

# Does Dry Food Clean the Teeth?

by Jean Hofve, DVM

Let's get this one straight once and for all: dry food does not clean your cat's/dog teeth! In fact, dry food really has no benefits for the cat. It is merely a convenience for the guardian.

Most cats don't consistently chew dry food; they swallow it whole. Obviously, without contacting the teeth, there is zero effect on tartar accumulation. For cats who do chew dry food, whether consistently or occasionally, there is still little or no benefit. The kibbles shatter, so contact between the kibble and the teeth occurs only at the tips of the teeth. This is certainly not enough to make a difference in the formation of tartar and plaque, which most commonly builds up along (and underneath) the gumline at the base of the teeth.

Keeping your cat's (or dog's) teeth and gums healthy requires a commitment on your part. Daily toothbrushing and regular veterinary cleanings are still important. The labels on even the special "tartar control" diets like Hill's t/d and Friskies dental diet recommend these additional steps. (Of course, brushing daily with periodic cleaning by the vet are sufficient to keep the teeth healthy by themselves, without using a special diet at all!) Dental diets are very different from all other dry foods. The kibbles are very large, and have a different texture than regular dry food.

In my experience as a feline veterinarian, I've probably examined at least 13,000 cats' mouths. There was no real pattern to the dental and periodontal disease I saw. If anything, tartar and gum disease seemed to be more attributable to genetics or concurrent disease (such as feline leukemia or feline AIDS) than to any particular diet. I saw beautiful and horrible mouths in cats eating wet food, dry food, raw food, and every possible combination. Many of my patients initially ate mostly or exclusively dry food; yet these cats had some of the most infected, decayed, foul-smelling mouths I saw. If there was any dietary influence at all, I'd say that raw-fed cats had better oral health than cats on any type of commercial food. However, the overall effect of diet on dental health appeared to be minimal at most.

If your vet still believes the myth of dry food and dental health (which is still actively promoted by the pet food companies despite the utter lack of scientific support for the theory), here are a few references that refute the idea:

Logan, et al., Dental Disease, in: Hand et al., eds., Small Animal Clinical Nutrition, Fourth Edition. Topeka, KS: Mark Morris Institute, 2000, p. 487. "Although consumption of soft foods may promote plaque accumulation, the general belief that dry foods provide significant oral cleansing should be regarded with skepticism. A moist food may perform similarly to a typical dry food in affecting plaque, stain and calculus accumulation...Typical dry dog and cat foods contribute little dental cleansing. As a tooth penetrates a kibble or treat the initial contact causes the food to shatter and crumble with contact only at the coronal tip of the tooth surface...The kibble crumbles...providing little or no mechanical cleansing...." The author also reviewed two studies on cat "dental" treats which showed "no significant difference in plaque or calculus accumulation with the addition of dental treats to either a dry or a moist cat food." Of course, this book was produced by Hill's, so it heavily promotes t/d. However, although t/d provided a "statistically significant" improvement, when you look at the actual graphs, the difference between Dog Chow and t/d is not impressive.

"...When comparing dry food only and non-dry food only fed dogs...there is no pattern to the trends (some teeth show an apparent protective effect from feeding dry food only, and others show the opposite -- for calculus index, the trend is protective for all five teeth in dogs feed dry food only, whereas for gingival index it is the opposite, and it is mixed for attachment loss). All maxillary teeth are significantly less likely to be mobile in the dry food only group, yet the mandibular first molar tooth showed the opposite effect." Harvey et al., Correlation of diet, other chewing activities and periodontal disease in North American client-owned dogs. J Vet Dent. 1996 Sept;13(3):101-105. Logan (above) assessed this study as follows: "In a large epidemiologic survey, dogs consuming dry food alone did not consistently demonstrate improved periodontal health when compared with dogs eating moist foods."

There is an excellent review of the literature by A. Watson (Diet and periodontal disease in dogs and cats. Aust Vet J. 1994;71:313-318). This study is fully of interesting historical items. For instance, one study of cat

skulls found evidence of severe periodontal disease in 25% of 80 cats; 75 of the skulls dated from 1841 to 1958, and 2 were from Egypt during the time of the Pharaohs!

According to the above review, many of the early studies showed less tartar formation with hard dry food vs the same food mixed with water, and similar results were reported in a study with canned vs dry cat foods. In 1965 a study compared feeding raw whole bovine trachea, esophagus, and attached muscle and fat, vs the same food minced. Plaque and gingival inflammation were increased with the minced diet. Even more fascinating, they tube-fed the minced food and found that plaque and gingivitis did not decrease, "showing food did not need to be present in the mouth to induce these changes." In fact, gingivitis tended to increase when dogs were tube-fed, "suggesting that even the minimal chewing required with minced food had some cleansing or protective effect." Minced food is similar in texture to canned food.

A couple of studies showed that \*large\* dry food biscuits (not kibble) actually removed tartar, which is probably the theory underlying t/d's oversized chunks. Feeding of half an oxtail accomplished the same thing when fed weekly in another study. (I can just see it now, "Brand X's Tartar Control Oxtails.") The study also noted that "No harmful effects were observed from feeding oxtails to > 200 dogs for > 6 years."

Gorrel and Rawlings (The role of tooth-brushing and diet in the maintenance of periodontal health in dogs. J Vet Dent. 1996 Dec;13(4):139-143) state that: "In a previous study, we showed that the daily addition of an appropriately designed chew to a dry food diet is effective in reducing accumulation of dental deposits...the addition of the chew to the dry food diet also reduced the severity of gingivitis that developed, compared with the regimen of dry food diet alone." This points out that dry food does not prevent tartar/gingivitis without additional treatment.

Interestingly, Gorrel states in another article that "The consensus is that supragingival calculus per se is not directly involved in the etiology or pathogenesis of [periodontal] disease, and is mainly of cosmetic significance if plaque removal is adequate." (Periodontal disease and diet; J Nutr. 1998;128:2712S-2714S.)

A more recent review (DuPont G. Prevention of periodontal disease. Vet Clin N Amer. 1998 Sept;28(5):1129-1145) says, "In some dogs, dry kibble or fibrous diet helps slow plaque accumulation more than does soft or canned food...Other chewing behaviors may be even more important for reducing plaque than is feeding dry food." Not exactly a ringing endorsement of dry food! He cites 2 studies showing Hill's t/d to be effective for "decreasing plaque and calculus accumulation."

A review of feline neck lesions found no significant influence of diet. (Johnson N, Acquired feline oral cavity disease, Part 2: feline odontoclastic resorptive lesions. In Practice. 2000 Apr:188-197).

These studies show that dry food does not clean a cat's teeth any better than eating pretzels cleans ours! At best, we can say that dry food tends to produce slightly less tartar than canned food. For cats, the benefits of feeding canned food far outweigh any possible dental problems that may result. After all, it is much easier for your vet to clean your cat's teeth once a year than to treat diabetes, urinary tract problems, and other diseases that are either directly caused or aggravated by feeding dry food.

Regular home and veterinary dental care are real keys to keeping your cat's teeth and gums healthy for life.