Measuring and Improving

How do we measure respiratory function in dogs?

One problem with brachycephalic obstructive airway syndrome is that, until recently, the diagnosis has been made by general clinical veterinary examination, which is subjective and may vary amongst vets.

We diagnose BOAS using a clinical examination which incorporates a functional exercise tolerance test.

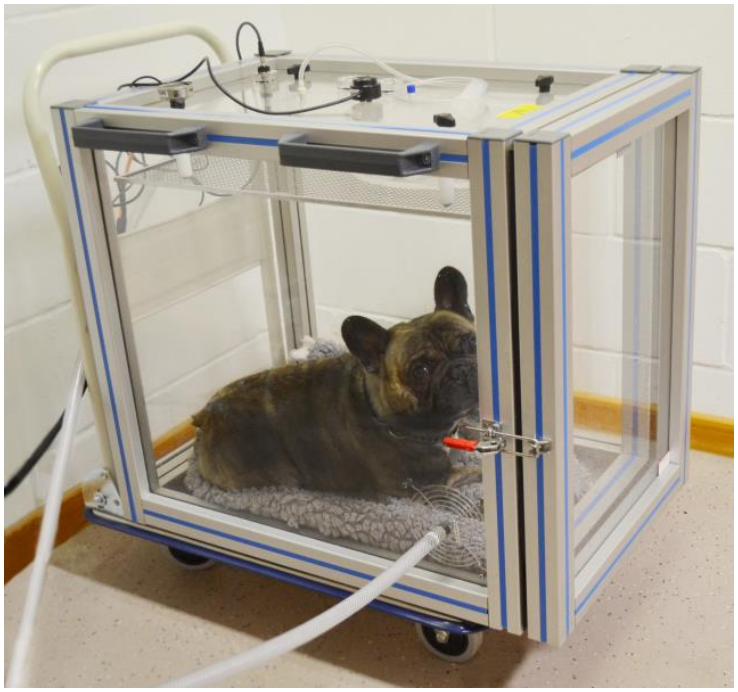
Task 1

Watch the below video to see an example of respiratory distress after a 3-minute exercise tolerance test:

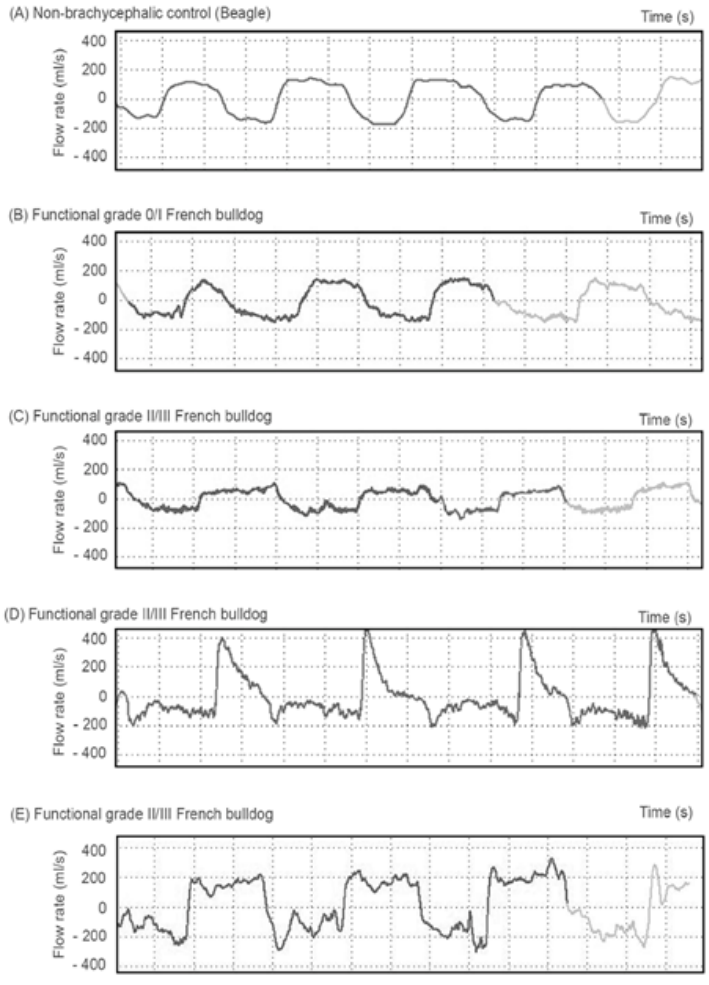
https://www.youtube.com/watch?v=CgAy5T_iUC8&feature=youtu.be

We have also developed a non-invasive objective way to measure respiratory function in these dogs. We use a plethysmography chamber, which measures changes in volumes of air breathed in and out by an animal inside an enclosed space. This means we do not have to handle or restrain the animals, which decreases their stress, and thus gives a more accurate measure of respiratory function.

We can now give pugs, French bulldogs and bulldogs a numerical score that reflects how good their breathing is.



Whole body plethysmography chamber with French bulldog undergoing the respiratory test



We can then use the ‘BOAS index’ produced by these measurements to look at disease prevalence, factors affecting the disease such as age, body conformation and body condition score (an assessment of fatness). We can also evaluate the response to treatments such as weight loss or surgical treatment.

How can we improve the brachycephalic breeds?

Brachycephalic breeds are increasingly popular and the rising demand for puppies means that not all are produced by ethical breeders concerned with health and welfare.

The Kennel Club have provided health advice for breeders and dog show judges, and also for the public looking to purchase puppies, so that they are aware of potential problems associated with different dog breeds.

Task 2

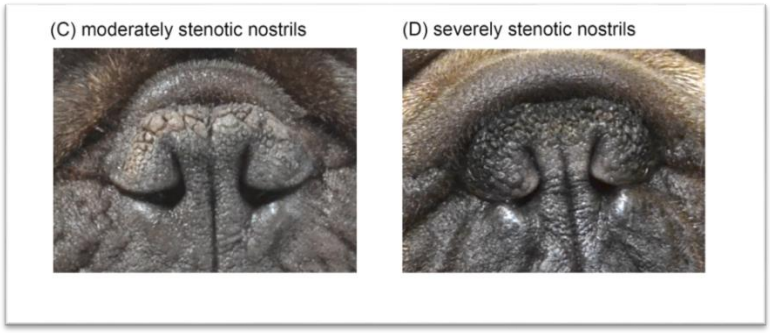
Use the website to find out more about the Health Information for different breeds and dog groups:

http://www.thekennelclub.org.uk/services/public/breed/

It is important that prospective buyers see an establishment’s breeding bitches so they can assess the health of at least one parent.

We also need to increase the awareness of brachycephalic syndrome and inform the public so they realise that all dogs, regardless of breed, should be able to exercise without becoming out of breath. Likewise dogs that make loud noises when breathing are not ‘cute’ but obstructed.

There are research findings that are highlighting the factors that are important in increasing the risk of BOAS. One of the most important conformational features to look for in brachycephalic dogs is the nostrils, with stenotic or narrowed nostrils markedly increasing the risk of developing BOAS (19-fold in the French bulldog).



We are also working on genetic tests for BOAS in the extreme brachycephalic breeds so that we can develop an estimated ‘breeding value’ and provide guidance on which matings are likely to result in healthy dogs.

The fastest way to improve the quality of life of the extreme brachycephalic dogs is probably to cross breed with longer-nosed dogs. At the moment the breed clubs are not willing to do this as they fear the distinctive features of these breeds may be lost.