

Does Your Dog Suffer From Sleep Apnea?

It's common in humans, so why not dogs, too? Researchers recently set out to discover how often it occurs with dogs, using the same neckband designed for human sleep apnea studies. Finding striking differences among breeds, here are the ones most affected, and the reason why.

Analysis by Dr. Karen Shaw Becker

STORY AT-A-GLANCE

- Researchers at the University of Helsinki recently studied sleep-disordered breathing in dogs using a neckband originally designed for human sleep apnea studies
- The neckband system allowed the dogs to remain in their homes during the evaluation and proved to be a more comfortable and productive arrangement than techniques used in previous dog sleep studies
- The results were striking if not surprising: flat-faced, short-muzzled brachycephalic dogs (e.g., French Bulldogs) have significantly more breathing problems during sleep than dogs with longer snouts
- For years, too many brachycephalic dogs have been bred not for good health and positive behavioral traits, but simply to create extremes in physical appearance
- Dr. Boaz Man, a veterinarian in Boca Raton, FL, is using a non-invasive laser procedure to improve the breathing ability and quality of life of "extreme" brachycephalic dog; he and many other vets believe better breeding is the ultimate answer to address the significant health issues of these beloved dogs

Researchers at the University of Helsinki (in my observation, a leading institution when it comes to groundbreaking, fascinating canine-centric studies) decided to test a neckband designed to diagnose sleep apnea in humans on dogs with suspected sleep-disordered breathing.¹

Unsurprisingly, their study results, published recently in the Journal of Veterinary Internal Medicine,² reveal that breathing problems during sleep are considerably more common in dogs with flat faces and short muzzles (i.e., **brachycephalic breeds**) than dogs with longer snouts.

Popular Breeds with Overwhelming Health Challenges

French Bulldogs, Pugs, and other flat-faced dogs are among the most popular breeds, but unfortunately, most have significant health problems thanks to the very features that make them so appealing.

In 2019, a team of veterinarians at the Sydney School of Veterinary Science at the University of Sydney in Australia published a paper in the journal Animals on the topic, stating:

"Brachycephalic dog breeds are increasing in popularity, despite them suffering from well-documented conformation-related health problems. This has implications for the veterinary caseloads of the future. Whether the recent selection of dogs with progressively shorter and wider skulls has reached physiological limits is controversial. The health problems and short life expectancies of dogs with extremely short skulls suggests that we may have even exceeded these limits.

"Veterinarians have a professional and moral obligation to prevent and minimize the negative health and welfare impacts of extreme morphology and inherited disorders, and they must address brachycephalic obstructive airway syndrome (BOAS) not only at the level of the patient, but also as a systemic welfare problem."³

Two of the co-authors of the paper, Paul McGreevy, professor of Animal Behaviour and Animal Welfare Science, University of Sydney, and veterinarian Anne Fawcett, a lecturer at the University of Sydney, also co-authored an article for online publication The Conversation.

In the article, they discuss in heart wrenching detail the daily struggle many flat-faced dogs — especially those with extreme brachycephaly — endure. The most significant of these is BOAS, which occurs *"because the nose, tongue, soft palate and teeth are crammed into a relatively small space, reducing the size of the airway."*⁴

These Dogs 'Struggle to Breathe' and 'Can't Stand the Heat'

According to McGreevy and Fawcett, dogs with BOAS have:

*"... increased respiratory noise, effort and difficulty in breathing, an intolerance to exercise, gagging, blue gums (in the mouth), **overheating** and fainting. Brachycephalic dogs probably experience the unpleasantness of air hunger (lack of oxygen and surplus of carbon dioxide) and, compared with healthy non-brachycephalic dogs, show marked increases in respiratory rate as temperatures rise."*

I cannot imagine why anyone thinks it's a good idea to deliberately create an animal who will, for his or her entire life, suffer from air hunger — the frightening sensation of not being able to breathe in sufficient air.

The hotter the environment (indoors or outside), the harder brachys must work to cool their bodies by panting.

"As a result," McGreevy and Fawcett write, "the tissues of the upper airway swell, further reducing airflow and eventually causing airway obstruction, which causes them to get hotter. It's a life-threatening vicious cycle."

When you see a Pug or a Frenchie or a Bulldog panting heavily, I hope you'll keep this in mind. We all need to be much more aware of the effort these dogs exert every minute of every day just pulling air into their lungs and keeping their body temps in the normal range. As if all that wasn't enough, and in light of the new University of Helsinki study:

"Affected dogs also change the way they sleep to avoid airway obstruction, sometimes by adopting a sitting position," write McGreevy and Fawcett. "They also raise their chins or sleep with a toy between their teeth to keep their airways open. Indeed, 10% can sleep only with an open mouth."

Other health problems associated with extremely short skulls include "excess carbon dioxide concentrations (that shift the acid-base balance of the blood), neurological deficits, skin disease, eye disease and certain behavioral disorders," as well as brain disorders, back problems, difficulties giving birth, problems swallowing, vomiting and regurgitation.

In addition, brachys have a higher risk of complications from anesthesia than other breeds, yet also a higher need for surgery to treat their many problems.

Study Says: Brachys Snore More, Suffer More Sleep Apnea

In the University of Helsinki study, researchers found that brachycephalic dogs often show symptoms similar to human obstructive sleep apnea due to blockage of the upper airway. The episodes occur due to the relaxation of upper airway muscles, which triggers irregular breathing patterns, disrupted sleep, daytime fatigue, and diminished well-being in both humans and dogs.

"Sleep apnea places people at considerable risk of conditions such as hypertension and cardiovascular disease. Sleep affects the body's immune system, hormone secretion, and metabolism. Sufficient, sound sleep is vital for quality of life. For these reasons and others, we are interested in canine sleep too," lead study author Iida Niinikoski, a doctoral researcher at the University of Helsinki's Faculty of Veterinary Medicine, told Earth.com.⁵

Past research into sleep apnea in dogs has required that the animals either be connected to all sorts of equipment or placed into a certain type of box in a lab during sleep. Neither of these set-ups is ideal, and according to Niinikoski, made such research significantly challenging.

Fortunately, the university's Lung Insight research group was able to conduct the necessary studies using a neckband system that was initially developed for use with humans with sleep apnea. The dogs were able to remain in their own homes, where measurements were taken by the neckband.

The results showed that brachycephalic dogs displayed a considerably higher number of sleep-disordered breathing events compared to dogs with longer snouts. They also snored more often.

The neckband system is obviously a winner in terms of user-friendly tools to assess sleep disorders in dogs. Its use is currently limited to research environments, but one day it may be available for use in a wider range of settings.

Next, the researchers plan to focus on what factors predispose dogs to sleep apnea, because as Niinikoski accurately points out, "Good sleep is vital for the health of both humans and our animal friends."

Laser Procedure Alleviates Respiratory Distress

Dr. Boaz Man, a veterinarian in Boca Raton, FL, is using a simple laser procedure to help flat-faced dogs, most recently a French Bulldog, breathe better. The procedure is minimally invasive, and no stitches or "cone of shame" are required.

"It is an outpatient procedure; they come in that morning and go home that night," says Man. "They start breathing pretty soon after the procedure. The benefit of using a carbon dioxide laser is we don't have the bleeding that usually takes place with a scalpel blade."⁶

The laser is used to open the nostrils and remove excess tissue from the windpipe. "It's not only the nose that has to be fixed, it is something called an elongated soft palate, so that is creating an obstruction," Man explains.

"People love to say, 'Oh it's so cute how he is when he does this little snoring or grunt noises and he's hacking like a little pig', but it's not funny and it's not cute; it means they are having a problem breathing," Man told ABC25 WPBF News. "Unfortunately, Frenchies fall into a category of extreme brachycephalic breed, which means not only does he have a flat face, but it is extreme.

"We need to do a better job of breeding them for better features," he says. "That is so important because we have a responsibility as pet parents to make sure they have the best quality of life possible."

Sources and References

^{1,5} [Earth.com, June 13, 2023](#)

² [Niinikoski, I. et al. Journal of Veterinary Internal Medicine, Volume37, Issue 4, July/August 2023, Pages 1475-1481](#)

³ [Animals 2019, 9\(1\), 3](#)

⁴ [The Conversation, February 12, 2019](#)

⁶ [ABC25 WPBF News, May 11, 2023](#)
