Stop brachycephalism, now!

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What follows is an "opinion piece." It is not based on any meta-analysis of large epidemiological databases or a literature review. It is based on the opinions I have developed in my 28 years in veterinary medicine, 21 of them spent doing nothing but dental and oral surgery on pet dogs and cats. Also, this piece has not been peer-reviewed, so any venom it invokes should be directed at the author alone. I hold *The CVJ* and its entire staff blameless in any controversy that might arise from the publication of these thoughts and observations.

Domestication of the dog and cat has been a double-edged sword. By agreeing to come into our homes and lives, they receive food, shelter, and companionship as well as medical care when indicated. However, they have also given up the right to choose with whom they reproduce and the chlorinating effect that Mother Nature has on the gene pool. As a result, there are many breeds of dogs and cats that are so hideously deformed and unthrifty that they would not last a week in the wild. I suspect that representatives from each of the specialty colleges could write a similar paper on the problems they see day in and day out that are a direct result of misguided breeding practices. As a veterinary dentist, I see the results of this in the ways it negatively impacts the oral health of these animals, and that will be my focus.

Some breeds are predisposed to certain serious conditions (dobermans and cardiomyopathy, wheatons and amyloidosis, westies and atopy...) but these animals are not intentionally bred to have these conditions. That would be crazy, inhumane, and unethical. So why is it that we condone, even promote, the breeding of animals whose very design has a negative impact on health and quality of life for every single member of the breed? I am referring to brachycephalism.

Before considering the problems that human-directed selective breeding has caused, we need to consider how the oral cavities of the various canine and feline species are supposed to be put together. An easy way to do this is to visit the Mammal Gallery of any natural history museum and observe the craniofacial architecture that is found in the wild (designs that work/survive/reproduce without our help).

In the Canidae, the skull type is mesocephalic with a "scissors" bite. The only place in the mouth that there is tooth-to-tooth contact is between the distal third of the lower first molar and the lower second and third molars contacting the two upper molars. Nowhere in the mouth is there any tooth-to-soft tissue contact. The teeth are proportioned such that they can line up in proper alignment with sufficient gingiva and alveolar bone to offer good periodontal support. In the Felidae, there may be a level bite with the incisors contacting but often there is no tooth-to-tooth or tooth-to-soft tissue contact at all in these obligate carnivores. Again, the size of the teeth is in proportion to the skeletal frame that they reside in so that alignment is ideal and there is good periodontal support for each tooth.

In contrast to this functional and desirable design, consider the brachycephaplic skull type as seen in so many dog breeds and some cat breeds. Here the maxilla is too short compared to the mandibles. The upper incisors are in traumatic contact with the floor of the mouth and lower canine teeth. The maxillary premolars are so crowded that there may be no gingiva between and little or no bone support and the teeth may be rotated 90° or more. Some teeth may be under-erupted due to crowding and impaction against adjacent or opposing teeth. The result is that the animal effectively bites itself every time it closes its mouth and there is an extreme predisposition to early onset and rapid progression of periodontal disease. The traumatic contact between the maxillary incisors and the mandibular structures will often lead to traumatic pulpitis and pulp necrosis in the maxillary incisors. There is also often severe bunching-up of the palatal rugae with entrapment of hair, food, and bacteria leading to chronic, painful palatitis hidden from view at the bottom of the deep, closed folds.

Some of the dental/oral liabilities associated with brachycephalism can be mitigated by proactive surgery (selective extraction), but many animals do not get to benefit from these procedures and so live with chronic dental pain and infection.

In many Canadian jurisdictions, veterinarians have advocated for and achieved a ban on tail-docking, ear-cropping, and dewclaw removal as these are considered unnecessary cosmetic procedures that cause (temporary) pain with no benefit to the animals. I believe that as protectors of animal welfare, veterinarians should start a public awareness campaign to inform people of the serious, life-long negative impacts of brachycephalism. I believe we must stop referring to these conditions as "normal for the breed" and refer to them as "grossly abnormal in accordance with breed standards" because there is nothing remotely normal or desirable from the animal's perspective. I believe we must stop using photographs of these deformed but comical

breeds in advertising and promotional materials as this just increases public demand because they are "so cute."

I am sure these words are going to stimulate some lively, possibly acrimonious response. I am effectively saying that it is unethical to purposely reproduce animals that are specifically designed to have serious structural deformities. The extension of this thinking would be to ban a great number of breeds. Oh, the backlash! My word! But when one looks at it strictly from the animal's perspective, there is no valid, logical justification for brachycephalism. Its only positive is that many people find brachycephalic breeds esthetically pleasing (cute) and that is not a valid excuse for wilful perpetuation of these mutations.

I wish I could say it was just the brachycephalic breeds that have these issues. Sadly, such is not the case. Highly miniaturized breeds are inclined to have teeth that are proportionally far too large for their mouths, leading to many of the same crowding, under-eruption, non-eruption, and occlusal concerns seen in brachycephalic dogs of all sizes. But one battle at a time.

Suggested reading:
From the Old CUSP Articles available from
http://www.toothvet.ca/Old%20CUSP%20Articles.htm
Last accessed December 5, 2012.

The Anatomy and Physiology of the Periodontium
Periodontal Disease is Hidden
You cannot prevent disease that is already present
Pericoronitis
Focus On: Micro Dogs
Focus on Boxers
Who Is Responsible?