

Experimental Study on the Antifatigue Effect of Icariin

Mosi Chen¹, Qi Li², Chenglan Su¹, Yuping Chen¹, Li Dai¹ and Genlin Chen^{1*}

¹School of Basic Medical Sciences, Jiangsu Vocational College of Medicine, Yancheng, Jiangsu, China

²Department of Neurosurgery, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, Hubei, China

Abstract: Fatigue is a serious disturbance to human health, especially in people who have a severe disease such as cancer, or have been infected with COVID-19. Our research objective is to evaluate the anti-fatigue effect and mechanism of icariin through a mouse experimental model. Mice were treated with icariin for 30 days *and* anti-fatigue effects were evaluated by the weight-bearing swimming test, serum urea nitrogen test, lactic acid accumulation and clearance test in blood and the amount of liver glycogen. The protein expression levels of adenosine monophosphate-activated protein kinase (AMPK) and peroxisome proliferator-activated receptor-gamma coactivator-1alpha (PGC1- α) in the skeletal muscle of mice in each group were measured by western blotting. Results showed that icariin prolonged the weight-bearing swimming time of animals, reduced the serum urea nitrogen level after exercise, decreased the blood lactic acid concentration after exercise and increased the liver glycogen content observably. Compared to that in the control group, icariin upregulated AMPK and PGC1- α expression in skeletal muscle. Icariin can improve fatigue resistance in mice *and* its mechanism may be through improving the AMPK/PGC-1 α pathway in skeletal muscle to enhance energy synthesis, decreasing the accumulation of metabolites *and* slowing glycogen consumption and decomposition.

Key words: Icariin, Antifatigue, AMPK, PGC1- α
