# 異なる脂質含量の食餌がラットの骨格筋ミトコンドリア酵素活性および持久性運動パフォーマンスに及ぼす影響

Effects of difference of dietary fat contents on muscle mitochondrial enzyme activities and endurance exercise performance in rats.

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**Abstract**

The purpose of this study was to determine the effect of different dietary fat contents on muscle mitochondrial enzyme activities and endurance performance in rats. Four-week-old male Wistar rats were fed either normal fat diet (12.5% of energy from fat, CON) group, or moderate fat diet (40% of energy from fat, MF) group or high fat diet (60% of energy from fat, HF) group for 4 weeks. After the 4-week diet intervention, rats performed endurance exercise test by treadmill. Three days after exercise test, plantaris muscles were dissected out for measurements of mitochondrial enzyme activities and glycogen concentration. Although the body weight was not significantly different among the three groups, relative intra-abdominal fat mass was higher in HF group than CON and MF groups. Beta-hydroxacyl-CoA dehydrogenase (β-HAD) activity in plantaris muscle was significantly higher in MF and HF groups than CON group. Muscle citrate synthase activity and glycogen concentration were not significantly different among the three groups. Endurance running performance in MF and HF groups were significantly higher compared with CON group. These results suggested that 4-wk moderate high fat diet (40% of energy from fat) improves muscle fatty acid oxidative enzyme activity and endurance performance without an increase in intra-abdominal fat mass in rats.

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