

Physiological stress parameters in sport horse mares transferred from group housing to individual stabling

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Initial equestrian training and especially first mounting of a rider are stressful challenges for young horses. Most young horses are raised in groups but, in association with equestrian training, they are commonly transferred to individual stabling in loose boxes. Although, in most stables, visual contact with horses in adjacent boxes is possible, separation from the herd might be an additional stressor. We have studied physiological stress parameters in 3-year-old sport horse mares (n=8), transferred from a group stable with access to a paddock to individual boxes without paddock. Once stabled in the individual boxes, mares underwent a standard training for young horses. Horses had been accustomed to lunging and tolerating a rider on their back several weeks before the study. Mares were studied from 5 days before to 5 days after changing the stable. Cortisol concentration in saliva, locomotion activity (ALT pedometers), heart rate (HR) and HR variability (RMSSD: root mean square of successive beat-to-beat intervals) were determined. We hypothesized that the change of the stable increases cortisol release and is associated with changes in HR and RMSSD and reduced locomotion.

Before mares were moved to individual boxes, cortisol concentration showed a pronounced diurnal rhythm with values around 0.6 ng/ml in the morning and a continuous decrease throughout the day. When the mares were moved to individual boxes, cortisol concentration increased to 1.8 ± 0.2 ng/ml and did not return to baseline values within 6 h ($p < 0.05$ over time). On subsequent days, a diurnal rhythm was re-established but shifted to a higher level than before. Locomotion activity determined by ALT pedometers was increased for some minutes only after mares had been placed in individual boxes but was only slightly higher than during the time mares spent with the group in a paddock. On

days 2 to 5 in individual boxes, locomotion activity was reduced compared to the group stable. HR increased and the HRV variable RMSSD decreased when mares were separated.

In conclusion, separating horses during initial training from their group is an additional stressor, although the stress is less pronounced than induced by other social challenges, e.g. weaning of foals. When stabled in individual boxes, mares move less than when kept as a group. Horses kept in a group thus appear to exercise themselves freely, such an effect is absent when the animals are kept individually.

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