

**Assessment of fertility in male cats through cytologic evaluation of testicular aspirates**  
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Assessment of male feline fertility plays an important role in breeding management and biomedical research. Common methods of assessing fertility in tomcats include analysis of semen samples collected through an artificial vagina and electroejaculation. Samples are usually evaluated for characteristics such as concentration, progressive motility and morphology. Nevertheless, obtaining semen samples can be a difficult task and are usually low in volume. In addition, testicular biopsies can be utilized to assess testicular function, but these may result in post-biopsy complications that can affect fertility. It has been proven that testicular fine needle aspiration (FNA) serve as a tool for evaluation of fertility in reproductive settings.<sup>1</sup> Compared to testicular biopsies, FNA has been proven to be a less invasive, quicker, and easier approach to obtaining valuable information regarding fertility in multiple species, including dogs, bulls and stallions.<sup>1-3</sup> In dogs, in particular, the use of testicular fine needle aspiration and cytology has a role in analyzing canine fertility.<sup>1</sup> In this study, testicles were collected after orchietomy from fifty cats ranging from six months to six years of age. Each testicle was aspirated for cytology and subsequently sectioned for impressions smears and histological evaluation. Two hundred cells were counted per slide and identified appropriately as spermatogonia, spermatocytes, spermatids, spermatozoa and Sertoli cells. The quantified cell populations were used to establish a Sertoli cell index (SEI) and sperm cell index (SI) for each testicle. The testicular cytology counts were subsequently grouped into five groups according to age ranges. The groups were divided as follows: one year of age (group 1, n=15), greater than one year (group 2, n=7), two years (group 3, n=13), greater than 2 years to three years (group 4, n=5), greater than three years (group 5, n=4). Our results showed slight variations in numbers between aspirates and impressions for all postpubescent testes, but particularly in cats of one year of age. Cats in the one year group had aspirate SEI and SI ( $\pm$ standard deviation) of  $22.7 \pm 10.9$  and  $36.6 \pm 7.7$ , respectively. The SEI and SI of impressions at one year were  $18.3 \pm 8.5$  and  $33.9 \pm 8.6$ , respectively. Only Sertoli cells were observed in pre-pubertal samples (SI and SEI were not calculated). The groups consisting of testes from older felines displayed a more consistent range of indices. The SEI and SI for aspirates from group 2 were  $23.9 \pm 8.5$  and  $38.4 \pm 12.6$ , group 3,  $14.9 \pm 4.6$  and  $35.7 \pm 10.4$ , group 4,  $12.3 \pm 2.3$  and  $37.5 \pm 11.2$ , and group 5,  $15.4 \pm 4.6$  and  $32.5 \pm 10.6$ , respectively. The (SEI) and (SI) for impressions from group 2 were  $15.9 \pm 6.1$  and  $34.0 \pm 6.7$ , group 3,  $13.8 \pm 4.7$  and  $37.9 \pm 4.7$ , group 4,  $15.4 \pm 5.5$  and  $40.3 \pm 5.9$ , and group 5,  $9.5 \pm 2.0$  and  $42.7 \pm 4.7$ , respectively. The SEI may be a more valuable index for providing information about potential problems affecting spermatogenesis due to less variation between cats presenting normal testicular pathology. The SEI was found to be much higher in cats with testicular degeneration compared to cats with normal testicular pathology. In conclusion, testicular FNA can be an effective adjunct method of assessing fertility in male cats.

**Keywords:** Spermatogenesis, feline, aspirate, testicular, cytology

### References

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