

Title Page

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Title: Effects of dietary mineral supplementation on dogs with thunderstorm-related anxiety

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The intent of this document is to provide information to clients who may be interested in becoming potential candidates for this study. If you would like your dog to be screened for participation, please contact your veterinarian to schedule a seasonal exam with the tests indicated in Appendix C.

Thank you for your interest!

Abstract

Thunderstorm-related fear and anxiety is common in dogs. Human and non-human animal studies appear to support the development of mood and behavioral disorders when minerals are deficient in the diet, particularly if individuals are subjected to environmental stressors. Dietary mineral supplementation seems to stabilize mood and behavior. The primary objective of this study is to determine whether mineral supplementation alleviates fearful and anxious behaviors in dogs with thunderstorm-related anxiety. Additionally the study is intended to provide a basis upon which a more in-depth investigation may be undertaken.

In a double-blind, placebo-controlled crossover study, a two groups of ten dogs each, with documented and diagnosed thunderstorm-related anxiety, will be fed either a mineral supplement (Standard Process® Organically Bound Minerals™) or placebo once daily with food. Dosage is according to Carsten (2003). Behavior assessment will be done via an owner-completed instruments at 30 and 60 days after supplementation begins. Following the 60 d mark, the groups will be reversed, with placebo dogs receiving the supplement and supplement dogs receiving the placebo. Behavior assessment will again be done via owner-completed instrument at 30 and 60 days after the crossover.

Data will be collected from personal interviews and owner-completed surveys and statistically analyzed to determine outcomes and results.

Recruitment and Selection

Veterinarians who wish to refer clients for participation in this study may do so via submission of a referral letter to the Principal Investigator. A copy of this letter is in Appendix C; please copy the text onto your letterhead.

The referral letter must be accompanied by results of a physical examination conducted within one month of the referral, including CBC, blood chemistry profile, 3Dx or 4Dx, urinalysis and fecal flotation.

It is expected that the client will pay for these tests as part of their dog's routine annual exam. There is no cost to the client for any interviews conducted during the study, and all materials and supplements will be provided at no charge.

Referred candidates will be interviewed by phone to determine if they meet participation criteria (Appendix A). For those who meet the criteria, an intake interview will be scheduled. Participants will be selected for the study based on the intake interview and results from completed Storm Phobia Assessment (SPA), Baseline Diary (BD), and Thunderstorm Supplemental Page Baseline Diary (SBD) (instruments used with permission, Behavior Service, College of Veterinary Medicine, University of Georgia).

Observation and Data Gathering

Follow up interviews will be conducted in person and by telephone at 30, 60, 90 and 120 days. SPA's, BD's and SBD's will be returned at these intervals for assessment. Participants failing to complete and return assessment instruments in a timely fashion will be dismissed from the group. An exit interview will be conducted at the conclusion of the study.

Writing and Publication of Results

This study is intended for publication in a peer-reviewed journal, and for presentation at appropriate professional meetings. All participating parties will receive a copy of the study after publication.

Appendix A – Inclusion/Exclusion Criteria

1. Inclusion criteria:
 - a. Veterinary referral.
 - b. Owner willing and able to undertake/pay for seasonal physical exam including CBC, chem panel, 3Dx or 4Dx, urinalysis and fecal flotation.
 - c. Owner willing and able to maintain dog's current main diet for the 120 day information gathering phase of the study.
 - d. Dog not currently on any other food supplements or medications intended to reduce anxiety, e.g., ω -3's, B vitamins, minerals, etc.
 - e. Owner willing and able to administer supplement once daily.
 - f. Owner willing and able to participate for the full 120 day term of the study, barring unforeseen circumstances.
 - g. Owner willing and able to observe dog's behavior and complete documentation.
 - h. Owner willing and able to refrain from starting any other interventions during the 120 day information gathering phase, such as behavior modification, training, supplements and medications.
 - i. Owner willing and able to maintain current exercise routine, even if inadequate.
 - j. Owner is willing and able to sign Informed Consent.
 - k. Owner is at least 18 years old.
2. Exclusion criteria:
 - a. Dogs who are a hazard to themselves and require medication.
 - b. Injury has occurred to dog as a result of escape attempts.
 - c. Dog has separation distress.
 - d. Dog has aggression issues with or without documented bite history.
 - e. Dog has cognitive dysfunction.
 - f. Dog is on behavioral medication for any reason.
 - g. Dogs with pre-existing medical conditions (verified by veterinarian).

Appendix B – Case History: Archie

Signalment: "Archie," 22-month old neutered male Labrador/Golden Retriever mix.

Presenting problem: Archie displays anxiety in response to approaching thunderstorms. He alerts and orients to distant sounds of thunder, folds ears back, appears nervous and begins to scan. He then begins pacing while continuing to listen and scan. The intensity of anxious behaviors increases as the storm approaches. Escalation includes shadowing the owner, trying to hide under her legs, and jumping up on her lap, and hiding under the desk. The owner describes him as "just a wreck." Frantic behavior continues until the storm passes, then becomes normal and calm.

History: Archie lives with his owner (single female) and two other dogs, a 9-year old, neutered male Golden Retriever (Bailey) and a 3.5-year old neutered male Golden Retriever (Henry). He was acquired at 9 weeks of age from a rescue. The owner noted Archie was sound sensitive and describes him as a "chicken in general." Though his confidence was "shaky," he was able to "bounce back" when scared. He alerts to many sound stimuli, and if moving, such as while being walked, will stop, orient and listen for a period of time before moving on. Storm sensitivity was first noticed May 2007, at 17 months of age.

Archie had been attacked and injured several times by Henry. The aggression issues have been completely resolved with professional help. Archie appears to have no residual anxiety from his experiences with Henry. The owner provides an enriched environment which is emotionally and socially balanced.

What has been tried so far: The owner tries not to reinforce his anxiety but sometimes comforts him by saying, "It's OK." Distractions of play with the other two dogs who are calm, toys, food, and bones are unsuccessful.

Program of help and results: Standard Process® Organically Bound Minerals™, 3 tablets, once a day, were started May 2007, after the owner had noticed Archie's fear of storms where none previously existed. Within about two days of starting the supplement, a storm occurred. Archie's response had changed such that he would look up and around at the sound of thunder, but would then return to whatever he was doing. He displayed no signs of fear. If sleeping he would awaken, then go back to sleep.

In September 2007, the owner discontinued the supplement. Archie's response to two particularly severe storms about 2-3 weeks after discontinuing supplement included nervousness, pacing, ears back, trying to hide under owner's legs, and under a desk, clinginess, and shadowing. She indicated that he had completely reverted back to the previous behaviors seen in May and was possibly a little worse. She also noted that these particular storms seemed unusually severe, and that even the other two dogs appeared somewhat concerned.

Appendix C
Veterinarian Approval Letter

Dog's Name _____ Breed _____
Age _____ Weight _____ Gender (please circle) M F Neutered Spayed Intact

Client's Name _____
Address _____
Phone and Email _____

Results of Seasonal Physical Exam

Copies of test results attached (please check as appropriate):

- _____ CBC
- _____ Blood Chemistry Panel
- _____ 3Dx or 4Dx
- _____ Urinalysis
- _____ Fecal Flotation

Please list any medications the dog is currently taking, including prophylactics.

Please list any known behavioral conditions, including storm anxiety.

Please list any known medical conditions.

This candidate meets the required criteria for participation in this study and is referred as a candidate for consideration.

Veterinarian Signature/Printed Name Date

Clinic Phone

Appendix D
Organically Bound Minerals™
Mineral Component Analysis of Potential Emotional and Behavioral Effects

An assay of the mineral components of this product shows the following minerals present. Many of these minerals have documented emotional and behavioral effects on various mammalian species.

Potassium.

Calcium.

Magnesium.

Iron.

Zinc.

Sodium, Phosphorous, Aluminum, Strontium, Boron, Manganese, Copper, Barium, Beryllium, Cadmium, Chromium, Cobalt, Molybdenum, Nickel, Vanadium: