ABSTRACTS

ISCFR 2012

July 26-29, Whistler, Canada

7th International Symposium on Canine and Feline Reproduction

In a joint meeting with

EVSSAR 2012

15th Congress of the European Veterinary Society for Small Animal Reproduction

Editors: Gary England, Michelle Kutzler, Pierre Comizzoli, Wojciech Nizanski, Tom Rijsselaere and Patrick Concannon

Reprinted in IVIS with the permission of the ISCFR Organizers
Relationship between external body measurements and pelvimetric measurements of French Bulldog bitches

Campos, AIM\(^1\); Uchoa, DC\(^2\); Monteiro, CLB\(^3\); Silva, TFP\(^3\); Silva, LDM\(^3\)

\(^1\)VETER - Veterinary Diagnostic Center, Fortaleza, Ceará, Brazil; \(^2\)Grande Canafistula Kennel / Inseminar Reprodução Animal, Fortaleza, Ceará, Brazil and \(^3\)Laboratory of Carnivore Reproduction, Veterinary School, State University of Ceará, Fortaleza, Ceará, Brazil.

lucia.daniel.machado@hotmail.com

OBJECTIVES AND METHODS: The objectives of the present work were to classify and verify the correlation between external body and pelvic measurements and between external and internal pelvic measurements of the pelvis of French Bulldog bitches. The experimental protocol was approved by the Animal Ethics Committee from State University of Ceará, Fortaleza, Ceará, Brazil (process number 09233347-8). Twenty French Bulldog bitches non pregnant, ranging from 2 to 4 years, were assessed. They were fed with dry commercial canine food and water \textit{ad libitum}. The external body parameters measured were external body measurements and weight of the bitches. The studied external body measurements were cranial circumference (CC); thoracic circumference (THC); abdominal circumference (AC); withers height; body length (BL) (1,2). All these parameters were measured with a metric tape with precision of 0.1 cm, while the animals were standing. The animals were weighed with analogical scale, without restricting food or water intake (1). The studied external pelvic parameters were the different pelvic widths, such as external bi-iliac diameter (EBID); external bi-ischiatic diameter (EBIsD); right and left external ilio-ischiatic diameter (REIID and LEIID - 2). External pelvic measurements were checked with a metric tape with precision of 0.1 cm, while the animals were standing on an examination table. For the performance of the radiographic exam, an x-ray equipment of the brand Equimex, with a maximum potency of 200 milliamperes was used. Radiographs of the pelvis and caudal portion of lumbar column were performed with the animals positioned in right lateral and dorsal recumbency. The focus film distance was of 90 cm in order to minimize the object-film distance and image magnification (3). Bitches were carefully positioned in a way that their pelvises were as close and as straight as possible in relation to the radiographic film in order to obtain symmetrical positions of the pelvis (3). Measuring of pelvic dimensions were directly performed on radiographic images (accuracy level of the mensurations was of 0.5 cm), by using a millimetric ruler. Then, the following measurements were obtained: true conjugate (TC), diagonal conjugate (DC), vertical diameter (VD); sacral diameter (SAD); sagittal diameter (SGD); coxal tuberosity diameter (CTD); superior bi-iliac diameter (SBID); inferior bi-iliac diameter (IBID); and bi-ischiatic diameter (BICD). Besides these measurements, some ratios were calculated, such as height/width (VD/IBID, SGD/CTD, SGD/IBID), the pelvic inlet and outlet areas. Pelvic inlet area (PIA) was calculated (4) through the equation \((TC/2 + SBID/2)^2 \times \pi\) and pelvic outlet area \((POA)\) was calculated through the equation \((VD/2 + IBID/2)^2 \times \pi\) (Páfaro 2007). External and internal pelvimetric values and body dimensions were described as mean, standard deviation and variation coefficient. Data were submitted to normality test in order to verify their normal distribution. Correlations between external, body and pelvic measurements, height/width ratios and inlet and outlet pelvic areas were calculated by using Pearson’s correlation test. Differences were considered significant when \(P < 0.05\).

RESULTS: It was observed that the values found in the correlation analysis between external body and pelvic measures and radiographic pelvic measures were, in general, low, varying from 0.03, for the correlation between cranial circumference and SBG/IBID ratio, to 0.68, for the correlation between thoracic circumference and superior bi-iliac diameter, external bi-ischiatic diameter and pelvic inlet area, and body weight and pelvic outlet area. However, significant positive correlations \((P < 0.005)\) were also observed between the following variables: Cranial circumference x sacral diameter \((r = 0.76 \text{ and } P < 0.003)\), body weight x coxal tuberosity diameter \((r = 0.75 \text{ and } P < 0.005)\), body weight x external bi-ischiatic diameter \((r = 0.78 \text{ and } P < 0.003)\), body weight x POA \((r = 0.75 \text{ and } P < 0.005)\). Pelvimetry is not usually applied in dogs hence there are few studies with this species. Direct pelvimetry was used of only one type of pelvis from different dog breeds (4,5). A general view of the canine pelvis was described and some examples of pelvic dimensions in different breeds were cited (6). A dorsoventral flattening of the pelvis in two short legged wide headed canine breeds was observed, such as Pekingese and Sealyham Terrier (4). The present study represents the first one to use and compare indirect and radiographic pelvimetry involving the same dog breed. Although the number of examined females was not big, it was similar to the number of assessed animals in previous studies in this area and it was sufficient to permit the performance of statistical analyses (3).

CONCLUSION: Adult French Bulldog bitches can be classified as mesatipellic; cranial circumference, sacral diameter, coxal tuberosity, bi-ischiatic diameter and pelvic inlet area are positively correlated to body weight; and pelvimetry can be used as a tool to select dogs for breeding purposes, avoiding the use of animals that present unwanted pelvic dimensions.


