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### Effects of HIIT and MICT for 10 weeks on myocardial AMPK and PGC-1 $\alpha$ in rats

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**Objective:** The improvement of cardiorespiratory fitness (CRF) is known as an effective strategy for prevention cardiovascular risk. Myocardial aerobic oxidation which control by the signal way of adenosine monophosphate -activated protein kinase (AMPK)- peroxisome proliferators  $\gamma$  activated receptor coactivator-1- $\alpha$  (PGC-1 $\alpha$ ) is the key for CRF. Previous studies only discuss the effect of the Moderate-Intensity Continuous Training (MICT) and High Intensive Interval Training (HIIT) on the signal way of AMPK- PGC-1 $\alpha$  in skeletal muscle but not in the myocardium. The aim of this study was to compare the effects of 10 weeks HIIT and MICT on the expression of AMPK and PGC-1 $\alpha$  in the myocardium of wistar male rats.

**Methods:** Wistar male rats (n=30) aged 6 weeks were randomly divided into HIIT or MICT or control (CON) group. The training groups ran on a treadmill 5 days/week for 10 weeks. HIIT group ran six times 3 minutes (0° slope) 90% of Vmax separated by 3 minutes 50% of Vmax and MICT group ran for 50min (0° slope) at 60–70% of maximal speed (Vmax). The expression of AMPK and PGC-1 $\alpha$  were assessed by Western Blotting.

**Results:** After 10 weeks training, HIIT and MICT both increased the AMPK and PGC-1 $\alpha$  expression compared with the CON group. Compared with the MICT group, the expression of AMPK and PGC-1 $\alpha$  were significantly higher than the HIIT group (p<0.05). AMPK in MICT group were significant increased 1.16 times, and in HIIT group were significant increased 1.28 times to CON (P<0.05). PGC-1 $\alpha$  level of HIIT was significant increased to 1.32 times to CON and also significant increased to 1.15 times to Group M (P<0.05); PGC-1 $\alpha$  level of MICT was significant increased to 1.15 times to CON.

**Conclusion:** HIIT seems to improve myocardial AMPK and PGC-1 $\alpha$  more efficiently than MICT in rats after 10 weeks training.