

## عنوان مقاله:

The Effect of Endurance Activity on Pgc-1 Alpha Gene Expression in Soleus and Extensor Digitorum Longus Muscles of Adult Male Wistar Rats

## محل انتشار:

مجله علمی پژوهشی دانشگاه علوم پزشکی زنجان, دوره 24, شماره 106 (سال: 1395)

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## خلاصه مقاله:

**Background and Objective:** Endurance activity affects muscle gene expression leading to the improvement of its function and effectiveness. Meanwhile, PGC-1 alpha transcription factor increases mitochondrial biogenesis in skeletal muscles. This study was designed to investigate the effect of an endurance activity program on pgc-1 alpha expression gene of fast and slow twitch muscles. **Materials and Methods:** 14 male wistar rats weighing  $113 \pm 20$  grams under controlled conditions were housed after familiarization ( $231 \pm 24$  grams) and then were randomly assigned to control ( $n=7$ ) and treatment ( $n=7$ ) groups. The treatment group performed an endurance activity program ( $30$  m/min,  $50$  min, and  $6$  sessions per week for 14-weeks) on a motorized treadmill. 48 hours after the end of the last session, the rats in both groups were anesthetized and sacrificed and the soleus and extensor digitorum longus muscles were removed. Real time RT-PCR was used to determine expression levels of pgc-1 alpha gene. T-test was used to compare the results. **Results:** 14 weeks of endurance activity increased pgc-1 alpha gene expression in extensor digitorum longus and soleus muscles. The rate of this gene expression in soleus muscle of treatment group was significantly higher ( $P=0.0001$ ) in comparison to the control group and also in the treatment group extensor digitorum longus muscle was significantly more ( $P=0.006$ ) than the control group. **Conclusion:** Though endurance activity has similar effect on slow and fast twitch pgc-1 alpha gene expression, it seems that the intensity of this effect is higher in slow twitch muscle.

## کلمات کلیدی:

Keywords: Pgc-1 alpha gene, Endurance activity, Soleus, Extensor digitorum longus

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