The aim of this study was to describe the effect of unilateral orchidectomy (UO) on testicular characteristics of mature domestic cats. Five, 1 to 2 y old, crossbreed male cats were unilaterally orchidectomized on d 0 (right testis) and d 60 (left testis). All the animals were exposed to ≥ 12 h of daylight for two months before and after the first hemicastration. After surgical removal, the testes were weighed and measured. Testicular volume and gonadosomatic index were also calculated. The testes were fixed in Bouin’s solution and stained with hematoxylin and eosin. In twenty rounds tubular profiles the maximum, minimum and medium tubular diameters; major and minor axes, area, perimeter and germinal epithelium height were measured (Image Pro Plus; MediaCybernetics, Bethesda, MD). The volumes of the different testicular tissue components were determined using an intersection grid on 40x photographs. For this, fifteen fields were chosen randomly and scored for each animal. Points were classified as spermatogonia, primary and secondary spermatocytes, round and elongated spermatids, spermatozoa, Leydig and Sertoli cells, intertubular compartment, basement membrane, lumen or cellular debris. The total length of seminiferous tubules was also obtained. Both groups (d 0 vs. d 60) were compared by Student’s t test and P values < 0.05 were considered significant. No significant differences between testes groups were found for any of the gross and microscopic parameters assessed (mean±SEM): testis weight (1.54±0.4 g vs.1.7±0.2 g), length (1.94±0.1 cm vs.1.92±0.8 cm) and width (1.04±0.1 cm vs.1.04±0.1 cm), volume (0.95±0.1cm³ vs. 0.95±0.1 cm³), gonadosomatic index (0.03±0.01 % vs. 0.04±0.01 %), maximum (240.5±29.8 μm vs. 250.8±18.6 μm), minimum (166.6±24.4 μm vs.194.1±13.1 μm) and medium (202.6±26.2 μm vs. 220.9±14.9 μm) tubular diameters, major (240.9±29.1 μm vs. 247.5±18.3 μm) and minor (171.8±24.7 μm vs. 200.4±12.6 μm) tubular axes, area (35356.2±8482.8 μm² vs. 39622.9±5193.4 μm²) and tubular perimeter (668.1±84.8 μm vs. 718.7± 47.7μm), germinal epithelium height (58.6±7.5 μm vs. 55.3±5.3 μm), spermatogonias (0.056±0.1 cm³ vs. 0.052±0.1 cm³), primary spermatocytes (0.10±0.1 cm³ vs. 0.11±0.1 cm³), secondary spermatocytes (0.003±0.001 cm³ vs. 0.002±0.01 cm³), round spermatids (0.12±0.1 cm³ vs. 0.13±0.01 cm³), elongated spermatids (0.07±0.01 cm³ vs. 0.066±0.01 cm³), spermatozoa (0.04±0.01 cm³ vs. 0.03±0.01 cm³), Sertoli cells (0.064±0.01 cm³ vs. 0.072±0.01 cm³), Leydig cells (0.04±0.01 cm³ vs. 0.04±0.01 cm³), intertubular compartment (0.12±0.02 cm³ vs. 0.12±0.02 cm³), lumen (0.2±0.04 cm³ vs. 0.3±0.03 cm³), cellular debris (0.02±0.01 cm³ vs. 0.01±0.01 cm³), tubular- intertubular compartment proportion (7.17±1.2 vs. 7.29±1.3), basement membrane (0.02±0.01 cm³ vs. 0.02±0.01 cm³) and total tubular length (38.73±10.5 m vs. 32.66±6.2 m). To our knowledge, this is the first investigation to describe the effect of UO in domestic cats. According to these biometric and morphometric results, adult cats, similar to rodents, do not develop compensatory hypertrophy after UO.

References