



RESEARCH >

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Feeding Outlast[®] Gastric Support Supplement to Young Horses and Broodmares as a Novel Calcium Source

A SUMMARY OF RESEARCH CONDUCTED AT THE PURINA ANIMAL NUTRITION CENTER EVALUATING THE PHYSIOLOGICAL EFFECTS OF FEEDING PURINA[®] OUTLAST[®] GASTRIC SUPPORT SUPPLEMENT TO BROODMARES AND YOUNG HORSES.^{1,2}

< INTRODUCTION >

Research has indicated that like mature horses, young horses are at risk of gastric ulceration. Purina[®] Outlast[®] Gastric Support Supplement has been proven through multiple research studies as efficacious in its ability to support gastric health in horses.^{3,4} Further, research has indicated that when fed, even at high levels, the calcium source in Outlast[®] can be utilized by the horse to support normal physiological function in the same way as a more conventional calcium source such as calcium carbonate.⁵ The objective of these trials was to evaluate different physiological parameters in both broodmares and young, growing horses fed Outlast[®] as a calcium source before parturition, during gestation, and before and after weaning. Of specific importance were milk nutrient content, markers of bone growth, and the overall health and development of foals.

< MATERIALS AND METHODS >

Over a two-year period, 20 Quarter horse mare and foal pairs were included in two consecutive studies. In both studies, mares were randomly assigned to a dietary treatment group prior to parturition. Mares were offered either commercially available Purina[®] Ultium[®] Growth horse feed (control) or an alternative version of Purina[®] Ultium[®] Growth horse feed with the active ingredient in Purina[®] Outlast[®] supplement as the calcium source (treatment). Both diets were similar nutritionally (15.5% CP, 9.5% fat, 13% fiber, 1.45% Ca, 16.6% starch, 10% WSC, 3.7 Mcal/kg). Mares began consuming dietary rations starting 30 days prior to their expected foaling dates and continuing through weaning to meet nutritional needs. Foals were offered daily rations starting at 28 days post-foaling and continued consuming either the control or treatment diets through one-month post weaning. Morphometric measurements of foals were obtained weekly post foaling and included body weight, heart girth, wither height, hip height, hip width, and rump fat thickness. Serum samples were obtained from foals weekly and were analyzed for concentrations of osteocalcin (OC), a marker of bone formation and carboxy-terminal pyridinoline cross-linked telopeptide region of type I collagen (ICTP), a marker of bone resorption via commercially available ELISA kits (Mybiosource). Foals underwent gastric endoscopy 1-week prior to and 1-week post weaning to evaluate gastric health. Milk samples were obtained from mares over the course of the lactational period and analyzed for milk nutrient composition (Equi-Analytical, Ithaca, NY). Data were analyzed appropriately for statistical significance utilizing SAS 9.4 (Cary, NC). Data were considered significant at $P \leq 0.05$.

¹RD Jacobs, MB Gordon, et al. 2017. Effect of a novel source of calcium on young horse growth and development.

²RD Jacobs, MB Gordon, et al. 2018. Effect of a complete growth program on young horse growth and development.

³ME Gordon, ML Jerina, et al. May 2017. The effect of a natural-source mineral supplement on gastric ulceration in horses. *Journal of Equine Veterinary Science* 52:56-57.

⁴ME Gordon, KR Vineyard et al. May 2017. The effect of a natural-source mineral supplement on gastric juice pH in horses. *Journal of Equine Veterinary Science* 52:58.

⁵RD Jacobs, ME Gordon, et al. June 2019. Feeding a seaweed-derived calcium source vs. calcium carbonate on physiological parameters of horses. *Journal of Equine Veterinary Science*.

< RESULTS >

All horses remained clinically healthy over the course of both experimental timelines. Mares maintained body weight and body condition on both diets. All foals grew appropriately with no developmental abnormalities. No differences were observed between the growth of foals in the control groups or the treatment groups. Additionally, no differences existed in gastric health measurements of foals in the control vs. treatment groups either before or after weaning. However, it should be noted that in both groups the presence of gastric ulceration in both the glandular and non-glandular regions of the stomach was rare. Milk nutrient composition of mares in both the treatment and control groups remained similar over the course of the lactational period with no differences observed between groups (Figure 1). Markers of bone growth, OC and ICTP, remained in expected ranges over the course of the experimental protocol and no differences were observed for either measurement (Figure 2).

< IMPLICATIONS >

The data from these studies indicate that when fed Purina® Outlast® supplement as a source of calcium, both mares and foals can utilize the active ingredient as a source of calcium. No deleterious health effects were observed, and no differences existed between horses consuming a conventional diet vs. the experimental ration. Purina® Outlast® supplement has proven to be a remarkable support for the equine gastric environment and in foals that are experiencing stressors such as weaning, training, or dietary transition, it can be incorporated safely into the ration to support gastric health.

FIGURE 1 Average milk calcium over a lactational period from mares fed a diet containing a conventional source of calcium vs. mares consuming a diet with Purina® Outlast® supplement as a calcium source.

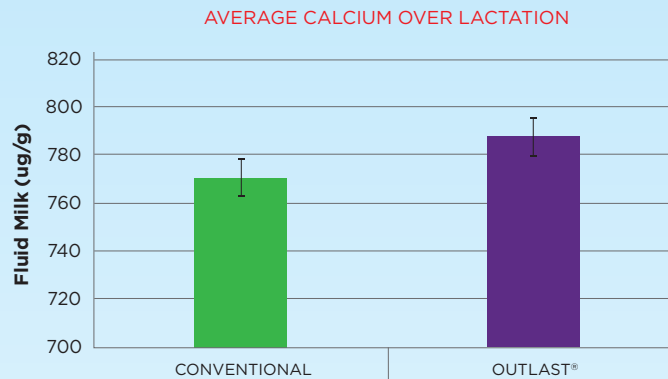
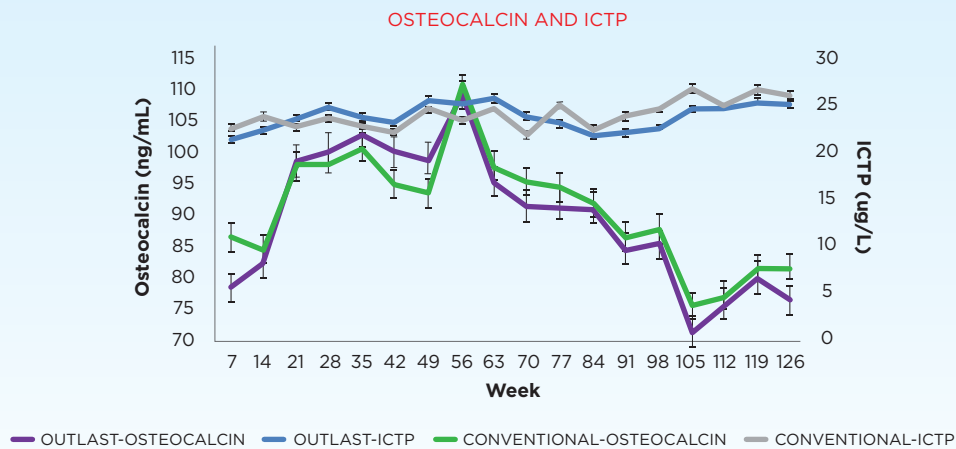


FIGURE 2 Markers of bone development Osteocalcin and ICTP measured from foals consuming diets containing either a conventional source of calcium vs. Purina® Outlast® supplement as a calcium source.



< AVAILABLE UPON REQUEST > Contact your local Purina representative if you would like more information about this study.