

pression of EGP under lipid infusion, and this impairment might have been underestimated the way we measured it.

**Effects of purified soybean proteins and dietary cholesterol on unsaturated fatty acid biosynthesis.** J. Bellenger, S. Madani, M. Narce, J. Prost, J.P. Poisson, J. Belleville (Unit of Cellular and Metabolic Nutrition, UPRES Lipids and Nutrition, Faculty of Sciences Mirande, University of Burgundy, BP 400, 21011 Dijon, France).

The aim of the present study was to investigate, in isolated rat hepatocytes, the effects of normoproteic (20 %) diets containing either casein or purified soybean proteins, with or without added cholesterol, on  $\Delta 6n-6$ ,  $\Delta 6n-3$ ,  $\Delta 5n-6$  and  $\Delta 9$  desaturase activities and total lipid fatty acid composition.

Twenty male Wistar rats (5 weeks old) were randomly divided into four groups. For 2 months they were fed, a diet containing 20 % of either casein (CAS) or highly purified (97 %) soybean proteins (SP), with or without 0.1 % added cholesterol. Isolated hepatocytes were incubated with  $1-^{14}C$  18:2n-6,  $1-^{14}C$  18:3n-3,  $1-^{14}C$  20:3n-6 or  $1-^{14}C$  18:0, precursors of  $\Delta 6n-6$ ,  $\Delta 6n-3$ ,  $\Delta 5n-6$  and  $\Delta 9$  desaturation steps, respectively. Desaturation rates were then determined after HPLC partition. The fatty acid composition of the isolated hepatocytes was measured by GLC. The significant differences of the results were assessed by the DUNCAN test.

$\Delta 6n-6$ ,  $\Delta 6n-3$ ,  $\Delta 5n-6$  and  $\Delta 9$  desaturase activities were significantly lower in the SP group versus CAS group (-43, -44, -45 and -33 %).  $\Delta 6n-3$ ,  $\Delta 5n-6$  and  $\Delta 9$  desaturase activities were decreased, when cholesterol was added to the CAS diet, by 47, 62 and 48 %, respectively, while the  $\Delta 6n-6$  desaturase activity was not significantly modified.  $\Delta 6n-6$  desaturase activity was increased by 36 % and  $\Delta 9$  desatu-

ration decreased by 30 % when cholesterol was added to the SP diet. Only the addition of cholesterol to the diets modified the fatty acid composition of the isolated hepatocytes, whatever the changes in the desaturase activities.

The decreased desaturase activities with the SP diet could be explained by the lower lysine/arginine ratio in SP than in CAS, which would have an activating effect on glucagon synthesis, as glucagon is known for its inhibitory effect on desaturase activities.

**Effects of dietary lipid source and energy restriction on the liver fatty acid profile in zucker rats (*fa/fa*).** R. Cantoral<sup>a</sup>, M.T. Macarulla<sup>a</sup>, M.I. Torres<sup>b</sup>, M.P. Portillo<sup>a</sup> (<sup>a</sup>Department of Nutrition, Faculty of Pharmacy, University of País Vasco; <sup>b</sup>Department of Public Health of the City Council, Vitoria, Spain).

Genetic obesity induces disturbances in the hepatic lipid metabolism such as an increase in triglycerides, cholesterol and phospholipid concentrations and changes in the fatty acid profile. The aim of this work was to study the effects of the dietary lipid source and energy restriction on the hepatic fatty acid content.

Twenty-eight obese male Zucker rats (*fa/fa*) were divided into four groups: rats fed ad libitum (group A), rats fed a 25 % energy restricted diet which provided a standard amount of fat (group B), rats fed a 25 % energy restricted diet which provided a high amount of olive oil (group C) and rats fed a 25 % energy restricted diet which provided a high amount of coconut oil (group D). After 4 weeks of dietary treatment, animals were killed by decapitation and the livers were dissected. Liver fatty acids were measured by gas chromatography. ANOVA test was used for statistical comparisons.