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PPAR $\alpha$ 与运动改善脂质代谢的关系 [点此下载全文](#)

[张 玥](#) [姜 宁](#) [苏 丽](#) [牛燕媚](#) [苑 红](#) [傅 力](#)

天津体育学院运动医学研究所,运动人体科学系,天津,300381

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摘要:

目的:通过观察运动后小鼠血脂及肝脏中脂质代谢相关基因的变化来探讨PPAR $\alpha$ 与运动改善高脂血症小鼠脂质代谢的关系,深入研究运动改善血脂的可能作用机制。方法:将雄性C57BL/6小鼠60只随机分为正常饮食安静组(NC)、正常饮食运动组(NE)、高脂饮食安静组(HC)、高脂饮食运动组(HE)。同时,NE和HE组分别进行为期8周的无负重游泳训练。采用酶法和比色法分别检测血脂和游离脂肪酸(FFA)水平,并采用Northern Blot法、Western Blot法检测各组小鼠肝脏中PPAR $\alpha$ 、CPT-1基因及蛋白表达。结果:高脂饮食条件下,HE组比HC组TG、TC、LDL分别降低了17.2%、20%、42.1%,HDL升高了23.1%,均具有显著性差异。同时,HE比HC中FFA也降低了37.4%。运动组肝脏中PPAR $\alpha$ 的mRNA和蛋白表达均较安静组有所提高,尤其在HE中其表达量比HC提高显著。结论:运动可有效改善血清脂质水平和促进脂肪酸的利用,可使肝脏中PPAR $\alpha$ 、CPT-1表达量在转录和翻译水平上均有所提高,机制可能在于运动提高了机体对脂肪酸的利用,激活了PPAR $\alpha$ ,从而提高了CPT-1的表达。

关键词: [耐力运动](#) [血脂](#) [过氧化物酶体增殖物激活受体- \$\alpha\$](#)  [肉碱脂酰转移酶-1](#)

The study of PPAR $\alpha$  in the process of exercises improving lipid metabolism [Download Fulltext](#)

Tianjin Institute of Sports Medicine, Department of Health & Exercise Science, Tianjin Institute of Physical Education, Tianjin, 300381, China

Fund Project:

Abstract:

Objective: To evaluate C57BL/6 mouse blood-lipid profile and the expressions of lipid metabolism related genes in liver. To explore the relationship between PPAR $\alpha$  and endurance exercises in improving blood lipid profile and its possible mechanism. Method: Sixty 6-week old male C57BL/6 mice were randomly divided into normal diet control group (NC), normal diet exercises group (NE), high fat diet control group (HC), and high fat diet exercises group (HE). The NE and HE mice were required to swim for 8 weeks. Blood-lipid and FFA in mice were detected by enzyme and colorimetry methods respectively. Expressions of PPAR $\alpha$  and CPT-1 mRNA and protein in mice liver were detected by Northern blot and Western blot techniques respectively. Result: Comparing to HC group, serum TG, TC, LDL-C levels decreased by 17.2%, 20% and 42.1% separately in HE group, HDL level increased by 23.1%, all differences were significant. IN HE group FFA decreased by 37.4% more than that in HC group. The expressions of PPAR $\alpha$  mRNA and protein of liver in exercises groups increased significantly compared to its control groups, especially in HE. Conclusion: Exercises can improve the serum lipid profile and FFA metabolism, and increase the expressions of PPAR $\alpha$  and CPT-1 in liver on transcription and translation level. Exercises can improve metabolism of lipid and utilization of fatty acids. The possible mechanism is exercises can activate PPAR $\alpha$  and further promote the expression of CPT-1.

Keywords: [endurance exercises](#) [blood-lipid](#) [peroxisome proliferator activated receptor- \$\alpha\$](#)  [carnitine palmityltransferase-1](#)

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地址: 北京市和平街北口中日友好医院 邮政编码: 100029 电话: 010-64218095 传真: 010-64218095

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