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运动训练对心肌梗死后心室重构及MMP-2, MMP-9表达的影响 [点此下载全文](#)

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摘要:

摘要目的: 观察大鼠心肌梗死(MI)后早期运动训练对左心室(LV)重构、心室功能、心肌间质胶原、基质金属蛋白酶(MMPs)的影响。方法: SD大鼠随机分为假手术组(Sham组)、MI对照组(AMI-Sed组)和MI+运动训练组(AMI-Ex组), 结扎前降支建立MI模型。手术后1周Ex组进行8周跑台训练(运动强度相当于45%VO₂max), 术后第9周测量各组大鼠左心室重量、血液动力学参数, 处死大鼠, 用Masson染色检测左心室非梗死区心肌胶原容积分数(CVF), RT-PCR检测I、III型胶原纤维mRNA表达, Western blot检测非梗死区心肌基质金属蛋白酶-2(MMP-2)及基质金属蛋白酶-9(MMP-9)蛋白表达。结果: 与Sham组比较, AMI-Sed、AMI-Ex组左心室重量指数(LVWI)和左心室长轴径(LVLA)均显著增加(P<0.05), 运动训练对LVWI和LVLA无明显影响; 与AMI-Ex组比较, AMI-Sed组RVWI、肺含水率显著增高, 左心室压峰值(LVSP)和左心室压力变化最大值(+dp/dt max)显著降低, 左心室压力负最大值(LVEDP)显著升高(P均<0.05); 与AMI-Sed组比较, AMI-Ex组大鼠左心室非梗死区CVF降低, I、III型胶原纤维mRNA表达量均降低(P<0.05), 以I型胶原纤维表达降低为著; 与Sham组比较, AMI-Sed、AMI-Ex组MMP-2表达均显著升高(P<0.05), MMP-9无显著变化; AMI-Ex组MMP-2蛋白表达显著低于AMI-Sed组(P<0.05)。结论: AMI后早期运动训练可抑制非梗死区心肌纤维化、改善左心室重构及左心室功能, 机制可能与抑制胶原纤维合成有关, MMP-2表达变化对此可能发挥一定作用。

关键词: [心肌梗死](#) [心室重塑](#) [运动](#) [胶原](#) [基质金属蛋白酶-2](#) [基质金属蛋白酶-9](#)

Effects of exercises training on myocardial remodeling and MMP-2 and MMP-9 expressions in post myocardial infarction rats [Download Fulltext](#)

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Fund Project:

Abstract:

Abstract Objective: To investigate the role of exercises training(ET) on left ventricular(LV) remodeling and dysfunction in post-ischemic failing rats by ligation of the left descending coronary artery. Method: Adult SD male rats were randomly assigned to three experimental groups including sham-operated group, post-MI control group (AMI-Sed) and MI+exercises group(AMI-Ex). Rats were housed under sedentary conditions and assigned to 8-week treadmill exercise protocol. Result: Comparing with AMI-Sed groups, in AMI-Ex group collagen volume fraction(CVF) of LV non-infarction area decreased and pulmonary congestion reduced(P<0.05), LVSP and +dp/dt max improved, but LVEDP increased(P<0.05). AMI-Ex group was associated with normalization of the MI-induced decrease in type I procollagen and type III procollagen mRNA levels (P<0.05). Also, it showed that exercise decreased MMP-2 protein expression in non-infarcted LV, but ET and MI had no effect on MMP-9 protein expressions in AMI-Ex rats. Conclusion: Early ET in rats after AMI may have beneficial effect on LV remodeling and pumps function by attenuating type I and III procollagen and MMP-2 expression. It suggests that early exercises training is a positive clinically relevant option in post-MI rehabilitation.

Keywords: [myocardial infarction](#) [ventricular remodeling](#) [exercises training](#) [collagen](#) [matrix metalloproteinase-2](#) [matrix metalloproteinase-9](#)

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