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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
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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.
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