

Abstract:

Equine gastric ulcer syndrome (EGUS) is a common condition and current medications are effective in treatment. However, these pharmaceutical agents are expensive, require a prescription to obtain, must be administered orally, and alter stomach pH. The development of a less expensive and natural alternative supplement that could be added to the feed would be desirable. EGUSIN® SLH (E-SLH) and EGUSIN® 250 (E-250) are supplements containing sodium bicarbonate, Beta Glucan, insoluble oat fiber, phospholipids and natural antioxidants which have been shown in other species to protect the normal stomach against generation of oxygen free radicals. The purpose of this study was to evaluate these two supplements added to the feed twice daily on treatment and prevention of gastric ulcer in horses confined to stalls and undergoing feed-deprivation.

Nine healthy adult Thoroughbred and Thoroughbred-cross horses were used and all horses received the three treatments (control, E-SLH, and E-250) mixed with grain per label directions for 21 days in a three period cross-over designed study. Gastroscopy was performed before treatment, after the 3 week feeding protocol, after alternating feed-deprivation period, and at one week after feed deprivation with the resumption of treatment. Gastric juice pH was measured and gastric ulcer scores were assigned by a clinician masked to the treatment. Also, blood gases were performed during periods 1 and 3, before 2, 6, 12, 24, and 48 hours after treatment.

Gastric ulcer scores decreased in all groups after 3 weeks of treatments, but this was not significant. *Note: During the first 21 day treatment period there was dramatic reduction in the EGUS score and ulcer severity for horses in both the Egusin® SLH and Egusin® 250 treated groups, as is illustrated in the endoscopic images of the most severely ulcerated horses (figures 1 & 2 below) in this study, both of which were in the treated groups.*

Figure 1: Progression of E-250 Treatment



Figure 2: Progression of E-SLH Treatment



Unfortunately, because the control animals on this study demonstrated an unexpected resolution of much less severe ulcers than those of figures 1 & 2 (which the study leader, Dr. Frank Andrews, indicated he had never seen before, and for which he had no explanation), the resulting evaluations were not statistically significant.

To address this “control anomaly,” a second week of feed deprivation and a subsequent additional week of treatments were added, which is presented in results of figures 3, 4 & 5.

Figure 3

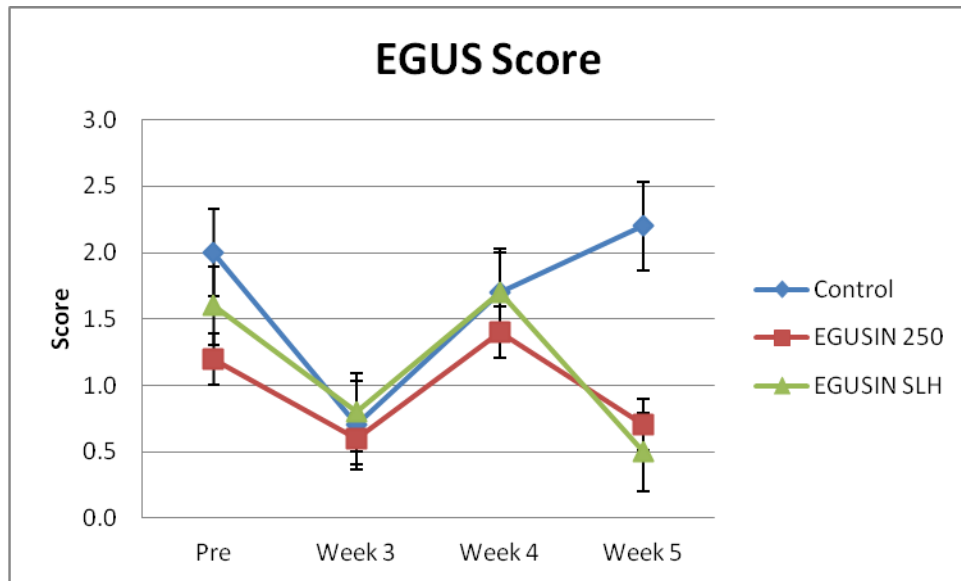


Figure 4

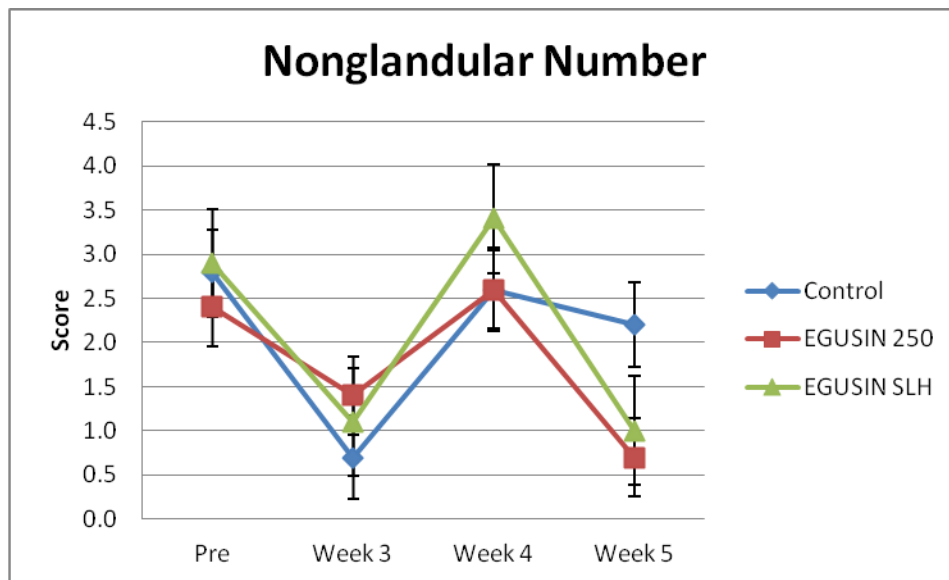
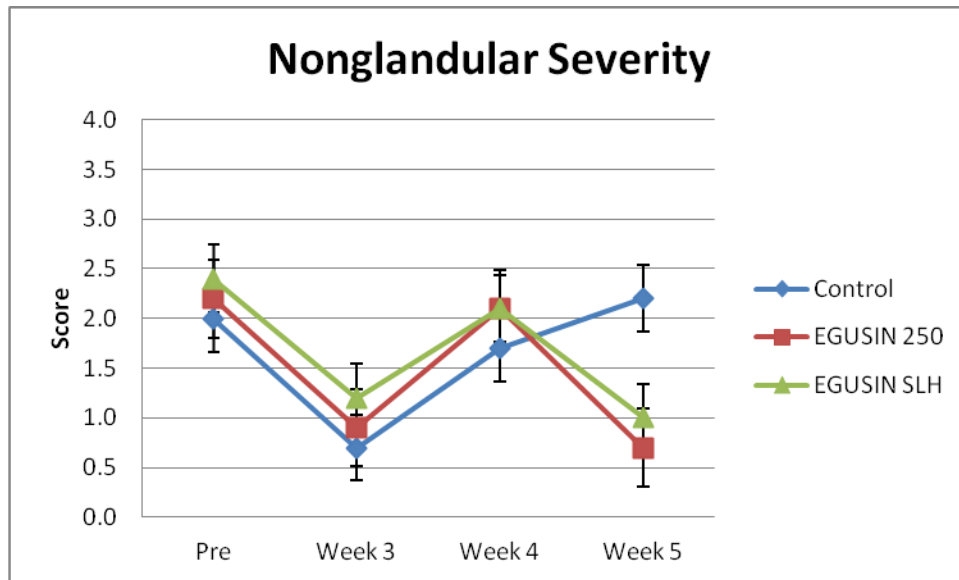


Figure 5



As can be seen in these graphs, the control groups “behaved as expected” after the 4th week feed deprivation period and the treated groups achieved the same level of performance of the 21 day treatment after only 7 days.

Gastric ulcer scores significantly increased in all groups on week 4, after the feed-deprivation period indicating that the model of ulcer induction was successful. Gastric ulcer scores decreased significantly in SLH and 250-treated horses after 5 weeks of treatment when compared to untreated controls. Partial pressure of CO₂ (PCO₂) was significantly increased 2 hours after administration of the EGUSIN® supplements, but there was no significant increase in bicarbonate or total CO₂ in any treatment groups. Gastric juice pH remained low and did not change significantly over the treatment periods.