

Trilogy of Sodium Zeolite A Studies

In the early 1990's Texas A & M University undertook, in cooperation with Albemarle® Corporation (Ethyl Corporation), three research project to find out whether sodium zeolite A (registered trademarks Ethacal® and EZA®) is an efficacious feed ingredient (component). The trilogy of studies that were conducted and peer-reviewed are:

Frey, K.S., BS; G.D. Potter, PhD; T.W. Odom, PhD; D.M.Senor, MA; V.D. Reagon. BS; V.H. Weir, ARRT; J. Elslander, RVT; S.P. Webb, MS; E.L. Morris, DVM; W.B. Smith, PhD; and K.E. Wiegand, PhD. 1992. **Plasma Silicon and Radiographic Bone Density in Weanling Quarter Horses Fed Sodium Zeolite A.** *Journal of Equine Veterinary Science* 12(5): 291-295.

J.A. Reynolds, MS;G.D. Potter PhD; T.W. Odom, PhD; M.M Vogelsang, PhD; W.B. Smith, PhD; B.D. Nielsen, MS; D.M.Senor, MAg; and E.H. Bird, BS. 1993. **Physiological Responses to Training and Racing in Two-year-old Quarter Horses.** *Journal of Equine Veterinary Science* 13(10): 543-548.

Nielsen, B.D., MS; G.D. Potter, PhD; E.L. Morris, DVM; T.W. Odom, PhD; D.M.Senor, MA; J.A. Reynolds, MS; W.B. Smith, PhD; M.T. Martin, DVM; and E.H. Bird, BS. 1993. **Training Distance to Failure in Young Racing Quarter Horses Fed Sodium Zeolite A.** *Journal of Equine Veterinary Science* 13(10): 562-567.

The Frey, *et al.* study is referenced by the scientific community as an authority that silicon is bioavailable from sodium zeolite A (SZA) supplementation in horses. They found that **feeding SZA resulted in increased (P<.05) plasma silicon concentrations** (291). An implication derived from the Frey, *et al.* research is that horses **may not receive an optimum amount of bioavailable silicon at the appropriate time for maximizing the rate of bone mineralization** (294).

The Reynolds, *et al.* study found that: **Data on heart rate (HR), respiration rate (RR), rectal temperature (RT), sodium (Na⁺), potassium (K⁺), calcium (Ca⁺⁺), lactate (LA⁻), glucose (GLU), and packed cell volume (PCV) were analyzed for main and interactive effects by ANOVA. There were no harmful effects of the SZA diets, and no important differences in these measured variables between the SZA treatment groups** (545).

The Nielsen, *et al.* study, which was a companion research project to the Reynolds, et al. study, summarized that **feeding SZA may help prevent athletic injury to the horse by providing bioavailable silicon** (562) The researchers concluded that:

Feeding SZA to young horses increased plasma silicon concentrations. Additionally, SZA was not detrimental to racing performance as indicated by treatment groups (the medium and high dosage groups) having faster races times than the control group. Since the treatment groups receiving the two larger amounts of SZA were worked greater distances than the control group before being injured, and since the medium treatment group completed more cycles before being injured than the control group, there is indication that SZA may be beneficial in preventing racing related injuries. The correlation between plasma silicon concentration and the distance traveled before injury in the group of horses which appeared more prone to injury is another indicator that SZA may help prevent injury by providing bioavailable silicon to the horse (566).

Injury rates ² percent of horses injured per treatment group

	Percent of SZA in Diet			
	0	.92	1.86	2.8
No. Animals	13	13	9	12
Percent Injured	61.5%	38.5%	22.2%	33.3%

The trilogy of studies were conducted as Master of Science projects by Kimberly Suzanne Frey, Judith Amy Lundgren Reynolds, and Brian Douglas Nielsen. Dr. Reynolds earned a Ph.D. from Texas A & M University as did Dr. Nielsen. Dr Reynolds is working for MoorMan's®, a sister company of Archer Daniels Midland (ADM), and Dr. Nielsen is an Assistant Professor at Michigan State University.