

## ACUTE EFFECT OF STRENGTH RESISTANCE EXERCISES ON HEART RATE VARIABILITY (FREQUENCY DOMAIN) IN PHYSICALLY ACTIVE MEN

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Strength resistance exercises is one of the most commonly used training methods by strength and conditioning professionals. Physiological and psychological stress effect for the Autonomic nervous system (ANS), and Heart rate variability (HRV) is a reliable non-invasive method to evaluate the ANS. Frequency domain describes the periodic oscillations of the heart-rate signal. It provides information related to the distribution of HRV as a function of frequency. Past literature well explored the parasympathetic and sympathetic responses induced by aerobic exercises, but the acute effects of strength exercise on HRV is limited. Therefore, the purpose of the present study was to evaluate the effect of acute strength resistance exercises on HRV in physically active men. Twelve (n=12) physically active men (age  $23.1 \pm 0.8$  years; height  $171.5 \pm 4.32$  cm; body mass  $71.2 \pm 3.67$  kg) participated in this study. Subjects were assigned into two groups as group CON

(control) and group EXP (experiment) randomly. 5 minutes supine position HRV data was measured with controlled breathing, 10 minutes before (Pre-test) and 30 minutes after (Post-test) strength resistance exercise session. Study data revealed that significant increase of Low-Frequency (LFnu) value ( $p \leq 0.0001$ ) and LFnu/HFnu ratio ( $p \leq 0.001$ ) and significant reduction in High-Frequency (HFnu) value ( $p \leq 0.0001$ ) in the experimental group compared to control group. Cohen's deffect size results revealed large practical significance in LFnu parameter (3.78), LFnu/HFnu ratio parameter (3.58) and HFnu parameter (2.92). In conclusion, acute strength resistance exercises have an effect on heart rate variability in physically active men.

**Keywords:** Parasympathetic, Sympathetic, Resistance exercises