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Determining the onset of spermatogenesis and folliculogenesis in free-roaming, unowned cats
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Free-roaming unowned (FRU) cat populations around the world continue to grow. Our laboratory is interested in determining if an underlying biological cause exists for the exuberant reproductive success observed in this animal. Faya and colleagues have shown that female and male laboratory-raised cats produce significant amounts of gonadal steroid hormones in fecal samples by 3.5 months of age [1]. We have hypothesized that FRU cats are reaching reproductive capacity at this age. The objective of this study was to examine FRU kittens presented for surgical sterilization for reproductive markers (spermatogenesis in males and folliculogenesis in females). For males (under 4 months \(n=10\); 4-6 months \(n=8\)), a routine castration was performed. For females (under 4 months (FRU \(n=10\)) and 4-6 months (FRU \(n=7\))), a routine ovariohysterectomy was performed. In both genders, gonads from each cat were hemi-sectioned, formalin-fixed, paraffin-embedded, cut into sections (6 \(\mu\)m), and stained with hematoxylin and eosin. The slides were blindly evaluated at 200X by the same observer (KP for males; EB for females) using bright field microscopy. For males, a spermatogenesis scoring system was used [2]. For females, the largest follicle diameter was measured. Mean ± SD was determined for each parameter. Spermatogenesis score in under 4 month old and 4-6 months old FRU tomcats was 4.5±2.0 SD and 8.1±2.7 SD. The largest follicle size in under 4 month old and 4-6 months old FRU queens was 581.6±53.6 SD \(\mu\)m and 469.4±113.9 SD \(\mu\)m (p<0.05). In the FRU cats studied, folliculogenesis appears to occur before 4 months of age in females, but spermatogenesis does not occur until after 4-6 months of age in males. Our results support the findings of Faya for females. However, in males the age at the onset of spermatogenesis does not appear to coincide with the age at which significant levels of fecal testosterone are observed. The implication of our results indicates that sterilization programs need to include female kittens in their efforts.