ABSTRACTS

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Comparison of testicular volume between French Bulldog and Brazilian Terrier dogs

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OBJECTIVES AND METHODS: The aim of the work was to compare testicular volume between techniques (ultrasonography x caliper) and between breeds (French Bulldog and Brazilian Terrier dogs). The experimental protocol was approved by the Animal Ethics Committee from State University of Ceará, Fortaleza, Ceará, Brazil (process number 10338843-5/54). Ten male dogs (French Bulldog = 5 and Brazilian Terrier = 5), weighing 8 to 12 kg, were used. Dogs were kept in individual kennels and were fed with commercial dog food and free access to water. Ultrasonography was performed using a SonoAce PICO (Medison®) device with a 5-to-9 MHz multi-frequency linear transducer. The animals were positioned in dorsal decubitus, and the transducer was placed directly on their testicles. Each animal was subjected to 5 ultrasonography examinations, which were conducted every 2 weeks to assess testicular size. For this purpose, 2 sections were performed, one on the longitudinal plane (using the mediastinum as a reference point for determining testicular length and width) and another on the axial plane to determine thickness; the device automatically calculated testicular volume from these measurements (1). Testicular volume measurements using caliper were subsequently held: length (cranial to caudal pole), width (lateral to medial border) and thickness (edge of the dorsal pole to the end of the ventral pole). After obtaining the measures by caliper, testicular volume was calculated from the ellipsoid formula (volume = length x width x thickness x 0.5236). In both techniques, the left and right testicles were measured.

Data from testicular volume were initially subjected to the Shapiro-Wilk and Bartlett tests to confirm a normal distribution and homoscedasticity, respectively. Confirmed the requirements for completion of the analysis of variance, this was performed, followed by Student-Newman-Keuls (SNK) test for comparison of averages. Whereas non-independent samples (belonging to the same animal), the values corresponding to volumes of the left and right testicles and differences in each animal in the different times of evaluation were compared using paired t-test. The existence of association between measurements made by ultrasonography and caliper was evaluated by correlation analysis. The significance level was established at 5%, and the results were expressed as mean ± standard error of means (SEM).

RESULTS: There was no significant effect of week of the examinations, regardless of the data have been obtained by ultrasonography (P > 0.9093) or caliper (P > 0.9884). It was also not observed significant effect of interaction between side (left x right) and breed (P > 0.3805), showing that testicular asymmetry occurred on both breeds. Measurements made by ultrasonography and caliper were equivalent and presented a high correlation coefficient (r = 0.9493, P < 0.0001). Testicular volume of French Bulldog is significantly larger than the Brazilian Terrier dogs (table 1), regardless of the technique employed (P < 0.0001); these results were also observed in Tori stallions (2). The difference in volume between races was also observed in cattle (3). This difference might be due to the fact that French Bulldog dogs have an average weight greater than the Brazilian Terrier. In addition, the first presents a more pendulous testicular conformation, which can contribute with a larger testicular volume.

CONCLUSIONS: Testicular volume is larger in French Bulldog compared to Brazilian Terrier dogs, regardless of the technique employed.

Table 1: Testicular volume (mean ± SEM) in French Bulldog and Brazilian Terrier dogs measured by ultrasonography and caliper

<table>
<thead>
<tr>
<th>Testicles sides</th>
<th>Testicular volume (cm³)</th>
<th>French Bulldog</th>
<th>Brazilian Terrier</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ultrasonography</td>
<td>Caliper</td>
<td>Ultrasonography</td>
</tr>
<tr>
<td>Right</td>
<td>4.6 ± 0.9 aA</td>
<td>5.0 ± 0.9 aA</td>
<td>3.2 ± 0.5 bB</td>
</tr>
<tr>
<td>Left</td>
<td>5.0 ± 0.8 aA</td>
<td>5.4 ± 0.5 aA</td>
<td>3.4 ± 0.6 bA</td>
</tr>
</tbody>
</table>

Different lowercase letters represent significant differences between techniques within a breed (P < 0.05).
Different uppercase letters represent significant differences between testicles sides (P < 0.05)