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EFFECTS OF MEAL FEEDING FREQUENCY AND ROUGHAGE ON BEHAVIORS OF STABLED HORSES

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Aberrant behaviors such as wood chewing and cribbing are exhibited by horses in confinement but usually not by horses in free roaming conditions. Boredom and hunger are possible reasons for poor behavior in stabled horses. The purpose of this study was to determine the effects of grain feeding frequency and roughage availability on behavior of stabled horses. Four horses were adapted to box stalls for one week and then assigned to one of four treatments in a 4x4 Latin square design, with each period lasting one week. The treatments were four different diets: 1) eight meals per day with ad lib roughage; 2) eight meals per day with limited roughage; 3) two meals per day with ad lib roughage, and 4) two meals per day with limited roughage. Grain was provided every three hours for treatments 1 and 2 beginning at 7:00 AM, and at 7:00 AM and 4:00 PM for treatments 3 and 4. Feed was delivered to the horses via automatic feeders (Triple Crown® Freedom Feeder, Milford, Indiana). Total grain provided each day was the same for all treatments. Feed (hay and grain) and water consumption were measured throughout each period. The horses were videotaped on the final day of each period for two, ten hour periods, starting at 10:00 AM (daylight) and 10:00 PM (evening) to record all activity. The videotapes were read at three random, 5 minute segments per hour. Each videotape was evaluated for duration and frequency of each of the following states and behaviors: drinking, eating hay, chewing, walking, sleeping, standing alertly, cribbing, pawing, picking at bedding and scratching. The effects of the treatments were analyzed by ANOVA using SAS General Linear Models. No differences ($P>0.05$) between treatments were seen for duration or frequency of behaviors during the daylight period (figure 1 and 2). During the evening there was a significant difference ($P<0.05$) between treatments for duration of time spent eating hay (figure 3). Horses fed 8 times per day with ad libitum access to hay spent more time eating hay than horses fed 2 times per day with ad libitum access to hay. This difference was not seen for frequency of the behavior (figure 4). The feed consumption data will be analyzed to determine whether feeding grain 8 times per day increased the amount of hay consumed. Based on the diurnal patterns noted when behaviors were plotted by hour, cribbing appeared to be worse at midday and pawing was centered around feeding times but appeared to wane as the novelty of the feeders wore off. Most hay was eaten during daylight hours. The horses spent more than 25% of their time during daylight eating hay as compared to spending less

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than 15% of their time eating hay during the evening. The horses slept for less than 25% of the time observed during daylight as opposed to more than 50% during the evening. The horses slept periodically through the day, but slept for long periods starting at about midnight until approximately 7:00 AM. From these observations, it is recommended that automated feeders be set between the hours of 7:00 AM and 12:00 AM during a 24 hour period to help reduce aberrant behavior and prevent disruption of the natural behavioral patterns of the stabled horse.

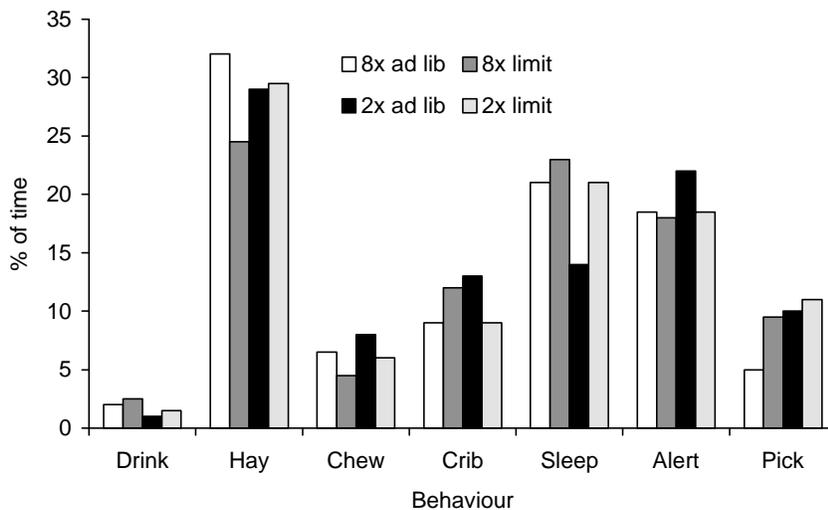
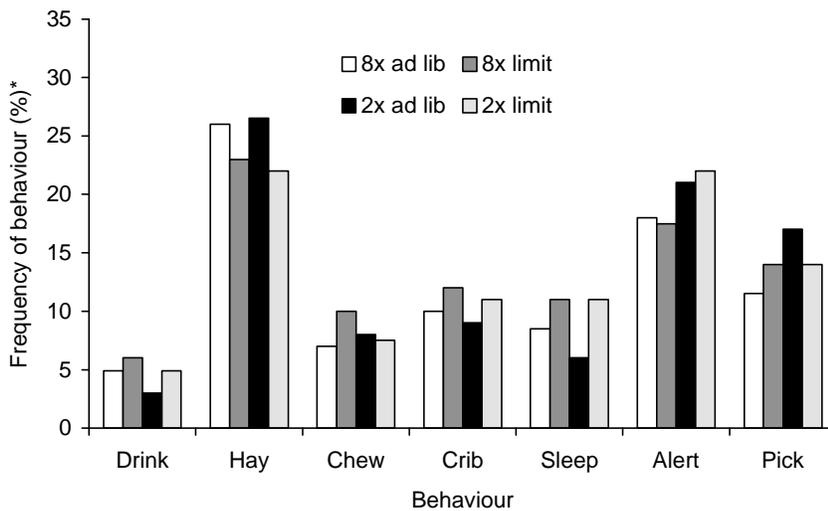


Figure 1 Duration of behaviours for stabled horses during daylight (10am - 8pm)



* % is of total frequency for all behaviours

Figure 2 Frequency of behaviours for stabled horses during daylight (10am-8pm)

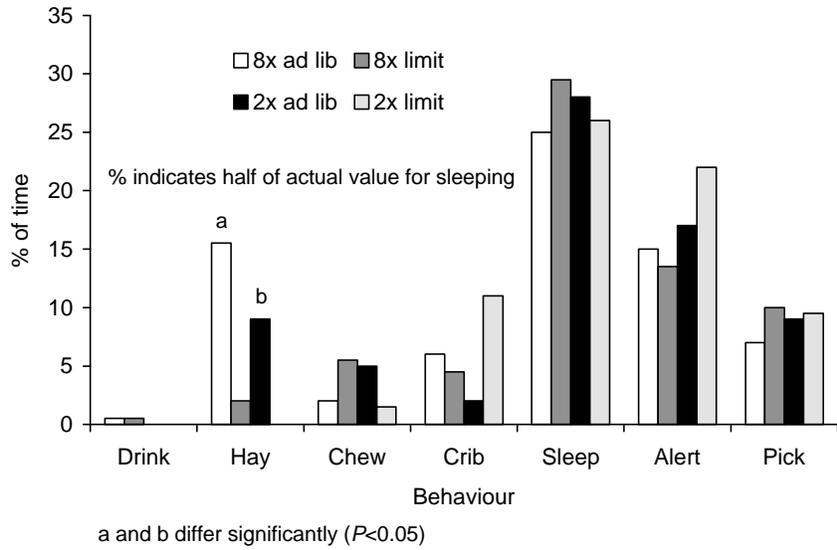


Figure 3 Duration of behaviours for stabled horses during nighttime (10pm - 8am)

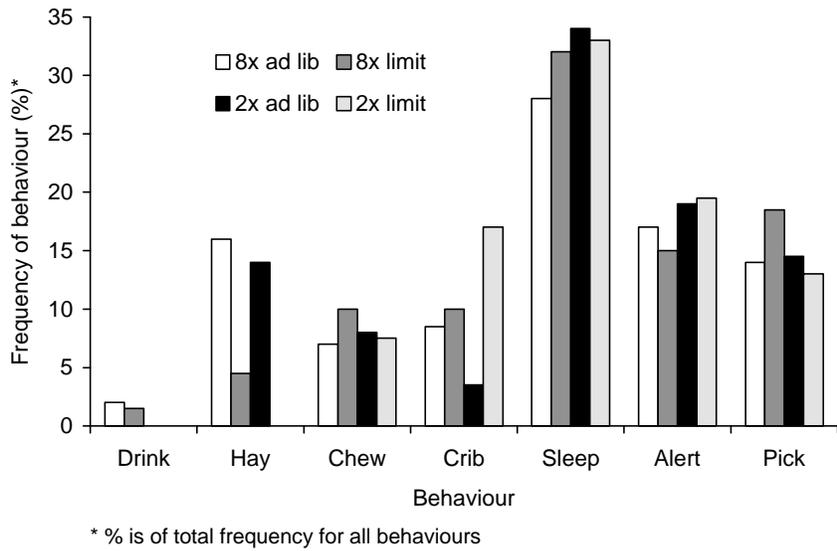


Figure 4 Frequency of behaviours for stabled horses during nighttime (10pm - 8am)

