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The effects of prenatal and postnatal nicotine exposure on liver size and markers of oxidative stress  

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1. Maternal nicotine administration during pregnancy has been shown to have detrimental effects on the fetus including reduced birth weight, premature birth, and intrauterine growth restriction.  
2. Nulliparous female Wistar rats received nicotine (1 mg/kg body weight/day) or saline injections for 2 weeks prior to pregnancy and then during pregnancy and lactation.  
3. Litters at post natal day 1 (PND-1) were weighed and culled to 8. Liver, pancreas, and kidneys were removed from culled animals and weighed. Pups were then weaned at 3 weeks and a subset was euthanized at 4 weeks of age.  
4. A marker of oxidative stress, heme oxygenase-1 was localized in the liver by immunohistochemistry and serum was analyzed for superoxide dismutase activity as a marker of antioxidant capability.  
5. At PND-1 superoxide dismutase activity was 0.5 ± 0.2 U/mol (n = 4) in control and 1.4 ± 0.5 (n = 3) in nicotine treated pups. At 4 weeks the values were 1.9 ± 0.7 (n = 6) and 2.6 ± 0.9 (n = 4), respectively.  
6. These results suggest that exposure to nicotine during the prenatal period and until weaning does not alter body weight or antioxidant capability in Wistar rat pups.