

Canine Health & Welfare Committee  
Prosser Street, Porirua  
04 910 1531  
caninehealth@dogsnz.org.nz  
www.dogsnz.org.nz



## Executive Council

Prosser Street, Porirua

Dear Executive Council,

In February 2016, Dogs NZ made its first point of contact with the Auckland Bulldog Club regarding concerns about the Bulldog Breed Standard. Dogs NZ informed the Club that the National Animal Welfare Advisory Committee (NAWAC) were to publish an opinion piece on welfare issues associated with selective breeding, and that the brachycephalic dog featured heavily. A meeting was requested by Dogs NZ, but no response was received from the Club.

Over the past 3 years, Dogs NZ has attempted to pro-actively engage with the various Bulldog Breed Clubs on numerous occasions, to discuss the Canine Health and Welfare Committee (CHWC) concerns about extreme feature requirements in the current Dogs NZ Bulldog Breed Standard.

Due to a lack of progress and increasing pressure from external stakeholders to show progress, CHWC eventually made the recommendation to Executive Council (EC) to adopt the updated FCI or UK Breed Standard which moderated the feature requirements.

The Canine Health & Welfare Committee (CHWC) have viewed a letter regarding the Dogs NZ Bulldog Breed Standard, from representatives of the 'Bulldog Clubs (BC) of New Zealand' dated 4<sup>th</sup> June 2019. CHWC wish to address concerns raised in the BC letter.

The letter cites the CHWC report to Executive Council (EC) dated 13<sup>th</sup> May 2019 and suggests that the report was inaccurate and insufficient (for EC) to make a decision (on updating the Breed Standard).

The CHWC report detailed research conducted by Liu et al in 2017 as support to recommend updating the breed standard to remove suggestions of extreme conformation features. This research paper was one of the most recent. Specifically, it addressed the potential use of simple measurements that would enable informed decisions to be made on conformation characteristics known to exacerbate brachycephalic disease symptoms. The paper further contributes to a large and established body of scientific evidence.

### **Brachycephalic Obstructive Airway Disease**

In 2017, Liu demonstrated that there is a significant association between the following features, and a brachycephalic obstructive airway syndrome (BOAS) functional grade.

- Skull index (skull width/skull length)
- Neuter status
- Body condition score
- Neck girth ratio

The May 2017 CHWC report demonstrated that some of these features are encouraged as desirable, by referencing statements in the current Dogs NZ Bulldog Breed Standard such as 'skull should be very large, the larger the better and in circumference should measure at least the height of the dog at the shoulders'.

The BC letter says that *'the statement by the CHW report writer contrasts directly with the researchers' in the 2017 Liu report who say that the outcome of their study was that there was only a weak correlation to bulldog skull size and BOAS.*

The BC letter states the term "Bulldog skull size" which would normally be the skull index, which **was** found to be significantly associated with BOAS in the 2017 Liu study.

However, it is assumed here that the BC letter writer meant craniofacial ratio (CFR) which is snout length / cranial length. This indeed did **not** show a significant association with BOAS functional grade in this study.

An explanation for this result is explained further on in the Liu study. Within the Bulldog breed tested, the variation in CFR measurements was very limited and CFR overlapped considerably between the different BOAS functional grades.

In other words, there were not enough dogs with different snout sizes to demonstrate an effect of this measurement. They all had short snouts and there was not enough variety to demonstrate a difference.

However, in 2015 Packer *et al* demonstrated the effect of CRF in a study involving 700 dogs of diverse breeds, with a confirmatory study of 154 brachycephalic dogs.

Packer showed that BOAS risk increases sharply in a non-linear manner as relative muzzle length shortens. They also demonstrated that BOAS only occurs in dogs whose muzzles were less than half of their cranial lengths.

The BC letter writer quotes the Liu study *'SI in bulldogs, were associated with BOAS but had poor-moderate inter-observer reproducibility. Nevertheless, they may be of use for directing the reformation of breed standards.'*

The Letter writer then comments, *'again a clear contradiction between the CHW Report's stated significant and reliable association with BOAS and the 2017 Liu Report (upon which all of the publicly presented Dogs NZ reasoning for change is based)'*.

This statement demonstrates that the BC letter writer does not understand the study.

There were two objectives in the Liu study. First, to identify breed specific external conformational measurements that are associated with BOAS functional grade.

Second, to see if soft-tape measurements could be used to quantify conformational features (and therefore be used to predict BOAS).

In other words, the researchers initially looked at what conformational factors were significantly associated with BOAS functional grade. Then they tested inter-observer reproducibility to see if measurements could be reliably repeated between individuals. It was hoped that if so, it could provide a suitable secure basis for breeder decisions.

What Liu found was that the inter-observer reproducibility was poor for the skull index measurement. Liu commented that taking the soft tape measurements was difficult in non-sedated dogs and probably accounted for this variation.

The 2017 Liu study demonstrates that skull index **is** significantly associated with BOAS functional grade, but that taking the measurement is difficult, so it is not reliable as a predictive and/or selective tool for breeders.

The BC letter writer states *"rather the 2017 report states that emphasis for both breeders, breeding should be placed on reducing stenosis and obesity in Bulldogs."*

This is inaccurate and incomplete. The conclusion of this report includes:

- Nostril stenosis is a strong predictor of BOAS for all three breeds.
- Neck girth ratio (NGR) is a valid predictor of BOAS in male bulldogs and highly reliable between different observers, thus it could potentially be used for breeding selection.
- SI in bulldogs **was** associated with BOAS but had poor-moderate inter-observer reproducibility (*which simply means it is difficult to repeat the measurements*)
  - Nevertheless, they may be of use for directing the reformation of breed standards.
- The author strongly suggests using these (conformational factors) in conjunction with regular clinical assessment of respiratory signs before and after exercise (exercise tolerance test).
- More importantly, breeding toward extreme brachycephalic features should be strictly avoided.

There are **many** studies which demonstrate the relationship between brachycephaly and airway disease. A selection of these can be found at the end of this report.

## **Genetic Diversity**

The letter author states that *'when pushed by our Bulldog Clubs for the relevant New Zealand research, reference was made instead to international research'*.

Pedersen et al 2016 demonstrated that DNA samples of 102 registered Bulldogs from the USA, Finland, Canada, Austria, Czechoslovakia, Hungary and Argentina, showed that Bulldogs genetic diversity is very low. It was hypothesized this is due to a small founder population and artificial genetic bottlenecks.

It is therefore reasonable to suggest that studies done on the Bulldog breed outside of New Zealand have reasonable inference to our population due to the low genetic variance worldwide.

One of the researchers at the forefront of how brachycephalism and breathlessness relate to poor animal welfare, is in New Zealand. Beausoleil et al 2015 concluded that there is significant

potential for brachycephalic dogs suffering from BOAS to experience breathlessness which would compromise their welfare.

### **Other conformational factors**

The BC letter writer states that *“the other non-breathing related health issues raised in the CHW report have not been supported with evidence nor their relevance to the wording of the NZ Bulldog Breed Standard”*

The welfare issues as outlined in the CHWC report included skin fold pyoderma, shallow orbits with protruding globes, hemivertebrae, dystocia and dental malocclusion.

Studies demonstrating these features relating to extreme conformation and poor welfare in the Bulldog were not included in the original CHWC report, but a selection can be found at the conclusion of this report.

In 2019, Fawcett et al (Australia) suggested that the health problems and short life expectancies of dogs with extremely short skulls suggests their physiological limits may have been exceeded.

Fawcett et al demonstrates the breadth of disease and additional complications in brachycephalic dogs to include;

- Difficulty of stabilisation of respiratory distress associated with BOAS
- Challenges associated with sedation and anesthesia of patients with BOAS
- Effects on brachycephaly on the brain and associated neurological conditions
- Dermatological conditions
- Ophthalmic and
- Orthopedic conditions
- Behavioral consequences of brachycephaly.

Inglez et al (2018) demonstrated that the extreme spinal conformation in Bulldogs increases the incidence of vertebral malformations including hemivertebra and spinal curvature including kyphosis and scoliosis. Association clinical signs include paraparesis and pelvic limb ataxia, urinary and/or faecal incontinence.

Miller (2013) outlines that due to the selection for 'brachycephalic appearance' and screw tail there has been a resultant deep skin fold and subsequent intertrigo. Consequently, brachycephalic dog breeds share a well-documented list of dermatological disorders including facial and tail fold intertrigo, pattern baldness, atopic dermatitis, demodicosis, Malassezia dermatitis, mast cell tumours, muzzle and pedal folliculitis and furunculosis with flank alopecia being specifically associated with the Bulldog.

Key *et. al* (2018) found that corrective airway surgery also resulted in improvements of adverse gastrointestinal symptoms such as ptyalism (excess saliva), regurgitation and vomiting that is commonly found in dogs with BOAS.

Fawcett concludes that (brachycephalic dogs) *“do not enjoy freedom from discomfort, nor freedom from pain, injury, and disease, and they do not enjoy the freedom to express normal behavior. According to both deontological and utilitarian ethical frameworks the breeding of dogs with BOAS cannot be justified, and further cannot be recommended, and indeed, should be discouraged by veterinarians.”*

Considering the above 'other conformational factors' it is extremely important to discourage the breeding of extreme conformation features.

## **Health Testing**

The BC letter writer states that *"we can only comment therefore that those issues (non-breathing related) as with the BOAS are part of our Bulldog Health Scheme"*.

CHWC do not consider the Taskforce Bulldog Health Scheme sufficient to address the numerous health and welfare concerns in the breed. This view has been duplicated by the Veterinary Council of New Zealand and the New Zealand Veterinary Association who have signaled concerns about its methodology and the potential to breach the Code of Professional Conduct by a veterinarian signing it.

The Taskforce Health Testing Scheme is not publicly available to access. CHWC have been provided with a copy by an anonymous source.

The scientifically validated exercise tolerance test (ETT) for BOAS is not included in the basic 'bronze' level. The bronze airway assessment includes a veterinarian certifying a 'good intake of air, showing no signs of upper respiratory distress. Lungs, free from any noticeable noise with stethoscope'. It is worthwhile noting that no noticeable noise in a dog's lungs means it is likely not breathing.

The Taskforce Health Testing Scheme does not take advantage of well-established and accepted objective testing methodologies, instead opting for subjective assessments. For example, certification of heart 'normal on auscultation' could be replaced with Dogs NZ Cardiac Certificate which specifies extended cardiac assessment if required.

The taskforce health testing scheme general practitioner certification 'free from severe eye problems' could be replaced with specialist eye veterinarian examination by indirect ophthalmoscopy. It is not possible for most general practitioner veterinarians to confidently detect hereditary ocular problems due to the lack of available equipment and specialised training and experience.

The taskforce health testing scheme certifies spines by stating 'free from palpable deformity, signs of scoliosis or lordosis, x-ray if further investigation required', when there is no documented proof that the most common spinal deformity in Bulldogs, hemivertebra, can be detected by palpation. Spinal radiographs are always needed to diagnose hemivertebra, and there is an accepted scheme run by the ANKC to provide for this.

The taskforce health testing scheme certifies hearing by 'no signs of deafness or hereditary deformity'. A brainstem auditory evoked response (BAER) test is the only accepted and validated way to assess deafness in a dog. This test is used by a number of Dogs NZ breeders.

The taskforce does not take advantage of objective health assessments and it doesn't require the extremely important ETT until the 'silver' level.

The taskforce does not provide results to any external body, including Dogs NZ. There is a lack of scientific rationale, quality control and transparency in their health testing scheme, which are the very attributes Dogs NZ holds highly in its own health testing programs.

The Bulldog Club of America administer a health scheme. Every test in their 'health screening matrix' is on the Orthopedic Foundation for Animals (OFA) Registry. Therefore, their tests are evidence based, documented and repeatable, and results are maintained by OFA to ensure quality control and transparency.

These concerns as raised suggest that the taskforce health testing scheme is insufficient to address the significant health and welfare concerns in the Bulldog breed.

Some may say, 'at least they are doing something'. CHWC disagree, because by undergoing the taskforce health testing scheme, many will think they are doing the right thing and improving the breeds health and welfare.

NAWAC say in their opinion on welfare issues and selective breeding *'while NZKC has reasonable recognition of inherited disorders that affect health and welfare, the committee has concerns that conformational disorders that are intrinsic to breed standards but that impact on animal welfare such as brachycephalism have not been recognized previously'*

No amount of health testing can replace the need to move away from extreme conformation. Evidence based, transparent health testing and phenotype moderation should be done in combination.

It should be acknowledged that there are Dogs NZ Bulldog breeders making excellent progress with health testing.

In a short space of time, there are Bulldog breeders who have utilized Dogs NZ recommendations and health test certificates and performed significant numbers of tests on generations of their breeding dogs including PennHip, ANKC spine and elbow radiographs, Dogs NZ patella and BOAS certification and DNA testing. Already, improvements are being seen within these kennels which is extremely encouraging.

### **Specific questions from the Bulldog Clubs**

- a. *If the CHW Report is in error with respect to the matters above, what else may be?*

This summary outlines that the CHWC report is not in error. This summary also provides an extended view of the breadth of impact that breeding for extreme conformation can have on the health and welfare of the Bulldog breed.

- b. *Why was the CHW Report presented with these errors?*

CHWC has demonstrated in this summary that there were no errors presented.

- c. *Why was it accepted by the Canine Health & Welfare Committee and presented to Executive Council?*

CHWC presented one of the most current and relevant pieces of research to demonstrate the link between breeding for extreme conformation, and health and welfare compromise in the Bulldog breed.

The research used in the original CHWC Report, Liu et al 2017, is but one of a large and established body of scientific evidence that shows extreme conformation in Bulldogs is causing significant health and welfare problems.

d. *Why did Executive Council accept it?*

CHWC propose that EC accepted it because the CHWC is tasked to provide evidence-based recommendations to support ECs decision-making process.

e. *Can the bases and recommendations of the CHW Report be relied upon given it contradicts the 2017 Liu Report?*

As explained, no contradiction was made in the CHWC report. The BC letter writer has not understood the study, and misinterpreted the findings.

## **Conclusion**

Dogs NZ must acknowledge increasing concerns and mounting scientific evidence regarding the health and welfare of brachycephalic dogs who have been selectively bred to accentuate extreme features known to exacerbate BOAS and other health conditions.

In March 2018 the Pug Breed Standard was amended to the current UK Standard and no longer includes suggestions of extreme features.

There is an overwhelming need to ensure the future direction for breeding is towards more moderate phenotypes and the first step in this process is to remove requirements of extreme conformation features in Breed Standards. The Bulldog is arguably the most significantly impacted health wise, combined with considerable demands for extreme features in its current Dogs NZ standard.

Dogs NZ has, within the limits of its authority, a duty of care to address this issue. The current Dogs NZ Bulldog Breed Standard encourages the selection of conformation characteristics known to increase the severity of BOAS and other health conditions associated with brachycephalism.

On this basis, the CHWC maintains its strong recommendation that the Dogs NZ Bulldog Breed Standard be modified towards the promotion of moderate phenotypes. This approach has already been made by both the Kennel Club and FCI, and those revised standards offer a ready model for adoption.

Regards,

**Canine Health & Welfare Committee**

DOGS NEW ZEALAND

## A brief selection of scientific literature to support breeding away from extreme features in the Bulldog

### Brachycephalic Obstructive Airway Syndrome

- Beausoleil N. Proceedings of the Australian Veterinary Association (AVA) Annual Conferences, Pan Pacific (NZVA and AVA) Veterinary Conference 2015, Combined proceedings, pp 152-155, May 2015
- Fawcett A, Barrs V, Awad M, et al. Consequences and Management of Canine Brachycephaly in Veterinary Practice: Perspectives from Australian Veterinarians and Veterinary Specialists. *Animals (Basel)*. 2018;9(1):3. Published 2018 Dec 21. doi:10.3390/ani9010003
- Liu NC, Troconis EL, Kalmar L, et al. Conformational risk factors of brachycephalic obstructive airway syndrome (BOAS) in pugs, French bulldogs, and bulldogs. *PLoS One*. 2017;12(8):e0181928. Published 2017 Aug 1.
- Liu N-C, Adams V, Kalmar L, Ladlow J, Sargan D. Whole-body barometric plethysmography characterizes upper airway obstruction in 3 brachycephalic breeds dogs. *J Vet Intern Med*. 2016;30(3):853–65. doi: 10.1111/jvim.13933 [PMC free article] [PubMed] [Google Scholar]
- Oechtering G. Brachycephalic syndrome—new information on an old congenital disease. *Vet Rec*. 2010;20(2):2–9. [Google Scholar]
- Packer R, Hendricks A, Burn C. Do dog owners perceive the clinical signs related to conformational inherited disorders as 'normal' for the breed? A potential constraint to improving canine welfare. *Anim Welf*. 2012;21(1):81–93.
- Packer R, Hendricks A, Tivers M, Burn C. Impact of facial conformation on canine health: brachycephalic obstructive airway syndrome. *PLoS ONE*. 2015;10(10):e0137496 doi: 10.1371/journal.pone.0137496 [PMC free article] [PubMed] [Google Scholar] Scholar
- Roedler FS, Pohl S, Oechtering GU How does severe brachycephaly affect dog's lives? Results of a structured preoperative owner questionnaire. *Vet J*. 2013 Dec; 198(3):606-10.

### Dystocia

- Ladlow J, Liu NC, Kalmar L, Sargan D Brachycephalic obstructive airway syndrome. *Vet Rec*. 2018 Mar 31; 182(13):375-378.

### Genetics

- Pedersen N.C., Pooch A.S., Liu H. A genetic assessment of the English bulldog. *Canine Genet. Epidemiol*. 2016;3:6. doi: 10.1186/s40575-016-0036-y. [[PMC free article](#)] [[PubMed](#)] [[CrossRef](#)] [[Google Scholar](#)]

### Gastrointestinal

- Bernaerts, F., Talavera, J., Leemans, J., Hamaide, A., Claeys, S., Kirschvink, N., & Clercx, C. (2010). Description of original endoscopic findings and respiratory functional assessment using barometric whole-body plethysmography in dogs suffering from brachycephalic airway obstruction syndrome. *Vet J*, 183(1), 95-102. doi:10.1016/j.tvjl.2008.09.009



## Ocular

- Packer RM, Hendricks A, Burn Impact of facial conformation on canine health: corneal ulceration. *CC PLoS One*. 2015; 10(5):e0123827.

## Orthopedic

- Dewey CW, Davies E, Bouma JL Review Kyphosis and Kyphoscoliosis Associated with Congenital Malformations of the Thoracic Vertebral Bodies in Dogs. *Vet Clin North Am Small Anim Pract*. 2016 Mar; 46(2):295-306.
- Guevar J, Penderis J, Faller K, Yeaman C, Stalin C, Gutierrez-Quintana R Computer-assisted radiographic calculation of spinal curvature in brachycephalic "screw-tailed" dog breeds with congenital thoracic vertebral malformations: reliability and clinical evaluation. *PLoS One*. 2014; 9(9):e106957.
- Inglez de Souza M, Ryan R, Ter Haar G, Packer RMA, Volk HA, De Decker S Evaluation of the influence of kyphosis and scoliosis on intervertebral disc extrusion in French bulldogs. *BMC Vet Res*. 2018 Jan 5; 14(1):5.
- O'Neill DG, Meeson RL, Sheridan A, Church DB, Brodbelt DC The epidemiology of patellar luxation in dogs attending primary-care veterinary practices in England. *Canine Genet Epidemiol*. 2016; 3():4.
- Song RB, Glass EN, Kent M Spina Bifida, Meningomyelocele, and Meningocele. *Vet Clin North Am Small Anim Pract*. 2016 Mar; 46(2):327-45.

## Skin disease

- Asher L, Diesel G, Summers JF, McGreevy PD, Collins LM Inherited defects in pedigree dogs. Part 1: disorders related to breed standards. *Vet J*. 2009 Dec; 182(3):402-11.
- Becskei C, Cuppens O, Mahabir SP Efficacy and safety of sarolaner against generalized demodicosis in dogs in European countries: a non-inferiority study. *Vet Dermatol*. 2018 Jun; 29(3):203-e72.
- Feng T., McConnell C., O'hara K., Chair J., Spadadori G. Brachycephalic Breed Disease Prevalence Study.
- Miller W.H., Griffin C.E., Campbell K.L. *Muller and Kirk's Small Animal Dermatology*. 7th ed. Elsevier Mosby; St Louis, MO, USA: 2013.
- Pedersen NC, Pooch AS, Liu H A genetic assessment of the English bulldog. *Canine Genet Epidemiol*. 2016; 3():6.