Soft Palate and Upper Airway Surgery, Brachycephalic Syndrome	Upper airway surgery is performed in dogs and cats for or obstructive airflow due to an elongated soft palate, stenotic nares, and everted saccules. It is most commonly observed in brachycephalic breeds of dogs and cats. Brachycephalic breeds have skull bones that are shorter in length which gives the breed a shorter nose and flatter face. As a result of this conformation, the breed commonly has respiratory associated difficulty. Brachycephalic breeds that may be affected by conformation related airflow obstruction include French bulldog, English bulldog, Boxer, Boston Terrier, Bull Mastiff, Lhasa Apsos, Pug, Shih Tzus, and Persian cats. Brachycephalic syndrome is a combination of airway abnormalities that cause obstruction of airflow in brachycephalic breeds. Brachycephalic syndrome abnormalities include: Stenotic nares: narrow or small nostrils that restrict airflow into the nasal passage. Elongated soft palate: protrudes into the airway blocking airflow. Everted laryngeal saccules: small sacs or pouches inside the larynx that evert into the airway due to excessive negative pressure from increased airway resistance associated with stenotic nares or elongated soft palate. Laryngeal collapse: weakening of the laryngeal cartilage as a result of chronic airway obstruction which leads to reduced laryngeal opening and a worsening of airway obstruction. Hypoplastic trachea: trachea that has a smaller than normal diameter. Hyperplastic tongue: thickened large tongue. Pets with brachycephalic syndrome may be at risk for gastrointestinal reflux, chronic gastritis, and bronchial collapse as there has been a link to changes in the lungs and gastrointestinal tract. Some pets with brachycephalic syndrome will have everted tonsils as a result of chronic negative pressure in the airway which can further exacerbate airway obstruction.





Images of brachycephalic breeds effected by brachycephalic syndrome.

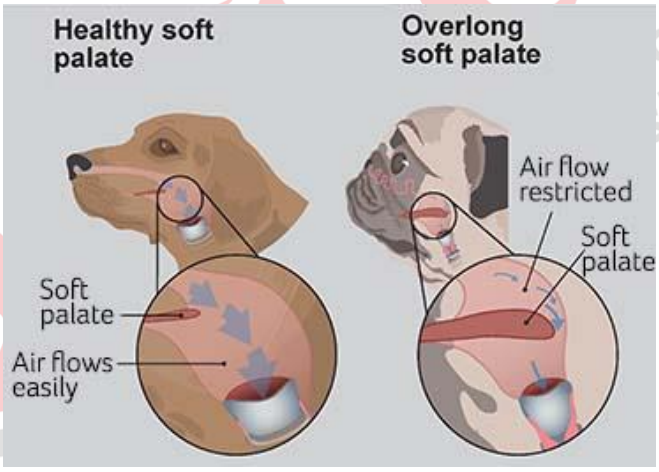

Image that demonstrates the airflow in a mesocephalic (medium sized head) dog on the left and brachycephalic dog on the right.

Signs and Symptoms: Dogs or cats with elongated soft palate or brachycephalic syndrome may have one or more of the following signs:
Noisy breathing
Snoring or snorting sounds
Difficulty breathing
Exercise intolerance
Retching or gagging

	Cyanosis (blue tongue or oral gums) Collapsing episodes Pets with brachycephalic syndrome are prone to respiratory difficulty or distress when excited, over-active, or in excessive heat or humidity. Obesity can exacerbate a pet's condition with elongated soft palates or brachycephalic syndrome. Diagnosis: The diagnosis of upper airway obstruction begins with a physical examination. Stenotic nares are readily apparent on physical examination. The pet will need sedation or general anesthesia for evaluation of the soft palate, laryngeal saccules, tonsils, laryngeal collapse, or other abnormalities that could be contributing to the pet's airway obstruction. Bloodwork may be performed to assess the pet's systemic health. Radiographs of the cervical region and thorax may be performed to assess the pet for hypoplastic trachea or concurrent lung disease. Treatment: Treatment of brachycephalic syndrome may include a combination of management, medical treatment, and surgical treatment. If the pet is over-weight, then weight loss is recommended. The pet should have conservative activity, avoid stress or exercise in hot or humid weather conditions, and be kept in air-conditioning in the summer or during warm/hot conditions. Pets that experience respiratory difficulty or distress need immediate emergency treatment. Initially, the pet will be medically treated with an anti-inflammatory medication, sedation, and oxygen therapy to bring down airway inflammation, calm and reduce the pet's anxiety, and provide additional oxygen to support the pet. Some patient's in a respiratory crisis will need to be intubated with endotracheal tube (airway tube passed into the windpipe) to bypass the upper airway obstruction to allow the patient to breath. Definitive treatment of stenotic nares, elongated soft palate, and everted saccules is accomplished by surgery. Stenotic nares are surgically treated by removing a wedge of tissue from each nostril which can allow for improved airflow through the nostrils. An elongated soft palate is surgically treated by staphylectomy which is a procedure resecting the excess portion of the soft palate to open up the airway. Everted saccules can be surgically removed to eliminate its obstruction of airway flow into the trachea. In severe cases of chronic brachycephalic syndrome, severe laryngeal cartilage weakness may occur resulting in end-stage collapse of the larynx. A pet with end stage collapse of the larynx may need a permanent tracheostomy, which is a permanent surgically opening of the trachea on the underside of the neck. Postoperative care: Pets will be monitored very closely for breathing difficulty after surgery. A pet can have significant inflammation of the airway after

	surgery or postoperative bleeding that can affect breathing. Occasionally a pet may need to have a temporary tracheostomy tube placed until airway inflammation subsides. Placement of a temporary tracheostomy tube is accomplished by making an incision through the skin of the neck, followed by an incision between the tracheal rings, to then pass the tracheostomy tube directly into the trachea, thereby allowing the patient to breath. Pets will be monitored closely for coughing, gagging, vomiting, or regurgitation. Aspiration pneumonia can occur in pets that have vomiting, regurgitation, or difficulty swallowing after surgery. Pets may be discharged with an antibiotic and pain medication. Pets having a staphylectomy will be instructed to be feed soft food for approximately 3 weeks after surgery. Discharge instructions will include conservative activity, air-conditioning in warm or hot weather, and not to use neck leashes. Prognosis: The prognosis for improved respiratory function is good the earlier in life the pet's upper airway problems are surgically corrected. Older pets with chronic laryngeal changes may have a less favorable prognosis.