

Effect of the degree of hydrogenation of fish oil on the enzymatic activity and on the fatty acid composition of hepatic microsomes from young and aged rats

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By modifying the degree of hydrogenation of dietary fat, it is possible to modify the fatty acid composition and the biochemical activity of cellular tissues. The age can be another variable influencing these modifications. The effect of isocaloric diets containing oils with different degrees of hydrogenation: fish oil (FO, 0.3% trans), partially hydrogenated fish oil (PHFO, 29% trans), or highly hydrogenated fish oil (HHFO, 2.3% trans), in the fatty acid composition (cis and trans isomers) of hepatic microsomes from young (70-day-old) and aged (18-month-old) rats, in the microsomal cytochrome P-450 (C-450) content, and in the aminopyrine N-demethylase (AND), aniline hydroxylase (AH), NADPH cytochrome P-450 reductase (NCR), UDP-glucuronyl transferase (UGT), and GSH-S transferase (GST) enzymatic activities were studied. Fatty acid composition and n-6/n-3 ratio of microsomal membranes was modified to a higher extent in young rats. C-450 content and AND activity were reduced when the degr