EAAP 2012
August 27th - 31st, 2012



Bratislava, SLOVAKIA

EAAP2012 – Bratislava – Session 05 - 8

Mathematical measurement variables for the evaluation of durability of Hungarian show-jumping horses

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Introduction

- **Show-jumping is the most popular sport competition in Hungary**
- **Breeding goal for Sporthorses invokes first of all a horse for riding and show-jumping**
- **Genetic background based on traditional Hungarian breed's mare families**
- **Western European stallions are widely used in the breeding**



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Objective

The aim of the study was to investigate the possibilities to use “number of years in competition” as a measure of durability in the genetic evaluation of Hungarian show-jumping horses.



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Materials and Methods

- **Competition results recorded between 1996 and 2009 in show-jumping competitions**
- **Pedigrees were known at least two generations back**
- **Number of years in competition as measurement of durability**



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Materials and Methods

- **Logarithm and the fourth-root of number of years in competition**
- **Linear animal model for the evaluation**
 - **Model I.: sex and birth year as fixed effects**
 - **Model II.: sex, birth year and age at first competition as fixed effects**
- **Genetic parameters were estimated with VCE-6**



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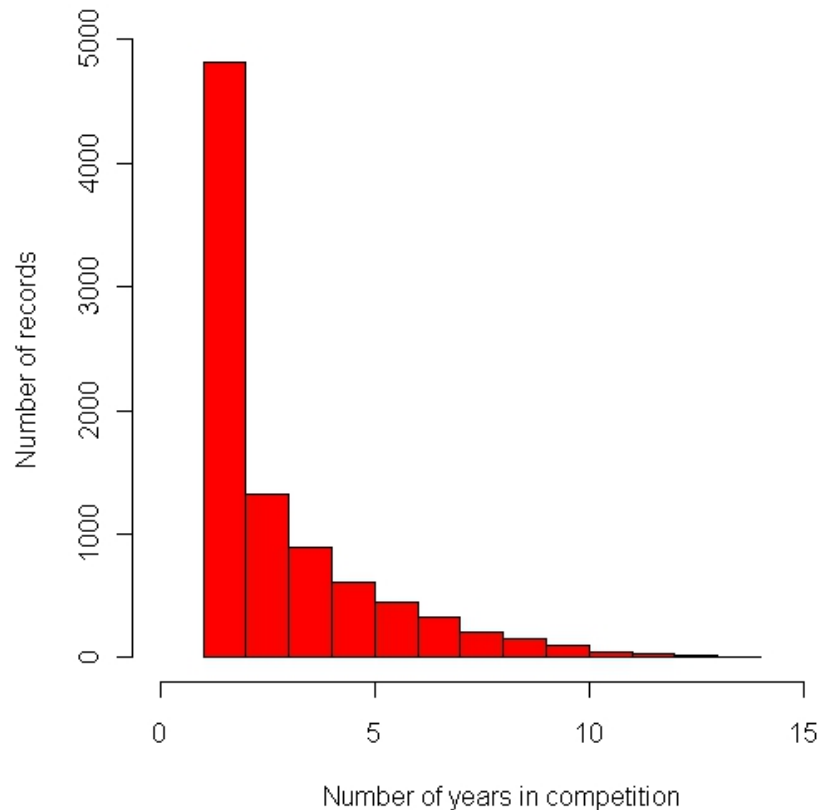
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Results

Distribution of number of years in competition



**Mathematical
transformation of the
measurement variable
is needed**



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Results

Trait		N	Mean	St.dev.	Minimum	Maximum
Number of years in competition	Mare	3718	2.79	2.079	1	14
	Gelding	3183	3.44	2.531	1	13
	Stallion	2052	2.91	2.330	1	14
	SUM	8953	3.15	2.324	1	14
Age at first competition result	Mare	3718	6.28	2.366	3	15
	Gelding	3183	6.12	2.31	3	15
	Stallion	2052	5.99	2.436	3	15
	SUM	8953	6.16	2.365	3	15



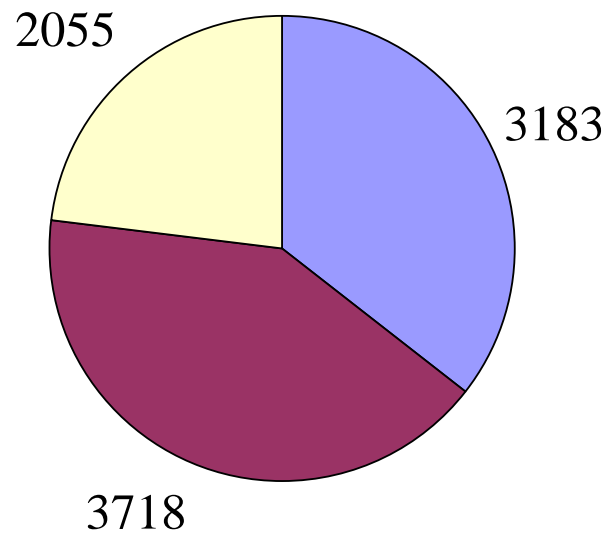
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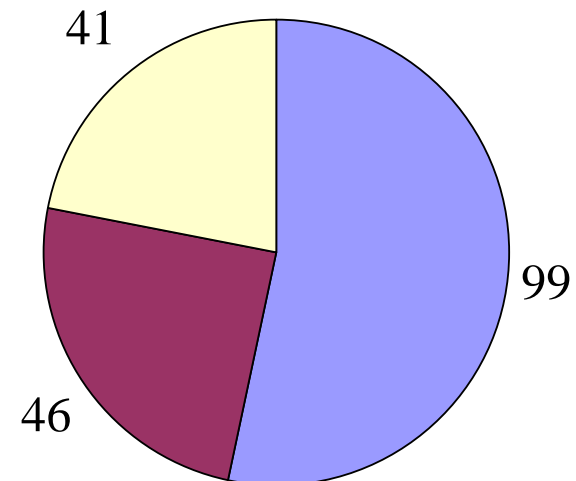
Results

Distribution of horses by gender



■ gelding ■ mare ■ stallion

Distribution of horses at least 10 years in competition by gender



■ gelding ■ mare ■ stallion





Results

Model	Measurement variable	Determination coefficient	h²
Model I.	Log transformation	0.099	0.27 (0.025)
	Fourth root	0.101	0.26 (0.025)
Model II.	Log transformation	0.204	0.23 (0.025)
	Fourth root	0.205	0.23 (0.024)





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Conclusion

Inclusion of age at first competition result in the evaluation models increases its goodness



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**Thank you
for
your attention!**



OITKA

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