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2015 Oklahoma Research Day


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## 12. Kinesiology

Northeastern State University

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## **Abstracts from the 2015 Oklahoma Research Day**

### **Held at Northeastern State University**

#### **05. Mathematics and Science**

### **12. Kinesiology**

#### **05.12.01 Physical Training for Parkinsons Disease: Pilot Study**

**Amanda,McClelland** *University of Central Oklahoma*

**Jacilyn,Olson** *University of Central Oklahoma*

**John,Ahrens** *University of Central Oklahoma*

**Kyle,Covey** *University of Central Oklahoma*

**Lacey,White** *University of Central Oklahoma*

**Linda,Sealey-Holtz** *University of Central Oklahoma*

The purposes of this study were to assess the feasibility of a simultaneous physical fitness and speech therapy treatment program for individuals with Parkinson's disease (PD) and to report changes in functional fitness, balance, and speech components. A group of eight individuals with PD (58-82yrs) volunteered. Participants' initial functional fitness was measured by performance on the Senior Fitness Test (SFT) and the MINI-BEST Test (MBT). After initial measurement, a group training program of 60-minute sessions, three times a week for four weeks was administered. The protocol consisted of a warm up, strength and endurance exercises, static and dynamic balance training, and flexibility/cool down. Voice training was administered simultaneously. Modifications were included for individuals to maintain own pace while partaking in group activities. Upon program completion, the SFT, and MBT, were again assessed to monitor progress. RESULTS: Physical measures: significant improvements ( $p<0.05$ ) were found in chair stands, arm curls, 8 foot up and go, and the dynamic balance portion of the MBT. CONCLUSION: Combined training improved functional fitness, balance, and select speech parameters in adults with PD. Data and participant feedback determined the program to be feasible. More research is needed to determine if these changes can be attributed to the combination of voice and physical fitness training as opposed to separate interventions.

## **05.12.02 Palm Cooling's Impact on Resistive Exercise Performance.**

**Ashley,Clark** *University of Tulsa*

**Jake,Martin** *University of Tulsa*

**John,Caruso** *University of Tulsa*

**Jon,McArtor** *University of Tulsa*

**Lacey,Mitchell** *University of Tulsa*

**Rachel,Perry** *University of Tulsa*

**Rachel,Baptista** *University of Tulsa*

**Roman,Edwards** *University of Tulsa*

**Samantha,Vickers** *University of Tulsa*

Introduction: Hyperthermia impairs various physiological functions. Conduction to remove body heat entails contact with cold objects; by creating large thermal gradients, heat dissipates. Underneath the hand's palmar surface lies anastomoses, blood vessels that expedite the removal of body heat. Methods: To assess palm cooling's impact on physiological changes from exercise, 35 subjects performed three four-set leg press workouts while receiving one of three treatments: no palm cooling (NO PC), palm cooling between sets (PC BTN), or palm cooling between sets and for 20 minutes post-exercise (PC BTN & POST). Between sets of the PC BTN and PC BTN & POST workouts, subjects placed their left hands in 15oC water for 100 seconds. Average power (AP) was measured per set. Results: Each dependent variable had at least one significant main effect; three (AP, left hand skin temperature, blood lactate concentration) also exhibited two-way interactions. Left hand skin temperatures showed NO PC, PC BTN > PC BTN & POST at several time points. Data from "high responders" ( $\geq 40^{\circ}\text{C}$  hand temperatures) underwent an additional analysis that also elicited an interaction with PC BTN > NO PC > PC BTN & POST at multiple time points. Blood lactate results showed NO PC > PC BTN, PC BTN & POST at 0-minutes post-exercise. AP outcomes saw PC BTN, PC BTN & POST > NO PC for set four. Conclusion: Palm cooling hastened heat removal and lactate clearance, as well as delayed AP decr