Influence of hyperthyroidism on the activity of liver nitric oxide synthase in the rat

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Hyperthyroidism enhances the prooxidant activity of the liver by elevating superoxide radical and/or hydrogen peroxide generation in microsomal, mitochondrial, and peroxisomal fractions, with an increased respiratory burst of Kupffer cells. In this study, the influence of daily doses of 0.1 mg 3,3',5-triiodothyronine (T3)/kg for three consecutive days on liver nitric oxide (NO) synthase (NOS) was assessed, as a possible contributory mechanism to T3-induced liver prooxidant activity. Thyroid calorigenesis was paralleled by a progressive increment in the rate of NO generation, with significant increases after 2 (47%) and 3 days (70%) of T3 treatment, and a net 45% ($P < 0.05$) enhancement in the N(G)-methyl-Larginine-sensitive NO production, compared to control values. These enhancement effects were reversed to control levels after 3 days of hormone withdrawal, concomitantly with the normalization of hepatic respiration. Enhancement of liver NOS activity in hyperthyroid Animals was diminis