Identification of risk factors limiting the competition career of the New Zealand sport horse

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Abstract

Show jumping and eventing horses represent the majority of the competition horses exported from New Zealand. However, there is limited information on the number of years registered for use in sport and the effect of horse variables on competition career. Seven years' retrospective data from horses registered for competition in the 1994/95 season were examined using Kaplan-Meier survival analysis and Log rank tests.

56% of the 1113 eventing horses registered in the 1994/95 season were no longer registered in the 2000/01 season (median career 5 yrs CI 5-6yrs). Males (75%, mostly geldings, 1 stallion) were the dominant sex and were 3.74 (95% CI: 2.51 –5.62, p=0.001) times more likely to progress from intermediate to advanced grade. Rider category (professional or amateur) or breed had no significant effect on survival. Older horses (those 11 years and over) had the most rapid rate of loss with a median survival of 5 years (95%CI 5-5). Younger (5-7 years) and 8-10 year olds had similar survival rates 6 years (95% CI 6-6yrs).

52% of the 2457 show jumping horses were no longer registered in the 2000/01 season. The median career was 5 years, of which 73% were males. Rider category had no effect on competition career. Older horses (• 11 yrs) mean survival 5yrs (95% CI 5-5yrs) had a more rapid loss than young horses (4-7 yrs) mean survival 6yrs (95% CI 5-6yrs) (p=0.001) or 8-10yrs mean survival 6yrs (95% CI 6-6 yrs) p=0.0001. Horses with no breed listed (19%) had the shortest competition career (5 years 95% CI 5 – 5yrs). The longest competition career belonged to Cleveland Bay (1%) and Warmblood horses (5%) 6 years (95% CI 6-7 yrs), p= 0.0003.

Introduction

In recent years the size and scope of the New Zealand racing industry has been described and factors limiting training identified (Perkins *et al.* 2004a, 2004b). In contrast there is limited data available describing the size and scope of the New Zealand competition horse sector (Rogers and Wickham 1993; Rogers and Firth 2005). The lack of data available limits the industries capability to plan and develop strategies to manage the equine athlete.

Many New Zealand eventing and show jumping riders support themselves through the sale of horses. This has been perceived as a problem by sport administrators as many potential international level horses are sold early in their sport career and go on to compete internationally for other countries. The high physical demands, particularly of the sport of eventing, are also perceived to reduce the pool of horses that are available to compete at international level. Many horses used for the sport of show jumping, and eventing in particular, originate from the racing industry. It has been identified that even the early stages of race training prior to racing can, in some horses, produce significant changes in the musculoskeletal system and that a high

volume of cyclic loading can be detrimental specific tissues, such as the superficial digital flexor tendon (Firth and Rogers 2005; Perkins *et al.* 2005).

In order to answer these questions about wastage due to sale and injury it is important to first describe the industry structure and the competitive life of the New Zealand sport horse. This paper describes the competitive career (re-registration) of horses registered for show jumping and eventing in New Zealand and examines the effect of horse age, gender, breed, horse grade and rider status.

Materials and methods

Retrospective datasets covering the 1994/95 to 2000/01 competition seasons were obtained from Equestrian Sports New Zealand. The data was imported into a customised MS Access database and filtered for errors. Summary extracts were exported for analysis to SPSS v12.1 (Chicago, Il, USA). Data were examined with Kaplan mieir survival analysis and log rank tests to examine the effect of categorical variables. Unadjusted odds ratios were calculated. The outcome variable was the registration status of the horse for the following season.

Results

Eventing

In the 1994/95 season there were 1113 horses registered for eventing. The majority of these were in Novice grade (81%), Intermediate (15%) and Advanced grade (5%). 56% of the eventing horses registered in the 1994/95 season were no longer registered in the 2000/01 season (median career 6 yrs CI 6-6yrs).

75% of the horses were males (geldings and 1 stallion). There was no significant difference between males and females in progression from Novice to Intermediate grade, but male horses were 3.74 (95% CI: 2.51 –5.62, p=0.001) times more likely to progress from Intermediate to Advanced grade.

The majority of the horses were identified as thoroughbreds (46%) or unknown (43%). There was no effect of breed on survival.

Older horses (those 11 years and over) had the most rapid rate of loss with a median survival of 5 years (95%CI 5-5). Younger (5-7 years) and 8-10 year olds had similar survival rates 6 years (95% CI 6-6yrs) p=0.001.

Professional riders (2.4% of riders) rode 13% of the horses registered for eventing but did not significantly alter the chance of a horse being re-registered.

Showjumping

The 2457 horses registered for showjumping were the progeny of 820 recorded stallions. 722 horses had no recorded sire listed.

Male horses represented 72% of the initial dataset and had a longer competition life (mean survival 6 yrs 95% CI 5-6 yrs) than females (5yrs, 95% CI 5-5years) p=0.0001

Older horses (• 11 yrs) mean survival 5yrs (95% CI 5-5yrs) had a more rapid loss than young horses (4-7 yrs) mean survival 6yrs (95% CI 5-6yrs) (p=0.001) or 8-10yrs mean survival 6yrs (95% CI 6-6 yrs) p=0.0001.

Horses not identified by a breed code (19%) had the shortest registration life 5 years (95% CI 5-5yrs) followed closely by Arab and Arab crosses (1%) 5yrs (95% CI 5-6yrs). The Thoroughbred (53%), New Zealand Sport Horse (12%), Quarter horse (1%), Appaloosa (1%) Stationbred (3%) and Hanoverian (1%) had a median registration life of 6 years (95% CI 5-6 yrs). The longest registration life belonged to Cleveland Bay (1%) and Warmblood horses (5%) 6 years (95% CI 6-7 yrs), p= 0.0003.

There was no significant effect of professional (20% of all riders) and amateur riders.

Discussion

There were more than twice as many horses registered for show jumping than were registered for eventing. In most equestrian countries show jumping is the most popular sport and eventing is a niche sport. The popularity of eventing in New Zealand may due to equestrian culture and the ready availability of the Thoroughbred horse (New Zealand is the fifth largest Thoroughbred breeding country). Over half the horses used in show jumping were identified as Thoroughbred and at least half of the horses used for eventing were Thoroughbred (many of the event horses with no breed allocated are known to be Thoroughbred horses). There was no effect of breed in eventing but the horses purpose bred for show jumping (Warmblood and Cleveland Bay cross) had significantly longer competition lives compared to the group of breeds including the Thoroughbred. This may reflect these horses were better suited to the sport of show jumping or that the owners of these breeds had a greater financial and emotional commitment to these animals.

In contrast to international trends the New Zealand riders had a strong bias against riding mares, and the survival of mares is less than that of the male (predominantly gelding) horses. The lower survival of the female may be due to alternative use for a mare for reproduction. Whereas, the gelding has limited use except as a competition animal and this may delay the riders' decision to remove the gelding from competition.

Many New Zealand riders support themselves by the sale of horses to the export market. This has been proposed as a risk to New Zealand's ability to field full strength team at international competitions. Surprisingly there was no effect of rider status on the survival of the horse. It was thought that horses belonging to professional riders would have a shorter competition life due to sale overseas. Even when the data was restricted to just the younger age category there was no significant difference between professional and mature riders.

In both show jumping and eventing the older horse category had a lower survival rate than the younger categories. This was not unexpected, though the lack of difference between show jumping and eventing with the loss of horses was surprising. The expectation was than the high demands of eventing would have reduced the registration life of the horses compared to that observed for show jumping.

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