

Welfare Implications of Dental Health in Commercial Breeding Dogs

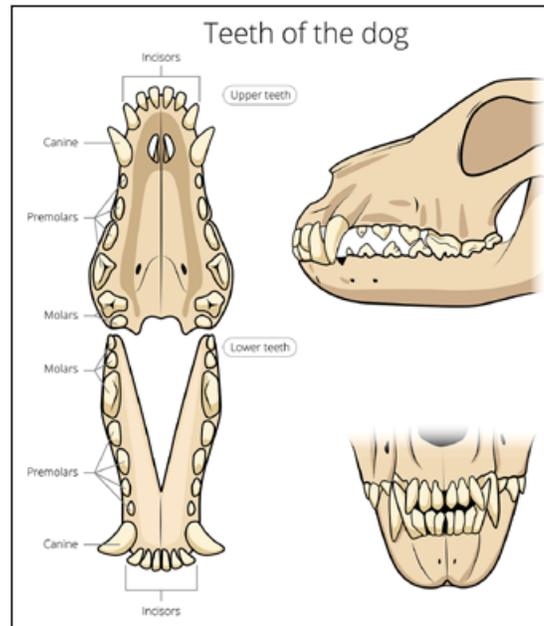
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Introduction

Periodontal disease is a significant health problem that can result in pain, gingivitis (redness and swelling of the gums), tooth loss, systemic disease (e.g. cardiovascular and kidney disease) and, in humans, adverse pregnancy outcomes (Harvey, C. 1998; Glickman et al, 2009; Gorzó et al, 2004). In adult dogs, periodontal disease is commonly observed. In fact, it is estimated that at least 75% of dogs have some degree of dental disease (Harvey, 1998; Niemiec, 2008), as a result of infection and inflammation of the gums, bone and tissue surrounding and supporting the teeth, initiated by an overgrowth of bacteria in the gums. Other than bad breath, there are few signs associated with early disease. With severe disease, dogs may exhibit excessive drooling, difficulty in eating and weight loss.

Periodontal disease is commonly separated into two conditions: gingivitis, an inflammation of the gingiva, or gums; and periodontitis, an inflammation of the tissues that surround and support the teeth, which is classified into stages of severity. The occurrence of periodontal disease has been reported to significantly increase with age and decrease with increasing body weight, suggesting that smaller breed dogs may be at greater risk than larger breed dogs. Additionally, gingivitis has been associated with nutritional deficiencies of vitamins A, C, D and E, and the B vitamins folic acid, niacin, pantothenic acid and riboflavin (Logan, 2006).

The disease is often described as more prevalent, more severe and less likely to be treated by a veterinarian in



dogs used for commercial breeding than for pet dogs or hobby breeding dogs. Given the potential adverse health outcomes for dogs with periodontal disease, it is important for dog breeders, owners and caretakers to attend to preventive dental care and seek therapeutic interventions early. Knowing about current preventive care practices and therapeutic interventions that decrease the occurrence and severity of dental disease may help owners determine which interventions are most effective and practical for them.

Preventive Care

Although common in the pet dog population, periodontal disease is considered one of the most under-treated health conditions. The gold standard of home care is daily brushing of the dog's teeth, but this is not always practical, and owners often do not continue daily brushing (Miller and Harvey, 1996). The second best option for at-home dental care is to feed approved dental diets (e.g. Hill's t/d diet^a) and treats (e.g. CET enzymatic chews^b) (American Veterinary Dental College, 2015). Though it is commonly believed that a dry kibble diet, rather than a wet or canned diet, decreases risk of periodontal disease, this has not been proven. Additionally, it is recommended that all dogs be evaluated at least yearly by a veterinarian to assess the need for a thorough dental cleaning under anesthesia.

Due to the costs associated with dental cleaning by a veterinarian, as well as the perceived and real risks of anesthesia, many owners have sought alternative methods of maintaining dental health. These include anes-



esthesia-free dentistry, termed non-professional dental scaling by the American Veterinary Dental College (AVDC) (AVDC, 2015). However, significant welfare concerns are associated with non-professional scaling, including risk of injury, pain and discomfort to the dogs, as well as improper and incomplete cleaning, and damage to the teeth. It is unknown how common this practice is in both the dog breeding community as well as among pet owners.

Health Risks Associated with Periodontal Disease

Another concern of periodontal disease is its association with an increased risk of developing other diseases resulting from bacteremia (bacteria in the blood). Diseases that have been shown to be associated with periodontal disease include chronic bronchitis and heart, kidney, and liver disease (Glickman et al, 2009). The most commonly cited secondary organ system affected by periodontal disease is the cardiovascular system in both humans and dogs. For example, in a study of 59,296 dogs, an association was found between the severity of periodontal disease and the risk of cardiovascular-related disease conditions. The authors concluded that greater awareness and importance of canine dental health and routine preventive care would improve overall health (Glickman et al, 2009). Additionally, the American Veterinary Dental Society cautions dog owners “that oral bacteria will be filtered out by the kidney and liver, and can cause micro-abscesses within these organs. This leads to a decrease in function of these vital organs over time.” (Glickman et al, 2009).

Dental Health in Commercial Breeding Dogs

Commercial dog breeding facilities are often portrayed as maintaining dogs in substandard conditions relative to housing, sanitation and veterinary care. One area emphasized as being of notable concern is periodontal disease. The Humane Society Veterinary Medical Association has noted that “severe periodontal disease is routinely seen in breeding stock. ... The dogs often have a painful, infected mouth with loose and missing teeth.” These concerns, if valid, would represent significant animal welfare problems. However, to date no scientific evaluation of the prevalence or severity of periodontal disease in commercial breeding dogs, or of

management practices employed to address it, has been conducted.

Of particular concern to dog breeders and animal health professionals is the health of the puppies produced. Recent studies suggest that periodontal disease may induce inflammatory responses throughout the body that increase the risk of adverse pregnancy outcomes. Studies in humans have suggested an association between periodontal disease and adverse pregnancy outcomes, including low birth weight, premature babies, miscarriage and pre-eclampsia. Another study indicated that early dental disease during pregnancy can be regarded as an important risk factor for premature birth (Hope et al, 2014). Anecdotally, dog breeders who have incorporated routine dental care into the management of their breeding stock have reported increased litter size, decreased mortality rates, and healthier puppies (personal communication with USDA, 2015). No scientific evaluations of the association between periodontal disease and pregnancy outcomes have yet been reported in dogs.

Conclusions

Periodontal disease affects large numbers of dogs, often resulting in pain and secondary diseases. While the prevalence and severity of dental disease in pet dogs has been well documented, such information about commercial breeding dogs is not currently available. More research of this population is needed to identify risk factors, associated systemic diseases, effect on pregnancy outcomes, and practical preventive care strategies that can be implemented to minimize dental disease and lead to further improvements in the health and welfare of all dogs.

For more information:

American Veterinary Dental College,
<http://www.avdc.org/home.html>

American Veterinary Dental Society,
<http://www.avds-online.org/newweb/index.php>

Veterinary Oral Health Council,
<http://www.vohc.org/protocol.htm>

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