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*BOAS Research Group Study  
Investigating the risk of respiratory disease in different brachycephalic breeds*

The BOAS Research Group at the University of Cambridge is excited to announce a new study into different brachycephalic breeds. We are looking to identify and define the risk of BOAS in a number of breeds, and also assess for symptoms of Chiari-like malformation/syringomyelia (CM/SM). We hope that this research will help us to improve the current health schemes and ultimately improve the welfare of future generations.

*What is BOAS?*

BOAS stands for 'brachycephalic obstructive airway syndrome'. The term 'brachycephalic' refers to dogs that have a shortened skull; they have shorter muzzles and flatter faces compared to other breeds, such as Labradors or Greyhounds. The three most extreme brachycephalic (flat-faced) breeds include Pugs, French Bulldogs and Bulldogs.

Symptoms of BOAS include noisy breathing, sleep apnea, exercise and heat intolerance. In severe cases this can lead to collapse and death. Dogs affected by BOAS often have small nostrils and a disproportionately large amount of soft tissue (abnormal nasal passages, large tongue, long and thickened soft palate) within a smaller skull. This reduces the air spaces within the upper airways causing increased resistance to airflow when breathing.

*What is the purpose of this research?*

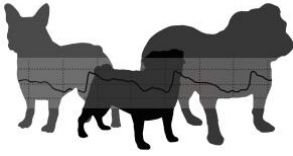
The more extreme brachycephalic breeds (Pugs, French Bulldogs and Bulldogs) are at a greatly increased risk of BOAS. However, in other brachycephalic breeds, BOAS is seen very rarely. It is not possible to determine the risk of BOAS from appearance and conformation alone. Therefore, we are investigating why this is the case and look to define the risk of breathing problems in a greater number of breeds. This will ultimately help us to improve the current breed health schemes and provide more data for future genetic studies so that we will be able to secure the long-term health and welfare for these dogs.

*What does the study involve?*

For this study, we will perform respiratory grading assessments, involving a physical examination and short exercise tolerance test. We also use whole-body barometric plethysmography (WBBP) which is a non-invasive clinical method used to assess breathing function. We will also take photographs for conformation measurements and DNA swabs for future genetic studies.

*What is Chiari-like malformation?*

Chiari-like malformation is another conformational disorder seen in certain brachycephalic or toy breed dogs. Common symptoms can include vocalization, sensitivity to touch, pain,



Brachycephalic Obstructive Airway  
Syndrome (BOAS) Research Group

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lethargy and behavioural change. Whilst it has been found that certain breeds are more likely to suffer from this disorder, the mechanism of the disease is not yet fully understood. We are interested to investigate whether there is a relationship between the conformation and anatomy of dogs affected by BOAS and CM/SM. At the same time as the respiratory assessment, we will carry out a full clinical assessment to screen for clinical symptoms of these disorders.

*Which breeds are we studying?*

We will be looking to recruit dogs over the age of 12 months from the following breeds; Affenpinscher, Boston Terrier, Boxer, Cavalier King Charles Spaniel, Chihuahua, Dogue de Bordeaux, Griffon Bruxellois, Japanese Chin, King Charles Spaniel, Maltese Terrier, Pekingese, Pomeranian, Shih Tzu.

*How do I get involved?*

Please email Fran Tomlinson ([ft270@cam.ac.uk](mailto:ft270@cam.ac.uk)) for further information. We are happy to provide assessments at the QVSH, or alternatively can travel to you dependent on number of participants.