

Journal of Andrology, Vol 12, Issue 1 18-26, Copyright © 1991 by The American Society of Andrology

## JOURNAL ARTICLE

# 2,5-hexanedione exposure in the rat results in long-term testicular atrophy despite the presence of residual spermatogonia

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Charles River CD rats (approximate weight, 208 g) were exposed to 1.0% 2,5-hexanedione (2,5-HD) in drinking water for 5 weeks. Rats were killed 27, 60, and 75 weeks after exposure to evaluate the recovery potential following testicular injury. At 27 weeks, normal serum testosterone and significantly elevated serum luteinizing hormone and serum follicle-stimulating hormone levels were found in treated rats. The 2,5-HD-treated rats had low testicular and epididymal weights at all time points (28% and 72% of controls, respectively, at 75 weeks). Microscopically, there was a generalized loss of postspermatogonial germ cells at all time points, with no seminiferous tubules exhibiting normal spermatogenesis at 75 weeks. However, a relatively constant population of 3.1 to 3.7 spermatogonia/100 Sertoli cells was found in atrophic seminiferous tubules at all time points. The presence of a constant residual population of type A spermatogonia without a normal mass of more mature germ cells and the observed hormonal alterations suggest that 2,5-HD intoxication produced a lengthy disruption in local testicular homeostatic mechanisms that control spermatogenesis.

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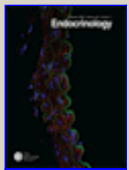
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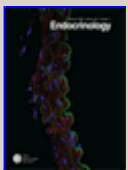
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