

## Effects of osteopathic manipulation in horse riders: a pilot study

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A french epidemiological study showed that 81% of professional riders are treated by an osteopath. Despite its growing popularity the efficiency of Osteopathic Manipulative Therapy (OMT) has been little investigated. The aim of this preliminary study was to assess impact of an OMT. A group of four riders (aged 20 to 33 years old at the same level of riding) followed a two months-long OMT programme. The cranio sacral therapy osteopathic method developed by J. Upledger in the 1970s was used in this study for diagnosis and treatment. Riders were treated by a therapist five times, the first three sessions were at two week intervals and sessions four and five were at three week intervals. Diagnosis showed that at the beginning of treatment, all riders had a dysfunction of the three "blockage points" of lymphatic circulation: tentorium cerebelli, respiratory diaphragm and perineum. During OMT, the therapist focused on these points while respecting the physical and emotional condition of each individual and the chronology of their lesions. Riders were tested before and after each manipulation at walk, trot and gallop on an equestrian simulator equipped with pressure sensors on the right and left stirrups. The forces were measured at 1 kHz. For 20s mean peak force (MPF) and standard deviation were calculated for stirrup data. A pressure mat was used on the saddle to collect ischium pressures. Root mean square (rms) of ischium pressures and MPF on the stirrups were calculated and compared before and after each manipulation. An analysis of variance was used for statistical tests and P values of <0.05 were considered statistically significant. Results showed statistical differences of pressures after the first and the third osteopathic manipulation four weeks later. Stirrups pressure values decreased (example at walk: before OMT, right stirrup MPF=89.4±3.4N; left stirrup MPF=95±4.5N; after the first OMT: right stirrup MPF=41.4±2.2N; left stirrup MPF=48.6±3.9N;  $F_{5,6}=4.37$ ,  $p<0.05$ ) in favour of pressures on the saddle (example at walk: before OMT, right ischium rms=0.4N; left ischium rms=0.74N; after the first OMT, right ischium rms=3.65N, left ischium rms=2.32N;  $F_{5,6}=0.825$ ,  $p>0.05$ ). Significant decrease of MPF and an increase of ischium pressures were interpreted as an improvement of rider's balance. Results support planning a study with a larger number of riders and a control group. It would confirm improvement of rider's balance during an OMT. This study suggests that osteopathy used in its entire philosophy, while respecting the physical and emotional condition of each individual and the specific chronology of their lesions, can be used as a complementary method to improve an athlete performance.

**Lay person message:** Cranio sacral therapy might be an effective osteopathic technique for improving a rider's balance on an equestrian simulator. Indeed it can potentially help the rider to manage his impact on the locomotion and welfare of horses by balancing his/her weight, and therefore pressure, on stirrups and his/her seat.

**Keywords:** rider, seat, stirrup, osteopathy, cranio-sacrum, balance.