

ABSTRACT

Introduction: L-carnitine is essential substance in beta oxidation in mitochondria that transport acyl into mitochondria and promote catabolism of fatty acids. Now prevalence of obesity in developing country is increasing, and its comorbidities cause some health problem. There is found higher number of plasma fatty acid in obese individual than the normal weight and the effect of L-carnitine to reduce obesity is not well performed.

Method: Aim of this research is to find the relation between weight loss and L-carnitine supplementation. Using separate sample before and after treatment, with randomization, 24 *Mus musculus* of BALB/c strain divided into 4 groups. One group as a control (K1), one group use swimming-only treatment (K2), one group L-carnitine-only treatment (K3), and swimming L-carnitine combined treatment (K4) for 21 days of treatment. And the dependent variable is mice body weight. The collected data then performed statistical test using Pearson correlation test.

Result: weight loss is happen in all groups but none of them has significant different between control group weight loss and treatment control weight loss (K2: 0,116; K3: 0,589; K4: 0,186). There is a greater weight loss in K2 than in K4, but K2 sample show some unhealthy condition because of the exercise. In other publication this condition is called exercise-induced muscle tissue damage.

Conclusion: There is no relation between weight loss and L-carnitine supplementation with or without exercise. But there is observed increasing of muscle resistance than non-L-carnitine supplemented.

Keywords: *L-carnitine, Exercise, Mice, Weight loss, Swimming*