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**Epidemiology of health and performance
in New Zealand racehorses**

A thesis presented

In partial fulfilment of the requirements for the degree of

Doctor of Philosophy

in

Veterinary Epidemiology

at Massey University, Palmerston North,

New Zealand

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2005

Abstract:

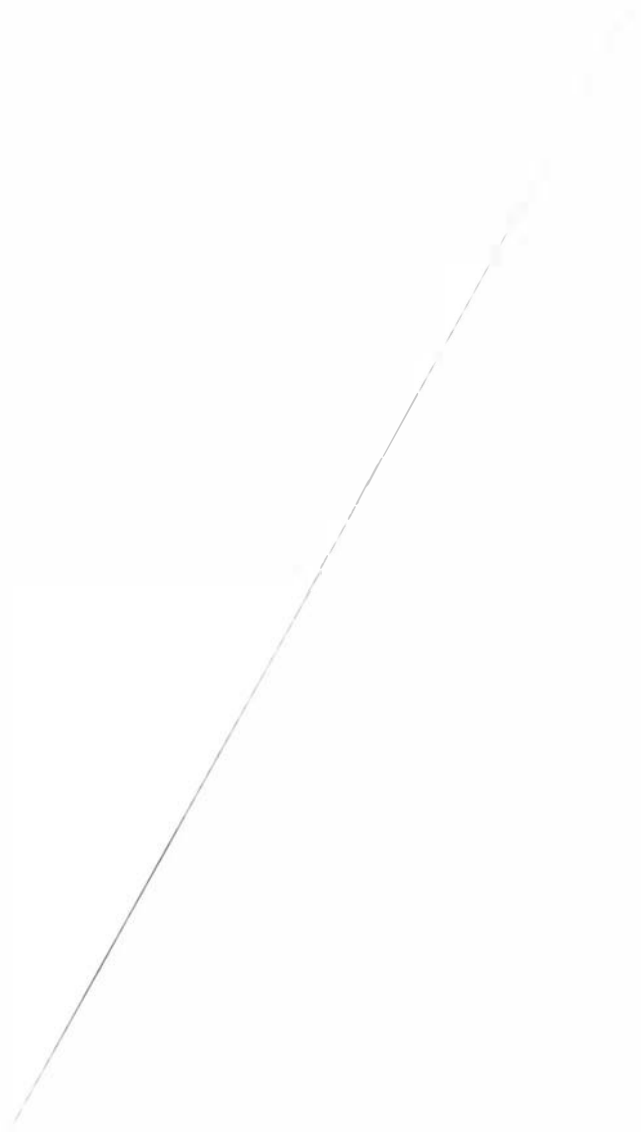
The aim of this research was to describe training and racing patterns, and causes of wastage in New Zealand Thoroughbred racehorses. Two separate studies were performed. The first involved analysis of data from before and after construction of a new training track at the Matamata Racing Club. Comparisons of measures of performance failed to detect any adverse impact that could be attributed to the new track.

The second involved a longitudinal study over a 34-month period, and that involved 1,571 horses. Duration of training preparations and spell periods were associated with horse age, and with the reason for ending a training preparation. Most horses began a training preparation doing slow work and then progressively advanced to a first start. Incidence rates were estimated for starts per 100 training-days, and other summary measures were estimated including training-days to first start, and between successive starts.

A total of 834 musculoskeletal injuries (MSI) were observed, resulting in either a spell period, retirement, or death of the horse. There were 165 respiratory disease events, and 58 conditions involving other body systems.

Multivariate statistical models were used to explore risk factors for different types of MSI. Older horses were at higher risk of lower limb MSI, and injury to either the superficial digital flexor tendon (SDFT) or suspensory apparatus (SA), while they were at lower risk of shin soreness and other conditions. Male horses had higher risk of tendon and ligament injury than females. Lower risk of injury was observed in Autumn and Winter months compared with December, and in the 1999-2000 year relative to 1997-1998. Measures of cumulative exercise intensity showed a complex relationship with risk of injury that varied with type of injury. The risk of SDFT and SA injury was higher for those preparations without starts, while that for shin soreness was increased after the first start. For lameness conditions other than shin soreness or injury to the SDFT, the hazard was increased after the first start in a preparation, but the magnitude of effect was dependent on the number of days from the beginning of a preparation to the first start.

v_i



Acknowledgements

A large number of people contributed towards various stages of this project and I am grateful to them all for their support.

The New Zealand Equine Research Foundation provided funding and encouragement. New Zealand Thoroughbred Racing staff and regional racetrack management staff, provided assistance. A special thank you is due to Ms Dagmar Fikken who was employed as a technician to assist in the collection of data, and to Glenda who helped so much with the Matamata end of the project.

Thank you to the large number of veterinarians, trainers, and stable staff, who helped in so many ways to make this project possible, not the least of which was giving up their time on a regular basis to allow myself, Dagmar, or Glenda to ask questions and fill out forms.

A special thank you to my supervisors, Stuart Reid and Roger Morris, for their guidance and advice, and to colleagues from the Institute of Veterinary, Animal and Biomedical Sciences for their general support.

Finally to Kim, Emily and Caroline, and my extended family, your love and support has been wonderfully sustaining throughout this process.

Table of Contents

Abstract:	v
Acknowledgements	vii
List of Tables	xv
List of Figures	xxiii
Introduction	1
Literature Review	5
1. Introduction	6
2. New Zealand racing industry	7
3. Review of epidemiological study design	14
3.1. Experimental studies	14
3.2. Observational studies	14
4. Sources of bias in epidemiological studies	18
4.1. Selection bias	18
4.2. Information bias	20
4.3. Confounding bias	21
5. Matching	21
6. Measures of frequency and association.....	22
7. Chronological development of research methods to investigate racehorse health and performance.....	24
8. Data sources and Outcomes used.....	29
9. Events interfering with training and racing.....	34
9.1. Classification by location and system affected	34
9.2. Frequency estimates	40
10. Specific risk factors for musculoskeletal injury.....	45

10.1. Age	45
10.2. Gender	46
10.3. Quality of horse and class of race	46
10.4. Leg: left vs right.....	47
10.5. Race type.....	48
10.6. Race number	49
10.7. Barrier position	49
10.8. Race distance.....	50
10.9. Jockey.....	50
10.10. Racetrack and racing surface	50
10.11. Surface condition	52
10.12. Season	54
10.13. Exercise intensity.....	54
10.14. Pre-existing conditions.....	59
10.15. Shoeing	61
10.16. In-race activity and interaction	61
10.17. Trainer.....	63
11. Conclusion	63
Effect of training location and time period on racehorse performance in New Zealand. I. Descriptive analysis *	65
Abstract.....	66
Introduction.....	67
Materials and methods.....	68
Study design.....	68
Variables	68

Statistical analysis	70
Results	70
Discussion	77
Acknowledgements	80
Reference List	80
Effect of training location and time period on racehorse performance in New Zealand. II. Multivariate analysis *	85
Abstract	86
Introduction	87
Materials and methods	88
Statistical analysis	88
Results	91
Cohort study	91
Case-control study	93
Poisson regression	94
Discussion	95
Acknowledgements	100
References	100
Profiling the New Zealand Thoroughbred racing industry. I. Training, racing and general health patterns *	105
Abstract	106
Introduction	107
Materials and methods	107
Results	113
Discussion	125

Reference List	132
Profiling the New Zealand Thoroughbred racing industry. II. Conditions	
interfering with training and racing *	135
Abstract	136
Introduction.....	137
Materials and methods	138
Results.....	141
Discussion	153
Risk factors for musculoskeletal injuries of the lower limbs in Thoroughbred	
racehorses *	161
Abstract	162
Introduction.....	163
Materials and methods	164
Results.....	170
Discussion	181
References.....	189
Risk factors for injury to the superficial digital flexor tendon and suspensory	
apparatus in Thoroughbred racehorses *	195
Abstract	196
Introduction.....	197
Materials and methods	199
Results.....	203
Discussion	210
Reference List	215

Survival analysis of musculoskeletal injuries during training and racing in New Zealand Thoroughbreds	221
Abstract	222
Introduction	222
Materials and methods	223
Results	227
Discussion	232
References	239
General Discussion	245
Introduction	246
Longitudinal study design	248
Chapters 3 and 4	250
Results from the longitudinal study	251
Future research	256
Conclusion	258
References	259
Appendix 1: Forms used in data collection.....	270

List of Tables

	Page
Table 2.1. Summary statistics on New Zealand Thoroughbred breeding, sales and exports, 1995-2001	7
Table 2.2. New Zealand Thoroughbred racing statistics, 1995-2001	7
Table 2.3. Frequency distribution of the major sites of lameness in 246 cases affecting 164 horses from 6 training stables in the UK in 1980	35
Table 2.4. Percentages of 1,707 fractures sustained during training and 730 fractures sustained during racing, organised by anatomic location, for Thoroughbreds training and racing in Japan in 1994	37
Table 2.5. Frequency distributions for 270 musculoskeletal injuries involving limbs only in 216 horses injured while racing at one of four racetracks in Kentucky between 1994-1996, and for 132 musculoskeletal injuries among 117 horses injured while racing in Kentucky between 1992-1993	38
Table 2.6. Frequency distribution of injury types in horses that died or were euthanased while on California racetracks under the jurisdiction of the California Horse Racing Board	39
Table 2.7. Frequency of clinical reports for different classes of injury and types of race, derived from 222,993 starts over 3 years in Britain. Data presented as rate per 1,000 starts with 95% confidence intervals	41
Table 2.8. Frequency of limb injuries by site and race type shown as events per 1,000 starts with 95% confidence intervals. Data derived from 2,358 events in 222,993 starts in Britain between 1996-1998	43
Table 2.9. Incidence rates for first and all occurrences of injury and disease in 169 Thoroughbreds observed from April 1995 to July 1997	43

Table 3.1	Descriptive information about 110,643 starts involving 15,864 horses in training at Matamata or other venues in New Zealand during 1996-1997 and 1998-1999.	71
Table 3.2.	Number of horses and trainers organised by stable size (number of horses), training location and time period. Data include all horse records from those trainers that had at least one start during the study period. Data sourced from NZTR records.	72
Table 3.3.	Frequency of result categories (first, second, third, fourth, and fifth or worse), for all 110,643 starts recorded during two 19-month time periods in 1996-1997 and 1998-1999. Data organised by time period and whether horses were trained in Matamata or other locations within New Zealand. Data sourced from NZTR records.	75
Table 3.4.	Results of Mantel-Haenszel test comparing odds of placing in the first three versus all other outcomes for horses from Matamata or other training venues in New Zealand. Data from 110,643 starts over two time periods (1996-1997 and 1998-1999). Data sourced from NZTR records.	75
Table 3.5.	Effect of time period on the odds of placing in the first three versus all other outcomes for the 11,977 starts made by horses trained in Matamata during 1996-1997 and 1998-1999. Data sourced from NZTR records.	76
Table 3.6.	Number of starts for Thoroughbred horses trained in Matamata or other venues in New Zealand, in the first 13 months of each 19-month time period, and the number that were followed by a 6-month period during which the horse did not start again. Data sourced from NZTR records.	76
Table 4.1.	Risk factors conditionally associated with a horse failing to start for 6 months following a randomly selected race or trial start.	92
Table 4.2.	Risk factors conditionally associated with horses that failed to start in a race or trial for a 6-month period following a start.	93
Table 4.3.	Adjusted relative risk estimates for risk factors associated with the rate of race or trial starts in horses residing at different training locations and over different time periods.	95

Table 5.1.	Number of horses contributing study days in each age group by gender, and numbers of spell, training and study days contributed. Data drawn from a total of 1,571 horses over 34 months (1997 to 2000). Individual horses could contribute days to more than one age group.	114
Table 5.2.	Percentage of study days spent training by gender and age, with 95% confidence intervals (95% CI). Totals represent data aggregated over all ages within each gender and include data from horses of unknown age. Data based on 1,571 horses over 34 study-months as presented in Table 5.1.	115
Table 5.3.	Minimum, maximum and quartiles for duration in days of complete training preparations classified by reason for ending the preparation.	117
Table 5.4.	Minimum, maximum and quartiles for duration of spell periods in days for voluntary spells and spells associated with either musculoskeletal injury of respiratory system disorder. Data arranged by age of horse in years.	119
Table 5.5.	Percentage of horses observed at each level of training activity score (TAS) within different intervals of time in days from the start of a training preparation. The count of horses contributing data in each interval is given in the last row.	122
Table 5.6.	Incidence rate (IR), and 95% confidence intervals (95% CI), for starts per 100 horse-training days by month of the year, and horse age in years. Horse age was determined on the day of a start.	123
Table 5.7.	Summary information for days to first start in a trial or race for 2,465 training preparations in which at least one start took place. SD= standard deviation.	125
Table 5.8.	Minimum, maximum and percentiles for the number of days between starts in the same training preparation for horses of different age groups. Age was determined on the day of each start for any horse. Data limited to 1,871 training preparations associated with more than one start during the preparation for a total of 9,539 starts.	125

Table 6.1.	Data from 2,652 events in Thoroughbred horses associated with death or retirement or the onset of spell period, each event marking the end of a training preparation or spell period. Exit percentage represents the percentage of total events associated with death or retirement.	142
Table 6.2.	Age-specific incidence rate (IR) estimates per 1,000 training-days, and 95% confidence intervals (95% CI) for categories of musculoskeletal injuries in horses. Estimates were based on first occurrence of each injury, and horses contributed training-days at risk either to the day of first occurrence or until they were lost to followup. Data based on 595 musculoskeletal cases during 311,046 training days.	146
Table 6.3.	Age-specific incidence rate (IR) estimates per 1,000 training-days, and 95% confidence intervals (95% CI) for second occurrence of MSI in horses. Data restricted to training preparations observed in horses resuming work after an initial MSI. Horses contributed training days at risk either to the day of second occurrence or until they were lost to followup. Data based on 169 musculoskeletal cases during 60,749 training days.	147
Table 6.4.	Relative risk (RR) and 95% confidence intervals (95% CI) for second musculoskeletal injury (MSI) in those horses that have returned to training after any initial MSI.	148
Table 6.5.	Numbers of musculoskeletal injury (MSI) cases, deaths and retirements, for each category of injury, in 595 cases of first occurrence of MSI, and 239 cases of recurrent MSI, in Thoroughbred horses. Exits were estimated as the number of deaths or retirements divided by the total number for each MSI category.	149
Table 6.6.	Incidence rate (IR) per 1,000 training-days, and 95% confidence intervals (95% CI) for first occurrence of disease in the upper and lower respiratory tracts that resulted in spells in Thoroughbred horses of different ages. Data based on a total of 142 cases of respiratory disease reported during 282,232 training-days at risk.	149

Table 6.7.	Numbers of horses exiting the study by gender and due to musculoskeletal injury (MSI), miscellaneous (ME), respiratory (RE), and voluntary events (VE). Incidence rate (IR) and 95% confidence interval (CI) estimates for all exits combined within each gender by age group used total training-days for that gender by age group as the denominator. Data from 544 horses of known age that exited the study prior to its completion.	150
Table 6.8.	Number of observations, median duration of training preparation, starts per 100 training-days, and places (first, second or third) per start, for male and female horses of different ages. Data derived from 2,578 training preparations ending in either first MSI or any reason unrelated to MSI, and 753 training preparations observed in horses returning to work after an initial MSI. P-values were derived from statistical tests comparing each variable between the two categories of training preparations within each age group by gender combination.	151
Table 7.1.	Classification of injury for 459 lower limb, musculoskeletal injuries in racehorses, of which 294 occurred in horses that had started in at least one trial or race during the preparation in which they were injured	170
Table 7.2	Results of univariate logistic regression screening of potential risk factors for lower limb musculoskeletal injury in racehorses with odds ratio (OR), 95% confidence interval of odds ratio (95% CI), and p-values. Data drawn from 2,640 training preparations involving 1,384 horses and included 459 cases of musculoskeletal injury. Data include training preparations with and without starts in trials or races.	172
Table 7.3.	Results of univariate logistic regression screening of potential risk factors for lower limb musculoskeletal injury in racehorses with odds ratio (OR), 95% confidence interval of odds ratio (95% CI), and p-values. Data drawn from 1,933 training populations and 1,148 horses and included 294 cases of musculoskeletal injury. Data restricted to those training preparations that had at least one start in a trial or race during the preparation	173

Table 7.4.	Results of multivariate logistic regression model of risk factors for lower limb musculoskeletal injury in training racehorses, with odds ratio (OR), 95% confidence interval of odds ratio (95% CI), and p-values. Data drawn from 2,640 training preparations involving 1,384 horses and included 459 cases of musculoskeletal injury. Data include training preparations with and without starts in trials or races.	176
Table 7.5.	Results of multivariate logistic regression model of risk factors for lower limb musculoskeletal injury in training racehorses, with odds ratio (OR), 95% confidence interval of odds ratio (95% CI), and p-values. Data drawn from 1,933 training populations and 1,148 horses and included 294 cases of musculoskeletal injury. Data restricted to those training preparations that had at least one start in a trial or race during the preparation.	179
Table 8.1.	Number of cases, training days-at-risk, incidence rate (IR) per 1,000 training-days, and 95% confidence interval (CI) for the incidence rate, by trainer, for superficial digital flexor tendon (SDFT) and suspensory apparatus (SA) injury.	204
Table 8.2.	Number of cases of superficial digital flexor tendon injury, training days-at-risk, incidence rate (IR) per 1,000 training-days, and 95% confidence interval (CI) for the incidence rate. All estimates derived from univariate Poisson regression models that incorporated trainer as a random effect.	205
Table 8.3.	Number of cases of suspensory apparatus injury, training days-at-risk, incidence rate (IR) per 1,000 training-days, and 95% confidence interval (CI) for the incidence rate. All estimates derived from univariate Poisson regression models that incorporated trainer as a random effect.	206
Table 8.4.	Results of a multivariate, negative binomial regression model for risk of superficial digital flexor tendon injury in racehorses, reported as incidence rate ratios (IRR) and 95% confidence intervals (CI). The final model contained a random effect coding for trainer.	207
Table 8.5.	Results of a multivariate, negative binomial regression model for risk of suspensory apparatus injury in racehorses, reported as incidence rate ratios (IRR) and 95% confidence intervals (CI). The final model contained a random effect coding for trainer.	209

Table 9.1.	Results of final multivariate Cox proportional hazards regression model for first occurrence of shin soreness in racehorses with time-to-event measured as training days. CI= confidence interval, se= standard error..	228
Table 9.2.	Results of final multivariate Cox regression model for first occurrence of superficial digital flexor tendonitis (SDFT) in racehorses with time-to-event measured as training days. CI= confidence interval, se= standard error.	229
Table 9.3.	Results of final multivariate Cox regression model for first occurrence of lameness other than shin soreness or SDFT in racehorses with time-to-event measured as training days. CI= confidence interval, se= standard error.	230

List of Figures

	Page
Figure 3.1. Proportion of male (v) and female (□) Thoroughbreds having starts within each age group. Data derived from NZTR records of 110,643 starts combined over two 19-month time periods (1996-1997 and 1998-1999). Data sourced from NZTR records.	74
Figure 5.1. Total training days accumulated by month of the year in Thoroughbred horses aged 2 (♦), 3 (■), 4 (Δ), and ≥5 (×) years.	1 24
Figure 6.1. Cumulative percentage of musculoskeletal injury (MSI) cases vs day of reported diagnosis represented as days after the last start in a trial or race. Data restricted to 500 cases of MSI reported in training preparations in 2- (♦), 3- (●), 4- (Δ), and ≥5-year-old (×) horses, associated with at least one start, and limited to the period ending 21 days after the last start in a training preparation.	152
Figure 7.1. Predicted probabilities of the outcome being a case ($\Pr(y=1)$), generated from the logistic regression model presented in Table 5, while values of the centered explanatory variable coding for cumulative distance raced in the last 30 days of a training preparation were varied from -11 to 56, with the quadratic term set to the square of this number. Values of other explanatory variables were set equal to reference levels (age=2-years, year=1999-2000, season=summer, preparation number=1, multiple starts during preparation=no, proportion of starts that were trials ≤ 0.2), and trainer was set equal to 19 (coding for the trainer with the largest number of horse-preparations in the dataset). Intervals represent a 95% confidence interval.	281
Figure 9.1. Plots of cumulative Cox-Snell residuals against cumulative hazard for the three final models and reference line with slope=1. Close agreement between fitted line and the reference line indicate good overall fit to the data.	231