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Effects of the level of experience of horses and their riders on cortisol release, heart rate and heart-rate variability during a jumping course

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Abstract

Equestrian sports require the co-operation of two species, horses and humans, but it is unknown to what extent stress responses in the rider affect the horse. In this study, the stress response of experienced and less-experienced horses and riders at showjumping was analysed. Sixteen sport horses were divided into two groups (n = 8 each) by experience and were ridden by highly experienced professionals (n = 8) and less-experienced riders (n = 8). Riders jumped a course of obstacles with an experienced and a less-experienced horse and horses took part with an experienced and less-experienced rider. Salivary cortisol, heart rate and heart-rate variability (HRV) variables, standard deviation of RR interval (SDRR) and root mean square of successive RR differences (RMSSD) were analysed. Cortisol and heart rate increased and HRV decreased in all riders and horses. In less-experienced riders, cortisol release was higher on a less-experienced versus an experienced horse but the horses' cortisol release was not affected by experience of their riders. Heart rate did not differ between groups of horses and was not affected by experience of the rider but was higher in less-experienced versus experienced riders. The HRV decreased in horses and riders and SDRR was lower in less-experienced versus experienced riders. Thus, lower experience of riders appears not to affect physiological stress parameters in their horses during a showjumping course.

Keywords: animal welfare, cortisol, heart rate, horse, rider, stress