

PERIODONTAL DISEASE, CALCULUS, TOOTH FRACTURES AND PERIAPICAL DISEASE IN WILD, ZOO, FERAL AND DOMESTICATED CARNIVORES

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Pet dogs and cats have a high prevalence of periodontal disease (PD) that increases with age. Some veterinarians and others have argued that is a consequence of processed pet foods, and that PD would be greatly reduced by feeding a more natural raw diet containing intact bones, such as whole carcasses, 'raw meaty bones', 'BARF' (Bones and Raw Food), etc. That view suggests that wild or feral carnivores eating their natural diet should have much less PD than domesticated dogs and cats. Others are concerned that diets containing intact bone may increase tooth wear and fractures, and so periapical disease, in dogs and cats. There is almost no evidence relevant to these issues in dogs and cats. This literature review compares the published evidence regarding PD, tooth fractures and periapical disease in wild, zoo, feral and domesticated carnivores.

Archaeological specimens demonstrate that severe PD in dogs, and PD and odontoclastic resorptive lesions in cats, have been present in domesticated dogs and cats living with humans since long before the modern era, but are too sparse to allow prevalence estimates.

Studies of pet dogs, laboratory beagles, laboratory ferrets, and zoo wolves and tigers indicate that feeding intact bone sufficiently often can reduce plaque, calculus and grade 1 PD (gingivitis of the gum margin around the teeth). In pet dogs and cats, other hard or chewy feeds or treats can also reduce plaque and calculus.

Studies of wild-animal skulls provide information on grade 2-4 PD (which involve bone loss), tooth attrition, tooth fractures and periapical disease, but not about plaque, calculus (usually lost during processing the skull) or grade 1 PD (soft-tissue lesions only). In skulls of wild canids, felids and polar bears, high-grade PD, tooth attrition, tooth fractures and periapical disease are highly prevalent. For skull specimens, cause of death and age at death are usually unknown. However, life expectancy of most wild canids and felids is lower than that of domesticated pet dogs and cats, and the evidence suggests that the prevalence of PD in wild canids and felids is not any lower than in pet dogs and cats of similar age.

The prevalence of tooth fractures in wild canids and felids is high and largely determined by diet, varying across species with the amount of bone or other hard material in a species' diet more than with the degree of intraspecific aggression, and not varying with species' body size, or typical prey species' size. Periapical disease is common in wild carnivores.

Two studies of feral cat populations (one of which studied only their skulls) eating wild-caught prey found that they had a high prevalence of high-grade PD, as do pet cats. Feral cats also had a high prevalence of tooth fractures and periapical disease.

In conclusion, oral pathology – PD, tooth fractures, periapical disease – is probably a common cause of mortality of wild and feral carnivores. The comparative evidence suggests that feeding pet dogs and cats natural, 'species-appropriate' raw-meat diets containing intact bone, instead of processed diets, may reduce plaque and calculus, but may not prevent moderate to severe periodontal disease, and may increase tooth fractures.