

Voluntary Water Intake of Flavored Water in Euhydrated Horses

Authors : Brianna M. Soule, Jesslyn A. Bryk-Lucy, Linda M. Ritchie

Abstract : Colic, defined as abdominal pain in the horse, has several known predisposing factors. Decreased water intake has been shown to predispose equines to impaction colic. The objective of this study was to determine if offering flavored water (sweet feed or banana extract) would increase voluntary water intake in horses to serve as an assessable, noninvasive method for farm managers, veterinarians, or owners to decrease the risk of impaction colic. An a priori power analysis, which was conducted using G*Power version 3.1.9.7, indicated that the minimum sample size required to achieve 80% power for detecting a large effect at a significance level of $\alpha = .05$ was 19 horses for a one-way repeated measures ANOVA with three treatment levels and assuming a non-sphericity correction of $\epsilon=0.5$. After a three-day control period, 21 horses were randomly divided into two sequences and offered either banana or sweet feed flavored water. Horses always had a bucket of unflavored water available. A repeated measure study design was used to measure water consumption of each horse over a 62-hour period. A one-way repeated measures ANOVA was conducted to determine whether there were statistically significant differences among the means for the three-day average water intake (ml/kg). Although not statistically significant ($F(2, 38) = 1.28, p = .290$, partial $\eta^2 = .063$), the three-day average water intake was largest for banana flavored water ($M = 53.51, SD = 9.25$ ml/kg), followed by sweet feed ($M = 52.93, SD = 11.99$ ml/kg), and, finally, unflavored water ($M = 50.40, SD = 10.82$ ml/kg). Paired-samples t-tests were used to determine whether there was a statistically significant difference between the three-day average water intake (ml/kg) for flavored versus unflavored water. The average unflavored water intake ($M = 29.3$ ml/kg, $SD = 8.9$) over the measurement period was greater than the banana flavored water ($M = 27.7$ ml/kg, $SD = 9.8$), but the average consumption of the sweet feed flavored water ($M = 30.4$ ml/kg, $SD = 14.6$) was greater than unflavored water ($M = 24.3$ ml/kg, $SD = 11.4$). None of these differences in average intake were statistically significant ($p > .244$). Future research is warranted to determine if other flavors significantly increase voluntary water intake in horses.

Keywords : colic, equine, equine science, water intake, flavored water, horses, equine management, equine health, horse health, horse health care management, colic prevention

Conference Title : ICEMP 2022 : International Conference on Equine Management and Production

Conference Location : Toronto, Canada

Conference Dates : September 20-21, 2022