Effects of exercise combined with licorice flavonoid oil supplementation on visceral adipose tissue

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Purpose: We investigated the effects of exercise combined with licorice flavonoid oil (LFO) on visceral adipose tissue.

Methods: Male Sprague-Dawley rats divided into four groups: control, exercise, control with LFO, and exercise with LFO group. The rats in the exercise groups run on a treadmill 5 times a week, and those with LFO were orally administered with LFO daily for 7 weeks. The epididymal white adipose tissue mass, the adipocyte cell size, and the fat oxidation-related enzyme, e.g., CS, HAD and CPT-2, activities in the plantaris muscle and liver were measured.

Results and Discussion: The visceral adipose tissue mass and adipocyte cell size were decreased in exercise and LFO. Additionally, those in exercise combined with LFO were reduced more effectively. The muscular CS and HAD activities in the exercise groups were increased. The hepatic CPT-2 activity was enhanced by the treatment with LFO. Thus, exercise and LFO enhanced the muscular and hepatic lipid metabolism, respectively. Furthermore, exercise combined with LFO effectively reduced visceral adipose tissue. These results indicated that exercise combined with LFO supplementation might be effective to decrease the risk from obesity.

Key Words: licorice flavonoid oil, exercise, lipid metabolism

The combined effect of exercise and hydrolyzed collagen intake on bone growth

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Purpose: Some studies have shown that dietary hydrolyzed collagen peptides (HC) effectively prevent age-related bone loss. However, it is not known whether the intake of HC also has a positive effect on bone growth. The aim of this study is to investigate the effect of HC intake combined with treadmill running exercise on bone growth.

Methods: Male Wistar rats, 5 weeks of age were randomized into three groups, the sedentary casein group (C), the exercise casein group (E), and the exercise HC group (CP). Exercise group rats were trained 6 days per week on a treadmill for 60 days. After being sacrificed, their bone length, bone mineral density (BMD) and bone strength were evaluated.

Results and Discussion: The length and BMD of femur were higher in E and CPE groups than in C group. The breaking force of femur was significantly higher in CPE group than in C group. The present study demonstrated that HC intake combined with treadmill running exercise increased bone mass and strength during growth period.

Keywords: hydrolyzed collagen peptides, bone mineral density, bone strength, physical exercise, growing phase