

The importance of having enough space: assessing lying behaviour in horses housed in single boxes

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Recumbency is fundamental for horses since it is the only way to achieve the necessary amount of REM sleep to avoid sleep deprivation [1]. Among the factors known to influence lying behaviour, the area of the shelter is particularly important, since horses kept for leisure and sport are often housed in single boxes, making it fundamental that the surface is enough to allow them to comfortably lie down and rest for a proper amount of time [2, 3].

The aim of the study was to monitor lying behaviour in horses kept in single boxes with adequate or inadequate dimensions related to the dimension of the horse.

The lying behaviour of 16 horses (10 mares and 6 geldings, 12.7±6.8 years old) of various heights at withers (mean±SD 158.5±13.5 cm) was continuously monitored for four days using triaxial accelerometers (MSR145 - MSR Electronics GmbH, Seuzach, Switzerland; Technosmart axy 5S - TechnoSmart Europe S.r.l., Rome, Italy) applied to the metacarpal bone of the left front leg [4]. Based on the ratio between the height at the withers and the box area [5], the subjects were divided into two groups: Adequate surface (A; N=8) and Inadequate surface (I; N=8). Generalized linear model was used to assess the influence of the suitability of the shelter area and the monitoring day on lying behaviour, specifically in terms of daily duration, frequency, and bout duration.

One horse of the Inadequate group never achieved decubitus during the monitoring period. The suitability of the area significantly influenced the mean lying duration ($p=0.001$) and the lying bout frequency ($p<0.001$), with a longer time and higher frequency for the Adequate group compared to the Inadequate one (A=154.4±13.9 min/day and I=90.9±13.7 min/day; A=4.5±0.3 bouts/day and I=2.5±0.3 bouts/day), while monitoring day did not seem to have an influence on lying behaviour ($p>0.05$).

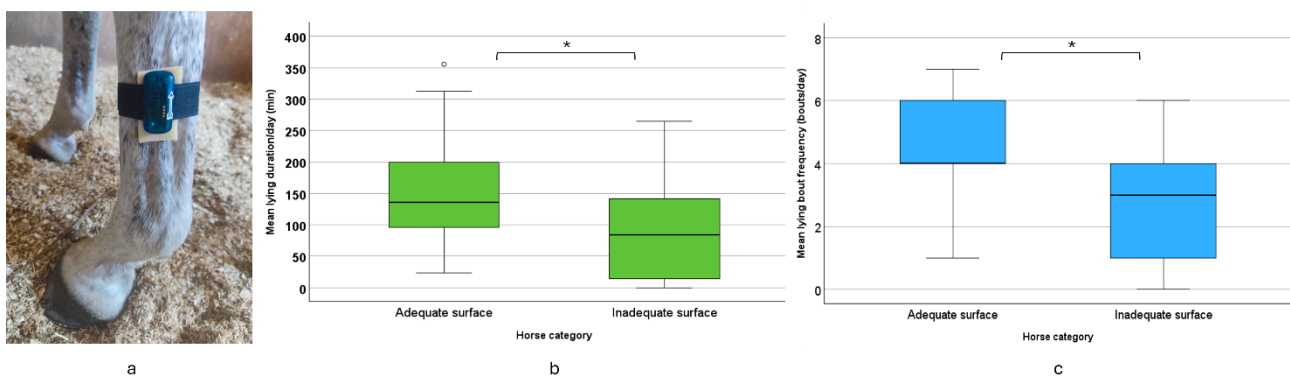


Figure 1 - a) Accelerometer placed on the left front leg (metacarpal region); b) Mean daily lying duration (min), across 4 days; c) Mean lying bout frequency (bouts/day), across 4 days

Our results support the hypothesis that a larger available area promotes lying behaviour since the horse feels more comfortable in assuming a recumbent position [2, 3]. Furthermore, the triaxial accelerometer helps to non-invasively and accurately monitor lying behaviour in horses, allowing the identification of the absence of recumbency over a few days. Further research should aim to enlarge the sample size and consider different conditions where the use of a standard single box is required, such as in hospital settings or competitions.

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