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饮食和运动干预对2型糖尿病大鼠心肌Bcl-2和Bax表达的影响 [点此下载全文](#)

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摘要:

目的: 探讨饮食和运动对2型糖尿病大鼠心肌Bcl-2和Bax表达的影响. 方法: 雄性SD大鼠30只, 分成对照组 (CRN) 和模型组 (DFM). DFM组采用高糖高脂喂养加低剂量链脲佐菌素 (35mg/kg) 注射建立2型糖尿病模型. 然后随机分成糖尿病高糖高脂饲料非运动组 (DFN)、糖尿病常规饲料非运动组 (DRN)、糖尿病常规饲料高强度运动组 (DRH)、糖尿病常规饲料低强度运动组 (DRL). 采用活动平板耐力运动8周. 结果: DFM组空腹血糖、甘油三酯、胆固醇均较CRN组显著升高 ($P < 0.05$), 胰岛素水平两组间无显著差异. 心肌Bcl-2基因表达和Bcl-2/Bax比值在糖尿病各组均较CRN组显著降低, 其中饮食调整和运动各组均较DFN组显著升高 ($P < 0.05$), DRL组又明显高于DRH组 ($P < 0.01$). 心肌Bax基因表达在糖尿病非运动各组显著高于CRN组, 饮食调整和运动各组显著低于DFN组 ($P < 0.05$), 饮食调整加运动各组又明显低于DRN组 ($P < 0.05$). 结论: 饮食调整和运动均能诱导糖尿病大鼠的心肌抗凋亡基因的表达, 饮食调整加低强度耐力运动效果尤为显著; 饮食加运动可以减少促凋亡基因的表达.

关键词: [运动](#) [饮食](#) [2型糖尿病](#) [心肌凋亡](#)

Effects of diet and endurance training on the expression of Bcl-2 and Bax mRNA in cardiac muscle of type 2 diabetic rats [Download Fulltext](#)

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Abstract:

Objective: To investigate the effects of diet and endurance exercise on the expression of Bcl-2 and Bax in cardiac muscle of type 2 diabetic rats. Method: 30 male Sprague-Dawley rats (200g) were divided into euglycemic control group (CRN, n=6, with commercially regular diet) and diabetic model group (DFM, n=24, with high sucrose diet with high fat). After 4 weeks of dietary manipulation, the DFM was intraperitoneally injected with low dose of streptozotocin (STZ) (35mg/kg) to induce type 2 diabetic model. The diabetic rats were randomly divided into four groups: high sucrose and fat diet without exercise (DFN), regular diet without exercise (DRN), regular diet with 75%VO₂max exercise (DRH), regular diet with 55%VO₂max exercise (DRL). The rats with exercise training were forced to run on treadmill for 8 weeks. Result: The levels of fasting blood glucose, plasma insulin, plasma triglyceride and cholesterol in DFM were significantly higher than those in CRN at the end of 4th weeks of dietary manipulation. The level of blood glucose in DFM increased significantly at the end of 1 week after STZ injection compared with CRN. There was not difference in levels of plasma insulin at the end of 9 weeks after STZ injection between the two groups. The expression of Bcl-2 mRNA in cardiac muscle of CRN group increased significantly compared with all diabetic rats, in which that in DRN, DRH, DRL groups were significantly higher than that of DFN group, and that in DRL group was markedly higher than that in DRH group. Conclusion: Diet and endurance training, especially diet plus low intensity exercise, can improve the expression of antiapoptotic gene in cardiac muscles of diabetic rats. The diet plus exercise can attenuates the expression of apoptotic gene in cardiac muscles of diabetic rats.

Keywords: [exercise](#) [dietary](#) [type 2 diabetic mellitus](#) [cardiac apoptosis](#)

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