

The effect of various physiological and environmental factors on serum vitamin D concentration in horses

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Abstract

Vitamin D as a fat-soluble vitamin is essential for calcium and phosphorus homeostasis and normal skeletal growth and development. Furthermore, association of vitamin D with infectious and non-infectious diseases and malignancies has been shown in a large growing body of literature. However, limited reports about the status of vitamin D in domestic animals particularly in horses are available. In this study blood samples were collected from 160 horses in Yazd and 15 horses in Ardabil area. The sera were analyzed for vitamin D, calcium, phosphorous, magnesium and parathyroid hormone using standard methods. Serum vitamin D was significantly higher in age groups of 1-3 and 3-6 years, first, second and third parity, in Yazd in comparison with Ardabil area and female horses. Also, more than 4 hours of exposure to sunlight had a positive significant effect on blood vitamin D levels in horses. The horse color, breed and pregnancy were not significantly associated with vitamin D concentrations. In conclusion, altitude, gender, more than 4 hours sunlight exposure, parity and age are associated with vitamin D levels in horses, while color, breed and pregnancy had not any effect on this vitamin levels in horses.

Key words: Vitamin D, Horse, Calcium, Phosphorous, Sunlight exposure

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