Changes in heart rate variability and post exercise blood pressure from manipulating load intensities of resistance-training

ABSTRACT

Background: The isolated effect of resistance training (RT) on heart rate variability (HRV) and blood pressure (BP) is crucial when prescribing suitable training programmes for healthy individuals. Objective: The purpose of this study was to compare BP and HRV responses in physically active men after an acute RT session with loads of 5-, 10- or 15-repetition maximums (5RM, 10RM and 15RM). Method: Eighty-one men (age: 21.6±1.1yr; body mass: 74.1±5.8 kg; height: 175.3 ±7.1cm) who performed moderate to vigorous physical activities for at least 30 min a day on most days of the week participated in this study. After the of 5RM loads for the bent-over row (BR), bench press (BEP), Dead-lift (DL) and squats (SQ), participants were divided into three training load groups (15RM = GrpL, 10RM = GrpM or 5RM = GrpH). During the experimental session, each group (n=27) performed 3 sets for each of the four exercise, with 2-min rest intervals between sets and exercises with their assigned training load. BP and HRV were measured prior to, immediately after, and at 15-min intervals until two hours post-experiment. Results: All three groups attained improved BP ($p = .001$) reductions and longer HRV ($p = .0001$) changes after an acute exercise session but the GrpM (10RM) and and GrpL (15RM) performed better than GrpH (5RM). Conclusion: Strength and conditioning professionals may prescribe exercises with 10-15RM loads if the aim is to obtain an acute reduction in BP after an RT session.

Keyword: Systolic pressure; Diastolic pressure; Heart rate variability; Acute resistance training