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Heavy chains of striated muscles myosins in NMRI mice on hypocaloric diet.

Male NMRI mice 60 days old were fed (A04, U.A.R., France) *ad libitum* for 2 weeks. Their mean caloric intake was 63 kJ/d for a mean weight of 30 g (range: 28-32 g). Some animals were then submitted to a hypocaloric diet consisting in a 40% restriction of the mean spontaneous intake, while the control group was still fed *ad libitum*. In the latter, the mice continued to gain weight while the experimental animal lost about 15% weight in 7-10 d; animals used for a longer term experimental (49 d) thereafter roughly stabilized their weight. As a consequence, the weight loss in 7 weeks food deprivation was about one third weight of controls. Some animals were sacrificed after 9 d, the others after 49 d. The Soleus (SOL) and Extensor digitorum longus (EDL) were isolated; the myosin heavy chains (MHC) were separated by gel electrophoresis (SDS-PAGE 5%) and the proportion of the different MHC's was determined by densitometry of the gels MARÉCHAL *et al.* (1984). No difference with age (60-120 days) was detected in the control muscles. All observations are summarized in Table I. They show that the hypocaloric diet does not affect the composition of the SOL but that, in EDL, the proportion of MHC₁, is already significantly increased after 9 d caloric restriction and that the difference is still more apparent after 49 d. This might indicate a slowing of the EDL : the hypothesis should be confirmed by analyzing myosin light chains and by histochemical typing of the fibres. The results further suggest a greater plasticity of fast *versus* slow muscles.

Reference

MARÉCHAL, G., SCHWARTZ, K., BECKERS-BLEUKX, G. & GHINS, E. (1984) *Eur. J. Biochem.* **138**, 421-428.

TABLE 1. Effects of hypocaloric diet on the distribution of myosin heavy chains in Soleus and Extensor digitorum longus muscles of NMRI mice.

	n	MHC ₁	MHC _{2A}	MHC _{2B}
A. Soleus				
Controls	20	56.1 ± 13.2	41.7 ± 13.0	1.5 ± 3.6
Hypocaloric diet				
9 days	11	58.1 ± 7.1	40.7 ± 6.7	1.3 ± 1.7
49 days	11	56.9 ± 5.1	41.3 ± 5.1	1.7 ± 2.6
B. Extensor digi- torum longus				
Controls	7	-	11.8 ± 18.7	88.2 ± 18.7
Hypocaloric diet				
9 days	11	-	28.9 ± 4.6*	71.1 ± 4.6*
49 days	12	-	35.2 ± 4.6*	64.8 ± 4.6*

The proportion of each myosin heavy chain (MHC) is give as a percentage (mean ± S.D.) of the total MHC content. Results in experimental muscles were compared of control muscles by the Student's t-test :

**P* < 0.01; *n* is the number of muscles.