

Influence of electrical fencing on horses in small paddocks

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Key words

Horse, saliva, stress, cortisol, electrical fence, heart rate, heart rate variability

Aim of the study

The aim of this study was to investigate objective stress response measures in paddocks with electrical fencing compared to paddocks with wooden fencing, focusing on possible differences concerning the utilisation of the paddock area between the two types of fencing.

Material and methods

20 horses aged between 6 to 18 years were tested comparing two paddock sizes (12.25m² / 36m²) either with wooden or electrical fencing in order to evaluate physical and mental parameters. Every horse was tested in randomized chronology in all four paddock variants during each 90 minutes per variant. Observations took place by continuous video surveillance in order to analyze behavioural patterns and the utilisation of the paddock area by a special software. Additionally, periodic measurements of the heart rate (HR), heart rate variability (HRV) as well as standardized salivary samplings for later cortisol evaluation were carried out.

Results and significance

Behaviour:

- There was no significant difference in the total amount of stress-indicating behaviour.
- Horses were moving less in small ($p < 0.001$) and electrical fencing ($p < 0.005$) paddocks
- Horses were rolling less in small paddocks ($p < 0.001$)
- Fence contact was significantly less in electrical fencing ($p < 0.001$)
- There was a tendency for more stress-indicating behaviour in small paddocks

Utilisation of the paddock area:

- Horses used the area significantly less both in electrical fencing and in small paddocks ($p < 0.001$)
- The border area (50cm) was used less both in electrical fencing and in small paddocks ($p < 0.001$)

HR and HRV:

- There were no significant differences in HR parameters, but a slight tendency of alteration of three HRV parameters indicating stress reactions in electrical fencing

Salivary cortisol:

- There was no difference between the various fences.

Based on the measured physiological parameters there is no indication for stress in electrical fencing paddocks. However horses use less of the available paddock area both in electrical fencing paddocks and small paddocks, especially by avoiding the area near the fence.

Publications, posters and presentations

Jahrestagung Netzwerk Pferdeforschung, (19. April 2012), Avenches und Tierschutzworkshop, Olten:

Presentation

Glauser, et. al. (2012) „Ethologische und physiologische Auswirkungen von stromführenden Einzäunungen bei Einzel-Kleinausläufen für Pferde“, Tagungsbericht 7. Jahrestagung Netzwerk Pferdeforschung Schweiz, (19. April 2012), SAT, Band 154. Heft 4, Seite 167.

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