

THE SKK CONFERENCE ON BRACHYCEPHALIC DOGS

This is a translation of an article by Åsa Linholm which will appear in the Swedish Kennel Club magazine: Hundsport Special nr 2:2016.

Introduction:

The hottest topic in the Swedish dog world in summer of 2015 has been brachycephalic (flat-faced) dogs and their health. In February 2016 the Swedish Kennel Club arranged a conference on the subject, an arrangement that was right in time, but in fact was planned since 2014.

Even if we all agree that dogs should have noses long enough and skull shapes making it possible to breathe without difficulty and regulate body temperature normally, we need knowledge and understanding of the mechanisms which contribute to the problems in order to improve the situation for the dogs. At the conference the delegates had the opportunity to share the experience of researchers, veterinarians in private and specialty practice, as well as special and breed clubs.

A conference on brachycephaly – that fascinates! While the SKK organizers had calculated on around a hundred interested delegates, it was soon discovered that this number was way too low. Changing to another venue made it possible to cram in 150 people, but despite that, there were many who could not be accommodated. Among those fortunate enough to get a chair at Scandic Infra City in Upplands Väsby on Saturday 27th February there were breeders, dog owners, breed club people, show judges, veterinarians, et al.

- Today it is beyond doubt that a too short a skull impacts the dogs breathing and heat regulation ability, Pekka Olson (SKK chair) said, as he opened the conference. A brachycephalic construction, or what we consider a short-skulled animal, also affects, for instance, eyes and skin. We need to address the problems we have. The SKK has a responsibility to tackle this and show power of initiative.

Pekka also defined the goal for the conference: that the parties, who can impact future wellness of Bulldogs, Pugs, and other short-skulled dogs, may be able to reach mutual values and strategies.

BODEGÅRD, ANDERSSON AND BERGSTRÖM

Dr. Göran Bodegård, show judge and chair of the SKK working group for the Breed-Specific Instructions (BSI) for Judges, emphasized the importance of creating a dialogue between various parties with interest in the brachycephalic issue. Göran stated that e.g. veterinarians and breeders regard the issue from slightly different perspectives, but these are possible to unite. The SKK has an overall responsibility and there is a tradition to work with health issues, especially via BSI.

- Breeders, judges, and breed clubs have the main responsibility in influencing breeding to move the exterior development of the head in the right direction. One should bear in mind that the breed standard is open to interpretation and what is noted in the standard is not set in stone either. It is necessary we have respect for scientific knowledge, but while we care about soundness, we must also ensure that the dogs maintain their breed type. A Pug lacking breed type is not an adequate specimen, but obviously, so is not a Pug which cannot breathe either! It is easy to be seduced by the extreme, that 'much' should be 'more', but we need to beware.

The SKK veterinarians Linda Andersson, SKK and Annika Bergström, senior assistant master of surgery at the Swedish Agricultural University, explained the factors which are impacted by brachycephaly. The occurrence of a shortened skull is present in several species, not only in the dog. The skull is formed of multiple concurrent genes, which in turn provide a different degree of change in the appearance of the skull. If we look at our dog populations, the degree of brachycephaly varies between breeds as well as within breeds.

Primarily the concept of brachycephaly concerns the actual design of the skull, but it also includes the secondary changes in the soft tissues of the head caused by brachycephaly.

The most severe consequences of brachycephaly are problems with breathing and heat sensitivity. Within science the term Brachycephalic Obstructive Airways Syndrome, BOAS, is used to describe this.

- Recently much attention has been directed towards the brachycephalic breeds, not only from veterinarians, but also from the public, Annika said. All short-skulled dogs do not suffer from BOAS, but way too many do.

Annika and Linda took the auditorium on an illustrated journey in the landscape of unpleasant varieties and defects caused by brachycephaly, which prevent dogs from having normal lives. For instance, what function does the nasal cavity have – and what happens when it is diminished?

Well, in the nasal cavity of the brachycephalic head there is room for less air than in the normal skull, which results in several cumbersome symptoms, like the typical, for brachycephalic breeds, lower ability to regulate heat. Pinched nostrils, a common anomaly in brachycephalic breeds, contribute to difficulties in breathing normally. In addition, an increased presence of eye, stomach and intestinal problems can be noticed in brachycephalic dogs. Apart from the anatomical construction the degree of BOAS is impacted by surrounding factors like body condition, ambient temperature and stress.

Everything that fits into a head of normal length should of course also fit into the short-skulled dogs. That means that several normally occurring anatomical structures are crammed together within a smaller area. The soft tissues may then clog the pharyngeal space with the result that there is no space for air to pass. The soft palate may be too long and too voluminous and obstruct the larynx, i.e. the trachea entrance, which further impairs the ability to breathe normally.

Since it gets more difficult for the air to pass, the pressure inside the airways changes and the air must be sucked in instead of flowing freely, which is the normal state. This is hard for the dog, which is forced to press the abdominal muscles to get enough air in and out.

The changed pressure affects the soft tissues and can cause them to be sucked into the cavities where the air should pass. It may also cause the cartilage of the larynx to collapse and fall into the space. This can be fatal for the dog, since the airways are totally cut off.

- In brachycephalic dogs you may notice a so-called hypoplastic trachea, i.e. a larynx with a smaller diameter than expected in relation to the size of the dog, Linda said. Further the larynx may have collapsed. This means that the air gets smaller space to move, the resistance increases making the breathing even more difficult.

The dogs may also suffer from delivery problems, skin problems, glioma (a type of tumor) and syringomyelia (an impact on the brain tissue due to head shape. Syringomyelia can produce neurological problems).

- As clinicians we also know that there is a much higher risk associated with anesthesia and surgery on short-skulled dogs, regardless of what procedure is about to be made, Annika said. Brachycephalic dogs therefore require other monitoring resources, when they are put under anesthesia, due to the design of the airways. During anesthesia the soft tissue of the airways swells, which may cause that the small space, which was there before anesthesia, virtually disappears.

OECHTERING, SARGAN AND RANKINE-PARSONS

Professor Gerhard Oechtering came from the veterinary faculty of the University of Leipzig. He described the research that has been and is being done around the diagnosis and the effects of BOAS.

- Why do dogs need a long nose? Well, it is not like in the fairy tale about Little Red Riding Hood, where the wolf needs a big nose to smell so much better. A certain length of the nose is vital for the heat regulating mechanisms of the dog to function. The nostrils must also be wide to make it possible for the air to get in.

Gerhard described the limitations in temperature regulation, which are the consequence when heat regulation structures are not given enough space. This leads to a situation where brachycephalic dogs start to pant in way lower temperatures than other dogs, and may cause them to pass out from overheating.

In his research Gerhard has measured, through a very time consuming method, air resistance in French Bulldogs and Pugs. If you are interested in Gerhard's article it is available in its entirety in the journal Veterinary Focus, vol. 20 no 2/2010.

Gerhard Oechtering was, in general, very critical of today's breeding of brachycephalic dogs and the appearance ideals governing it. The fact that many of these breeds increase in popularity means that more and more puppies are being born, that will not be able to live full dog lives as adults.

- How do we get out of this dilemma? Well, by not breeding on appearance criteria only, which means skipping the breed standard if it conflicts with animal health. Defining good selective criteria can lead to health and wellness in the dogs!

Dr. David Sargan from Cambridge put the emphasis in his speech on genetic research on BOAS. He, too, talked about diagnosis and the difficulty of assessing BOAS objectively, as the symptoms can look so different. David has, via experiments, tried to find a method to measure the dog's ability to inhale and exhale, thereby creating a tool to use in e.g. determining which dogs to breed. If you can measure the degree of BOAS, you are also able to opt out of the worst dogs. The dogs being studied have been individuals, for which the owner has consulted veterinary help, as well as dogs volunteered by breeders.

Of the dogs in David's study, 60% of the Pugs, close to 50% of the French Bulldogs and 40% of the English Bulldogs showed signs of BOAS. In the study it was also noted how factors like age, obesity, and neck thickness, may impact the occurrence of BOAS.

- The easiest way to get rid of BOAS is to breed dogs with considerably longer noses, David said. But these brachycephalic dogs appeal to us, they are cute, popular, owned by celebrities, and often used in commercials and marketing.

David explained how his team are working with ways of finding new gene variants, which could be relevant for the design of the skull and the development of the soft tissue etc. That could ultimately lead to a DNA test in which you would be able to discover dogs, which are at risk of developing BOAS. Such a test is far into the future and it is too early to tell if it is at all possible.

- I would like to emphasize that in all research on BOAS the collaboration between breeders and breed clubs is essential. Without it we will get nowhere!

Penny Rankine-Parsons from the British breed club of the French Bulldog talked about how health work might look in practice on the basis of research. Also, in England, the breed has increased significantly in popularity over the past 10 years. The need for health education among owners, judges, as well as breeders has been huge. The motto of the club has been "Learn from the past – plan for the future". Via various sources, including research, the club collected information on the health status of the breed. Then the club designed a health plan, which was easy to use and understand and in its setup also pointed out what was important for the breed. The health plan is built in several levels where the dogs, via tests and examinations, may climb upwards to finally reach stud dog/brood bitch (or just "breeding") status. For the lowest level, the bronze level, a basic health examination is required plus a BOAS and nostril rating (in collaboration with David Sargan). To date more than 200 French Bulldogs have had their status established. The majority of the examined dogs had the mildest form of BOAS, one-third were totally without any signs of BOAS. Regarding the nostrils, the majority had a mild form of narrowing.

- Our collaboration with researchers means that if we need to select to achieve longer noses, we will be notified about it, Penny explained. And if not needed, well, then we will be notified about that! It is a win-win situation for all!

HEDHAMMAR AND BONNETT

So, what is the situation in Sweden? Professor Åke Hedhammar introduced the subject epidemiology, that is, the doctrine of the occurrence and development of, and reason for various health problems. "How common is it for short-skulled dogs to have BOAS? What percentages of dogs of a particular breed? How does it look in comparison with other breeds? How serious/widespread is BOAS related to other health problems?" Another key issue that Åke asked is why different parties have such different perception of the extent and seriousness of the problem. Surely one reason is that show judges do not see the same dogs as the attending veterinarians - but they are all part of the same population. Probably there are also different perceptions of what is acceptable and normal.

It is important to gather information to get an adequate picture. The sources available are the 'cases' known to having received treatment at veterinary clinics around the country, as well as clinical reports. However, in this, one must keep in mind that these dogs represent a selected material and are therefore not representative for the whole population. Scientific studies provide further basis.

- Another source is health surveys and I would like to recommend these, Åke said. That is work you can carry out in breed clubs and this can give us a lot of information. In our country we also have unique access to insurance data, from which we can learn a lot. Regarding epidemiological studies you often need to compare several information sources to get an accurate picture.

Åke emphasized the importance of having a common responsibility to reduce the incidence of "above all, deaths and serious clinical symptoms, but also unnecessary suffering and minor inconvenience."

Dr. Brenda Bonnett has for a long period of time worked on Agria Breed Profiles, a compilation of insurance data based on dog breeds. Breed Profiles have been developed in conjunction with the SKK and was requested by several breed clubs. The summaries have benefited from the tradition of openness in information that characterizes much of the health work conducted within pedigree populations. Today it is estimated that about 40% of the dogs in Sweden are insured in Agria, making the information in the Breed Profiles representative, although not an absolute truth for each individual breed. Breed Profiles identify the most important health problems within each breed, how common they are and how over-represented, but you also get a picture of how severe the problem is for the individual concerned.

- The most common brachycephalic breeds Pug, French and English Bulldogs have several so-called risk areas, meaning areas where their veterinary and life care compensation is significantly higher than in the average dog, Brenda said. We have also investigated if the sick dogs are coming from breeders outside of the SKK organization,

but that seems not to be the case. As many as 88% of the insured Pugs are registered in the SKK, and three-quarters of English and French Bulldogs.

Brenda concurred in the view that we need to discuss the boundaries of what is normal in terms of breathing etc. what is 'okay'. Maybe we are now in a situation where we need to change our view of what is acceptable...

CLUBS AND SUMMARY

Next, a number of different breed and special clubs outlined their health work in their respective breeds. The interest in and ability to carry out more extensive work varies. Some breeds have only small populations, and if there are only a few dogs, it becomes difficult to make relevant surveys. In several of the larger clubs information is collected, evaluated and work plans with health in focus are formulated. For many clubs education is high on the agenda.

The Swedish Kennel Club (SKK) centrally supervises the short-skulled issue via the so-called Collaborative Group for Dog Wellness. This group also includes the Swedish Veterinary Association, the Swedish Society of Veterinary Medicine, the Swedish Centre for Animal Welfare, the Swedish University of Agricultural Sciences, the Swedish National Veterinary Institute, and the Swedish Board of Agriculture. In September 2015 six working groups were appointed, to work with the brachycephalic issue from many perspectives: epidemiology, registration, health certificates–puppies, health certificates–breed animals, consumer information, and training. The ambition is for the working groups to finish their work before mid-year.

The final point in the afternoon was a panel discussion and a Q & A session. Here the opportunity was given for the speakers to talk more freely, but also for the delegates to ask questions having popped up during the day, as well as those submitted before the conference, and vent concerns they had.

Gasping and heavy panting – do not all dogs breathe with their mouth open when they are strained, someone wondered. "Yes" the panel representatives responded, "they do, but it is all about how much strain is needed to generate the panting and how soon the dogs are able to go back to normal breathing". What about noise then, is that always a sign of a problem? Gerhard Oechtering responded "I am not aware of any breeds, other than brachycephalics, that snore, other than extremely temporarily. As long as there is a sound, the dog has an obstruction, a blocking. And constant snoring leads to changes in the tissues." Pinched nostrils – is it really determined that it constitutes a problem? "Yes", David Sargan responded, "we are very confident that it causes problems. If a dog has pinched nostrils it is ten times more likely that we cannot do breathing tests on it". May a dog that has had surgery for their breathing problems participate in competitions and shows? "No", Åke Hedhammar responded, "since it affects function it should not participate. We will address this at the next meeting of the Doping Commission."

Finally the panel was asked what they consider to be the most important measure to improve the health of brachycephalic dog breeds. In summary, the answers were as follows: breed for longer noses and open nostrils. All parties, researchers, veterinarians, breeders, breed club, and show judges, must collaborate – everyone can contribute something. We must have a plan, short-term as well as long-term. Breeders should be encouraged to use breeding animals that are not close to the minimum acceptable limit, but have a good health margin. With that aim, we also understand how important it is to identify and highlight the healthy dogs.

- We must change the average, Åke said. The ideal must not be so extreme that even if there are healthy individuals a large number exceed the acceptable and get problems. Ignore if the somewhat more long-nosed are not show winners – use them for breeding anyway!

It was also Åke, who was commissioned to summarize the conference day. He noted that health work must be conducted on several levels, with all parties involved. Dialogue and communication is vital. Documentation, surveys, questionnaires, statements and training – all of this contributes to knowledge and hopefully progress. The goal is to reduce the health problems in populations of dogs with pronounced short-skulls, since all dogs have the right to wellness and that is our responsibility, as individual breeders as well as breed clubs!

The conference was filmed and may be seen at <http://www.skk.se>. See also the SKK film: "To assess breathing in dogs" posted on the website youtube.com at https://www.youtube.com/watch?v=kQ_3f4bLkME .

WHAT HAPPENS AFTER THE CONFERENCE?

- The international collaboration continues as well as International Partnership for Dogs. The website DogWellNet.com publishes current articles and scientific studies on brachycephaly.
- The working group for the brachycephaly conference continues its work. One ambition is to formulate a statement on breeding of brachycephalic breeds with the support of what has been said at the conference. [also see: <http://dogwellnet.com/content/hot-topics/brachycephalics/may-2016-in-the-press-skk-brachycephalics-r365/>]
- The working group for the brachycephaly conference will also discuss the efforts needed from special and breed clubs.
- The six working groups which were appointed under the Collaboration Group will continue their work within their respective assigned areas.
- A Brachycephalic Congress for veterinarians is planned during the fall.
- In-depth training for show judges in brachycephaly.