STUDY REGARDING THE PERCENTAGE OF ENGLISH THOROUGHBRED BLOOD IN THE LAST FIVE GENERATIONS FOR THE BEST DRESSAGE HORSES IN THE WORLD

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Abstract

With a typical velocity constitution, the English Thoroughbred stallion is the undisputed king of the hippodrome.

In many breeding areas the special role for Thoroughbred stallions was to lighten and to make more athletic traditional horses used in agriculture. For this research we examine the first 100 dressage horses from FEI&WBFSH World Ranking List for Dressage Horses year 2017, divided in 4 groups for breed variable, and 3 groups for sex, height and age variables.

There still is a percentage of English Thoroughbred blood in the last five generations for the best dressage horses in the world, with decreasing trend.

In conclusion we can say that the modern dressage horse breed requires Thoroughbred blood also in the future, but they will not enjoy a privileged status. They will be selected for breed improvement, only stallions who will have the skills required for international training competitions.

Keywords: thoroughbred blood, dressage, ranking, sport horses, warmblood

INTRODUCTION

With a constitution made for speed, the English Thoroughbreds had an important role in creating the modern sport horse.

In the past, the Thoroughbred stallions enjoyed a privileged status in Europe resulting in the need for a more lighten and athletic riding horse compared to the traditional breeds used in agriculture.

The Thoroughbred blood was also used to reduce the degree of inbreeding and to increase the genetic diversity.

In recent decades, because it is considered a hot blooded horse most English thoroughbred stallions used for breeding in the sport horse breeds tended to damage the quality of canter and jumping [2].

In our days, for most breeds of dressage horses it had been created a very well developed selection program with outstanding results. They obtained an elegant horse with outstanding athletic ability and making the need for the use of thoroughbred horses to be extremely rare and very selective.

MATERIAL AND METHOD

1. Animals

For this research we examine the first 100 dressage horses from FEI&WBFSH World Ranking List for Dressage Horses, year 2017 [4].

The age variable was divided into three categories: horses under 14 years, horses aged between 14 to 16 years and horses older than 16 years, the divisions being dictated by the fact that dressage horse can not participate in competitions unless they are at least 9 or 10 years old. The horses distribution for the four variables taken into account (sex, age, height and breed) is shown in Table 1.

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Table 1 Horse distribution according to gender, age, height and breed

Breed	Sex			Age			Height			N
	s	m	g	<14 years	14-16 years	>16 years	< 165 cm	165-170 cm	>170 cm	
SBG	11	10	17	2	34	7	6	36	18	60
SBD	8	4	12	8	13	3	0	9	1	10
SBN	4	3	2	1	8	0	5	8	7	20
SBP	8	8	13	5	18	1	1	3	6	10

SBG: sport breeds from Germany, SBD: sports breeds from The Denmark, SBN: sport breeds from Netherlands, SBP: sport breeds from Portugal, s: stallions, m: mares and g: gelding, N: total number

For these horses the percentage of Thoroughbred blood (TB) in the last five generations was calculated using international database sporthorse-data.com [3].

2. Statistical analysis

Data was manipulated using Excel 2007 (Microsoft) and was analyzed using SPSS Version 21 for Windows (IBM, USA).

The aim of the statistical analysis was to explore any differences in the percentage of Thoroughbred blood in the last five generations between horses from different breed, sex and age. The value of alpha was set at 0.05 for all statistical tests.

RESULTS AND DISCUSSION

The results shows that the percentage of Thoroughbred blood in the last five generations for the 100 horses taken into study vary between 0.00 and 67.00, with an average of 22.4300.

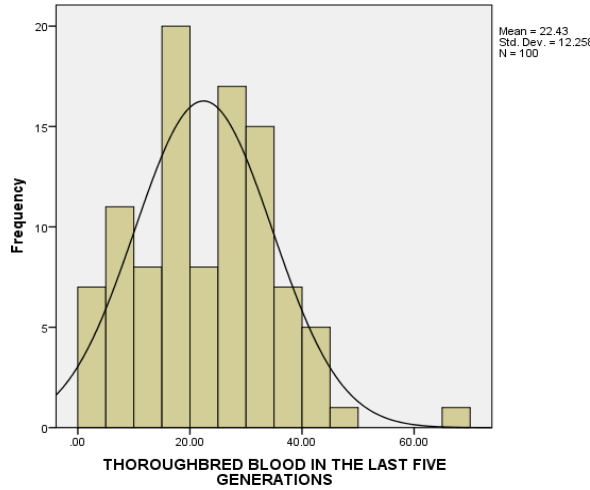

Fig. 1 Normal distribution of the percentage of TBs blood in the studied population

1. Age

For the age variable the results from the statistical analysis shows that the percentage of Thoroughbred blood in the last five generations doesn't present statistically significant differences for the 0.05 significance level ($F = 0.202$, $p = 0.818$).

Therefore, we can say that, regarding the percentage of Thoroughbred blood in the last five generations, there are no statistically significant differences between horses aged over 16, horses aged between 14 and 16 and horses younger than 14 years.

Table 2 Descriptive statistics for the age variable

age variable	N	$\bar{x}$	s	$\pm s\ \bar{x}$	Minim	Maxim
Ower 14 years	11	20.7098	13.72291	2.71783	1.75	43.92
Between 10 and 14 years	73	23.5320	10.15609	3.52093	3.21	34.59
Under 10 years	16	24.4707	5.97432	3.59153	00	49.62
Total	100	22.7512	12.5921	3.59153	00	58.52

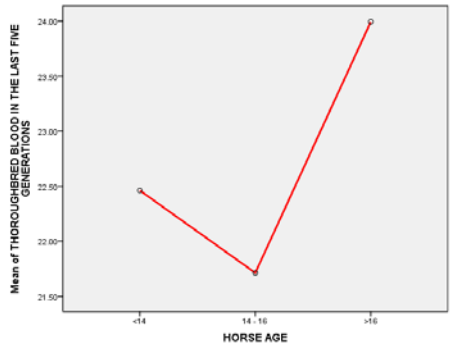

Fig. 2 Means Plots of the percentage of TBs blood in the last five generations for age variable

2. Sex

For the sex variable the results from the statistical analysis shows that the percentage of Thoroughbred blood in the last five generations does not presents a statistically significant differences for the 0.05 significance level (F = 0.295, p = 0.746).

We can say that there are no statistically significant differences between mares, stallions and geldings.

Table 3 Descriptive statistics for the sex variable

Sex variable	N	$\bar{x}$	s	$\pm s\ \bar{x}$	Minim	Maxim
mare	13	20.9069	11.98990	3.32540	1.75	37.50
stallion	29	21.5317	13.57153	2.52017	00	67.00
gelding	58	23.2204	11.77491	1.54612	00	45.00
Total	100	22.4300	12.25778	1.22578	00	67.00

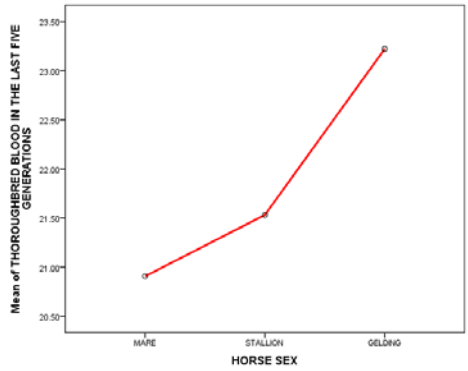

Fig. 3 Means Plots of the percent of TBs blood in the last five generations for sex variable

3. Breed

For the breed variable the results from the statistical analysis shows that the percentage of Thoroughbred blood in the last five generations present a statistically significant differences for the 0.05 significance level (F=4.072, p<0.009).

The percentage of Thoroughbred blood in the last five generations is significantly higher (p = 0.009) in the case of horses that belong to warmblood breeds from Portugal ($_4$=5.6680) compared to horses that belong to warmblood breeds from Germany ($_1$=22.0937), and Netherlands, but there is no statistically significant differences between horses that belong to warmblood breeds from Denmark and horses that belong to warmblood breeds from The Netherlands. There is no statistically differences between horses that belong to warmblood breeds from Germany and horses that belong to warmblood breeds from The Netherlands

3. Height

For the height variable the results from the statistical analysis shows that the percentage of Thoroughbred blood in the last five generations does not present a statistically significant differences for the 0.05 significance level (F=1.565, p<0.214).

Table 4 Descriptive statistics for the breed variable

Breed variable	N	x̄	s	±S x̄	Minim	Maxim
German Breeds	60	22.0937	10.29522	1.32911	1.75	45.70
Denmark breeds	10	20.6560	13.31325	5.95387	3.13	37.05
The Netherlands breeds	20	24.3493	12.77826	2.85730	26	43.75
Portugal breeds	10	5.6680	4.12277	1.84376	00	9.58
Total	100	21.6025	11.40286	1.20197	00	45.70

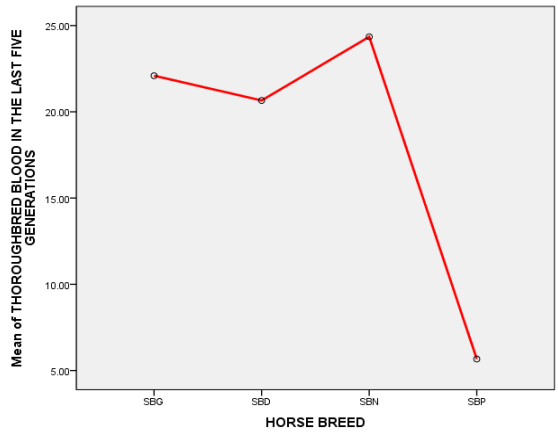

Fig. 4 Means Plots of the percentage of TBs blood in the last five generations for breed variable

Table 5 Descriptive statistics for the height variable

Height variable	N	x̄	s	±S x̄	Minim	Maxim
< 165 cm	13	22.1038	13.47663	3.73775	0	43.75
165-170 cm	56	24.1961	13.04478	1.74318	0	67
> 170 cm	31	19.3763	9.78327	1.75713	0.26	36
Total	100	22.43	12.25778	1.22578	0	67

The percentage of Thoroughbred blood in the last five generations is significantly higher in the case of horses that belong to warmblood breeds from Portugal (p= 0.009) due to the fact that that the lusitans have a high percentage of traditional blood.

CONCLUSIONS

In conclusion we can say that the influence of Thoroughbred stallions will be noticed in the future, but the special role it had in the past no longer exists.

In the future, for the modern sport horse breeds the Thoroughbred influence will persist, both Thoroughbred stallions and mares that will be used as breeders in the warmblood breeds will have to pass the same rigorous selection which applies to any sire or broodmares: athleticism, jumping technique, movement, ride ability, conformation, trainability, etc. [2].

We can conclude that the modern dressage horse breed requires Thoroughbred blood also in the future, but they will not enjoy a privileged status. They will be selected for breed improvement, only stallions who will have the skills required for international training competitions.

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