

Energy restriction had no effect on the liver fatty acid profile. In contrast, high-fat energy restricted diets (groups C and D) induced important modifications to the profile. By comparing groups C and D with group A, the following results were found: 14:0 -38.5 % and +55.2 %; 16:0 -8.7 % and +13.7 %; 16:1 -47.4 % and -29.5 %; 18:0 +32.1 % and +26.9 %; 18:1 +0.2 % and -13.2 %; 18:2 +55.8 % and +44.1 %; 20:4 +41.2 % and +25.9 %. It was interesting that the two lipid sources produced different changes.

It can be concluded that energy restriction was unable to modify the liver fatty acid profile in obese Zucker rats. In contrast, dietary lipids were a factor that could induce important modifications in this profile, depending on the nature of the fatty acids.

**Modulation of the triglyceride-rich lipoprotein (trl) hepatic uptake by high saturated or unsaturated fatty acids in the nzw rabbit.** C. Juhel, A. Harbis, Y. Pafumi, D. Lairon (Inserm U 130, 18, avenue Mozart, 13009 Marseille, France).

A decreasing level of TRL clearance during the postprandial state allows the formation of atherogenic remnants and in the long term can lead to development of cardiovascular diseases. We studied one of the factors implicated in TRL clearance: the hepatic uptake by lipoprotein receptors. Rabbits ( $n = 36$ ) were fed a cholesterol free, low fat (2.7 %) diet (T), or hypercholesterolemic diets containing 0.35 % cholesterol and 10 % fat which were either saturated (lard, L) or monounsaturated (olive oil, OOC) or polyunsaturated (sunflowers oil, SO) fatty acids, or cholesterol free but 10 % fat diets represented by either SFA (coconut oil, CO) or MUFA (olive oil, OO). The overall study lasted 28 d. We compared the uptake of TRL from L, OOC and SO rabbits by studying cultured liver cells freshly iso-

lated from T, L, OOC and SO rabbits. We measured the lipoprotein binding to LDL receptor (LDL-R) and lipolysis stimulated receptor (LSR) using hepatocyte plasmic membranes isolated from T, CO and OO rabbits.

The hepatocyte culture experiments showed i) that the TRL disappearance was delayed in hypercholesterolemic rabbits as compared to T ones, ii) whatever the hepatocyte, uptake of TRL isolated from OOC and SO rabbits was faster than those of Ls. As compared to T rabbits, intracellular free cholesterol concentrations were two fold higher in rabbits on the atherogenic diet for 28 d. The SFA (CO) diet increased lipoprotein binding to LDL-R while it decreased with the MUFA (OO) diet. A comparable figure was noted for LSR after 14 d on fat rich diet.

In conclusion, the reduced LDL-R and LSR binding activity could explain the delayed clearance of TRL observed in hypercholesterolemic L rabbits, as compared to those on UFA diet. These data could be related to the hypercholesterolemic effect of SFA and to the protective effect of MUFA or PUFA on atherosclerosis in humans.

**Effects of dietary coconut oil on blood transport and in vivo hepatic metabolism of fatty acids in the preruminant calf.** D. Bauchart, D. Durand, C. Picherit, B. Graulet, D. Gruffat (Inra, LCMH, Theix, 63122 St-Genès-Champagnelle, France).

The strict incorporation of triglycerides (TG) from plant origin in milk replacers for calves has become necessary to avoid any risks of bovine spongiform encephalopathy transmission. Coconut oil, rich in medium-chain fatty acids, stimulates the growth of the young calf by favouring muscle protein accretion, but its effects on the lipid metabolism have