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CHANGES IN CHOLESTEROL DISTRIBUTION AMONG PLASMA LIPOPROTEINS INDUCED BY TESTOSTERONE TREATMENT

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Objective: In a previous work we demonstrated that treatment with a mixture of testosterone esters (Durateston) increased the cholesteryl ester transfer protein (CETP) and decreased hepatic lipase (HL) activities. In these work, we tested the hypothesis that these changes would affect plasma concentration and removal rate of HDL. Methods and results: Mice expressing CETP and partial deficiency of LDL receptor were treated with Durateston (DT) or placebo (PL) during 3 weeks. HDL labeled with ^3H -cholesterol oleoyl ether (CEt) was injected i.v. in DT and PL mice and the tracer was followed in plasma up to 6 hours. DT treatment resulted in significant ($p < 0.001$) increases in plasma triglycerides, total and LDL-cholesterol, reduction in HDL-cholesterol levels, elevation of CETP and reduction in HL. $^3\text{HCEt}$ -HDL plasma removal was not affected by DT treatment. However, there was a significant reduction in ^3H -HDL and parallel increase in ^3H -LDL confirming increased CE transfer from HDL to LDL and suggesting slower plasma removal rate of LDL. Conclusions: These data indicates that testosterone supplementation reduces HDL- and increases LDL-cholesterol levels. Kinetic studies suggested that LDL- cholesterol plasma removal rate was slowed down by increased CETP mediated CE acquisition and partial deficiency of tissue LDL receptor.

Cholesterol - Testosterone - CETP