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JOURNAL ARTICLE

Neonatal goitrogen treatment increases adult testis size and sperm production in the mouse

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Male rats made hypothyroid during neonatal life show unprecedented increases in adult testis size and daily sperm production (DSP). To determine if this effect was unique to the rat or could also be demonstrated in other species, we examined the effects of neonatal treatment with the reversible goitrogen 6-propyl-2-thiouracil (PTU) on adult testis size and function in the mouse. Male Swiss-Webster mice were untreated (control) or given PTU by adding 0.1% (w/v) to their mother's water from birth to day 25 postpartum. All pups were then weaned and given no further treatment. Sertoli cell proliferation was examined using tritiated thymidine autoradiography in some control and treated mice at 0, 5, 10, 15, 20, and 25 days, while the remainder were killed at 90 days to determine a variety of reproductive parameters. Neonatal PTU treatment decreased growth; body weight of treated mice at 4 weeks of age was 57% less than controls. Treated mice grew rapidly following cessation of PTU treatment, although their weights never equalled controls, remaining 17% smaller at 90 days of age. At 90 days of age, testis weight and DSP were increased by approximately 30% and 50%, respectively, in PTU-treated mice compared to controls. Despite the increased testis weight and function, serum testosterone concentrations were not different in control and treated mice. Testicular and epididymal histology in treated mice was similar to controls, while epididymal sperm in treated mice were motile and morphologically normal. Sertoli cell proliferation was altered in treated mice. (ABSTRACT TRUNCATED AT 250 WORDS)

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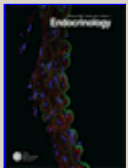
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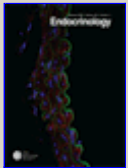
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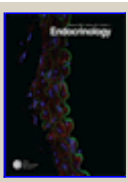
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