

Effect of Dental Chews on Canine Plaque Microbiota

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In the literature

Ruparell A, Warren M, Staunton R, et al. Effect of feeding a daily oral care chew on the composition of plaque microbiota in dogs. *Res Vet Sci.* 2020;132:133-141.

FROM THE PAGE ...

Although bacteria are implicated in the initiation of periodontal disease in dogs, the specific mechanism is unknown. Many types of bacteria are found in the oral cavity, and changes in the microbial community can disturb the equilibrium of the oral ecosystem, allowing disease to begin or intensify. Better methods of identifying bacterial species, including classification of bacteria genera into those generally associated with health (ie, health-associated taxa) and those associated with disease (ie, disease-associated taxa), have improved the understanding of these alterations. This triple crossover study* evaluated the influence of an oral care chew on the composition of microbiota of the canine oral cavity.

Supragingival plaque was collected from 12 beagles before the study (pretest phase), at which time a complete descale and polish was performed. During the 14-day pretest phase, the teeth were brushed daily with water. On day 1 of the test phase, another supragingival plaque sample was taken and another complete descale and polish was performed. Dogs were fed a commercially available wet and dry diet mix either alone or with an oral care chew. Plaque was sampled again after 28 days.

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Descaling, polishing, and brushing appeared to effectively change the microbiota profiles toward a healthy composition prior to the beginning of day 1 of the test phase. The most abundant phylum at the start of the pretest phase was disease-associated Firmicutes, whereas health-associated Bacteroides was the most abundant phylum at the beginning of the test phase. Proteobacteria was the most abundant phylum for both groups (chew and nonchew) at the end of the study.

Of those that received chews, 6 dogs with health-associated taxa and 3 dogs with disease-associated taxa had increased bacteria. Of those that did not receive chews, 1 dog with health-associated taxa and 8 dogs with disease-associated taxa had increased bacteria. This study may not have been long enough to generate significant differences between the groups.

... TO YOUR PATIENTS

Key pearls to put into practice:

- 1** Periodontal disease in dogs is greatly influenced by bacteria in the mouth but with minimal antibiotic response.
- 2** In uncomplicated cases, oral bacteria as a component of plaque and calculus can be effectively managed with complete dental cleaning (descale and polish) and effective home care.
- 3** Any level of home care (eg, chews that decrease plaque and tartar, chews that can impact the microbiota of the oral cavity) can play an important role in the complete dental care of a dog.