

Applied load on the horse's back under racing conditions

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Abstract

With the intention of limiting the weight on the horses' backs and guaranteeing maximal freedom of movement, commonly used racing saddles are small and have minimal cushioning. Poor saddle cushioning may limit performance or even affect soundness of the back. The aim of this study was to measure the pressure under an average racing saddle ridden by a jockey at racing speed. Saddle pressure using a medium-sized racing saddle (length 37 cm, weight 450 g) was measured in five actively racing Thoroughbred horses. All horses were trained at the same facility and ridden by their usual professional jockey, weighing 60 kg. The horses were ridden on a race track at canter (mean velocity, $V_1 \pm$ standard deviation, SD: 7.7 ± 0.5 m/s) and gallop ($V_2 \pm$ SD: 14.0 ± 0.7 m/s). Maximal pressure was 134 kPa at V_1 and 116 kPa at V_2 . Mean peak pressure was 73.6 kPa at V_1 and 54.8 kPa at V_2 . The maximal total force did not differ between the two velocities and was approximately twice the jockey's bodyweight. The centre of pressure lateral range of motion differed significantly, with excursions of 23 mm at V_1 and 37 mm at V_2 ; longitudinal excursion was 13 mm for V_1 and 14 mm for V_2 . The highest pressure (> 35 kPa) was always localised along the spinous processes over an average length of 12.5 cm. It was concluded that racing saddles exert high peak pressures over bony prominences known to be sensitive to pressure.

Keywords

Back; Horse; Racing saddle; Saddle pressure; Thoroughbred

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