

王福文,赵敬国,王纯雨,胡志力,李杰.反复力竭性运动后不同时相大鼠心电图的动态改变[J].中国康复医学杂志,2010,(11):1030-1034

反复力竭性运动后不同时相大鼠心电图的动态改变 [点此下载全文](#)

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基金项目:山东省自然科学基金项目(ZR2009CM089),山东省教育厅科技计划项目(J07YE09)

DOI:

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摘要:

摘要目的:观察大鼠反复力竭性游泳运动前、后不同时相心电图(ECG)的动态改变,以评价运动性心肌损伤的变化规律。**方法:**采用经典的Thomas的方法通过力竭性游泳运动建立运动性心肌损伤实验动物模型。ECG检测采用DSI植入式心电信号遥测系统。健康无训练的Wistar雄性大鼠24只,尾部负体重2%的负荷,每天游泳运动至力竭状态(一次游泳时间不小于3h),连续1周(7天)。分别于运动前和末次力竭性游泳运动结束后即刻、1h、3h、6h、12h、24h、48h和96h不同时相记录ECG。**结果:**经1周反复力竭性游泳运动后,大鼠心电图主要发生了两种心肌缺血损伤性ST-T改变(发生率为100%)。①运动后即刻大鼠心电图ST段明显抬高和T波高耸;6h—12h基本恢复;24h—48h ST段又有明显抬高,T波幅度升高、高耸;96h ST段有所下移、T波幅度恢复但变窄(发生率为79.17%)。②运动后即刻心电图T波明显低平;运动后3h—6h ST段有所下移,T波逐渐恢复;12h—24h ST段恢复,T波双峰、变宽、高耸;48h ST段显著下移,T波再次低平,随后动物发生死亡(发生率为20.83%)。心律失常发生率为45.83%。**结论:**反复力竭性运动后不同恢复期,大鼠心电图呈现两次周期性损伤性ST-T改变,说明大鼠心肌存在有早期和延迟性的损伤性改变,运动心电图对运动性心肌损伤具有重要的诊断意义,为临床诊断和康复治疗提供理论依据。

关键词: [力竭性运动](#) [心肌损伤](#) [心电图](#) [DSI遥测系统](#) [大鼠](#)

The dynamic changes on ECG in different time cases after repeated exhausted exercise in rats [Download Fulltext](#)

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Abstract:

Abstract Objective: To study the dynamic changes on electrocardiograms (ECG) in different time periods after repeated exhausted exercise in rats, in order to evaluate the changing rule of exercise-induced myocardial damage. **Method:** The animal models of exercise-induced myocardial injury were established according to Thomas' s method. Healthy untrained 24 male Wistar rats, with 2% bodyweight attached to each tail, were forced to swim until exhaustive (swimming time exceeded 3 hours daily) for 1 week. ECG (lead II) was recorded and analyzed with DSI cardio-vascular radiotelemetry system at before exercise and immediately, 1, 3, 6, 12, 24, 48 and 96 hours after consecutive daily exhausted swimming, the two kinds of ST-T change patterns on ECG were observed as follows in rats (100%): ① Compared with pre-exercise, the ECGs revealed ST segment elevating significantly and great risen T waves at immediately after exhausted exercise, and near to normal level 6 hours later, then ST segment re-elevation with high and sharp T wave at 24, 48 hours and ST segment depression with narrow T wave at 96 hours post-exercise (79.17%). ② The ECGs in rats showed obviously T wave flat at immediately post-exercise, ST segment depression with T wave recovering gradually at 3, 6 hours post-exercise, then ST segment recovering with wide and soaring double-peak T wave at 12, 24 hours later, and significant ST segment depression associated with T wave flat at 48 hours post-exercise, finally the rats died (20.83%). The arrhythmia takes place (45.83%). **Conclusion:** The ECGs of rats revealed two cyclic ST-T changes in different phases after exhausted exercise. The results suggest that there are early myocardial injury and delayed-onset myocardial injury in rats, Athletic electrocardiogram have an important diagnosis value on myocardial injury induced-exercise.

Keywords: [exhausted exercise](#) [myocardial injury](#) [electrocardiogram](#) [DSI radiotelemetry system](#) [rat](#)

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