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Effects of osteopathic treatment in sport horses

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Sport horses are often put to the test before they reach maturity.They can develop disorders of articular mobility. Osteopathic treatment for horses has developed considerably over the past three decades. The objective of this study was to quantify the locomotion of sport horses, with their riders reporting their back dysfunctions, ten and twenty days after an osteopathic treatment. Twenty six healthy sport horses divided in two groups were tested using the same procedure. In the group A, 13 horses (aged 8.5±4.7 years) had an osteopathic treatment and in the group B, 13 horses (8.7±4.3 years) were not treated, only groomed. In both groups there were 6 young (≤6 years) and 7 older horses (>6 years). Gait related variables (propulsion, dorsoventral activity, lateral activity, propulsion time, symmetry, regularity) in walking, trotting and galloping paces, in a straight line in free conditions, were measured by two accelerometers Equimetrix® (one fixed on the croup and one against the sternum): before treatment, ten- and twenty- days post-treatment. Analyses of variance were used for statistical analysis. P values <0.05 were considered statistically significant to compare locomotion before treatment, ten and twenty days after the treatment for both groups and for young and older horses. Ten days after treatment, the results for group A, at trot, showed a significant increase of dorsoventral activity at the sternum (before 42±8.3; after 45.2±8.1 g^2/Hz, $F_{1,116}$=4.35, $p<0.05$) and a significant decrease for group B (before 46.2±6.7; after 43.7±7.3 g^2/Hz, $F_{1,121}$=4.06, $p<0.05$). For group B, lateral displacement decreased significantly at gallop (before 12.8±8; after 9.6±5.9 cm). Dorsoventral activity at trot, propulsion and propulsion time at walk and gallop decreased significantly. Twenty days after treatment, the symmetry of trot increased significantly (97.4±1.8 vs 98.1±1.4%; $F_{1,108}$=8.57, $p<0.01$) for group A. Lateral activity of the croup increased (2.6±0.8 vs 3.1±0.9 g^2/hz; $F_{1,93}$=7.238, $p<0.01$) as well. For the group A young horses, dorsoventral displacement at sternum and croup, symmetry and propulsion increased significantly at trot. However, propulsion of old treated horses decreased at walk (before: 11.6±4.7; after: 8.1±4.2 g; $F_{1,41}$=6.41, $p<0.05$) and propulsion time at gallop (before: 19.5±2.5; after: 17.4±2.8 %; $F_{1,54}$=9.22, $p<0.05$). Osteopathic treatment improved locomotion of sport horses straight away, particularly for young horses. Changes were still obvious twenty days after treatment. It appears, to the older horses, that a second treatment should be administrated or that they would need a longer period of adaptation after the osteopathic treatment combined with a progressive re-education program.

Lay person message: Osteopathic treatment improved young sport horse locomotion immediately, with improvements persisting for at least 20 days after treatment. For older sport horses, a second treatment should be given and ideally combined with the use of a progressive re-education program.

Keywords: osteopathy, horse, locomotion, accelerometry, gait, welfare.