The effects of 4 weeks training mediates apelin on the p-AMPK(Thr172)/AMPK ratio in skeletal muscle of mice

Tieying Li, Ying Zhang
Beijing Sport University

Objective To investigate the effects of 4 weeks aerobic exercise mediates apelin on the p-AMPK(Thr172)/AMPK ratio in skeletal muscle of mice.

Methods The C57BL/6j wild type mice (n=40) were randomly divided into four groups: control group (WC), exercise group (WE), apelin injection control group (AC) and apelin injection exercise group (AE), with 10 mice in each group. Apelin injection group mice were intraperitoneally injected with apelin (0.1 μmol/kg/day) for 4 weeks. At the same time, the exercise groups mice underwent 60min/day treadmill running with a slope of 5° at the speed of 15m/min for 2 weeks, and the speed was adjusted to 20m/min in the later 2 weeks. 48 h after the final exercise session quadriceps muscles were harvested. The protein expression of apelin, APJ, AMPKα and p-AMPKα (Thr172) in skeletal muscle was determined by Western Blot.

Results (1) Compared with WC group, the protein expression of apelin, APJ, p-AMPKα (Thr172)/AMPKα ratio in AC group skeletal muscle of mice were increased; (2) Compared with WE group, the p-AMPKα (Thr172) / AMPKα ratio in AE group skeletal muscle of mice were increased.

Conclusions Apelin supplementation for 4 weeks can up-regulate AMPK protein activity in skeletal muscle both in sedentary group and exercise group.