Profiles of Physical Activity and Sedentary Behavior in Cancer Survivors: A 12-Week Community-Based Exercise Program

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Abstract

Purpose: To (1) describe profiles of objectively measured PA and SED, and (2) examine the changes in cancer survivors PA and SED while attending a community-based exercise program.

Methods: Participants were 40 cancer survivors (Age: 53 ± 10 yrs, Female: 87%, Obese: 67%), who enrolled in a 12-week group exercise program at the YMCA, LIVESTRONG. Sensewear Armband was used to assess PA and SED for 7 days at week 1, week 6, and week 12. The Armband-energy expenditure data, minute-by-minute metabolic equivalent (MET), were summarized as time spent (min/hr/day) in SED (< 1.5 METs), light PA (LPA; 1.5–2.99 METs), and moderate-to-vigorous PA (MVPA; ≥ 3.0 METs). The single imputation method of last observation carried forward was used to adjust the potential effect of missing data at week 12. Linear mixed model was used to examine the within-group differences in time spent in PA and SED after adjusting for age, gender, smoking, and BMI. Difference in prevalence of meeting the current PA guidelines for cancer survivors across three time points was determined using McNemar test.

Results: In week 1, cancer survivors spent 42 ± 6, 14 ± 4, and 4 ± 3 min/hr/day in SED, LPA, and MVPA, respectively. Times spent in SED, LPA, and MVPA were not significantly different across the three time points (P > .05). The prevalence of meeting PA guidelines was 82% at week 1, 87% at week 6, and 90% at week 12, but the difference was statistically insignificant across the three time points (P > .05). These findings were not substantially different compared with findings from sensitivity analysis with complete cases.

Conclusion: The vast majority of cancer survivors in this study adhered to the current PA guidelines, and profiles of PA and SED were stable while attending the exercise program. This suggests that community-based exercise programs have potential for promoting PA in cancer survivors, thus effectiveness of these programs need to be determined in the future research.

Introduction

• Cancer is the second leading cause of death, and over a third of men and women will develop some type of cancer during their lifetimes.1

• Regular physical activity (PA) and low sedentary behavior (SED) are recommended for better prognosis of an individual with cancer, including various types and stages of cancer.2

• However, there is a lack of knowledge regarding the levels of PA and SED in cancer survivors.

• Moreover, little research has provided the data on PA and SED in cancer survivors participating in community-based exercise program.

Purpose

The purposes of this study were: (1) describe profiles of objectively measured PA and SED, and (2) examine the changes in cancer survivors PA and SED while attending a community-based exercise program.

Participants and settings

Participants for the current study were 40 cancer survivors (Age: 53 ± 10 yrs, Female: 87%, Obese: 67%), who enrolled in a 12-week group exercise program at the YMCA, Fargo, ND.

Physical activity and sedentary behavior were measured by Sensewear Armband (BodyMedia Inc., Pittsburgh, PA) for 7 days at week 1, week 6, and week 12.

Armband-energy expenditure data were summarized as time spent (min/hr/day) in SED, light PA, and moderate-to-vigorous PA according to minute-by-minute metabolic equivalent (MET) values.

Statistical analysis

• The single imputation method of last observation carried forward was used to adjust the potential effect of missing data at week 12.

• Linear mixed model was used to examine the within-group differences in time spent in PA and SED after adjusting for age, gender, smoking, and BMI.

• Difference in prevalence of meeting the current PA guidelines for cancer survivors across three time points was determined using McNemar test.

Results

Table 1. Participants Characteristics by Gender, Mean (SD)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Male</th>
<th>Female</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of participants</td>
<td>35</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Age (y)</td>
<td>53.7 (10.3)</td>
<td>55.5 (12.3)</td>
<td>0.62</td>
</tr>
<tr>
<td>Body mass index (kg/m²)</td>
<td>28.9 (5.9)</td>
<td>28.4 (2.1)</td>
<td>0.86</td>
</tr>
<tr>
<td>Smoking status (%)</td>
<td>95%</td>
<td>100%</td>
<td>0.76</td>
</tr>
</tbody>
</table>

Summary and Conclusions

• All results were not substantially different compared with findings from sensitivity analysis with complete cases.

• The vast majority of cancer survivors in this study adhered to the current PA guidelines, and profiles of PA and SED were stable while attending the exercise program.

• This suggests that community-based exercise programs have potential for promoting PA in cancer survivors, thus effectiveness of these programs need to be determined in the subsequent research.

References
