The Effect of Functional Resistance Training on the Resting Metabolic Rate of Apparently Healthy Adult Women
Jonathon R. Smith, Madeline P. Bayles, FACSM, Mark Sloniger, Robert E. Alman II.
Indiana University of Pennsylvania, Indiana, PA

Recent Centers for Disease Control and Prevention (2012) data indicates that 35.7% of adults over eighteen are overweight or obese. Total daily energy expenditure significantly impacts obesity level, and the resting metabolic rate (RMR) accounts for approximately 60% of the total daily energy expenditure (Levine, 2005). **PURPOSE:** This study examined the effects of resistance training on the RMR in apparently healthy adult women (n=20), and examined the effects of age and body mass index (BMI) on the amount of change. **METHODS:** Participants in this study were females between 35 and 60 years of age, and had a BMI between 18.5kg/m2 and 39.9kg/m2. All participants had body composition and RMR examined before and after a 6 week resistance training program to determine if any changes had resulted from the training. Changes in absolute and relative RMR were compared by age group (35-50 and 51-60) and BMI category (18.5-24.9 kg/m2, 25-29.9 kg/m2, and 30-39.9 kg/m2). **RESULTS:** Results indicated a significant increase in absolute (862.6797kcals/day to 1099.1716 kcals/day), and relative (12.0358 kcals/kg/day to 15.4962 kcals/kg/day) RMR in the sample. No statistically significant differences were found when comparing amount of change across age or BMI category. **CONCLUSION:** Literature suggests that RMR is significantly related to lean body mass. This study supports that hypothesis, and suggests that 6 weeks of resistance training is adequate to elicit an increase in RMR in healthy adult women. A possible mechanism explaining this effect is an increase in neuromuscular recruitment with the initiation of resistance exercise. More research is needed to examine this mechanism; and to determine the effects of age, body composition, and different styles of training on this change.