The Influence of Probiotics on D-Lactate Concentrations in Quarter Horse Mares

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Probiotics have previously been shown to influence microbial dynamics in the gastrointestinal tracts of many animals, including horses. D-lactate is a product of microbial fermentation in the hindgut and concentrations may rise with an increase in microbial production. The objective of these studies was to determine the influence of probiotics on D-lactate concentrations in horses. In the first study, eight Quarter Horse mares (10 ± 2 yrs) were randomly assigned to 1 of 2 treatment groups (probiotic or control) for a period of 56 days. All horses received 0.5% BW of a 12% CP pelleted concentrate, with water and mixed grass hay *ad libitum*. Horses in the probiotic treatment group were fed a probiotic supplement containing *L. acidophilus* at a target dose of 10^9 cfu/45 kg of BW per day. In the second study, twelve Quarter Horses (1.6 ± 0.6 yrs) were randomly assigned to 1 of 2 treatment groups (probiotic or control) for a period of 73 days. All horses received 0.5% BW of a 14% CP pelleted concentrate, with water and mixed grass hay *ad libitum*>. Horses in the probiotic treatment group were fed a commercial probiotic supplement containing *E. faecium, L. acidiophilus*>, *L. casei,* and *L. plantarum*. Fecal samples were collected weekly throughout both studies to measure D-lactate concentrations. D-lactate was measured using a commercial colorimetric assay. Data were analyzed using the PROC MIXED procedure of SAS and a P value of ≤ 0.05 was considered statistically significant. D-lactate concentrations in the control groups ranged from 0.268548 mM to 3.046522 mM and D-lactate concentrations of horses in the probiotic treatment groups ranged from 0.257404 mM to 3.15931 mM. Although there were differences in D-lactate concentrations across time, there were no significant differences in D-lactate concentrations due to probiotic supplementation in either study.