Recovery of heart rate variability after aerobic or anaerobic exercises

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The pathway of human energy metabolism is separated by aerobic or anaerobic pathway. The autonomic nervous system (ANS) can be observed through heart rate variability (HRV), and is trainable. Purpose: Compared the differences of HRV during recovery periods after aerobic and anaerobic exercise. Methods: Subjects were 8 healthy college males, aged 20.88±0.64 years, height 175.03±6.78 cm, weight 72.94±9.67 kg, body fat percent 16.05± 4.61%. Aerobic type identified with GXT; and anaerobic type identified with Wingate test. Every subject completed both two tests and take 30-min recovery period HRV, two tests separated by at least 48 hr. Two-way ANOVA was used to examine the impact of exercise types on HRV during recovery periods (a=.05). Results: RR interval have interaction between exercise type and recovery period (F=8.43, p<.05), and no different in exercise type (F=8.43, p>.05). Moreover, there have no interaction (F=0.03, p>.05) on SDNN, and no in recovery period (F=1.28, p>.05) but has different in exercise type (F=6.07, p<.05). Conclusion: recovery of HRV is faster after anaerobic exercise, so stimulation was lower. Therefore, suggest when train ANS, using aerobic exercise type is preferable.

The Effects of 8-week Continuous and Intermittent Exercise Training on Heart Rate Variability

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Purpose: Compare the influence of 8-week continuous and intermittent self-selected intensity training on heart rate variability (HRV), and assess the shift and threshold of HRV (HRVT) from incremental exhaustive running tests. Method: 20 males were recruited and randomly assigned to continuous training group (CT, n=10, Age 20.7 ± 1.0 yr, Ht 177.6 ± 7.8 cm, Wt 75.1 ± 14.1kg) or intermittent training group (IT, n=10, Age 21.6 ± 1.7 yr, Ht 174.2 ± 3.0 cm, Wt 63.3 ± 8.1 kg). All participants conducted running exercise 3 times a week for 8 weeks. The experiment treatment for CT group was continuously ran 30 minutes, while for IT group was 3 three sessions of 10-min running, and rested at least 10 minutes between sessions. Every participant performed 3 incremental exhaustive running tests at pre-training, 4th and 9th week. Mixed design two-way ANOVA was used for data analysis (a = .05). Results: Training mode and time effects from training didn’t significantly interact. Compared to pre-training and the 4th week, the onset of HRVT at 9th week was significantly delayed (p < .05). Conclusions: The autonomic nervous system regulation was improved through 8-wk exercise intervention.