Influence of thyroid hormone administration on hepatic glutathione content and basolateral ?-glutamyltransferase ectoactivity in the isolated perfused rat liver

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The effect of thyroid hormone administration on liver glutathione (GSH) content and ?-glutamyltransferase activity in the isolated perfused liver was studied for a period of 1-7 days in fed rats following a single dose of 0.1 mg 3,5,3'-l-triiodothyronine (T3)/kg. T3 elicited an early and transient calorigenic response, together with GSH depletion at 1 day after treatment. Recovery of hepatic GSH content and enhancement in total basolateral ?-glutamyltransferase activity occurred in parallel 2-3 days after T3 treatment, parameters that were normalized in the 4- to 7-day time interval studied. The increase in total basolateral ?-glutamyltransferase activity by T3 at early times after treatment was due mainly to increments in its transpeptidation mechanism, and was characterized by increments in the apparent maximum velocities without changes in the apparent Michaelis constant (Km) for the substrate ?-glutamyl-p-nitroanilide. Data presented suggest that the elevation in sinusoidal ?-gluta