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## G-15 Free Communication/Poster - Clinical Exercise Physiology-Less Common Problems (Clinical Exercise Physiology Association)

June 1, 2013, 7:30 AM - 11:00 AM  
Room: Hall C

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2743 Board #47 June 1, 8:00 AM - 9:30 AM

### The Effects of Combined Aquatic and Occupational Therapies in Older Adults with Osteoarthritis

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(No relationships reported)

Osteoarthritis (OA) is the most common form of articular degeneration, primarily affecting weight bearing joints (e.g. knee, hips). OA results in health care costs exceeding 80 billion dollars/year.

**PURPOSE:** To examine outcome differences between occupational therapy treatment alone (OT) and combined OT and aquatic therapy (OT-AT) treatments in older adults with OA.

**METHODS:** Retrospective chart review evaluating subjective OA data from a local inpatient rehab hospital. We examined 27 charts of OA patients (21 women, 6 men; mean age=78±12y) treated at this facility, who received OT with (n=12) or without (n=15) concurrent AT. Functional Independence Measure (FIM) scores were examined in OA patients who received OT or OT-AT. ANCOVA was used to determine outcome differences between patient groups, controlling for age, gender, and BMI. The Pearson product moment correlation was used to determine relationships between demographic and performance variables.

**RESULTS:** OT-AT resulted in a higher percentage of possible improvement in: lower body dressing (76±8 vs. 54±7, p<0.05); stairs (55±8 vs. 31±8, p<0.05), and; toileting (80±9 vs. 48±8, p<0.01). OT-AT was significantly correlated with higher discharge FIM scores in: grooming (r=0.42, p=0.03); upper body dressing (r=0.44, p=0.02); lower body dressing (r=0.52, p=0.006); toileting (r=0.55, p=0.003); stairs (r=0.37, p=0.05), and; total FIM points (r=0.42, p=0.03). Higher age was inversely correlated to lower discharge FIM scores in: grooming (r=-0.60, p=0.001); upper body dressing (r=-0.60, p=0.001); lower body dressing (r=-0.51, p=0.007); toileting (r=-0.49, p=0.01); toilet transfer (r=-0.45, p=0.02); bed/chair transfer (r=-0.61, p=0.001), and; total FIM points (r=-0.51, p=0.006).

**CONCLUSIONS:** OT-AT improved discharge functional outcomes in OA patients (e.g. lower body dressing, stairs, toileting) beyond OT alone. Age was inversely related to some discharge FIM scores, indicating that older OA patients may not respond to OT-AT as well as their younger counterparts. Future research should include multiple facilities nationwide to determine regional impact of combined therapy on FIM outcomes. Additionally, future studies should examine if an age threshold is needed to determine optimal OT-AT effectiveness in the treatment of OA patients.

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2744 Board #48 June 1, 8:00 AM - 9:30 AM

### Effect of Moderate Acute Aerobic Exercise on Catecholamines and Cortisol Responses in Breast Cancer Survivors

Elizabeth Evans, Claudio Battaglini, Robert McMurray, FACSM, Scott Randell, Hyman Muss, A.C. Hackney, FACSM. *University of North Carolina at Chapel Hill, Chapel Hill, NC.*  
(No relationships reported)

The hormones of the adrenal gland-sympathetic nervous system (SNS) are responsible for eliciting many cardiovascular and metabolic responses associated with exercise. Current literature examining the effect of acute aerobic exercise on these hormones in cancer patients is limited.

**PURPOSE:** To examine the effect of one bout of aerobic exercise on catecholamine (epinephrine and norepinephrine) and cortisol responses in breast cancer survivors (BCS) and healthy controls (C).

**METHODS:** Study participants included 9 women who completed major treatments for Stage I-III invasive breast cancer within 3-6 months of enrollment and 9 sedentary women without a history of cancer diagnosis. Subjects completed a 30-minute bout of aerobic exercise on the cycle ergometer at 60% of VO<sub>2</sub>peak. Blood samples were taken pre-exercise, immediately post-exercise, 2 hours post-exercise, and 24 hours post-exercise. Plasma concentrations of catecholamines and cortisol were measured at each time point using ELISAs and were compared between groups across time using 2x4 mixed model ANOVAs. Percent changes in post-exercise hormone concentrations relative to pre-exercise were compared between groups using independent t-tests.

**RESULTS:** Epinephrine was significantly elevated in the BCS relative to C pre-exercise (49.7 ± 9.9 pg/mL vs. 27.1 ± 4.9 pg/mL, p < 0.0005), immediately post-exercise (69.6 ± 18.0 pg/mL vs. 48.6 ± 14.6 pg/mL, p = 0.015), and 24 hours post-exercise (56.2 ± 12.1 pg/mL vs. 32.8 ± 8.4 pg/mL, p < 0.0005). Percent change in cortisol was significantly greater in the BCS immediately post-exercise relative to C (52.6 ± 96.7% vs. -25.1 ± 42.0%, p = 0.049).

**CONCLUSIONS:** These findings imply that catecholamine output from the adrenal medulla and the SNS as well as adrenal cortex cortisol release are greater in BCS compared with C in response to exercise. It is unclear if these responses are residual effect due to the cancer condition or the treatment regime for the cancer.

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2745 Board #49 June 1, 8:00 AM - 9:30 AM

### Is Gait Speed Associated With Strength, Power, And Lower Extremity Function In Older, Overweight And Obese Men And Women?

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(No relationships reported)

Aging is associated with declines in gait speed as well as muscular strength, power and function. Slower gait speeds are associated with an increased risk of mortality and increased incidence of falls. However, the contribution of muscular strength and power to individual variability in gait speed, and the role of obesity in modulating these relationships in older adults, is not fully understood.

**PURPOSE:** To determine the relationship between gait speed and lower extremity strength, power, and physical function in overweight and obese older adults.

**METHODS:** We analyzed baseline data from 63 sedentary, overweight and obese (BMI=27-34.9 kg/m<sup>2</sup>) men and women aged 65-79 years (70.1±3.9 yrs), recruited to participate in a 5-month exercise trial. Gait speed was assessed at usual pace over 4 meters and during a 400 meter walk (400MW) performed as quickly as possible. Measures of strength and lower extremity function included peak knee extensor torque (Biodex dynamometer), leg press power (Nottingham power rig), and time to complete 5 chair stands as fast as possible.

**RESULTS:** Usual pace and 400MW gait speed were significantly correlated (0.612, p<.001). This relationship did not change after adjustment for BMI. Usual pace gait speed was significantly correlated with peak knee extensor torque (0.339, p=.007) and leg press power (0.437, p<.001). Gait speed during the 400MW was significantly correlated with peak knee extensor torque (0.467, p<.001) and leg press power (0.429, p<.00). These relationships did not change after BMI adjustment. Chair stand time was not significantly correlated with either measure of gait speed.

**CONCLUSION:** Muscular strength and power contribute to individual variability in usual pace and fast-paced gait speed. Relationships between usual pace and fast-paced gait speed did not change after adjusting for BMI. These results indicate the potential importance of maintaining absolute muscle strength for preventing age-related declines in gait speed.