

Large Pasture Turnout Improves Horse Fitness

by P.M. Graham-Thiers and L.K. Bowen, Virginia Intermont College; Summarized by Krishona Martinson, University of Minnesota

Maintenance of horse fitness can be problematic during periods of inclement weather or injury. Horses lose muscle mass and bone density during these periods which interferes with training progress. The study objective was to compare the horse's ability to maintain fitness levels during an extended period of no forced exercise to those confined to stalls receiving either no forced exercise or daily forced exercise.

Sixteen horses were divided into three groups: pasture turnout (P), stalled and exercised (E), and stalled with no exercise (S). The P group was turned out into a moderately hilly ~100 acre pasture for 14 weeks. The E and S groups were stalled during the day and had paddock turnout at night, and the E group received 1-2 hours of light to moderate exercise 5 days per week for 14 weeks.

At the start and end of the study, horses were weighed and body condition scored. Additionally, ultrasound rump fat measurements were made to estimate body fat, and radiographs of the left third metacarpal were taken to estimate bone density. Each horse performed a standard exercise test (SET) prior to the start and end of the study to evaluate fitness. Heart rate measurements were taken during the SET. Blood samples were obtained at rest, peak of exercise, and 10 minutes of recovery. Rectal body temperature was taken at each blood sampling to correct blood gas analysis as well as monitor changes in body temperature during exercise and recovery. Horse movement was tracked by GPS units (Garmin) secured to the horse's halter during turnout time. Horses wore the GPS for a 24 hour period.

Horses maintained body weight and body condition score throughout the study. Not surprisingly, the P group horses traveled a greater distance on a daily basis compared to either the E group or S group. There were no differences in ultrasonic rump fat measurements among groups. Bone density measurements revealed greater lateral bone density for the P group at the end of the study compared to the start. The E and S groups did not have changes between the start and end of the study. Overall, the P group had a tendency to have more lateral bone density compared to either the E or the S group. During the second SET, the P group had lower heart rates at the trot, hand-gallop, and the 1 minute recovery mark compared to the first SET. Horses in the E group also had lower heart rates at the hand-gallop in the second SET compared to the first while horses in the S group had higher 1 minute recovery heart rates during the first SET compared to the second SET.

Horses in the S group lost fitness during the 14 weeks. The P horses remained just as fit as the E horses. The unique improvement for the P group compared to either the E or S group was the improvement in bone density. Overall the notion of letting a 'horse be a horse' seems to have merit to help the horse maintain fitness during a period of layoff. All-day turnout enables the horse to travel a significant distance due to grazing behavior, contributing to the ability to maintain muscle, bone density, and exercise fitness ability.