

# L-カルニチンの補助的摂取が ラット骨格筋および肝臓の糖・脂質代謝に及ぼす影響

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## Abstract

The purposes of this study was to examine the effects of L-carnitine supplementation and exercise training for 2 weeks on 1) carnitine content in skeletal muscle and 2) decreases in muscle and liver glycogen during exercise. Four- to five-week-old male Sprague-Dawley rats with an initial body weight ranging from 90 to 110 g were used for this study. Firstly, rats were randomized to either control or supplementation groups. Secondly, each group was divided into two groups of sedentary and training. Supplemented rats received a daily dose of 300mg/kg containing in drinking water. Animals in both training groups were performed 2 h of swimming exercise for 2 weeks. On the next day of the last intervention period, both groups of trained rats were performed 2 h of swimming exercise with a weight equivalent to 3 % of their body weight to assess the glycogen-sparing effect. L-carnitine supplementation for 2 weeks enhanced total carnitine content in serum up to about 120% ( $p<0.001$ ) only by 14% in muscle ( $p<0.05$ ). Combined treatment of L-carnitine supplementation and exercise training induced decrease of retroperitoneal fat mass by 60% ( $p<0.01$ ). However, no significant differences were observed in glycogen concentration of muscle and liver decreased during 2 h of swimming exercise between carnitine supplementation and control groups. These results might suggest that L-carnitine supplementation for 2 weeks could not spare glycogen in muscle and liver during exercise, suggesting that it could not enhance fatty acid oxidation. The present investigation also provided possibility that combined L-carnitine supplementation and exercise training might have the effect of decreasing visceral fat.

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