

2869 Board #152 June 1 2:00 PM - 3:30 PM

The Effect of Radiation Therapy on Cancer Patients Participating in Structured Exercise

Amber M. Huang¹, Cynthia Villalobos¹, Justin C. Brown², J. Mark VanNess¹, Jeremy P. McConnell¹, Paul D. Vosti³, Courtney D. Jensen¹.
¹University of the Pacific, Stockton, CA. ²Harvard University, Cambridge, MA. ³St. Joseph's Medical Center, Stockton, CA. (Sponsor: Kathryn H. Schmitz, FACSM)
(No relevant relationships reported)

Radiation therapy was first attempted as a treatment for cancer in 1896. Since then, it has become a common modality, and the survival rate among diagnosed patients has increased drastically. While radiation can prolong life expectancy, it can be deleterious to the patients' health. Exercise has consistently demonstrated improvement in anthropometric, cardiometabolic, and functional capacities of cancer survivors, but data concerning the effect of radiation on exercise outcomes are limited.

PURPOSE: To evaluate the effect of radiation therapy on exercise outcomes in cancer survivors.

METHODS: Patients participated in a 10-week exercise intervention involving aerobic, resistance, and flexibility training. There were 59 patients who had never used radiation (NR), 63 who had complete radiotherapy (HR), 18 currently undergoing treatment (CR), and 17 who failed to report their status. We analyzed differences among the three radiation exposure groups (NR, HR, and CR) in baseline characteristics, exercise adherence, and improvement in several parameters of health and function using chi-square and multivariate tests; post-hoc analyses tested specific group differences.

RESULTS: There were no baseline differences between groups in age, health history, body composition, cardiovascular parameters, fatigue, insomnia, or depression. Patients in the NR group performed better on the five times sit-to-stand test than HR patients ($p=0.013$) and better on sit-and-reach ($p=0.037$) and functional reach ($p=0.059$) than CR patients. There were no differences in program completion based on use of radiation ($p=0.404$). Although there were no baseline differences in the six-minute walk ($p=0.987$), CR patients improved more than HR patients ($p=0.038$) and NR patients ($p=0.051$). There were no baseline differences in systolic blood pressure ($p=0.957$) but CR patients experienced greater reductions than patients in the HR group ($p=0.011$) and NR group ($p=0.035$).

CONCLUSION: Exercise may be an effective way to mitigate some of the health consequences associated with radiation therapy. In our sample, exercise improved blood pressure and six minute walk more in patients who were currently undergoing treatment; however, our low retention rate may create potential bias and fail to accurately characterize expected results.

2870 Board #153 June 1 2:00 PM - 3:30 PM

Effect of an Exercise Program on Fitness and Motivation Outcomes in Overweight Breast Cancer Survivors

Rita Musanti¹, Damion Martins², Dean Padavan², Adam Kahn². ¹Rutgers, New Brunswick, NJ. ²Atlantic Sports Health Institute, Morristown, NJ.
(No relevant relationships reported)

BACKGROUND/PURPOSE: Overweight breast cancer survivors are at high risk of recurrence and mortality. Exercise can mitigate these outcomes, but this subset of survivors dropout from exercise programs at a high rate. We tested the Breast Cancer Healthy Lifestyle Intervention Study (BCHLIS) which incorporates evidence-based components to enhance physical fitness and intrinsic motivation (IM).

THEORETICAL FRAMEWORK: Self-determination theory (SDT) and exercise theory informed BCHLIS. We focused evidence-based components of the program on the psychological needs of autonomy (A), competence (C), and relatedness (R). Theoretically, if these are met then IM increases.

METHODS: A descriptive study that used a convenience sample of 14 breast cancer survivors. BCHLIS include individualized aerobic, resistance and flexibility exercise which was delivered for 24 weeks, 12 supervised and 12 in the community. Variables measured included: VO_2 max, grip, balance and body composition. Psychological needs and motivation were measured with Basic Psychological Needs for Exercise Scale (BPNES) and Behavioral Regulation of Exercise Questionnaire-2 (BREQ-2), at 0, 3 and 9 months. Descriptive statistics, ANOVA for repeated measures, and bivariate correlation were used to analyze the data.

RESULTS: 14 women were enrolled, 9 women completed all survey data, 6 women completed both survey and fitness assessments, 5 women dropped out for various reasons: 1 disease related, others personal. Results included significant weight decrease ($p = .023$), increase in Met/hrs/week ($p = .04$), right hand grip strength ($p = .022$), balance ($p = .037$); and clinically relevant increase in VO_2 max. Psychological needs satisfaction was noted at 3 months for A, C, and R. Motivation was observed to be maintained in 7/8 survivors, but retained a greater extrinsic than intrinsic source.

CONCLUSIONS & IMPLICATIONS: Participation in BCHLIS resulted in increased physical activity, improved body composition and fitness profile. Motivation was maintained during the program, however a shift to more intrinsic motivation was not realized indicating that exercise programming may require external support beyond the 24 week time frame in overweight breast cancer survivors.

2871 Board #154 June 1 2:00 PM - 3:30 PM

Chemotherapy and the Exercising Cancer Survivor

Samantha R. Gayla¹, Cynthia Villalobos¹, Justin C. Brown², J. Mark VanNess¹, Paul D. Vosti³, Courtney D. Jensen¹. ¹University of the Pacific, Stockton, CA. ²Harvard University, Cambridge, MA. ³St. Joseph's Medical Center, Stockton, CA. (Sponsor: Kathryn H. Schmitz, FACSM)
(No relevant relationships reported)

Advancements in treatment, such as chemotherapy, have improved survival rates among cancer patients. Today, approximately 67% of patients are at least five-year survivors; however, the combination of cancer and its care often affects the quality of those years. Patients commonly experience psychological symptoms, losses in physical function, and deterioration of cardiovascular health. Exercise ameliorates many of these consequences, but the effect of chemotherapy on exercise outcomes requires further exploration.

PURPOSE: To evaluate the effects of chemotherapy on exercising cancer survivors.

METHODS: We enrolled cancer survivors in a comprehensive 10-week exercise program; 40 patients had never received chemotherapy (NC), 80 had a history of chemotherapy (HC), 24 were currently undergoing treatment (CC), and 13 failed to report status. During a pre-exercise evaluation, we gathered demographic, morphological, psychological, cardiovascular, and functional data. Following the intervention, we repeated all assessments. We compared baseline data and analyzed pre-to-post differences in the three exposure groups (NC, HC, and CC) using chi-square and multivariate tests; post-hoc analyses measured specific group differences.

RESULTS: Patients in the NC group were older ($p=0.013$), weighed more ($p=0.054$), and had a higher body mass index ($p=0.067$); obesity affected 56.7% of NC patients, 39.1% of HC patients, and 19.0% of CC patients ($p=0.026$). The NC group also had a higher incidence of hyperlipidemia ($p=0.058$) and worse performances in the six-minute walk ($p=0.019$), timed up-and-go ($p=0.002$), chair stand ($p=0.043$), and epic lift ($p=0.029$). There were no group differences in exercise adherence ($p=0.414$). NC patients improved the least in arm curls ($p=0.022$) and improved the most in VO_2 max ($p=0.037$) and systolic blood pressure ($p=0.064$).

CONCLUSION: Patients who had used chemotherapy in the past or were currently undergoing treatment were younger than those with no history of use; age may explain the differences noted. Our results indicate chemotherapy is not a barrier for exercise participation; as long as it is tolerated, exercise should be encouraged throughout cancer survivorship. While chemotherapy did not affect attrition, our low retention rate overall limits the strength of these findings.

2872 Board #155 June 1 2:00 PM - 3:30 PM

Self-Reported Physical Activity at Breast Cancer Diagnosis is Associated with Greater Physical Activity During Chemotherapy

Chad W. Wagoner, Allison M. Deal, Seul K. Choi, Jordan T. Lee, Hyman B. Muss, Kirsten A. Nyrop. University of North Carolina at Chapel Hill, Chapel Hill, NC.

(No relevant relationships reported)