

## Background

A number of dog breeds, including Bulldogs, French bulldogs, and Pugs, have a shortened skull and flattening of the muzzle, known as brachycephaly. Unfortunately these traits are sometimes accompanied by changes to the upper airway tract that result in Brachycephalic Obstructive Airway Syndrome (BOAS).

Clinical features of BOAS may include snoring, heavy panting, exercise intolerance (inability to perform a short run), respiratory distress, regurgitation, acute overheating, cyanosis, and even interruption of sleeping.

It is important to investigate the clinical condition of BOAS in order to plan and perform adequate treatments. However, the diagnosis of BOAS is currently a rather subjective process because of the wide range and severity of clinical signs.

Over the past two years, we have been using a non-invasive method called whole-body barometric plethysmography (WBBP), to access the respiratory function of more than 210 dogs objectively. The preliminary results indicate that we now have the ability to quantify airway function and this method shows significant promise as a potential clinical diagnostic tool. We will be using the objective data to investigate possible associations between respiratory function, skull dimensions, and genetic markers for BOAS.

## How you can help

We would like to record Pugs, French bulldogs, and Bulldogs in the WBBP chamber and measure their respiratory function. We will be happy to arrange your visits to the Queen's Veterinary School Hospital in Cambridge, please contact:

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*Thank you very much in anticipation!*

# Non-invasive Respiratory Function Assessment in Brachycephalic Dogs

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## What does the study involve?

### 1. Free veterinary examination

- Stethoscopic examination (throat and chest)
- Assessment of the nostrils
- Respiratory sign assessment
- A 3-minute trotting exercise tolerance test



### 2. Head measurements

- Photos are taken of the head: frontal view and lateral view
- Soft tape measurements: skull length, cranial length, muzzle length, cranial width, eye width, neck length, neck girth, chest girth, and body length



### 3. DNA sample collection

Two buccal swabs are taken from inside the mouth (cheek)

## 4. Respiratory function assessment



- The dog is placed in the WBBP chamber where it can move about
- 5-10 minutes are allowed for the dog to acclimatize to the chamber
- Recording is started and the dog is monitored for 20 minutes whilst it is breathing spontaneously
- The test ends and the dog is removed from the chamber

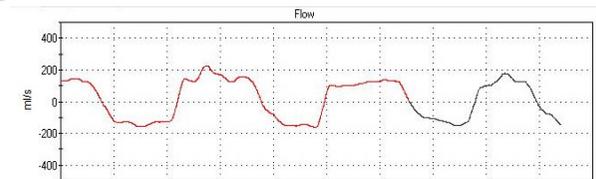
As an owner, you are able to watch your dog through the window outside the testing room. A study investigator will be present during the entire test period.



## Significance of the study

This study targets both healthy brachycephalic dogs and BOAS-affected dogs, in order to establish a screening test for BOAS. The long-term aims of this study are to improve the health and welfare of brachycephalic breeds by reducing the incidence of severe BOAS and to give these dogs a better quality of life.

WBBP flow trace of a healthy French bulldog



WBBP flow trace of a BOAS-affected French bulldog

