



The influence of mineral supplementation on skeleton formation and growth in Lusitano foals

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Abstract

Diets traditionally used in the horse industry are very often imbalanced in mineral composition, mainly in what concerns Ca, P, Mg and Ca/P ratio. The main objective of this study was to evaluate the effect of calcium, phosphorus and magnesium supplementation of traditional diets, on bone formation and growth in Lusitano breed foals, from weaning to 1 year old. Two homogenous groups of eight colts each received for 140-day *iso*-energetic and *iso*-proteic diets, which differed only on Ca, P and Mg levels (respectively, 0.26%, 0.27% and 0.12% vs. 0.56%, 0.43% and 0.18%). Throughout the experiment, blood samples were periodically collected for evaluation of total calcium, inorganic phosphorus, magnesium, copper, zinc, intact parathyroid hormone, bone alkaline phosphatase and osteocalcin concentrations. Animals were weighed and measured (withers height, hip height, girth and cannon circumference) for body growth evaluation. No significant differences were observed between treatments, with respect to growth, plasmatic concentrations of analysed minerals or biochemical markers. The linearity of growth in both groups is in agreement with studies reported for other light breeds. The observed results could be explained by the fact that calcium, phosphorus and magnesium levels in the base diet were close to supply the animal needs for a moderate growth. Further studies concerning the relationship between bone biochemical markers and mineral nutrition, in the growing horse, should consider the evaluation of bone mineral density and content.

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