

sedentary behavior. Patients are advised of the benefits of increased physical activity during HSCT, including attenuation of the severity of their symptoms. However, there is a paucity of research on patients' perceptions of the benefits of exercise and how that translates to their participation in physical activity.

**PURPOSE:** To evaluate the relationship between perceived benefits and barriers of exercise and self-reported physical activity levels in patients undergoing HSCT.

**METHODS:** Twenty- three subjects (13M, 10F;  $58.1 \pm 8.4$  years), enrolled in an in-patient physical activity intervention, were administered the Exercise Barriers and Benefits Survey (EBBS), and the International Physical Activity Questionnaire- Short Form (IPAQ) prior to their admission for HSCT. The benefits and barriers scale were scored separately. Higher scores on the Benefits Scale indicate a more positive perception of exercise while a higher score on the Barriers Scale indicates greater perception of barriers to exercise. Time spent walking (WALK) and time spent sitting (SIT), recounted in minutes, were reported on the IPAQ for the seven days prior to admission. A Pearson correlation coefficient was computed to assess: the relationship between the EBBS Benefits scale, WALK, and SIT, and the relationship between the EBBS Barriers scale, WALK, and SIT.

**RESULTS:** Results of the Pearson correlation indicated that there was a significant positive correlation between the benefits score and patient-reported WALK ( $r(21) = .44, p = .04$ ). There was also a significant negative correlation between the benefits score and patient-reported SIT ( $r(21) = -.49, p = .02$ ). There was no significant correlation between the Barriers scale and WALK ( $r(21) = .23, p = .30$ ) or SIT ( $r(21) = -.18, p = .42$ ).

**CONCLUSION:** These preliminary results indicate that HSCT patients who report higher benefits to exercise are more likely to spend more time walking and less time sitting.

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### Structured Exercise in the Cancer Patient Improves Insomnia and Fatigue, but Not Depression

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(No relevant relationships reported)

There are over 12 million cancer survivors in the United States. Nearly all of them have experienced physical, emotional, and psychological symptoms including fatigue, insomnia, and depression. This can contribute to the erosion of overall quality of life. While exercise is commonly prescribed to mitigate these symptoms, the optimal dose and characteristics of its prescription require further investigation.

**PURPOSE:** To evaluate the effect of structured exercise on fatigue, insomnia, and depression in cancer survivors.

**METHODS:** We enrolled 157 cancer survivors in a 10-week exercise intervention that included aerobic, resistance, and flexibility training. At baseline, patients completed the Fatigue Symptom Index, Athens Insomnia Instrument, and Zung-Self Rating Depression Scale to assess fatigue, insomnia, and depression respectively. Upon conclusion of the program, follow-up data were collected. Paired-samples t tests were conducted on patients who completed the intervention. Logistic regression tested the effect of fatigue, insomnia, and depression on odds of completion. Linear regression evaluated predictors of fatigue, insomnia, and depression.

**RESULTS:** Among patients who completed the intervention ( $n=58$ ), fatigue decreased ( $p<0.001$ ); insomnia ( $p=0.673$ ) and depression ( $p=0.675$ ) were unchanged. Fatigue ( $p=0.432$ ), insomnia ( $p=0.759$ ), and depression ( $p=0.932$ ) did not predict program completion. Patients who were more fatigued at baseline experienced greater reductions in fatigue at follow-up, assessed by score ( $r = -0.677; p<0.001$ ) and category ( $r = -0.685; p<0.001$ ). Patients with worse insomnia at baseline reported greater improvements at follow-up ( $r = -0.761; p=0.079$ ); elevated depression did not facilitate greater improvement ( $p=0.228$ ).

**CONCLUSIONS:** Fatigue, insomnia, and depression are often indissoluble from the daily experience of a cancer survivor. A biweekly exercise intervention improved fatigue and insomnia after 10 weeks, with greater improvements among the more severely affected; however, we did not find significant alleviation of depression symptoms. These findings suggest exercise is a safe, effective strategy to relieve some symptoms associated with cancer. Further research is required to address potential bias owing to the high rate of attrition in our study.

## D-70 Free Communication/Poster - Perception of Effort, Pain and Fatigue

Thursday, May 31, 2018, 1:00 PM - 6:00 PM

Room: CC-Hall B

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### Perceived Exertion Responses While Wearing Tight- and Loose-Fitting Powered Air-Purifying Respirators

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(No relevant relationships reported)

**PURPOSE:** This study compared ratings of perceived exertion (RPE) among participants performing the same energy expenditures while wearing NIOSH-approved powered air-purifying respirators (PAPRs) from different manufacturers: one tight-fitting (PAPR-T) and three different models of loose-fitting PAPRs (small hood (PAPR-S), medium hood (PAPR-M), and large hood (PAPR-L)).

**METHODS:** The study consisted of six trials: Initial exercise evaluation to determine treadmill speed and elevation to achieve three absolute energy expenditures, labeled LOW ( $VO_2$  1.0 L/min, STPD), MODERATE ( $VO_2$  2.0 L/min, STPD), and HIGH ( $VO_2$  3.0 L/min or maximum, STPD); a baseline evaluation wearing no respirator; and four PAPR evaluations randomly assigned between two visits. Eleven men and 11 women provided informed consent approved by the NIOSH IRB (#12-NPPTL-01). Baseline and PAPR evaluations consisted of four minutes each during standing rest and the three energy expenditures. All PAPRs used HEPA filters. RPE using the 6-20 Borg scale were obtained during the last 15 seconds of each energy expenditure.

**RESULTS:** RPE results for the men and women were not statistically different. Table 1 provides the average RPE for men and women by experimental trial:

Table 1. Average RPE for each study trial by energy expenditure ( $n=22$ ).

	Exer Eval	Baseline	PAPR-T	PAPR-S	PAPR-M	PAPR-L
LOW	8.0	7.1	7.2	7.5	7.5	7.8*
MODERATE	11.5	11.0	11.7	11.9*	12.3*	12.5*
HIGH	15.3	14.4	15.9*	15.9*	16.5*	16.5*

\*  $P < 0.01$  compared to Baseline

**CONCLUSIONS:** RPE while using PAPRs were greater compared to the same energy expenditures while not using a PAPR at baseline. Compared to baseline, RPE using a tight-fitting PAPR were lower compared to loose-fitting PAPRs. The lower RPE for baseline results compared to the exercise evaluation may be attributed to a learning effect where outliers were observed from the exercise evaluation. Trends in the RPE difference between loose-fitting PAPRs at the same energy expenditure appear to be related to hood size or dead space.

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### Moderate-vigorous Intensity Run Vs. Walk On Hemodynamics, Metabolism And Perception Of Effort

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(No relevant relationships reported)