

Progressive research in brachycephalic dog breeds



Brachycephalic dogs have been shown to rank top of the list of health and welfare concerns for small animal vets. Dr Jane Ladlow of Cambridge University heads one of the main academic groups looking to ameliorate the health problems in these breeds. She told *John Bonner* what practitioner colleagues need to know and do in order to help their clients.

Singers Madonna and Lady Gaga, footballers David Beckham and Marcus Rashford, and actors Sharon Stone and Reese Witherspoon were all listed as fans by the Sun newspaper in a breathless piece extolling the virtues of the French Bulldog as this season's must-have accessory.

Celebrity endorsements have pushed a previously relatively obscure breed into third place behind Labradors and Cocker Spaniels as the most popular in the UK, with 14,000 puppies registered with the Kennel Club last year.

But at the same time, 'the Frenchie' is also climbing up the list of pedigree animals most frequently surrendered to Battersea Dogs and Cats Home, with the Telegraph reporting a fourfold increase on last year. In most cases, it is because the owners could not afford to pay for the veterinary treatment that the dogs would need to enjoy a satisfactory quality of life.

Dr Jane Ladlow is the soft tissue surgeon leading the brachycephalic obstructive airway syndrome (BOAS) research team at Cambridge Veterinary School. She will be presenting a series of three articles in *Companion* on the diagnosis, treatment and prevention of respiratory problems in three breeds – the Pug, English Bulldog and French Bulldog.

All three have grown in popularity with the craze for dogs with exaggeratedly fore-shortened snouts.

But a feature regarded as 'cute' by many laypeople is seen by Jane's colleagues as the reason for a broad range of health issues. These vary in type and severity in these three brachycephalic breeds, which is why each will be addressed in a separate article. "Our research has shown, for example, that collapse of the trachea or larynx is a more common problem in Pugs than in the other two breeds. There are also gender differences and so in Pugs, female dogs have a higher risk of developing BOAS than males, whereas in French Bulldogs, the trend was in the opposite direction," she explains.

Brachycephalic breeds at BSAVA Congress

Dr Ladlow will be discussing these studies during a dedicated stream on brachycephalic breeds at BSAVA Congress in Birmingham next April. The meeting will also update members on the latest findings of studies on other major health problems affecting the eyes, gastrointestinal track and spinal cords in these breeds, the challenges of providing safe anaesthesia, and the science and ethics of breeding dogs with such a high risk of conformational disorders.

Although BOAS is the most obvious health issue affecting these breeds, their other problems should not be underestimated and indeed it is likely that disorders affecting different body systems may be linked. "Although we can't prove it at the moment, we suspect that the breathing and eye problems may be related, as it seems that it is the dogs with the shortest faces that have the most protruding eyes," she says.

Two problems that are certainly linked are BOAS and the difficulties that brachycephalic breeds have with thermoregulation in warm weather. Together these are likely to have considerable negative effects on the dogs' quality of life.

"We know that in humans, obstructed breathing causes chronic sleep deprivation and that has really bad effects on both physical and mental health. I think there is evidence of something very similar happening in these dogs; they come into the consult room and they are nearly asleep on their feet."

She points out that an ability to display normal behaviour is one of the Five Freedoms which define an acceptable quality of life. "They are unable to exercise normally because breathing becomes such an effort and they can't pant to cool down as dogs will do when they have a normal conformation. I think these animals from these breeds find summer days very stressful; there is an anxious expression on their faces."

There is also evidence that an extreme conformation will adversely affect a puppy's life expectancy. The Kennel Club longevity survey in 2004 indicated a reduced longevity in all three breeds, compared with other dogs of a similar size. The disparity is particularly striking in English Bulldogs in which the 180 dogs that died had a mean lifespan of 6.4 years, compared with 11 years or more for most small to medium sized dogs.

Dr Ladlow cautions that this data should be interpreted with care, the sample size for most breeds is small and there are few reliable details on the actual cause of death. Cardiac disease is the most common explanation offered in English Bulldogs, which could certainly be associated with the breathing issues. But few cases are investigated properly and one was simply and rather unhelpfully listed as 'died'.

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JANE LADLOW

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Is the current popularity of these breeds exacerbating these existing health problems? She says that for the Kennel Club registered dogs, her colleagues have a reasonable amount of information on which to investigate trends and that there has been a good response from breeders in efforts to improve the health of the breed. However, she points out that much of the demand for puppies is being met by UK breeders who don't register their litters with the Kennel Club, while many others are brought in from abroad.

Choosing dogs on a 'whim'

Dr Ladlow notes that a large proportion of owners choosing these dogs, buy them on a whim and don't seek veterinary advice. But when it is possible to influence a client's decision, she urges practitioners to be very candid about the health problems that owners are likely to experience with these breeds and suggest that other dogs with a more conventional head shape may be a much better option.

"But if you have someone who is absolutely determined that they want to have a brachycephalic dog, then I would offer the same advice that we give to any prospective buyer. I would recommend the Kennel

Club's assured breeder scheme and buyers should see the puppy with its dam. Preferably they should have a look at the sire, too. If it isn't possible to visit the stud dog at the same time, you may be able to get some relevant information from the breeder's website."

Of course, it is very difficult even for a clinician to identify a puppy with severe breathing problems when it is only a few weeks old. But it is possible to see if the parents can cope with a moderate amount of exercise and, given their particular problems, it is especially important that the parents of Pug puppies look and sound comfortable after a run, she suggests.

The Cambridge team has been working on methods for objectively measuring the effects of exercise on individuals from these breeds. Breeders keen to demonstrate that their stock is healthy can send their animals for assessment using the whole body barometric plethysmography technique, which measures flow through the dog's airways and can be used to calculate a BOAS index. Also, dogs with only moderate signs of disease can have their respiratory function graded using a standardized 3-minute exercise tolerance test.

In the future, it may be possible to produce even more accurate forecasts of the likely health status of a litter through a genomic analysis of both parents. Geneticist David Sargan is part of the BOAS team at Cambridge and is working on identifying reliable genetic markers for healthy stock.

"What we need to be able to do is to identify the worst affected dogs and to eliminate those dogs from the breeding population. This is something that the good breeders are doing already but we need the same approach to be taken across the board. I also think that we need to be a little more creative about where we get these parent dogs from," Dr Ladlow says.

Does that mean outcrossing using parents from closely related but healthier breeds? "No, that isn't really practical, it wouldn't be popular with most breeders and we can only make progress if we have them on our side. Also there are no guarantees that those puppies would be any healthier than those with a pure pedigree, as they may inherit problems from both parents' breeds.

"A better solution may be to import material from healthier populations abroad. My understanding is that there are dogs in Singapore, for example, that cope with the heat and humidity of that country really well. If we want to make faster progress in improving the health of these breeds, then that may be a realistic option." ■

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Full details of the Congress 2018 brachycephalic stream of lectures scheduled for Friday 6 April (Hall 1) can be viewed at www.bsavacongress.com/programme.