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The Influence of Emotions on Heart Rate in Horseback Riders

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PURPOSE: The purpose of the study was to find out if positive or negative affects, state-anxiety and trait-anxiety could impact a horseback rider's heart rate (HR) during a 30-minute riding protocol, HR during riding performance (dressage) test, and how the outcome score of the performance test would be affected. **METHODS**: Ten female participants ranging in age from 26 years to 63 years (M_{age}= 43.8 $\pm$ 15.4) took part in this study. At the onset of the study, VO_{2max} was estimated using the Astrand-Rhyming bicycle test protocol while wearing an Alpha Mio heart rate watch. On a separate testing day, participants completed the State-Trait Anxiety Inventory questionnaire (STAI), Positive and Negative Affects Scale (PANAS), and Feeling Scale (FS). The participants then mounted and rode a horse they were familiar with and had ridden before. HR was recorded throughout a 30-minute riding protocol using the Alpha Mio watch. Subsequently, HR was recorded again while participants completed a modified dressage performance test and scored by the same investigator on accuracy. Upon dismounting, participants filled out the PANAS and FS for a second and last time. **RESULTS**: Estimated VO_{2max} of the group ranged from 22.46 ml/kg/min to 58.68 ml/kg/min (M=42.95 $\pm$ 14.30). Positive feelings were inversely correlated with HR during the dressage performance, ($r= -0.623$, $p< 0.05$), and with dressage performance score ($r= -0.834$, $p < .001$). Pre and postpositive affect scores remained similar in all participants. However, a paired t-test indicated a significant decrease in pre to post negative affect scores in all participants ($p< 0.05$). Dressage score was inversely correlated to VO_{2max} ($r= -0.646$, $p < 0.05$). **CONCLUSIONS**: Positive and negative feelings, state-anxiety, and trait-anxiety had limited influence on HR during the riding protocol. However, participants with higher positive feelings had a lower HR during the dressage performance test, but did not achieve a high score. In addition, riders with a higher dressage score had lower estimated $VO_{2max.}$ Therefore, we can conclude that positive feelings seem to impact performance HR, regardless of aerobic fitness level. Finally, physical activity such as horseback riding could help lower negative affects while promoting positive ones.

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