Effects of hyperthyroidism on rat liver glutathione metabolism: Related enzymes? activities, efflux, and turnover

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The effect of hyperthyroidism on liver glutathione (GSH) metabolism was studied in fed rats after the administration of 0.1 mg T3/kg body wt, for 1-3 consecutive days. T3-calorigenesis resulted in elevated rates of O2consumption by the liver, together with higher lipid peroxidative processes and GSH depletion, compared to the euthyroid state. The study of the enzymes related to GSH metabolism revealed no significant changes in the activity of glutathione peroxidase and glutathione reductase, with decreases (27-41%) in the activity of glutathione-S-transferases and marked elevation (133%) in that of ?-glutamyl transferase, 3 days after T3treatment. At this experimental time, the activity of the NADPH generating enzyme glucose-6-phosphate dehydrogenase was enhanced by 84% in the liver of T3-treated rats, compared to that in the controls. In these conditions, the canalicular efflux of GSH was not altered by T3, whereas net and fractional rates of sinusoidal GSH efflux were enhanced by 86%