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Increase in hepatic content of oleic acid induced by dehydroepiandrosterone in the rat

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The effects of dehydroepiandrosterone (DHEA) on the acyl composition of lipids in rat liver were studied. The content of oleic acid (18:1) in hepatic lipids was increased markedly by feeding rats a diet containing 0.5% (w/w) DHEA for 14 days. Treatment of rats with DHEA caused an increase in the activity of the terminal desaturase of stearoyl-CoA desaturation system, without changing either the activity of NADH-cytochrome *b5* reductase or the microsomal content of cytochrome *b5*. Among the changes observed in hepatic lipids, the increase in 18:1 content in phosphatidylcholine (PtdCho) was the most prominent; an approximately 2.5-fold increase in the proportion of 18:1 was induced at position 2, but not at position 1, by DHEA. This selective elevation of 18:1 at position 2 of PtdCho seems to be produced by the concerted action of the induced 1-acylglycerophosphocholine (1-acyl-GPC) acyltransferase and the induced stearoyl-CoA desaturase. The content of 18:1 in serum lipids was unchanged by DHEA treatment, suggesting that the secretion of lipids containing 18:1 into the circulation was not affected by PHEA. These results suggest that the elevation of hepatic content of 18:1 caused by DHEA is mainly due to the induction of stearoyl-CoA desaturase.