

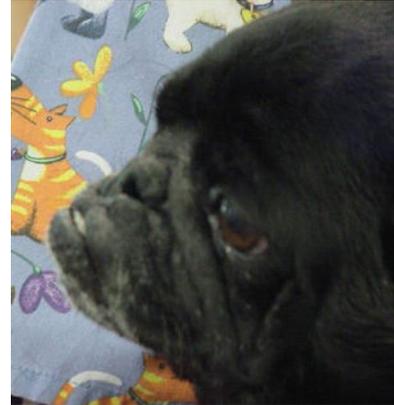
ANESTHESIA IN BRACHYCEPHALIC PETS

UPDATED 2025



Brachycephalic breeds undergoing anesthesia are at higher risk of complications due to their flat faces. But our goal with this handout isn't to scare you into not wanting to anesthetize your dog or cat at all! Leaving dental disease or other problems untreated isn't the answer, as other issues affect life expectancy besides anesthesia.

- Mortality rates during & immediately after anesthesia are 0.17% for normal dogs, 0.92% for most brachycephalic dogs and 3.9% for English bulldogs
- At risk breeds include:
 - Dogs: Pekinese, Pug, Bulldog, French bulldog, Boxer, Boston Terriers, Cavalier King Charles Spaniel, Shih Tzu, Lhasa Apso
 - Cats: Persian, Himalayan, Burmese
 - Any mixed breed with brachycephalic features!



Brachycephalic obstructive airway syndrome (BOAS)

- Stenotic nares (small nostrils)
- Elongated soft palate
- Laryngeal changes- occur after years of sucking air at high speed through a too-narrow set of pipes

We recommend addressing stenotic nares and an elongated soft palate when your pet is young. We can widen the nostrils and shorten the soft palate for easier breathing for the rest of your pet's life!



Example of an elongated soft palate, which covers the airway opening. We can trim this to help your dog breathe easier!

Other Brachycephalic concerns for anesthesia

- Obesity
- Gastrointestinal disorders
 - Regurgitation, vomiting, inflammation in the GI tract
 - 97% of brachycephalic dogs have abnormalities of the stomach, intestines and/or esophagus
 - GERD (gastroesophageal reflux disease, aka "heartburn")- caused by a weak lower esophageal sphincter muscle allowing acidic stomach fluid to get into the esophagus
 - Aspiration pneumonia

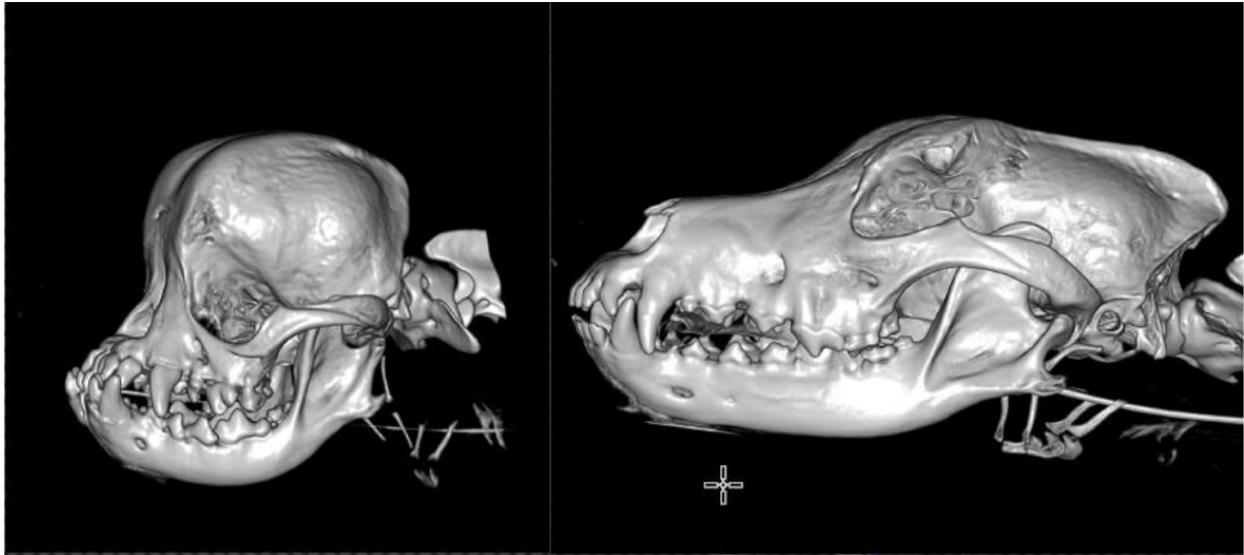
- Heart and lung problems
 - Narrow trachea
 - Low oxygen level
 - High CO₂ level- waste product that can affect the respiratory system and blood pH
 - Polycythemia- thicker blood that doesn't circulate well
 - High blood pressure- could be related to sleep apnea, common in these breeds

We take several key steps to reduce risk!

- Assess for heart problems
 - Testing before anesthesia may include a proBNP heart muscle damage blood test, electrocardiogram (ECG), and/or chest X-rays
- Prevent vomiting and aspiration
 - Use pre-operative anti-vomiting and reflux medications
 - Feed a snack 3-4 hours prior to anesthesia
 - Choose certain anesthetic medications that minimize vomiting risk
 - Suction the esophagus to remove gastric fluid
- Keep the patient calm
 - May require extra sedative medication before and after surgery
 - Encourage family to be present during recovery- **one study showed having a family member present after surgery dropped the patient complication rate from 28% to 2%!**
- Minimize eye risks
 - Brachycephalic patients are more prone to dry or damaged corneas, so we lubricate their eyes with ointment every 30 minutes
- Prevent swollen airways and low oxygen levels
 - Supplement oxygen via a face mask before and after surgery
 - Administer a steroid injection to reduce swelling
 - Prepare to re-anesthetize and re-intubate a patient if having trouble breathing after surgery
 - Occurs ~10% of the time
 - Closely monitor for a few hours post-surgery
 - Have the patient in a sternal position (laying on the chest) with head elevated
 - Monitor temperature, make sure not overheating



This is an example of an ulcer on the cornea of a dog!



Brachycephalic skull on the left, wolf skull on the right.

Our point is, we do a lot of things to make anesthesia safer for your pet. Those steps and additional procedures decrease risk and increase the chance your pet will come through a procedure with flying colors. We want you to be aware of what the risks are, but also how many things we can do to reduce that risk.

If this all sounds like a lot of extra effort, it is. But it's also effort that's worthwhile. We want your pet to leave here better-off than when they came in. Our goal, as always, is to help your pet lead a longer, healthier, happier life.

Caring People Helping Pets

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