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## JOURNAL ARTICLE

# Recovery of normal testicular ultrastructure and sperm motility after cessation of gossypol treatment in rats

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This study evaluates the reversibility of the effects of gossypol on testicular ultrastructure and the motility of epididymal spermatozoa. Adult male rats were treated 6 days weekly with the vehicle alone (Group A), or with 10 (Group B) or 20 (Group C) mg/kg of gossypol for 12 weeks, and then sacrificed six or 12 weeks after cessation of treatment. Although epididymal spermatozoa in Groups B and C were 100% immotile after gossypol treatment, little evidence of abnormality could be detected with the light microscope in the seminiferous tubules or interstitium. By contrast, at the ultrastructural level, there were demonstrable pathognomonic defects in the mitochondrial sheath and axonemes of step 18 and 19 spermatids which were identical to those reported earlier (Hoffer, 1983). In addition, an ultrastructural defect in the flagella of late testicular spermatozoa is described for the first time. This defect consists of an indentation, or constriction, of the mitochondrial sheath at outer dense fibers (ODFs) 1, 2, and 9, resulting in a separation of these 3 ODFs from the other fibers. This defect, though visible in an earlier ultrastructural study (Hoffer, 1983), was not described. In Group B rats allowed to recover from gossypol treatment, ultrastructural defects in step 18 and 19 spermatids could not be detected at six or at 12 weeks after cessation of treatment, and sperm motility also did not differ significantly from controls by the end of either recovery period. In Group C rats, sperm motility returned to the normal range within six weeks after treatment ended, but a few morphological defects in the midpiece and axoneme of late spermatids could still be detected with the electron microscope. (ABSTRACT TRUNCATED AT 250 WORDS)

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