

Factors affecting temporal changes in toe grab height in the horseshoes of Thoroughbred horses racing in California, 2000-2001.

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Horseshoe characteristics have been associated with musculoskeletal injury in Thoroughbred racehorses. Previous studies implicating toe grab height as a risk factor for injury have only evaluated a horse's toe grab height at a single point in time, although horseshoe characteristics may change frequently. The purpose of this study was to evaluate how toe grab height for 1 race for each horse differed from the height recorded for its previous race and to examine the factors associated with this difference.

Characteristics of 1 forelimb horseshoe were recorded for all Thoroughbred horses immediately before racing at 5 dirt racetracks in California for 1 year. Horse and race information was obtained through commercial race records. Only horses with at least 3 observations were included in logistic regression analysis.

There were 3,088 horses that raced at least 3 times during the study and started in 16,567 races. Toe grabs were observed on 87% of the starters. When comparing the horse's toe grab height for one race to the height observed at its previous race, a difference in height was evident for 41% of the comparisons. The likelihood of a difference in toe grab between races was related to the horse's toe grab height, horseshoe type, month of the year, region of California, and time since the previous race in a complex model with 2-way interactions ($P < 0.05$). These complex relationships should be taken into account when further evaluating the relationship between injury, exercise and toe grab height in Thoroughbred racehorses.