

Frequency of Limb Injuries between Thoroughbred and Arabian Horses

Short Communication

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ABSTRACT

This study aimed to investigate the relationship between race horse breed and the frequency of limb injuries through the time of training and racing. The study population consisted of 4042 Thoroughbred and 2553 Arabian horses raced at Warsaw race Track, from 2000 to 2008. Among these horses, 94 Thoroughbreds and 32 Arabians had different limb injuries. Based on the achieved results, it is possible to conclude that limb injuries are significantly more common in Thoroughbred race horses than in Arabians. Male horses of both breeds were at significantly higher risk of limb injuries. It was also shown that front legs were injured more often than hind ones in both studied breeds.

KEY WORDS Arabian horses, limb injuries, race horses, Thoroughbreds.

INTRODUCTION

The aim of horse racing is to check horses' stamina and (courage) based on end results obtained at races. Most horses race at race tracks are Thoroughbred horses but also Arabians and many warm-blood breeds are treated in the same way. Race training is known as the most rigorous exercises for horses. Frequency of injuries has extreme impact on racing industry. It results in losing training and racing, jockeys in horses' death and also in decreasing horse racing economics. Musculoskeletal injuries are the cause of deaths and euthanasia of many race horses (Hernandez *et al.* 2001) and it is not only the case in the USA (Verheyen *et al.* 2006).

It is also known that different horse breeds could be more resistant to such injuries. Therefore, the objective of this study was to investigate the relationship between race horse breed and the frequency of limb injuries during training and

racing time.

MATERIALS AND METHODS

The data were collected at a race track in Warsaw, Poland. The study population consisted of 4042 Thoroughbred and 2553 Arabian horses raced at Warsaw race Track, from 2000 to 2008 (called racing seasons). Among these horses, 94 Thoroughbreds and 32 Arabians had different limb injuries. Detailed data concerning the injuries were obtained from Horse Hospital Służewiec, at race Track in Warsaw, Poland. All injured horses were divided into groups, according to their breed. Then the relationship between breed and frequency of injuries in different race seasons, among sexes and concerning particular limbs, were estimated. The number and percent of horses of considered breeds were taken under consideration. Significance of differences between breeds was estimated using Chi-square test.

RESULTS AND DISCUSSION

The effect of horse breed on frequency of limb injuries was shown in this study. Based on observations of 6595 horses undergoing race training, from 2000 to 2008, limb injuries were clinically recognized among 126 horses (nearly 2%). Out of these horses, 94 of them belonged to Thoroughbred breed and 32 to Arabian one. Percent values for all studied racing periods showed that Thoroughbred horses were injured nearly two times more (2.3%) than Arabian horses (1.2%) -the difference was statistically significant ($p \leq 0.01$). The same tendency, but not a significant one, was observed for each separate season; except the one in 2001, when more Arabian horses were injured (2.3%) compared to Thoroughbreds (1.5%). This season was also characterized with the highest percent of injured Arabian horses while, Thoroughbreds were mostly injured in 2007 (4.6%). Significant differences were only observed in 2007 ($p \leq 0.01$) that is difficult to be explained. The point to note is that the years 2006 and 2007 are characterized by the lowest number of raced horses (Table 1).

Table 1 Number and percent of injured Thoroughbred and Arabian horses according to the total number of raced horses

Year of racing	Thoroughbred horses			Arabian horses		
	n	nj	%	n	nj	%
2000	487	11	2.3	331	6	1.8
2001	548	8	1.5	302	7	2.3
2002	553	7	1.3	306	3	0.9
2003	498	7	1.4	271	1	0.4
2004	420	9	2.1	335	2	0.6
2005	404	12	2.9	265	5	1.9
2006	329	12	3.6	240	3	1.2
2007	390	18	4.6 A	251	1	0.4 A
2008	413	10	2.4	252	4	1.6
Total	4042	94	2.3 A	2553	32	1.2 A

n—number of all raced horses, nj—number of injured horses, %—percent of injured horses.

A—percents in rows marked by the same capital letter differ highly significantly ($p < 0.01$).

It was reported that about 65% of all injured horses were colts (62.7% of Thoroughbreds and 68.8% of Arabians) while fillies and geldings run the poor second positions with 32% and 3%, respectively. More Thoroughbred fillies were injured (35.1%) compared to the Arabians (25%) while in the case of geldings, more Arabians were reported with limb injuries (6.2%) compared to Thoroughbreds (2.2%). The same tendency was observed for colts (Table 2).

Table 2 Number and percent of injured horses according to their sex

Sex	Thoroughbred horses		Arabian horses	
	N	%	N	%
Fillies	33	35.1	8	25
Colts	59	62.7	22	68.8
Geldings	2	2.2	2	6.2
Total	94	100	32	100

There were no differences between Thoroughbred and Arabian horses concerning particular limb. Most injuries of horses of both breeds were associated with front limbs (about 70%) and there were no particular differences between breeds. Hind limbs were injured in about 20% of the cases; both front and hind -only in 10% of cases and the differences between breeds were lower than 3% and were not significant ($P > 0.05$) (Table 3).

Table 3 Number and percent of injured horses according to their injured limb

Limbs	Thoroughbred horses		Arabian horses	
	N	%	N	%
Front	66	70.2	22	68.8
Hind	18	19.1	7	21.8
Front and hind	10	10.7	3	9.4
Total	94	100	32	100

Many authors have compared horses raced at race track (Thoroughbreds, Arabians, Quarter Horses, etc.) taking mainly into consideration their speed ability, physiological indicators or other factors (Kędzierski and Bergero, 2006; Henley *et al.* 2006; Sobczyńska, 2007). Such results show significant differences is mentioned before factors among racing horse breeds (Nielsen *et al.* 2006) but any work concerning the comparison of injury frequency between race breeds was found. Most authors concentrate on injuries of Thoroughbred horses (Williams *et al.* 2001; Stover, 2003; Cohen *et al.* 1999; Stover, (2003); Hernandez *et al.* (2001)) noticing the effect of gender on frequency of Thoroughbred injuries which is similar to our results. The data in our study show that males were at higher risk of fatal injuries. Some investigations have shown that male race horses were more often positive for prohibited substances (Lotfolahzadeh *et al.* 2010) which can be the reason for the most common injuries. It was observed in our study that front legs are more often injured compared to hind legs; the issue is connected to the type and intensity of exercises. Verheyen *et al.* (2001) have shown that intensity of training, affects the incidence of fatal injuries in race horses, and Dzierżęcka *et al.* (2008) have noted that most of injuries are located on distal part of legs. There were no reviews of re-

lated literature concerning the frequency of injuries of particular legs in Thoroughbred and Arabian horses.

CONCLUSION

Based on the achieved results, it is possible to conclude that limb injuries are significantly more common in Thoroughbred race horses than in Arabians. Males of both breeds were at significantly higher risk of limb injuries. It was also shown that front legs were injured more often than hind ones in both studied breeds.

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