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运动疲劳恢复期不同时相大鼠丙二醛含量、超氧化物歧化酶活性及相关指标动态变化特征

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陈 万 田诗彬 吴春燕 高 丽 任雷杰

山东体育学院基础理论系，济南，250102

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摘要：

摘要目的：探讨大鼠骨骼肌丙二醛（MDA）含量和超氧化物歧化酶（SOD）活性在运动疲劳恢复期不同时相的动态变化特征。方法：选取雄性健康2月龄SD大鼠32只，分为对照组（n=8）、实验组E组(n=24)，取材时实验组又分为运动后即刻组(E0组n=8）、12h组(E1组n=8）、24h组(E2组n=8）。对照组正常生长，实验组采用7周递增负荷训练，并最后一次运动竭。最后一次运动至力竭后即刻，取S组和E0组血液及股四头肌，以测血清CK、BUN、睾酮和骨骼肌SOD及MDA；E1组和E2组分别于运动后12h、24h进行上述取样。结果：①大鼠骨骼肌M量：E0组和E1组显著性高于S组（P<0.01），E1组和E2组显著性低于E0组（P<0.05），E2组显著性低于E1（P<0.05）。②大鼠骨骼肌SOD活性：E1组显著性低于S组（P<0.05），E2组显高于E1组（P<0.05）。③大鼠骨骼肌SOD/MDA值：E0和E1组显著性低于S组（P<0.01），E2组显著性高于E0（P<0.01）和E1组（P<0.05）。结论：7周递增负荷运动并末次力竭运动后，骨骼肌MDA含量显著升高，且24h后基本降低至正常水平；骨骼肌SOD活性降低，随时间的延长，SOD活性逐渐降低且下降到一定水平后开始上升，于24h后恢复至正常水平。

关键词：大鼠 运动疲劳 丙二醛 超氧化物歧化酶

Dynamic changing features of MDA, SOD and related parameters in rats during different phases of recovery period after exhaustive running Download Fulltext

Shandong Sport University,10600 Century Thoroughfare,Jinan City,Shandong Province,250102

Fund Project:

Abstract:

Abstract Objective: To investigate the dynamic changing features of malondialdehyde（MDA）, superoxide dismutase（SOD） and related parameters in rats du different phases of recovery period of fatigue. Method: Thirly-two male SD rats (2 month old) were randomly divided into control group (S group, n=8) and experimental group (E group,n=24). At the sampling time, the experimental group were randomly subdivided into immediate(E0, n=8), 12h (E1, n=8) and 24h (E2, n= subgroups. All rats in experimental group were assigned a 7-week training program with different increasing loads and a final exhaustive running. The serum cre kinase(CK), blood urea nitrogen(BUN) and testosterone were measured from the blood samples. The MDA content and SOD activity were measured from femoral quadric muscles. Result: ①MDA contents of E0 and E1 subgroups were significantly higher than that of S group, respectively (P<0.01), MDA contents of E1 and E2 subgrou were significantly lower than that of E0 subgroups, respectively (P<0.05), and MDA content of E2 subgroups was significantly lower than that of E1 subgroups (P<0.05); ②SOD activity of E1 subgroups was significantly lower than that of S group(P<0.05) and SOD activity of E2 saubgroups was significantly higher than t of E1 subgroups(P<0.05); ③The ratio of SOD/MDA of E0 and E1 subgroups were significantly lower than that of S group, respectively (P<0.01), and SOD/MDA of E2 sabgroups was significantly higher than that of E0 (P<0.01) and E1 (P<0.05) subgroups respectively. Conclusion: After a 7-week training program with increasing loads and a final exhaustive running, MDA content in rats significantly increased both in immediate and 12h subgroups post running, and then returned to baseli 24h of recovery period; SOD activity decreased with the time course and significantly lower at the 12th h, and then returned to baseline at the 24th h of recov period.

Keywords:rat sports fatigue malondialdehyde superoxide dismutase

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