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The effect of prepubertal spermatic cord torsion on subsequent fertility in rats

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This study was undertaken to determine the effects of various durations of testicular torsion in prepubertal rats on their subsequent fertility, and to determine whether these effects could be altered by removal of the torsioned testis. Sixty rats (35 days old) were subjected to 720 degrees unilateral spermatic cord torsion for 0, 1, 3, 5, 9, or 12 hours. The torsioned testis was then either detorsioned or removed. At 65 days of age each male was housed with two females for three weeks. Rats undergoing detorsion of the spermatic cord demonstrated a linear decrease in fertility with respect to the duration of torsion ($r = -0.904$). However, all of the animals undergoing unilateral torsion with subsequent orchiectomy were fertile, regardless of the duration of torsion. In addition, the percentage of females impregnated, the number of embryos produced, and the mean embryo size decreased with increasing intervals of torsion ($r = -0.834$ to $r = -0.979$); the sharpest decline occurred between 5 and 9 hours of torsion. All of these parameters were significantly lower (P less than 0.001 to P less than 0.05) in the detorsioned group as compared to the orchiectomized group. There was a decrease in seminiferous tubule diameter in the contralateral testis with respect to the duration of torsion (P less than 0.01). These data indicate that unilateral spermatic cord torsion in young rats significantly reduced their subsequent fertility with respect to duration of the torsion, and that this detrimental effect may be minimized if the damaged testis is removed rather than untwisted and replaced into the scrotum.

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