

Descriptive epidemiology of joint injuries in Thoroughbred racehorses in training

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Introduction



- Carpal, metacarpophalangeal (MCP) and metatarsophalangeal (MTP) joint injuries are an important cause of lameness in Thoroughbred racehorses.
- No large-scale epidemiological studies have accurately quantified their occurrence based on classification of injury according to severity.
- The development of a classification system to describe clinical signs and severity of joint injury will assist with the identification of risk factors associated with the initiation and/or progression of joint damage.

Aims

- To develop a classification system for carpal and MCP/MTP joint injuries.
- To estimate the incidence of exercise-induced carpal and MCP/MTP joint injuries in young Thoroughbreds in flat race training.

Materials and Methods

- In a prospective cohort study, young Thoroughbreds were monitored from commencement of training in Autumn 2006 or 2007 until the end of the 2008 flat racing season in October.
- Daily exercise records and information on veterinary-diagnosed carpal and MCP/MTP joint injuries requiring treatment and/or interfering with the planned training programme were collected.
- Injury rates by age, gender and trainer were compared using Poisson regression.

Results

- Data were collected on 647 horses from 13 trainers throughout England.
- 184 cases of carpal (n=82) or MCP/MTP (n=102) joint injury were reported in 165 horses (25.5% of the study population).
- Cases were classified in one of four categories (see table below):

Category of joint injury	Carpal injuries (n)	MCP/MTP injuries (n)	Total joint injuries (n)
Localised to a carpal or MCP/MTP joint based on clinical examination and/or diagnostic analgesia, but no diagnostic imaging was performed	8	13	21
Localised to a carpal or MCP/MTP joint based on clinical examination and/or diagnostic analgesia, radiographs were taken but no abnormalities were detected	6	15	21
Evidence of an abnormality of the subchondral bone and/or articular margin(s) identified using diagnostic imaging	43	29	72
Evidence of discontinuity of the articular surface identified by diagnostic imaging	25	45	70
Total number	82	102	184

Results (cont'd)

- Overall joint injury rate was 2.3 per 100 horse months (95% CI 2.0, 2.7).
- No significant differences in joint injury rates were found between two- and three-year-olds or between genders, although males sustained category 3 injuries at almost double the rate of females (P=0.02).
- Joint injury rates differed significantly between trainers (P<0.001) (figure 1).

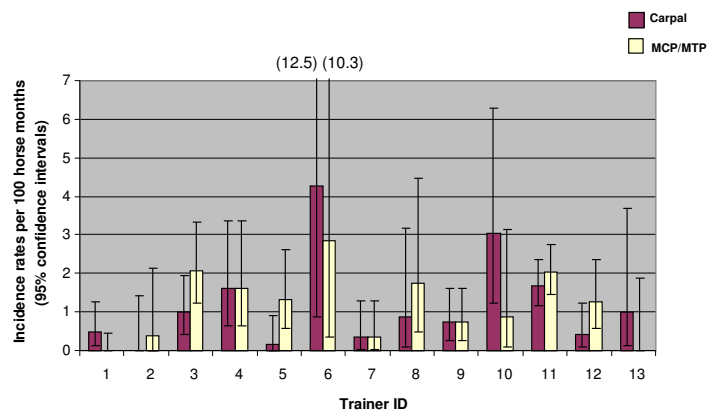


Figure 1: Carpal and metacarpo-/metatarsophalangeal (MCP/MTP) joint injury incidence rates per 100 horse months (with 95% confidence intervals) in a cohort of 647 Thoroughbred racehorses in training, by trainer.

- There were trainer differences in anatomical site and severity of injury (figure 2).

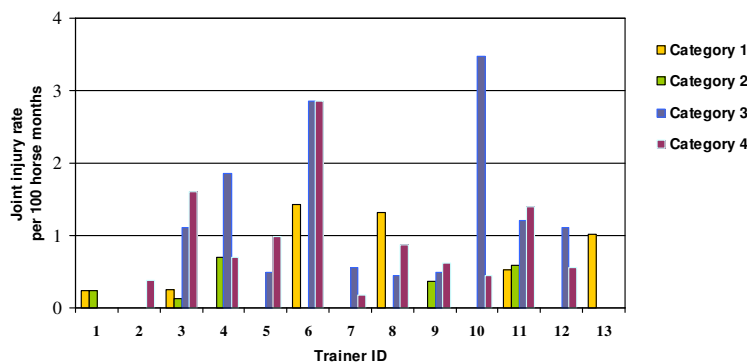


Figure 2: Carpal and metacarpo-/metatarsophalangeal (MCP/MTP) joint injury incidence rates per 100 horse months in a cohort of 647 Thoroughbred racehorses in training, by trainer and category of joint injury (error bars not shown).

Conclusions

- This study provides quantitative evidence that carpal and MCP/MTP joint injuries are a major cause of morbidity in young racehorses.
- There is an important effect of trainer on joint injury rates, anatomical site of injury and severity of injury.
- These data are being used to investigate the effects of exercise and surface on carpal and MCP/MTP joint injuries.