

UK Brachycephalic Working Group

Innate health in dogs

Some fundamental attributes typically expected for groups of young adult dogs with good health, welfare and temperament

9 May 2022

Canine species that evolved across different parts of the world share similar physical conformations (body shapes) that have supported their survival over the past 5-10 million years. Since dogs were domesticated 10,000-20,000 years ago, humans rapidly selected for specific traits that suited mankind such that the domestic canine species is now split across several hundred distinctly recognisable breeds and types. Domestic dogs now represent the most morphologically diverse terrestrial species on the planet (1). Whilst some original conformations were selected to enhance the ability of these dogs to carry out specific tasks desired by humans, the conformations that we see in our domesticated dogs today mainly persist and are popularised simply to satisfy our human desires for how we expect breeds and types of dogs to look as pets. Sadly, some body conformations that can be very popular with humans are known to increase the risk of poor health in dogs (2). This paradoxical twinning of high popularity and high risk of poor health applies especially for many dog types with a brachycephalic (flat-faced) conformation (3-5).

The position of the UK Brachycephalic Working Group (BWG) is that *'maximising good health, welfare and temperament overrides all other considerations for dogs'*. To support wider implementation of this prioritisation of the needs of dogs over the whims of humans, BWG believes it is important to define some fundamental health, welfare and temperament attributes that are typically expected in any group of domesticated dogs with good innate health. We use the term 'innate health' here to refer to the typically expected capacity to experience or show a range of body functions and life processes based on inherent genetics, conformations and behaviours within groups of dogs.

Health is a complex concept and is largely a value judgement by humans (6). This BWG innate health approach does not aim to reduce this complexity to a short series of numbers or values; instead, BWG seeks to assist everyone to view health from the perspective of the dog and, from there, to identify current concerns that can become opportunities to improve the health of large groups of dogs. The BWG innate health approach offered here will be reviewed and updated regularly as new thinking and fresh evidence emerge. This initial document focusses primarily on opportunities to improve health and welfare in dogs with brachycephaly but can be applied to all groups of dogs.

The BWG innate health approach highlights some key basic body functions and life processes typically expected in innately healthy groups of dogs. Some anatomic and genetic features that may preclude full function are highlighted. Prospective owners can use this innate health system to compare body shapes between different types of dogs to ensure they acquire the healthiest type of dog. Responsible breeders or breed clubs/societies can use this innate health system to prioritise welfare opportunities to shift their groups of dogs towards more moderate conformations where appropriate.

Body function and life process	UK Brachycephalic Working Group Fuller description of innate healthy functions	Anatomic and genetic features that may preclude full function (references)
Blink	Blink comfortably and easily with eyelids that can close fully and comfortably over the complete cornea to protect the cornea from desiccation (drying) and trauma.	a. Brachycephaly (7-9) b. Macroblepharon (10) c. Exposed sclera (8)
Breathing	Breathing that is silent and relaxed at rest. Breathing that is unobstructed by anatomy and allows active behaviours e.g., running, playing, to be performed without leading to respiratory distress.	a. Brachycephaly (11)
Body condition score	A body condition score that is neither too low nor too high.	a. Pomc gene (12, 13)
Cleanliness	Ability for self-hygiene with body flexibility to lick perineum, anus and genitals. Flat non-folded skin without deep crevices that promote reduced ventilation and build-up of excessive moisture and skin debris.	a. Vertebral deformities (14-16) b. Skin folds (17)
Digestion	Ability to digest food efficiently without increased risk of gastro-oesophageal reflux and hiatal hernia.	a. Brachycephaly (18)
Disorder profile	Overall pattern of disorder predispositions that is similar and no worse than typical for domesticated dogs overall.	a. Brachycephaly (19, 20)
Hearing	Ability to hear with high sensitivity	a. High heritability of sensorineural deafness in many dog breeds (21-23) b. Merle colouration (24)
Ingestion	Ability to eat, drink, chew and swallow without significantly increased risk of aspiration	a. Mandibular prognathism or brachygnathism (25) b. Dental crowding (25) c. Brachycephaly (18, 26)
Olfaction (smell)	Ability to smell with a high level of sensitivity	a. Brachycephaly (27, 28) b. Breeds not selected to preserve scent detection (28, 29)
Movement	Ability to move freely, comfortably and easily without pain, discomfort or respiratory or locomotory compromise	a. Brachycephaly (30) b. Chondrodystrophy (31) c. Long-bodied phenotypes (32)
Reproduction	Ability to mate and whelp unassisted.	a. Brachycephaly (33)
Sight	Ability to see clearly	a. Vision impeded by hair or skin folds (34) b. Genetic conditions c. Merle colouration (35)

Sleep	Freedom to sleep easily and maintain normal breathing throughout sleep stages without episodes of apnoea	a. Brachycephaly (30)
Social communication	To be able to exhibit and react to species-typical social signals to communicate with conspecifics. Facial features that allow effective signalling with other dogs.	a. Presence of a tail (36) b. Vision and signalling impaired by very long coat length (34)
Thermoregulate	Presence of a coat that promotes heat retention and loss as needed for homeostasis Compromised nasal function that reduces cooling of inspired air	a. Hairlessness (37) b. Very thick coat (38) c. Brachycephaly (38)

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