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JOURNAL ARTICLE

Endocrine and exocrine effects of testicular torsion in the prepubertal and adult rat

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Previous studies of experimental torsion have suggested that there may be important differences between the adult testis and the prepubertal testis in their responses to torsion, especially with regard to the potential for contralateral damage following unilateral testicular torsion. In the present study, adult Sprague-Dawley rats and prepubertal Sprague-Dawley rats (35 days of age) were subjected to unilateral 1-, 2-, and 4-hour periods of 720 degrees or 360 degrees testicular torsion. Ipsilateral and contralateral testes were examined 30 and 60 days after torsion repair for effects on testis weight, histology, and daily sperm production (DSP). Other animals were subjected to 1-/or 4-hour 720 degrees torsion, and testicular vein testosterone concentrations were determined 30 days later. In adult animals, 1-, 2-, and 4-hour 720 degrees torsion resulted in a significant decline in ipsilateral testis weight within 30 days. Endocrine and exocrine function were also clearly disrupted. In prepubertal animals, 1-hour 720 degrees torsion significantly reduced testis weight 60 days after surgery. Also, prepubertal DSP values and testicular vein testosterone concentrations were not significantly reduced from control values by 1-hour 720 degrees torsion when examined 30 days after surgery. Longer periods of 720 degrees torsion resulted in damage similar to that seen in the adult animals. Neither adult nor prepubertal animals regained any lost function when examined 60 days after insult. Torsion of 360 degrees induced no testicular injury in adult or prepubertal animals. Contralateral testes were not affected by degree or duration of torsion in either adult or prepubertal animals. These results suggest that the prepubertal testis may be more refractory to the effects of short periods of torsion than the adult. More importantly, these results demonstrate that ipsilateral torsion does not result in contralateral testicular damage in either adult or prepubertal animals.

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Injury after Experimental Testicular Torsion of Rat

Biol Reprod, November 1, 2000; 63(5): 1538 - 1548.

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