

The effects of chiropractic treatment on the range of motion of the carpus and tarsus of horses

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Summary

Implications Chiropractic treatment of horses may improve symmetry of joint range of motion (ROM) of the carpus and tarsus. This may be important when assessing movement symmetry of the horse.

Introduction The use of complementary therapies has grown over the past decade for both humans and animals. Equine back problems are more frequently reported as a major contributing factor to poor performance, and back dysfunction can affect limb kinematics. Clinical signs of back pain and spinal dysfunction can include asymmetric or restricted joint motion (Haussler, 2009). Joint range of motion (ROM) is the degrees difference between joint flexion and extension. McTimoney treatment uses short lever, high velocity, low amplitude thrusts to induce a therapeutic response in joint structures, muscle function and nerve reflexes (Faber et al, 2003). The aim of this chiropractic technique is the resolution of musculoskeletal disorders that are induced by biomechanical factors. Symmetry in movement is also important to the balance and performance of the horse (Kuhnke et al, 2010). This study aims to determine if (McTimoney) chiropractic treatment has an effect on the range of motion (ROM) of the carpus and tarsus joints.

Material and methods Hemispherical 35mm markers were applied to 7 anatomical landmarks of both forelimbs and both hindlimbs of 10 sound, healthy horses from the same riding school with similar workload. The treatment group (n=5) received (McTimoney) chiropractic treatment for the neck, back, pelvis and front feet. 2-D Kinematic data at walk and trot, 1 day before treatment, day of treatment and 7 days post treatment, was collected for all horses using two digital video recorders, filming both sides concurrently. Data was analysed using Kinovea software, minimum and maximum joint angles were measured and ROM calculated. Statistical analyses included Two-way ANOVA, Students t-test and symmetry indices.

Results Post treatment, significant increases in joint ROM occurred for the control and treatment groups on left side at walk and trot. However, only the treatment group significantly increased ROM on the right side for the carpus at walk ($p=0.04$) and trot ($p=0.02$). For the treatment group, there was a significant change in carpus ROM asymmetry from left towards neutral at walk ($p=0.004$) and trot ($p=0.04$). Also tarsus ROM asymmetry change from left towards neutral was significant ($p=0.02$) at trot. There were no such significant effects for the control group.

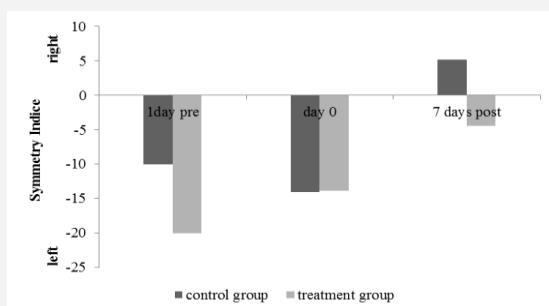


Figure 1 Mean symmetry indices for carpus in walk.

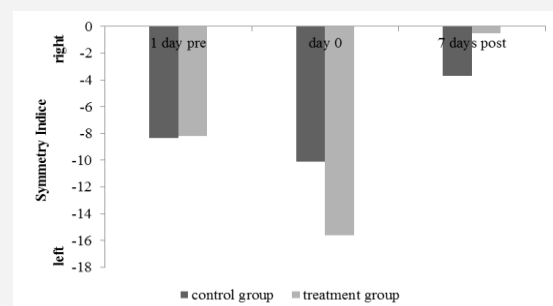


Figure 2. Mean symmetry indices for carpus in trot

Conclusion These results are promising and support the hypothesis that (McTimoney) chiropractic treatment may help to improve the symmetry of tarsus and carpus ROM of horses. Further research is recommended to elucidate measurable effects.

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