

M. The glycerol in the dialysate (collected during 15-min periods) was determined by the radiometric method. The data were analysed using the Proc. mixed procedure of SAS (1996). At  $10^{-4}$  M, ISO and EPI had a response area (RA) higher ( $P < 0.05$ ) than TER (9.4, 9.7 and 3.6 mM.min, respectively). The RA during ISO infusion at  $10^{-5}$  M was higher ( $P < 0.05$ ) than the RA during EPI infusion, which was greater than the RA during TER infusion (10.1, 7.7 and 4.9 mM.min, respectively). The different  $\beta$ -A agonists had no significant lipolytic effect at  $10^{-6}$  M, nor did the  $\beta_3$ -A agonist at  $10^{-5}$  or  $10^{-4}$  M (RA of 1.0 or 0.7 mM.min, respectively). The marked lipolytic effect of EPI suggests a slight antilipolytic role of the  $\alpha_2$ -adrenoceptors. The weak lipolytic effect of TER suggests a slight lipolytic role or a desensitization of the  $\beta_2$ -adrenoceptors. The lipolytic effect of ISO is probably not due to the stimulation of the  $\beta_3$ -adrenoceptor in the ewe.

## ADAPTATION TO UNDERNUTRITION

**Nutritional recovery after fasting: restoration of body lipids and proteins versus level of depletion.** F. Decrock, J.-P. Robin, E. Mioskowski, R. Seyller, A.

Koch, H. Karmann, G. Herzberg, R. Groscolas, A.C. Bach (Centre d'écologie et physiologie énergétiques, CNRS, 67087 Strasbourg cedex 2, France).

What is the effect of the level of energy reserve depletion on body lipid and protein restoration during refeeding? Adult rats were fasted for 0 (controls), 5 (phase II of fasting; P2) or 8–16 (phase III of fasting; P3) days, and then refed ad libitum (standard diet) for 0 (R0), 3 (R3), 7 (R7) days, or until reaching (RT) initial body mass (in 6–8 days, P2RT; in 10–13 days, P3RT) and killed. Body mass, body composition, and food intake were determined.

During fasting, lipid and protein loss were 43 and 8 % (P2RO) or 81 and 18 % (P3RO). At the end of refeeding, restoration was total for proteins but partial for lipids (40 %, P2RT; 76 %, P3RT). After a massive depletion of energy reserves (P3), lipid restoration was rapid and energy efficiency high. After a moderate depletion (P2), protein restoration was rapid and energy efficiency was lower.

To conclude, the relative rate of body lipid and protein reserve restoration depends on the level of their previous loss. Lipids are preferentially restored after having been nearly exhausted.

Groups ( $9 \leq n \leq 12$ )	P2R0	P2R3	P2RT	P3R0	P3R3	P3R7	P3RT
Lipid loss/gain (g)	- 19.6 <sup>b</sup>	+ 1.2 <sup><math>\delta</math></sup>	+ 7.8 <sup><math>\gamma</math></sup>	- 36.1 <sup>a</sup>	+ 5.7 <sup><math>\gamma</math></sup>	+ 15.6 <sup><math>\beta</math></sup>	+ 27.6 <sup><math>\alpha</math></sup>
Protein loss/gain (g)	- 8.0 <sup>b</sup>	+ 5.7 <sup><math>\gamma</math></sup>	+ 9.8 <sup><math>\beta</math></sup>	- 17.9 <sup>a</sup>	+ 2.5 <sup><math>\delta</math></sup>	+ 9.1 <sup><math>\beta</math></sup>	+ 19.0 <sup><math>\alpha</math></sup>
Energy efficiency (%)	—	14.1 <sup><math>\beta</math></sup>	19.1 <sup><math>\alpha \beta</math></sup>	—	29.9 <sup><math>\alpha</math></sup>	30.8 <sup><math>\alpha</math></sup>	31.5 <sup><math>\alpha</math></sup>

Values = means; loss (-) versus controls; gain (+) versus P2R0 or P3R0; efficiency = stored energy/ingested energy; a, b (loss) or  $\alpha \dots \delta$  (loss, efficiency), significant difference ( $P < 0.05$ ; multiple comparisons).