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Effect of mud treatment from Heviz Spa Lake on the joints and locomotion activities of horses

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Medical research on the effects of thermal mud in the human medical field already retrospect for many years (Gyarmati és Kulisch 2008). As a result, the thermal sludge product is successfully applied more widely, especially in the rehabilitation of rheumatic diseases (Gyarmati és mtsai., 2012). Research results related to the management of horses for the time being, however, are not available.

The aim of our study was to investigate how a mud treatment from Heviz Spa Lake affects the movement quality and flexibility of certain joints in horses. An experiment was carried out with 10 male and female school and sport horses. All of the horses had been ridden longer period than 3 years and had correct and healthy movement. Horses were treated with mud ten times, respectively, daily in the evenings. Wet sludge was blamed on the knee, hock, elbow, shoulder, back, stifle, front and hind cannons and fetlock joints. The sludge used for treatments was washed off in the morning. At the beginning of the experiment, after the treatment and 8 weeks following the average stride length and the longest distance between the print of hind and front foot during walking and trotting, maximal flexibility of knee, hock and fetlock joints were measured. To calculate the number of steps horses were lead straight during walking and trotting on 30 m flat distance. Following this the stride length was determined. To determine the longest distance between the print of hind and front foot on flat, sandy soil, the distance between hind and front prints was measured three times. The maximal flexibility of each joint was measured with a joint protractor. Statistical analysis was carried out with one way analysis of variance (ANOVA) with SPSS 7.0 program.

According to the results (table 1.), the horses responded positively to the treatments. The most positive results were detected by the average stride lenght during walking, maximal flexibility of the front fetlock, knee and hock. This is partly explicable with the beneficial effects of sulphur on the joints, which is well-known in human field (Kovács és mtsai., 2012). The stride length and longest distance between the print of hind and front foot were lower but positively influenced by the mud treatment. Eight weeks after the treatments, most of the parameters similar to human therapeutic results (Kulisch és mtsai., 2012), compared to directly after the mud baths completion values were further improved, a slight negative effect was observed only for a few test values, but the results obtained here were more favourable, as at the beginning of the experiment. The results seem to confirm that the treatment effects can be considered long term. This is also explained by the slurry preparation from which absorbed elemental sulphur and sulphur oxidizing hydrogen sulfide absorbed in the body may be another source of hydrogen sulphide formation at the skin (Gyarmati,1982).

Our results show, that the mud treatment from Heviz Spa Lake may have benifical effects on the joints, playing an important role in the locomotion of horses.

The results are remarkable as well, also because of the evidence of the chemical impact of mud also can help. Such modes of action are still under research and only partly demonstrated in human medicine (Odabasi és mtsai., 2008). Further veterinarian research has to be carried out to confirm the results. The results of the present experiment and the prospect of further research could be pioneer, as the Heviz mud, as well as the thermal effect of water even before in the equine medicine has not been demonstrated experimentally, only individual observations are aviable. So the veterinary use of Heviz mud, which has been proven many times in human medicine, seems to be a new research field.

Key words: mud treatment, Heviz Spa Lake, maximal flexibility of joints, locomotion activities

Table 1.: The effect of Heviz mud treatments on the examined parameters

	before the treatments	*after the last treatment*	*8 weeks after the last treatment*
average stride lenght during walking (m)	1,80±0,07 **a***	1,86±0,12 **ab**	1,93±0,11 **b**
average stride lenght during trotting (m)	2,45±0,22	2,63±0,24	2,67±0,20
the longest distance between the print of hind and front foot during walking (cm)	30,80±10,17	31,25±10,26	33,06±12,85
the longest distance between the print of hind and front foot during trotting (cm)	17,65±9,04	22,80±10,10	19,13±12,94
maximal flexibility of knee (degree)	39,5±2,8 **a**	36,2±3,5 **ab**	33,8±5,3 **b**
maximal flexibility of hock (degree)	49,2±6,21	47,8±9,45	46,6±8,35
maximal flexibility of front fetlock joint (degree)	121,5±7,47 **a**	112,7±9,41 **b**	115,6±2,39 **ab**
maximal flexibility of hind fetlock joint (degree)	92,0±9,49 **a**	83,6±6,72 **ab**	81,9±6,51 **b**

*ab: Averages with different letter marks differ siginficantly (p<0,05)

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