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**Relationship between testicular volume and sperm quality in tom cats**

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Considering the increase in feline breeding facilities and the importance of improving reproduction in domestic cats (*Felis domestica*), it is necessary that aspects of testicular biometrics associated with body score and male fertility be better investigated. The aim of this study was to evaluate the relationship between weight of the animal and testicular volume, in addition to the influence on sperm quality. Seventeen stray cats, sexually mature, were clinically assessed and body weight was measured (BW, kg). The testicular volume (TV, cm³) was measured with the aid of a caliper (Kobalt®, model 53247, North Carolina, USA). For the total volume, the following formula was used: VT total = VT right + VT left (cm³), where VT = 3/4 x π x length / 2 x width / 2 x thickness / 2 (Tebet, 2004). Semen collection was performed through electroejaculation (Howard et al., 1990, modified). The kinetic analysis of sperm, represented by motility (MT, %) was analyzed by CASA (Computer Assisted Sperm Analysis), using 3μL of semen in reusable CELL-VU® chambers. For the analysis to be more effective, the samples were diluted in NaCl 0.9%, with 40 million sperm/mL. Based on the results of the sperm kinetics, the animals were divided into 3 groups: HIGH group with an MT above 70%, AVERAGE group with an MT between 40 and 70% and LOW group with an MT below 40%. Morphology was evaluated through semen smears stained with modified Karras (Papa et al., 1988) using optical microscopy, magnified x100. The percentage (%) of normal sperm (N) was estimated and those with minor and major defects. Data were analyzed using the Epi-Info 7.0 program (2015), with a significance level (p <0.05). All variables were expressed as mean ± standard deviation and were compared using analysis of variance (ANOVA). Of the 17 cats, seven were in the HIGH group with an MT average of 77.6 ± 3.6%; BW 3.9 ± 0.4 kg; TV 1.7 ± 0.5 cm³ and N 67.5 ± 7.9%; four cats were in the AVERAGE group with MT 48.7 ± 6.7%; BW 4.1 ± 0.8 kg; TV 1.4 ± 0.3 cm³ and N 52.7 ± 3.5 and six cats in the LOW group with MT 9.5 ± 4.5%; BW 3.4 ± 0.3 kg; TV ± 1.3 cm³ and N 24.5 ± 12.8%. Cats with greater total motility presented higher testicular volume (p <0.05), demonstrating a direct correlation between testicular volume and sperm production, thus corroborating studies in other species (Sarti et al., 2009). Considering the body condition of the cats, those with an average body weight of 3.9 kg demonstrated higher sperm motility and percentage of normal cells, while a decrease in motility was observed in overweight animals (4.1kg), demonstrating the importance of body score on fertility. Results showed an association between testicular volume and the percentage of sperm defects, whereby the animals with lower testicular volume presented higher sperm defects, corroborating the results previously described in other species (Viu et al., 2006). In stray domestic cats, the higher the testicular volume, the better the sperm quality and the lower the number of sperm defects, therefore testicular biometrics is an important tool for the selection of cats for breeding.