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饮食和运动干预对2型糖尿病大鼠骨骼肌Cu/ZnSOD mRNA表达的影响 [点此下载全文](#)

[王磊](#) [江钟立](#) [招少枫](#)

南京医科大学第一附属医院康复医学科, 南京医科大学第一附属医院康复医学科, 南京医科大学第一附属医院康复医学科 南京市广州路300号, 210029, 南京市广州路300号, 210029, 南京市广州路300号, 210029

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摘要:

目的: 探讨饮食和运动对糖尿病大鼠骨骼肌细胞Cu/ZnSODmRNA表达及其血浆酶活性的影响。方法: 雄性Sprague-Dawley大鼠24只采用高糖高脂饮食后腹腔注射小剂量链脲霉素, 建立糖尿病模型, 随机分为4组: 糖尿病高脂饲料非运动组 (DFN, n=6), 糖尿病常规饲料非运动组 (DRN, n=6), 糖尿病常规饲料低强度运动组 (DRL, n=6), 糖尿病常规饲料高强度运动组 (DRH, n=6)。活动平板进行耐力训练8周, 测定骨骼肌Cu/ZnSODmRNA和血浆Cu/ZnSOD活性的变化。结果: 两运动组骨骼肌Cu/ZnSODmRNA表达显著高于DFN组和DRN组, 两运动组之间无显著差异。两运动组血浆Cu/ZnSOD活性显著高于DFN组和DRN组, DRN组血浆Cu/ZnSOD活性显著高于DFN组。结论: 饮食调整加运动训练可以促进糖尿病大鼠骨骼肌Cu/ZnSODmRNA表达, 提高Cu/ZnSOD酶活性, 而运动强度对此无显著影响。

关键词: [运动](#) [饮食](#) [2型糖尿病](#) [铜锌超氧化物歧化酶](#) [基因表达](#)

Effects of diet and exercise training on Cu/ZnSOD gene expression in skeletal muscle of type 2 diabetic rats [Download Fulltext](#)

WANG Lei, JIANG Zhongli, ZHAO Shaofeng Dept. of Rehabilitation Medicine, The First Affiliated Hospital of Nanjing Medical University, Nanjing, 210029

Fund Project:

Abstract:

Objective: To explore the effects of diet and exercise training on gene expression of skeletal muscle and plasma activities in Cu/ZnSOD in type 2 diabetic rats. Method: Twenty-four male Sprague-Dawley rats were fed on high sucrose diet with high fat for 4 weeks and then injected with low dose of streptozotocin to establish type 2 diabetic model. The diabetic rats were divided randomly into four groups: high sucrose and fat diet without exercise (DFN), regular diet without exercise (DRN), regular diet with 75%VO₂max exercise (DRH), The animals with 55%VO₂max exercise (DRL). The animals with exercise training were forced to running on motorized treadmill for 8 weeks. The mRNA expression of skeletal muscle and plasma activity in Cu/ZnSOD were measured. Result: The plasma Cu/ZnSOD activities in the two exercise training groups were significantly higher than that in the DFN and DRN groups, in which plasma Cu/ZnSOD activities in DRN group were remarkably higher than that in DFN group. The expression of Cu/ZnSOD mRNA in skeletal muscle increased significantly in the two exercise training groups, in which there were no significant differences between the two exercise training groups. Conclusion: Diet plus exercise training can enhance mRNA expression of skeletal muscle and plasma activity in Cu/ZnSOD which is not associated with the intensity of exercise training.

Keywords: [Cu/Zn-Superoxide dismutase](#) [exercise training](#) [diet](#) [diabetic rat](#) [gene expression](#)

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