

Perubahan kadar PGC-1 $\hat{\pm}$ dan LDH B jaringan jantung tikus dewasa pada latihan interval dan kontinu = The Changes in PGC-1 $\hat{\pm}$ and LDH B levels of adult rat cardiac tissue after interval and continuous training

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Abstrak

ABSTRAK

Mitochondria biogenesis dipengaruhi oleh peroxisome proliferator-activated receptor gamma coactivator-1 $\hat{\pm}$ (PGC-1 $\hat{\pm}$) yang dapat diinduksi melalui latihan fisik. Latihan fisik memiliki variasi: latihan kontinu (durasi lama) dan latihan interval (durasi singkat). Selama latihan fisik, laktat yang dihasilkan otot rangka dapat digunakan sebagai sumber energi di jantung yang akan diubah oleh laktat dehidrogenase B (LDHB). Tujuan penelitian ini, untuk membandingkan perubahan kadar PGC-1 $\hat{\pm}$ dan LDH B di jaringan jantung tikus dewasa setelah diberikan latihan interval dan kontinu. Penelitian ini menggunakan 15 ekor tikus Wistar dewasa usia 12 bulan dibagi secara acak menjadi 3 kelompok (n=5). Latihan fisik dilakukan menggunakan treadmill tikus dengan kecepatan yang dinaikkan bertahap selama 8 minggu dengan frekuensi 5 kali perminggu. Pengukuran kadar PGC-1 $\hat{\pm}$ dan LDH B menggunakan metode ELISA. Uji statistik menggunakan One Way Anova dan korelasi Pearson. Hasil penelitian menunjukkan terdapat perbedaan bermakna antara kelompok interval dan kontinu terhadap kadar PGC-1 $\hat{\pm}$ (P<0.05). Tidak terdapat perbedaan bermakna antar kelompok terhadap kadar LDH B. Tidak terdapat korelasi antara kadar PGC-1 $\hat{\pm}$ dan LDH B pada jaringan miokardium tikus dewasa.

ABSTRACT

Mitochondrial biogenesis is affected by peroxisome proliferator-activated receptor gamma coactivator-1 $\hat{\pm}$ (PGC-1 $\hat{\pm}$), and can be induced through physical exercise. Physical exercise has variations: continuous training (long duration) and interval training (short duration). During physical exercise, lactate from skeletal muscle produced can be used as an energy source in the hearth through conversion by lactate dehydrogenase B (LDH B). The purpose of this study was to compare in PGC-1 $\hat{\pm}$ and LDH B levels of adult rat cardiac tissue after interval and continuous training. This study used 15 adult Wistar rats aged 12 month, divided into 3 groups (n=5). Training was conducted using a rodent treadmill with gradually increased of speed for 8 weeks and frequency of 5 days/weeks. PGC-1 $\hat{\pm}$ and LDH B levels in heart tissue were measured using ELISA. Statistical tests using One Way Anova and Pearson correlation. The result showed that there were significant differences between interval and continuous training groups of PGC-1 $\hat{\pm}$ levels (p<0.05). There were no significant differences between groups of LDH B levels. There was no correlation between PGC-1 $\hat{\pm}$ and LDH B levels in adult rat cardiac tissue.