

## **Synopsis of Report**

**Excerpted from Presentation at the Annual Veterinary Dental Forum  
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### **Dental Health Benefits of an Innovative Soft Rawhide Product for Small Dogs**

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#### **Abstract**

A crossover clinical trial was conducted in small client-owned dogs (<15 lbs.) to evaluate the effects on dental health of an innovative soft rawhide product coated with an anti-calculus agent and an anti-microbial agent. The dogs were given a complete dental prophylaxis at the initiation of each 4-week test period. During the test period the dogs were maintained on a commercially available dry dog chow. The experimental regimens were: (1) no treat; or (2) one piece of impregnated soft rawhide daily. At the conclusion of each 4-week test period the dogs were examined for the presence of dental plaque, calculus, gingivitis and malodor by experienced clinical examiners. The results indicated that the soft rawhide product resulted in reductions in dental plaque, calculus and gingivitis.

#### **Background**

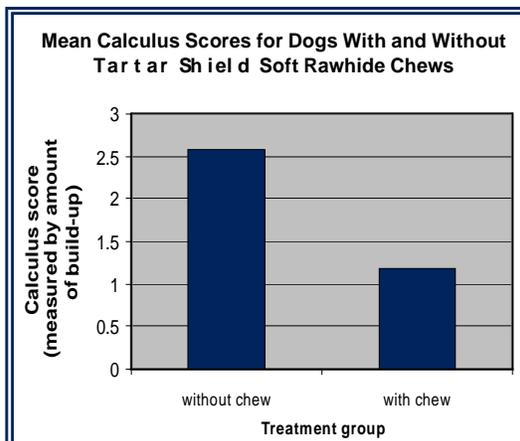
Numerous types and forms of rawhide products are presently marketed for dogs and are intended to facilitate the removal of dental plaque and oral debris. However, none of these products are designed for use by smaller dogs, and particularly toy breeds. Further, these products are generally not accepted or consumed by small dogs. The purpose of this investigation was to evaluate the dental health benefits of an innovative soft rawhide impregnated with an anti-calculus agent, sodium tripolyphosphate, and an anti-microbial agent, cetyl pyridinium chloride, in small dogs.

#### **Methods and Materials**

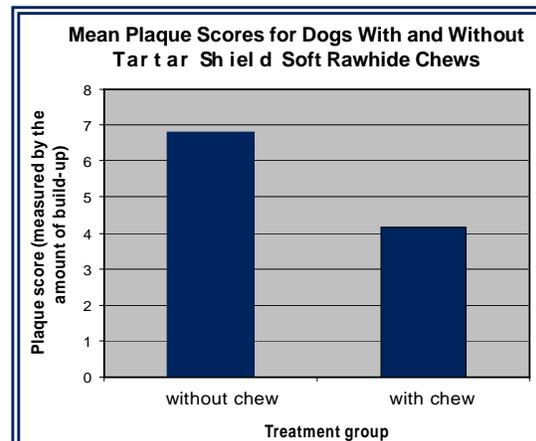
The study was conducted using regular clients in the veterinary practice of Dr. Greg Inskeep. The Institutional Animal Care and Use Committee of the Indiana University School of Dentistry approved the study prior to initiation. Informed consents were obtained from all of the animal's owners prior to study initiation. The study was designed as a crossover longitudinal test and was initiated with 12 mixed-sex chihuahuas; unfortunately 5 dogs were withdrawn during the test period by their owners for breeding purposes. The animals were fed a commercially-available dry diet (Purina Chow Little Bites) once daily. The amount of basal diet fed was calculated on an individual animal basis. This calculation was 0.063 cups dry diet per pound of body weight. The amount of basal diet was adjusted as needed to maintain a stable body weight. Where

indicated the dogs received one soft rawhide piece/stick as a snack treat daily about 2 hours or so after the feeding of the basal diet. The gross amount of diet and snack treat consumed was recorded on a daily basis by the animals' owners. The patented soft rawhide product contained sodium tripolyphosphate (STP) and cetyl pyridinium chloride (CPC).

All animals received a thorough dental prophylaxis at the initiation of each 4-week test period. The animals were given atropine (0.05 mg/Kg), acepromazine maleate (0.1 mg/Kg) and butorphanol tartrate (0.22 mg/Kg) by i.m. injection 20 minutes prior to the anesthesia. The animals were anesthetized by a Registered Veterinary Technician by masking with isoflurane, intubated and maintained on Isoflurane. On the designated examination day at the conclusion of each test period, the dogs were examined in a random sequence to avoid systematic bias. The animals were anesthetized as previously stated for the prophylaxis procedure. Oral malodor (Volatile Sulfur Compound-VSC) was measured using a calibrated Halimeter. The dogs were then examined for gingivitis, plaque and calculus by experienced clinical examiners (meeting VOHC requirements). Examiner observations were recorded on prepared exam forms by a recorder who was not directly involved in the examinations. The Löe Silness methodology was used for the gingivitis examinations and the Logan Boyce method was used to assess dental plaque. Dental calculus was graded using the Warrick Gorrel method. The health of the animals was assured with routine CBC and chemistry profiles obtained upon the baseline screening of the animals and at the end of each 4-week feeding period. The dogs were observed daily by the owners and during the examination / prophylaxis recall by the attending on-site veterinarian. The data were analyzed in the usual manner for studies of this design by comparing the post-test examination scores. Using the SAS statistical package, the data were analyzed using the appropriate ANOVA modes.



One Soft Rawhide Chew daily reduced the formation of calculus by **54%**



Similarly, Soft Rawhide Chews reduced the formation of plaque by **40%**

## **Results**

All animals readily accepted the soft rawhide product and no significant changes in body weight were observed with either of the regimens. Similarly, no adverse effects of the soft rawhide regimen on the general health of the animals or on the blood chemistry values were observed.

The results of the clinical calculus and plaque examinations are summarized in the following graph. For both conditions, significant reductions were observed with the once-daily use of the soft rawhide.

In addition, the clinical gingivitis was reduced by 27% (and by 40% in the areas adjacent to the primary chewing teeth) and oral malodor was decreased by 20%.

## **Conclusions**

The results of this study in small dogs indicated that the soft rawhide product was well accepted by the dogs with no adverse effects on the health of the animals. Moreover, the once-daily use of the soft rawhide product resulted in pronounced reductions in the formation of dental plaque, calculus and gingivitis with a modest improvement in oral malodor.