Recovery of heart rate variability after aerobic or anaerobic exercises

Lee Po-Chun, Lin Kuei-Fu
(Department of Physical Education, National HsinChu University of Education, Taiwan)

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 CXT; 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 (α=.05). Results: RR interval have interaction between exercise type and recovery period (F=8.43, p<.05), and no different in exercise type (F=6.07, 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

Lin, Tzu-Fang (Chinese Culture University, Taiwan),
Lin, Kuei-Fu (National Hsinchu University of Education, Taiwan)

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 ± 14.1 kg) 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 (α = .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.