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Original Research

Endurance Training Has Little Impact on Mineral Content of the Third Metacarpus in Two-Year-Old Arabian Horses

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Abstract

Although previous research suggests that short bouts of high-speed exercise will increase bone mass in horses, little research has been conducted to determine the impact of endurance exercise on bone. Although many in the equine industry believe that months of slow training will increase bone strength, we hypothesized that endurance training would not alter bone mineral content as determined through optical density. Eleven 2-year-old Arabians were split into two groups, Exercised (E, 6 geldings) or Control (C, 5 fillies), with radiographs taken on day 0 for estimation of bone mineral content by radiographic bone aluminum equivalence (RBAE). The E horses were then trained on a high-speed treadmill for 90 days; training consisted of walking (1.6 m/second), trotting (4 m/second) and cantering (8 m/second) at increasing distances until the target of 60 km/day was met. On day 90, E horses were confined to 9 × 14 m dry lots and placed on a regular exercise schedule, including a 60-km endurance test once every 3 weeks. The C horses remained on pasture throughout the study. On day 162, radiographs were made again on all 11 horses. No differences between treatments, days, or interactions were noted in any cortex or the total RBAE, suggesting that endurance exercise does little to alter bone optical density compared with free-choice exercise on pasture.