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Original Research

Cross-Sectional Survey of the Management and Training Practices of Endurance Horses in New Zealand: A Pilot Study

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ABSTRACT

The aim of the study was to conduct a cross-sectional survey of a cohort of national and Fédération Equestre Internationale (FEI) level riders to provide an overview of the management and training practices of endurance horses in New Zealand. Data were collected from a convenience sample of 53 riders participating at four endurance rides (including a 3* FEI event). The questions covered demographics of the rider and horse as well as general management and training practices. Before the first competitive ride of the season, horses were ridden a median of five (interquartile range [IQR], 4–6) days a week and were in training for a median of eight weeks (IQR, 6–9). The first competitive ride of the season marked the transition from long slow distance work to more competition-specific work. Increases in training were associated with a reduction in distance, an increase in speed, and no change in frequency. Conditioning often incorporated farm work, hill work, and hacking. After a competitive ride, just over half (57%; 24/42) of respondents gave their horses 1 day off for every 10 km ridden in the ride. Most respondents (81%; 42/52) reported key milestones for their horses during training; heart rate and Global Positioning System (GPS) monitors were used by 61% (31/51) and 63% (31/49) of respondents, respectively. This pilot study highlighted that many riders collected heart rate and GPS data, suggesting there is scope for further detailed studies to gain more accurate training data on endurance horses in New Zealand.

1. Introduction

As a result of the growing popularity of endurance riding worldwide, there has been an increased focus on the veterinary management and welfare of endurance horses during competitive rides [1]. A number of recent studies have investigated completion rates for international rides and focussed on the common reasons for elimination from rides [2]. A study of 97 Fédération Equestre Internationale (FEI) events held in nine countries during 2008 found that 54% of horses failed to complete the endurance ride and the percentage of eliminations ranged from 31% in United States to 56.6% in UAE [3]. Lameness was the most common reason for elimination (69%), with metabolic problems accounting for 24% of all eliminations [3].

In response to the high rates of eliminations identified, a number of epidemiologic studies have investigated horse-, rider-, and venue-level risk factors for ride eliminations [3,4]. Similar to musculoskeletal injury in Thoroughbred

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racing [5], lameness and metabolic eliminations in endurance rides appear to be multifactorial in nature and include risk factors such as country, venue, number of entries in the ride, length of ride, track conditions, breed, and horses' prior experience [4,6,7]. It is likely that additional risk factors would include aspects of the management and training of the horses before a ride, although these are yet to be accurately measured and reported.

In Thoroughbred racing, the exercise accumulated during training is associated with achievement of key training and racing milestones [8], the risks of musculoskeletal injury during racing, and future racing performance [9,10]. Furthermore, a significant proportion of musculoskeletal injury in Thoroughbred racehorses occurs during training [11,12]. Although there are currently no data on the incidence of lameness in endurance horses during training, there are anecdotal reports of increasing wastage during training at the top level of the discipline [1].

The initiation of the FEI Global Endurance Injuries Study for mandatory collection of injury data provides detailed information on events occurring in endurance rides but does not address training-related aspects. Previous attempts to record detailed injury data have been hampered by the challenges associated with compliance from trainers and owners to provide detailed data (Nagy et al [6]). Cross-sectional surveys have been used as an initial step to identify and describe the training and management practices of Thoroughbred racehorses [13,14]. These surveys provide an opportunity to develop a positive relationship with the industry to allow future prospective studies. It would be advantageous to describe the workload and management of endurance horses, which may be used in the design or analysis of future prospective studies of risk factors for eliminations or injuries.

The aim of this study was to conduct a cross-sectional survey of a cohort of national and FEI level endurance riders in New Zealand to provide an overview of the management and training practices of endurance horses, to enable further research in this area.

2. Materials and Methods

2.1. Sample Population

Data were collected from a convenience sample of riders at four endurance rides affiliated with Equestrian Sports New Zealand, the governing body for equestrian sport in New Zealand, during the 2013/2014 endurance season (September–May). Three of the rides were selected in the lower North Island of New Zealand to allow personnel to travel to the events to conduct the survey. These events took place in February, March, and May 2014. The fourth endurance event was the annual Endurance National Championships held in the South Island of New Zealand (April 17–20, 2014), which consisted of Junior and Senior 1*, 2*, and 3* rides. However, because of poor weather conditions, this event was canceled and although some riders still turned up to the event venue, the number of riders available to participate in the survey at this event was reduced. To ensure the survey captured data from riders actively competing at the FEI distances, only riders registered for rides ≥40 km were eligible to take part in the survey.

2.2. Survey

A cross-sectional survey was administered as a face-to-face survey to riders at the endurance events, to increase participation and minimize nonresponse bias. Riders were approached and asked if they would like to take part in the survey, resulting in a convenience-based sample of those riders willing to participate. The survey took approximately 15 minutes to complete and consisted of 40 questions covering the demographics of the rider (age, gender, occupation, years riding, and competition level) and horse (age, gender, breed, and competition level), general management (number of horses, time in paddocks, size of paddocks, terrain, and feeding), and training (general structure of training program, milestones, qualitative descriptions of workload recorded, and spelling [break from training]) in the current season. The questions referred to the horse and rider combination registered for the ride at the time of the survey, and this combination may differ at other events.

2.3. Statistics

The riders' answers were recorded on a pro forma recording sheet and transposed into Microsoft Excel. Responses to free-text questions, such as data recorded for feeds, milestones in training, and changes made to training programs, were categorized into groups. Data on feeds were grouped into binary variables for ensiled forage, premixed grains, and straight grain feeds. The types of supplements fed to horses were grouped into those that were mineral mix or joint supplements. Free-text answers on changes made to training programs were grouped into increased or decreased volume of training and either an increase or decrease in distance, speed, or frequency of training. Free-text answers to milestones were coded into specific quantitative measures (heart rate and respiration rate) and qualitative assessments (attitude and willingness to work/recovery from work). In some instances, the question might not have been applicable to the rider, and so, the denominator for each question may vary. Nonparametric data were summarized with median and interquartile range (IQR), and categorical and binary data were summarized as counts and percentages.

3. Results

3.1. Respondent and Horse Demographics

In total, 53 respondents completed the survey across the four ride events. The age and gender distribution of respondents is shown in Fig. 1; most respondents were female and aged between 41 and 50 years old. Just over half (55%; 29/53) of the respondents reported that they were employed in the rural/equine sector. Most respondents (79%; 42/53) had been riding in competitive endurance rides ≥6 years. Most junior riders were currently competing at FEI 3* level, and 43% (20/46), 20% (9/46), and