

maximum right and left RA contractions were normalised to the maximum dynamic contraction from condition 1 for 10 matched and consecutive strides using integrated EMG. Friedman analyses with post-hoc Wilcoxon signed rank tests (Bonferroni adjustment; $P < 0.02$) identified if differences in RA workload occurred between the conditions. No significant differences were found in RA activity between no PTA and the use of the PTA in the low or middle position, or between the low and middle position ($P > 0.05$). The use of the PTA did not increase RA workload in walk and trot on the treadmill. Evidence-informed protocols outlining how to use training aids are warranted and could enhance equine welfare and performance.

Keywords: training; aid; PessoaTM; equine; rehabilitation; performance

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Factors influencing the symmetry and magnitude of rein tension in english and western riding

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The reins are one of the main means of communication between rider and horse, but little objective information on rein tension exists. The aim of this study was to investigate factors influencing the symmetry and magnitude of rein tension in Western (W) and English (E) riding. Rein tension was measured in a total of 93 combinations of 49 riders and 71 horses in different gaits and standardized tasks in E (50 rides) and W (43 rides). Mixed-model analysis was used. English riders applied overall higher rein tension (E: 13.1 ± 2.3 N vs. W: 5.7 ± 2.4 N, $F_{6,150} = 10.58$, $P < 0.0001$) and tensions differed within the specific disciplines, too (show jumping: 19.7 ± 4.3 N, dressage: 12.5 ± 1.4 N, leisure riders: 11.2 ± 1.3 N in E; reining: 6.5 ± 1.3 N, cutting: 5.3 ± 1.3 N, all-round: 4.9 ± 1.2 N in W, $F_{6,137} = 10.86$, $P < 0.0001$). Riders assessing their own contact as “very strong” had indeed significantly higher mean tension (21.8 ± 5.5 N) compared to strong (9.9 ± 0.8 N) or light (9.2 ± 0.8 N) contact ($F_{3,161} = 8.59$, $P < 0.0001$). Performances perceived as symmetric showed higher tension (10.5 ± 0.7 N vs. 9.2 ± 0.7 N (asymmetric), $F_{1,1962} = 8.55$, $P = 0.004$). Those described as “very harmonious”, showed the highest rein tension (12.3 ± 1.2 N), whereas lightest contact was applied to horses perceived as tensed (harmonious : 12 ± 0.9 N, unharmonious: 11.5 ± 0.9 N, tensed: 7.1 ± 1.2 N, $F_{4,210} = 8.71$, $P < 0.0001$). The magnitude of rein tension is related to or influenced by factors such as riding style, disciplines and riders’ experience. Importantly, the rider’s perception of rein tension is inaccurate, which is likely to affect training as riders may inadvertently maintain too strong contact and/or give rein aids of inappropriate intensity. Consequently horse welfare can be affected.

Keywords: rein tension; rider symmetry; horse laterality; English riding; Western riding

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Behavioral responses of horses to humans with and without PTSD

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The use of horses in equine-assisted activities may be stressful to the animals. This study hypothesised that horses exposed to humans with PTSD would display more signs of stress than with ‘neurotypical’ humans. After 5 minutes of baseline observation, 17 therapy horses (16.4 ± 3.6 years) were individually subjected for 2 minutes in a round pen to each of four humans clinically diagnosed with Post Traumatic Stress Disorder (PTSD). A

professional acting coach then instructed four neurotypical humans matched physically to the PTSD humans in emulating the physical movements of their paired PTSD subject, after which the neurotypical humans were tested in the same manner. Heart rate (HR; bpm) and behavioral observations indicative of stress in the horse (gait, head height, ear position, distance from the human, latency of approach to the human, vocalisations and chewing) were collected every 5 seconds throughout each trial and analysed using a repeated measures GLM with Sidak’s multiple comparisons between treatments and time periods. Horse behaviors did not differ between PTSD and neurotypical humans ($F_{1,21864} = 2.63$, $P > 0.1$). However, a post-hoc analysis showed that horses approached quicker ($F_{1,54} = 6.2$, $P < 0.001$), stood closer ($F_{1,3756} = 9.14$, $P < 0.01$), and oriented their ears ($F_{1,3704} = 13.07$, $P < 0.0003$) more toward humans who were experienced with horses ($N = 4$). Horse HR was lower when paired with inexperienced humans ($N = 4$; $F_{1,21531} = 16.9$, $P < 0.0001$). Horses do not appear to respond differently to humans with PTSD than to those without, but they were more attentive to humans with more horse experience. Understanding horse responses can lead to improved welfare and horse and human safety.

Keywords: equine-assisted activities; PTSD; behavior; heart rate

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One-or two- handed riding – does it make a difference?

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The impact of riders and handlers on horses has come under growing scrutiny with increasing availability of technology capable of accurately measuring physical horse-human interactions. Effective rein use is crucial for the delivery of clear signals and subsequently the discernable release of pressure when the required response is given by the horse. Rein tension studies commonly involve two-handed riding. This study aimed to compare the effectiveness of one- versus two-handed rein use. Twenty female riders (28.2 ± 10.1 years), self-rated as experienced, representing a wide range of equestrian disciplines sat in a general purpose saddle secured on stationary saddle stand with the stirrups set at their usual riding length. Centaur Rein Tension gauges were fixed to a solid box at horse head height and fitted with a standard pair of leather 5 x 20mm wide reins. Participants were asked to take up the rein tension that they would use when riding in trot, 3 times each two-handed and one-handed (using the riders natural hand of choice) using a cross-over design with a 30-minute wash-out period. No significant differences were evident between left and right hand rein tension when using two hands ($t_{59} = 1.89$; $P > 0.05$; left = 4.73 ± 2.65 N; right = 4.91 ± 2.63 N) or one hand ($t_{59} = 0.20$; $P > 0.05$; left = 4.21 ± 2.32 N; right = 4.17 ± 2.91 N). The relative use of the left and right reins is less consistent with one hand than with two. Reliable rein tension studies using different riding styles are necessary to improve understanding of the rider’s effect on the horse and ultimately to improve the welfare of horses used in equestrianism.

Keywords: rein tension; rider hands; contact; welfare; equestrian discipline

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Development of a prototype for referees to monitor whip use in horse racing

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