**BRACHYCEPHALIC BREEDS/BRACHYCEPHALIC SYNDROME: DOGS WITH SHORT FACES**

Most people are not familiar with the term brachycephalic, but if you own a Pug, Boston terrier, Pekingese, Boxer, bulldog, Shih Tzu or any dog with a pushed in or short face, you should become familiar with this word. It comes from the Greek roots brachy (meaning short) and cephalic (meaning head).

Brachycephalic dogs have been bred to possess a normal lower jaw that is in proportion to their body size but a compressed upper jaw. Although this conformation makes them look cute it leads to a lot of medical problems. In producing this cosmetic appearance, we have compromised these animals in many important ways. Severely affected dogs can experience collapse of the larynx (voice box) and require a permanent tracheostomy (a hole in the throat for breathing). Aspiration pneumonia, recurrent respiratory infections and higher risk for anesthetic complications are also common in brachycephalic dogs.

**The Respiratory System**

Brachycephalic breeds are characterized by brachycephalic respiratory syndrome, which affects several different areas of the respiratory tract. Fortunately, most dogs do not suffer from all aspects of the syndrome. You should be aware of the breathing problems your pet may have.

**Stenotic Na res** - This is a fancy name for narrowed nostrils. Many brachycephalic dogs have small nasal openings for breathing. A quick and simple surgical correction can be done to open the nostrils back up and improve breathing.

English bulldogs usually have a distorted nasal septum and sinuses along with their stenotic nares. The nares can be fixed but there is no surgical repair we can do for the sinuses.

**Elongated Soft Palate** - It is difficult to fit the soft tissues of the canine mouth and throat into the brachycephalic's short face. A brachycephalic dog has the same amount of tissue in the throat as a normal dog but it has a lot less space. As a result, the soft palate, which is the soft part of the roof of the mouth and separates the nasal passage from the oral cavity, flaps loosely down into the throat. In some breeds the soft palate is also thicker than normal. Sucking air past this obstruction creates snoring and snorting sounds.

Virtually all brachycephalics suffer from this and it usually gets progressively worse with age. The excess tissue slowly stretches and becomes longer with time and the constant turbulence of air trying to pass through too small an opening causes the tissues to swell. Breathing becomes more noisy and difficult as a pet ages. Excessive barking or panting may lead to swelling in the throat which can worsen the problem.

The soft palate can be shortened surgically. This should be done early in life, to decrease damage to surrounding tissues and to prevent secondary complications, especially laryngeal collapse. Sometimes the palate is already long enough to cause problems by the time a dog is 6
months of age and resection is done at the same time as spaying or neutering. Most of the time we shorten and correct the long soft palate when a patient is a young adult.

English Bulldogs tend to have a particularly hard time breathing. In fact, the English bulldog tends to have more severe symptoms in almost all aspects of brachycephalic syndrome. Again, the soft palate can be surgically trimmed and this should be done early on, along with correction of stenotic nares.

**Tracheal Stenosis** - A brachycephalic dog’s windpipe may be dangerously narrow. This condition creates tremendous anesthetic risk and should be ruled out by chest radiographs prior to any surgical procedures. English bulldogs are again the breed most likely to have a narrow trachea.

**Everted Laryngeal Saccules** - The normal larynx (voicebox) has two small pockets, one on each side, called ventricles or saccules. When a dog has increased effort in breathing, over time these little pockets will swell and turn inside out (evert). When this occurs, they need to be surgically removed to get them out of the airway. Everted saccules indicate that surgery is also needed for stenotic nares and elongated soft palate, to prevent progression to full laryngeal collapse.

**Heat Stress** - Because of all these upper respiratory obstructions, the brachycephalic dog pants inefficiently. A dog with a more conventional face and throat is able to pass air quickly over the tongue through panting. Saliva evaporates from the tongue as air passes across and the blood circulating through the tongue is efficiently cooled and circulated back to the rest of the body.

In the brachycephalic dog, so much extra work is required to move the same amount of air that the airways become inflamed and swollen. They are then less effective at cooling the air that passes by. This leads to a more severe obstruction, distress, and further over-heating. **BRACHYCEPHALIC DOGS ARE THE MOST LIKELY CANDIDATES FOR HEAT STROKE.** Exercise must be very limited in hot or humid weather, nor should a bulldog or pug be left outside or in a car on a hot day. These dogs should be kept calm and cool.

Altogether, the upper airways of the brachycephalic dog compromise the ability to take in air. Under normal conditions the compromise is not great enough to cause a problem; however, an owner should take care not to let the dog become grossly overweight or get too hot in the summer. Be aware of what degree of snorting and sputtering is usual for your pet, and seek medical attention if you notice worsening. It is not uncommon for severely brachycephalic dogs to choke to death on their own throat tissue.

When your dog requires general anesthesia or sedation, your veterinarian will want to take extra precautions. Radiographs of the throat may be needed beforehand to look for tracheal stenosis. Anesthetic risk is higher than usual in these breeds, though under most circumstances the necessary extra precautions are readily managed by most animal hospitals.

**The Eyes**

With most of the nasal bones compacted, brachycephalic dogs tend to have trouble with the way their eyes sit in their heads.

First, the boney eye sockets are shallow, so the eyes protrude or bulge. This means that any blow to the back of the head, even a fairly minor one, can cause an eye to pop from its
socket, requiring immediate, emergency surgical replacement. This can also happen from pulling against the leash if the dog is wearing a collar. Neck collars also cause an increase in intraocular pressure which is a risk factor for glaucoma. Brachycephalic dogs should be walked with a harness or head halter, not a neck collar.

Sometimes, the eyes are so prominent that the lids cannot close all the way over the eyes. This will lead to irritation and drying of the center of the eye unless surgical correction is performed. Dry eyes cause infections and painful corneal ulcers. If you cannot tell by watching your pet blink, watch as your pet sleeps. Dogs who sleep without closing their eyes all the way should have surgical correction.

Eyelid problems are also common in these breeds. Look for persistent wetness around the eyes. In some dogs, the shape of the eyelids prevents normal tear drainage and there is an overflow. Constant moisture under the eyes leads to skin infections. This problem cannot be corrected surgically and is not comfortable for the pet; however, there is a more serious condition that looks similar. This second condition involves the rolling inward of the eyelids so that the lashes rub on the eye. Surgery may be needed to correct this problem.

Chronic irritation will show as a pigmented area on the eye surface, especially on the side nearest the nose. This is hard to see without a bright light but if you notice it, a search for the cause is warranted. Depending on the location of the pigmentation, eye medication or surgery may be recommended.

**Dental abnormalities**

The normal dog has 42 teeth in the mouth. The brachycephalic dog also has 42 teeth but a lot less space to fit them in. This means that the teeth will be crowded and growing in at odd angles which causes food debris to be trapped between the teeth. This leads to periodontal disease at a young age. Extractions may be needed, for teeth that are too out of position or that don’t erupt through the gums properly. To minimize periodontal disease you need to reduce plaque and tartar build up. The earlier you begin using home care dental products, the better.

**Skin Infections**

Skin fold infections are common in the facial folds of brachycephalic dogs and around the tail base of those with stub tails. Be sure to examine these areas periodically for redness. Some brachycephalic breeds, especially (again) bulldogs, also develop painful sores between their toes.

**Musculoskeletal Disorders**

Patellar luxation, torn ACL ligaments, spinal deformities, hydrocephalus, hip dysplasia and other growth deformities are all common in brachycephalic dogs. Be prepared for corrective surgery to be needed sometime in your dog’s life. Major orthopedic surgeries cost thousands of dollars. We recommend that you purchase health insurance for your dog so that you will be able to cover these sorts of procedures, as well as the rehabilitation and other aftercare needed. Think carefully before purchasing a brachycephalic dog – they can be expensive and high maintenance!
Reproduction

Brachycephalic dogs have big heads that are not in proportion to the size of the pelvic opening. This makes it difficult for puppies to fit through the birth canal. Caesarean section is frequently needed. Difficult labor is common and special consideration should be given to breeding only the healthiest dogs, who will have fewer health problems. Breeding of these dogs is best left to the experts.

Altogether, the brachycephalic breeds show plenty of personality and intelligence just as all dogs do but because of their specific needs, their owners need extra knowledge. If you have any questions about your brachycephalic dog, don’t hesitate to call your veterinarian.