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Dog Craniometry: A Cadaveric Study.

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Abstract

The morphology of canine head differs greatly among breeds, so that they have been categorized in 3 groups (brachycephalic, mesaticephalic and dolichocephalic) based on craniometric measurements. However, several dog breeds are still unclassified, and skull measurements, often analyzed in adult dogs, are rarely studied in dog puppies. The aim of this work is to clarify whether dog puppies can be classified as dolichocephalic, mesaticephalic and brachycephalic. The skulls of spontaneously dead dog puppies aged 0 to 57 days were studied by using the following anatomic and radiographic measurements and indices: Skull Length, Cranial Length, Facial Length, Cranial Width, Skull Width, Cranial Index (CI), Skull Index (SI); radiographic Condylobasal Length, S-index and Facial Index were added. A new index, the modified-Skull Index, was created. Pearson test, ANOVA and neural nets were used in the statistical analysis. 173 dogs from 36 breeds were included in the study. Anatomic and radiographic CI and SI were significantly correlated (p<0,05). Almost all the anatomic and radiographic measurement significantly differed between brachycephalic and mesaticephalic breeds (p<0,05), while dolichocephalic breeds showed intermediate features. The new modified skull index was significantly different among the three classes (p<0,05). The neural nets allowed to classify three previously unclassified breeds. With this work it was proved that many breeds can be classified as brachycephalic, mesaticephalic or dolichocephalic as early as up to 2 months after birth, and some previously unclassified breeds were also classified. A new useful craniometric index was introduced. Finally, cadavers proved to be a very good model for dog craniometric studies.

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