
C-16 Thematic Poster - Exercise in Cancer Patients (Clinical Exercise Physiology Association)

May 30, 2013, 8:00 AM - 10:00 AM
Room: 206

990 **Chair:** Katharina Schmidt. *Department of Sports Medicine, Goethe University Frankfurt/Main, Frankfurt, Germany.*
(No relationships reported)

991 Board #1 May 30, 8:00 AM - 10:00 AM

Examination Of Balance In Early-stage Female Breast Cancer Survivors Who Have Undergone Chemotherapy

Charlotte Shatten, Claudio L. Battaglini, J. Troy Blackburn, Johna Register-Mihalik, Anthony C. Hackney, FACSM. *UNC-Chapel Hill, Chapel Hill, NC.*
(No relationships reported)

PURPOSE: To compare breast cancer survivors (BCS) and apparently healthy, sedentary age-matched controls (CNT) on clinical and laboratory measures of static balance.

METHODS: Balance was assessed during single leg stance (SLS) with the eyes open and closed. Laboratory (center of pressure sway speed (SS) and sway path (SP)) and clinical (timed SLS) measures of balance were assessed simultaneously in 10 BCS and 10 CNT. The NeuroCom Sensory Organization Test and vibratory sensation were assessed to identify vestibular and somatosensory contributions to potential balance deficits. Dependent t-tests were used to compare each variable between groups.

RESULTS: No significant group differences were identified between clinical and laboratory balance measures ($p > 0.05$). However, vibration sensation threshold of the first metatarsophalangeal joint was greater in BCS vs. CNT for the right foot (19.43 ± 11.34 vs. 10.16 ± 2.32 V, $p = 0.03$) and approached significance on left foot (16.86 ± 8.26 vs. 11.53 ± 4.22 V, $p = 0.07$).

CONCLUSIONS: Although no significant differences in static balance were observed between groups, significant differences in vibration sensation, an assessment of peripheral sensory function, suggest that neuromuscular dysfunction is present in BCS patients. Future research is necessary to determine if the lack of an influence on balance is due to compensatory mechanisms and if balance deficits in these individuals, which are frequently anecdotally reported, are more evident during assessments of dynamic balance (e.g. during walking).

992 Board #2 May 30, 8:00 AM - 10:00 AM

Predicted Vs. Measured VO_2 Peak In Overweight And Obese Hormone-negative Breast Cancer Survivors

Daniel Bonner, Anne Swisher, Diana Gilleland, Jame Abraham, Jessica Garcia, Gerald Hobbs, Sobha Kurian, Alexandra Reynolds, Brittany Watts, Mary Anne Yanosik, Linda Vona-Davis. *West Virginia University, Morgantown, WV.* (Sponsor: William T. Stauber, FACSM)
(No relationships reported)

PURPOSE: Obesity and physical inactivity have been linked to higher risk of developing breast cancer as well as poorer outcomes of treatment.

These risks may be especially high for women with hormone-receptor negative cancers. Unlike other forms of cancer, breast cancer treatment often leads to weight gain, thus weight management is a critical issue for survivors. We developed a program, Get Fit for the Fight @ that aims to reduce obesity through adoption of regular physical activity and healthy eating behaviors. One outcome of the program is maximal aerobic capacity. The purpose of this study was to determine the relationship between predicted and measured peak oxygen consumption (VO_2 peak) in overweight and obese breast cancer survivors.

METHODS: To date, 23 women (mean age 53.6 yrs) who were at least 12 months after completion of treatment for hormone-receptor negative breast cancer with a BMI > 25 (mean 31.3 kg/m^2) have been enrolled into the study. At baseline, all women underwent full cardiopulmonary exercise testing to volitional maximal levels using a modified Balke treadmill protocol with measured expired gas analysis. Measured VO_2 peak was compared to VO_2 peak predicted from standard equations utilizing treadmill speed and grade. A t-test was performed to determine difference and significance was set at $p < 0.05$.

RESULTS: At baseline, mean measured VO_2 peak was 19.9 ml/kg/min ($SD = 4.9$), which was significantly ($p < 0.01$) higher than predicted values (mean 16.7 ml/kg/min ; $SD = 1.7$). Measured VO_2 peak values were higher than predicted in 19 of 23 subjects (83%). Mean exercise time on the test was 13.2 min ($SD = 3.3 \text{ min}$). Mean maximal respiratory exchange ratio (RER) was 1.05 ($SD = 0.7$) and mean maximal heart rate was 163 beats/min ($SD = 24.5$), both of which were indicators of maximal effort on the test.

CONCLUSIONS: Predicting VO_2 peak from peak workload on a treadmill test significantly underestimates measured VO_2 peak in overweight/obese survivors of triple-negative breast cancer. This lack of agreement may reflect changes in exercise metabolism due to either breast cancer or its treatment. Measured, not predicted, values should be used in this population. Funding: WV EPSCoR # EPS08-07; Oncology Section, American Physical Therapy Association Clinical Trial Registration: NCT01498536

993 Board #3 May 30, 8:00 AM - 10:00 AM

Does Cardiorespiratory Fitness Influence Cognitive Function In Breast Cancer Survivors Reporting Cancer-associated Cognitive Changes?

Kristin L. Campbell, Julia W.Y. Kam, Sherri Hayden, Sarah E. Neil, Amy A. Kirkham, Todd C. Handy, Lara A. Boyd, Teresa Y.L. Liu-Ambrose. *University of British Columbia, Vancouver, BC, Canada.* (Sponsor: Kerri Winters-Stone, FACSM)
(No relationships reported)

Many cancer survivors report changes in their ability to remember, think and problem solve associated with cancer treatment; commonly called "chemo brain". Recent evidence suggests a positive relationship between cardiorespiratory fitness and cognitive function. We investigated whether cardiorespiratory fitness is associated with cognitive function in women reporting cognitive changes following treatment for breast cancer and in women who have not had cancer.

METHODS: Breast cancer survivors (BCS) reporting cognitive changes up to 3 years following treatment for breast cancer ($N = 12$) and healthy controls (CON) ($N = 8$) completed a maximal graded treadmill test with expired gas collection (VO_2 peak) as well as a battery of neuropsychological tests for verbal learning and memory (Hopkins Verbal Learning Test) (HVL), information processing speed and executive function (Trails Making A & B), verbal fluency (FAS test and animal naming). The impact of cognitive function on quality of life using a cancer-specific self-report questionnaire (FACT-Cog) was administered to BCS only.

RESULTS: BCS were younger than CON; BCS 53.4 (6.5) vs. 59.8 (3.7) yrs, $p = 0.02$. There was no difference between groups in VO_2 peak; BCS 26.5 (6.9) vs. CON 27.8 (4.9) ml/kg/min , $p = 0.64$. Compared to CON, BCS had a significantly lower performance on both the first learning trial (LT1) (6.67 vs. 8.75 , $p = 0.02$) and total recall (23.5 vs. 30.1 , $p = 0.01$) of the HVL. In BCS, there was no association between FACT-Cog and VO_2 peak. There was no association between VO_2 peak and neuropsychological test performance in all participants combined or in either group alone. When controlling for VO_2 peak or age, group remained significant for performance on LT1 ($p = 0.04$ and 0.02 , respectively) and total recall ($p = 0.01$ and 0.03 , respectively).

CONCLUSION: Breast cancer survivors reporting cognitive changes following treatment for breast cancer had lower performance on tasks of verbal memory compared to women who have not had breast cancer. However, there was no association between cardiorespiratory fitness and neuropsychological test performance.
