*TACSM Abstract*

# The Effects of Different Intensities of Resistance Training on Hemodynamics

EDNA VALADEZ ORTIZ, AKAELA VIDAÑA, DARIAN GONZALEZ, LYNDA ROSAS, and ELISA OROZCO

The University of Texas Rio Grande Valley, Brownsville, TX

*Category: Undergraduate*

*Advisor / Mentor: Karabulut, Murat (murat.karabulut@utrgv.edu)*

ABSTRACT

**PURPOSE:** The purpose of this study was to analyze the effects of different resistance training intensities on blood pressure (BP) and heart rate (HR) responses. **METHODS:** 12 males and 12 females (19-28 age) participated in the study (5 sessions). On the first day, initial screening, anthropometric measures, cycle ergometer seat height, leg extension/leg curl machine setting, and familiarization with testing procedures were completed. On the second day, one-repetition maximum (1RM) testing was completed in 2 trials for each machine, starting with 10 min warm up on the cycle ergometer. Following general warm up, subjects performed specific warm up at 50% of subject's body weight (BW) for leg extension. Weight was increased to 100% of subject's BW and subjects were then asked to lift with proper technique until failure. Subjects were stopped if they could lift more than 10 reps and weight was adjusted based on RPE level after 1st trial by multiplying BW by 1.3 or 1.5 for the 2nd trial. For leg curls, warm up was 25% of BW, weight was adjusted based on RPE level by increasing the weight by 40-60 lbs. for trial 1 and 2. Rest period between trials was 5 mins. The prediction of the 1RM was based on the number of reps and weight lifted for both machines. Subjects performed the following three randomized testing sessions on three different occasions: 40%RM (2 sets of 25 reps with 30 sec rest), 65% RM (2 sets of 15 reps with 30 sec rest), 80%RM (3 sets of 8 reps and 90 sec rest). After each session, subject was required to sit comfortably on a chair for 40 mins while BP and HR were recorded at 5 min intervals. **RESULTS:** There were condition*time and time*gender interactions ($p<.01$) as well as condition and time main effects for HR ($p<.01$). HR values for the 65%RM session were significantly greater than those recorded for the 80%RM session ($p<.01$). Significantly lower values of DBP were detected following the 40%RM session compared to the 80%RM session ($p<.05$). **CONCLUSION:** The significant increase in HR for the 65%RM session could be explained by the shorter rest period between sets for recovery, placing a greater demand on cardiovascular system. It is also safe to speculate that lower sympathetic nervous system activity during the 40%RM session compared to other sessions was one of the responsible mechanisms for the significant differences detected in DBP.