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# Peer Support for Physical Activity Adoption among Breast Cancer Survivors: Do the Helped Resemble the Helpers?

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## Abstract

Interventions offering peer-mentoring programs promoting moderate-to-vigorous physical activity (MVPA) have shown improvements in MVPA and wellbeing from baseline, however research is limited. The purpose of this study is to compare the physical activity (PA) levels and psychosocial wellbeing of coaches and participants at baseline and following a 12-week intervention. Breast cancer survivors (<5 years) were recruited and randomized into either exercise (Reach-to-Recovery (RTR)+PA) or control (RTR Control). Participants in both groups were individually assigned one of the 18 available coaches who delivered either the MVPA intervention or control condition via telephone. PA (7 Day PA Recall), psychosocial wellbeing, fatigue and mood were assessed at baseline and intervention completion. 76 breast cancer survivors (average age = 55.62 (±9.55)) were randomized. At baseline, all participants showed significantly lower MVPA ($p=0.001$) and wellbeing ($p<0.05$) as compared to coaches. However, post intervention showed significant improvement in PA and wellbeing in RTR+PA so that they were no longer significantly different from the coaches. Post intervention, MVPA ($p<0.01$), quality of life ($p<0.05$) and fatigue ($p<0.05$) remained significantly lower in RTR Controls compared to coaches. Future interventions should consider the behavioral patterns not only of the participants, but also those who deliver the interventions.

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**Keywords**

peer-mentoring; coaches; breast cancer survivors; physical activity; quality of life

## Introduction

Physical activity (PA) has shown to lessen a multitude of treatment symptoms in cancer survivors relating to improved recovery and overall betterment in quality of life (Courneya and Friedenreich, 2007). The growing evidence to support the benefits of PA for cancer survivors has led to national moderate-to-vigorous physical activity (MVPA) recommendations (Schmitz *et al.*, 2010, Rock *et al.*, 2012). Peer mentoring programs can be an approach to help survivors become physically active (Ginis *et al.*, 2013). Peer support has been previously used to improve health status in cancer survivors (Hoey *et al.*, 2008) and to a limited extent has been used to increase PA levels (Buman *et al.*, 2011, Castro *et al.*, 2011) and accelerate weight loss (Leahey and Wing, 2013, Rock *et al.*, 2015) in non-cancer populations.

Peer-based programs can be used to scale up health behavior interventions (Castro and King, 2002) for the obese (Leahey and Wing, 2013), veterans with diabetes (Long *et al.*, 2012) and smokers (Dickerson *et al.*, 2016a, Dickerson *et al.*, 2016b). Furthermore, trained peer mentors have been effective in providing PA advice by telephone to middle-aged and older adults (Buman *et al.*, 2011, Hooker *et al.*, 2005, Wilcox *et al.*, 2006). Previously, we used a peer mentoring approach to extend the reach of a home-based exercise program for breast cancer survivors (Pinto *et al.*, 2005a). The peers were volunteers with the Reach to Recovery (RTR) program, a breast cancer peer-based program at the American Cancer Society (ACS) (Rinehart, 1994). RTR volunteers are breast cancer survivors themselves and are trained to provide emotional support and guidance to other survivors. Within this randomized controlled trial, 18 coaches delivered the home-based PA program to 76 breast cancer survivors in New England. The program was effective in increasing MVPA in the group that received the PA intervention (RTR+PA) vs. contact control (RTR Control) after 12-weeks (Pinto *et al.*, 2015b).

Peer mentoring supports the idea that people learn by observing the behavior of others. Within this study, we expected that participants would learn MVPA behaviors by observing and imitating the coaches' previous PA experience, as described by the Social Cognitive Theory (Pinto and Ciccolo, 2011). MVPA was a new behavior for the participants, but not for the coaches. We expected that the coaches past MVPA experiences (both success and failures) would create a role model for participants. Furthermore, we also expected that the consecutive feedback and reinforcement by the coaches would increase the participants' self-efficacy (Bandura, 1997) for MVPA. In addition, our expectation was that an intervention delivered by a peer, who had undergone similar cancer related experiences, would enhance participant's motivation for MVPA (Ginis *et al.*, 2013). Overall, the shared experience of a peer discussing their personal PA experience with the participant would allow for a strong learning approach for MVPA adoption.

Given these expectations, we were interested in examining whether the helped (i.e., participants) come to resemble the helpers (i.e., coaches). Therefore, by comparing the coaches with the participants, we can further provide another perspective on the intervention effects. Other researchers have examined their mentors' activity level at baseline and post-intervention (Castro *et al.*, 2011), however to the best of our knowledge, no study has directly compared the mentors' PA and psychosocial wellbeing with those of their participants.

The purpose of this study was to compare a previously sedentary group of breast cancer survivors with peer mentors (i.e., coaches) at baseline and intervention completion. Firstly, this study aimed to compare the participants' MVPA, mood, fatigue, and quality of life at baseline and following a 12-week intervention with those who provided the peer support (i.e., coaches). Secondly, we aimed to examine whether the participants randomized to the PA intervention (RTR+PA) or the control arm (RTR Control) differed from the coaches' baseline activity level and psychosocial wellbeing at intervention completion. For the first aim, we hypothesized that the participants' profile at baseline (i.e., MVPA, mood, fatigue and quality of life) would be less favorable as compared to the coaches since the coaches were further away from diagnosis and treatment than the study participants (<5 years' post-diagnosis). Secondly, we hypothesized the RTR+PA would become more similar to their coaches (MVPA, health status, mood, fatigue and quality of life) at 12-weeks, as compared to RTR Controls who would not show improvements in MVPA and psychosocial outcomes.

## Methods

### Study Design

In this randomized controlled trial, our team compared the effects of a 12-week PA program (RTR+PA) vs. contact control (RTR Control) among breast cancer survivors. The study has been previously described (Pinto *et al.*, 2015b). The RTR coaches contacted both groups by phone once a week for 12-weeks. Coaches' PA, health status/physical functioning, fatigue, and quality of life were assessed prior to training and at the end of their study participation. Participants' PA and other outcomes were evaluated at baseline and 12-weeks (post intervention) (Pinto *et al.*, 2015b). The study received approval from the Institutional Review Boards at The Miriam Hospital (RI) and Women & Infants Hospital (RI). Informed consent was obtained from all individual participants and coaches included in the study.

### Recruitment of ACS RTR Volunteers/Coaches

In collaboration with the ACS New England Division, we recruited and trained 18 RTR coaches. ACS staff reached out to 335 RTR volunteers through email, print mailings, and personal contact. Thirty-one volunteers expressed interest in the study, 28 were screened for eligibility, and 18 coaches completed training (64%) (Pinto *et al.*, 2015b).

In order to be eligible for the study, coaches were expected to have completed RTR training and been a volunteer within the RTR program for at least one year. RTR volunteers are trained on how to conduct a RTR visit, respect the patients' privacy, provide resources and effectively communicate with the patient. Furthermore, coaches had to be willing to: a)

participate in group training, b) provide coaching to 4-5 participants, c) be supervised by telephone, and d) audiotape telephone contacts with study participants (Pinto *et al.*, 2015b). Coaches were not required to be physically active prior to volunteering as a coach.

## Training of Coaches

In addition to RTR training, the research team trained coaches in small groups (in-person or using video-conferencing). Coaches were trained over 4 sessions, each lasting approximately 2 hours to ensure study material/content were understood and that intervention delivery would be implemented per study protocol. Training was conducted by the Principal Investigator (Dr. Bernardine Pinto), Co-Investigator (Dr. Michael Goldstein) and trained research staff.

The training content included didactics on the PA program, intervention theory, monitoring patient safety, issues relevant to human subjects' certification, and Health Insurance Portability and Accountability Act (HIPAA) requirements. Role plays were used to train PA counseling skills as well as process elements such as showing empathy and reflective listening. The intervention was based on the Transtheoretical approach and Social Cognitive Theory (Prochaska and DiClemente, 1983, Bandura, 1986). Coaches were asked to build a supportive relationship with participants while assessing their motivational readiness, monitoring PA, identifying and problem solving barriers to PA and negotiating PA goals for the next week. The coaches were also trained to guide participants to the recommended range of intensity (55% to 65% estimated maximum heart rate). If the participant reported health symptoms related to PA, coaches were instructed to suspend the MVPA program until medical clearance was obtained. The coaches received training in delivering the RTR Control condition as well as PA counseling (RTR+PA) (Pinto *et al.*, 2015b).

## Participant Recruitment

Participants were recruited by print mailings by the ACS to breast cancer constituents on mailing lists in 6 states (n=8111), electronic newsletters sent by the ACS, recruitment at ACS sponsored events in RI, and referrals from RTR coordinators. Power analyses for the primary outcome (MVPA) showed that 108 participants were needed for the trial before attrition (99% power to detect differential change on MVPA at 12 weeks at a multiplicity-adjusted significance level alpha=0.025) (Pinto *et al.*, 2015b).

Research staff conducted eligibility screens by telephone of all potential participants. Those who were preliminarily eligible provided written informed consent and consent to obtain medical clearance for their participation and information about their diagnosis and treatment from their healthcare provider. In total, 595 potential participants were contacted, 304 were ineligible at initial contact or phone screen (51.1%), 123 were not interested (20.7%) and 168 were eligible at phone screen (28.2%). Reasons for ineligibility have been described previously (Pinto *et al.*, 2015b). Of the 168 potential participants, 31 were no longer interested, 61 became ineligible and the remaining 76 were eligible and randomized (76/168=45.2%).

Eligibility criteria for participant recruitment is as follows: a) aged ≥21 years and diagnosed with Stage 0-3 breast cancer in the past 5 years, b) had completed surgery (patients receiving

on-going chemotherapy, radiation or hormone treatment were eligible), c) were able to read and speak English; d) were able to walk half-mile unassisted and without stopping, e) were sedentary: <30 minutes/week of vigorous PA or <90 minutes/week of moderate-intensity PA for the past six months, and f) had access to a telephone. Other medical or psychiatric problems (e.g., myocardial infarction, orthopedic problems and substance abuse) that might interfere with protocol adherence were cause for exclusion from study participation (Pinto *et al.*, 2015b).

## Intervention Delivery

After baseline assessments were completed, participants were randomized into RTR+PA or RTR Control (sample was stratified by age and whether or not they had received chemotherapy). The Intervention Coordinator assigned participants to coaches based on call scheduling and similarity of cancer treatment(s). Each coach called her participant in RTR +PA or RTR Control once a week over 12 weeks and audio-taped each call.

### RTR+PA group

The PA intervention is previously described (Pinto *et al.*, 2005b), briefly it consisted of telephone-delivered counseling based on Social Cognitive Theory and the Transtheoretical approach (Bandura, 1986, Marcus and Simkin, 1993, Prochaska and DiClemente, 1983). Participants also received a pedometer and a heart rate monitor in addition to instructions for use during PA. In addition, after completing their weekly PA sessions, participants maintained a log (type of MVPA, duration, heart rate, rate of perceived exertion and pedometer steps), which they reported to their coaches during the weekly calls. The overall goal was to encourage participants to gradually increase the amount of MVPA (e.g., brisk walking) over 12 weeks to recommendations of ≥ 30 minutes of moderate-intensity PA on most days of the week (U.S. Department of Health and Human Services, 1996). As is typical of the RTR program, coaches responded to questions that participants asked about breast cancer and its treatment and provided informational and emotional support (Pinto *et al.*, 2015b).

### RTR Control Group

During the weekly calls, coaches administered the Weekly Symptom Questionnaire (Winningham, 1993) to control participants only. The research team sent participants RTR informational booklets and the coaches attended to questions and concerns the participants may have had about breast cancer. The participants were asked not to join a structured program of MVPA during the 12-week intervention phase (Pinto *et al.*, 2015b).

## Measures

### Coach Assessments

At study entry, coaches provided demographic information (e.g., age, education), their cancer history (e.g., time since diagnosis), and the duration of their past RTR volunteering experience. At study entry coaches completed an interview assessing their PA (7 Day Physical Activity Recall (PAR)) and questionnaires assessing psychosocial variables such as

health status, fatigue, mood and quality of life (described below). The same measures were repeated at end of study volunteering (there were no significant changes within the coach group between these two time-points) (Pinto *et al.*, 2017). For this study, we focused on the baseline measures from the coaches.

## Participant Measures

At baseline, we obtained demographic information from participants and disease and treatment variables from medical records. To assess MVPA, participants wore an Actigraph in addition to completing a 7 Day PAR (ActiGraph wear and 7 Day PAR assessment completed during same time frame) with the Research Assistant. MVPA assessments (both objective and subjective) were completed at baseline and at 12-weeks. A Research Assistant (blind to the participant's group assignment) collected all data by mail or by telephone (Pinto *et al.*, 2015b). Participants received small incentives (e.g., $20 gift cards) for completing the assessments which included:

1. **MOS 36-Item Short Form Health Survey (SF-36)** (McHorney *et al.*, 1993, Ware and Sherbourne, 1992) assesses eight health concepts (e.g., physical functioning, bodily pain). We obtained the 1) Physical Functioning (PF) and 2) Mental Health (MH) scores as well as overall physical and mental health as assessed by the 3) Physical Component Summary (PCS) and 4) Mental Component Summary (MCS) scores, respectively. The SF-36 yields continuous variables that range from a low score of 0 (e.g., poor functioning) to a high score of 100 (no limitations, high functioning) on each subscale. The PCS score was obtained by multiplying each subscale z-score by a physical factor score coefficient and summing the eight products. Similarly, the MCS score was obtained by multiplying each subscale z-score by its respective mental factor score coefficient and summing the eight products.

2. **Functional Assessment of Cancer Therapy Scale-Fatigue (FACIT-F)**. This 13-item scale is a brief, reliable and valid measure of the physical and functional effects of fatigue (Yellen *et al.*, 1997). The range of scores is 6 (high fatigue) to 52 (low fatigue).

3. **Functional Assessment of Cancer Therapy Scale for Breast Cancer (FACT-B)** is a 55-item scale that assesses quality of life and is reliable and valid (Brady *et al.*, 1997). The range of scores is 0 to 144, with higher scores indicating a better quality of life relating to breast cancer symptoms. Additionally, the FACT Breast Symptom Index (FSBI) is a 10-item scale ranging from 0-36 with higher scores indicating fewer concerns specific to breast cancer.

4. **Profile of Mood States** (McNair, 1971) is a reliable 65-item measure that taps several mood states including anger, anxiety, depression, vigor, fatigue, confusion and total mood disturbance (TMD). The TMD is the sum of the scores across six subscales with vigor scores weighted negatively. The POMS has been extensively used in research and we have used this measure among cancer survivors (Pinto *et al.*, 2002).

5. **Seven Day Physical Activity Recall (7 Day PAR)** (Blair *et al.*, 1985). This interviewer-administered measure (Sallis *et al.*, 1985) assesses hours spent in sleep as well as moderate, hard, and very hard activity (leisure and occupational) over the past week. The effect on weekly minutes of MVPA was the primary outcome in the RCT.

## Statistical Analyses

Data were aggregated amongst participants and baseline demographics and medical history were compared to coaches using t-tests (for continuous, normally distributed variables), Wilcoxon tests (for skewed variables) and chi-squared tests (for categorical variables). Significant differences between coaches and participants were used as covariates in subsequent analyses.

Using a series of generalized linear models, we compared mean scores at baseline on PA levels (as assessed via the 7-Day PAR), as well as psychosocial constructs, between coaches and participants. Models were adjusted for time since diagnosis and chemotherapy use, as these significantly differed between the sample of coaches and participants. At baseline, the sample of participants was aggregated across groups.

Using a similar analytic strategy, we compared participants at follow-up to coaches, separately by group. Previous work has shown that participant scores changed over time on MVPA and key constructs (Pinto *et al.*, 2015b, Pinto *et al.*, 2015a). Preliminary models controlled for baseline values of the outcome, but as this did not significantly change effect estimates, nor did it improve model fit, baseline scores were subsequently removed from the final model. However, time since diagnosis and chemotherapy use remained in the adjusted models.

All analyses were carried out in SAS 9.3 and significance level was set *a priori* at 0.05. It should be noted that analyses were conducted based on *a priori* hypotheses with regards to potential differences between coaches and participants. Following Rothman (Rothman, 1990), we did not adjust for multiple comparisons, as to reduce errors in interpretation and to avoid increasing type II error rates at the expense of type I errors.

## Results

Overall, the participant sample consisted of 76 women, average age 55.62 (±9.55), predominantly self-reported as White (98.7%), with the majority having at least some college level education (89.5%). The sample of coaches consisted of 18 women, average age 54.89 (±7.76), predominantly White. Participants average time since diagnosis was 1.11 years (SD=1.05). Coaches were significantly different (p's< 0.05) with respect to time since diagnosis (mean for coaches was 7.00 years, SD=4.67) and the proportion who received chemotherapy as part of their treatment (72% of participants vs. 95% of coaches). Demographic and cancer diagnosis date and treatment for participants and coaches are presented in Table 1. Unadjusted mean scores at baseline and post-intervention variables for coaches (baseline only) and participants are presented in Table 2.

Adjusted mean differences between participants and coaches at baseline are presented in Table 3. Participants (RTR+PA and RTR Controls) reported significantly lower min/week of MVPA, p=0.001 at baseline. Specifically, participants reported an average of 165.47 minutes of MVPA less than RTR coaches at baseline (SE=47.57). At follow-up, RTR+PA participants were no longer significantly different from their coaches, with no significant differences in PA level or psychosocial outcomes at 12 weeks (p's>.05). Full details are presented in Table 4.

However, there remained significant differences between coaches and RTR Controls, after adjusting for time since diagnosis and chemotherapy use. Specifically, models suggest that RTR Controls reported an average of 135.45 min/week less of MVPA at 12 weeks (SE=39.73) compared to coaches and had significantly lower scores on quality of life (FACT-B) ($p<0.05$) and fatigue (FACIT-F) ($p<0.05$). There were no differences with respect to health status (SF-36) or mood (POMS). Complete details are presented in Table 4.

## Discussion

There is limited research on peer mentoring to increase PA levels, especially among cancer survivors. More specifically, to the best of our knowledge, very little is known about the similarities and differences of the mentors (coaches) with the participants. The purpose of this study was to directly compare total participation in MVPA and psychosocial wellbeing of the coaches and participants to further examine the impact of peer-based PA interventions. These results suggest by participating in a telephone-based, 12-week MVPA program, the helped (participants) start to resemble the helpers (coaches). At the start of the program, participants significantly differed from coaches, however after engaging in 12 telephone calls, RTR+PA participants no longer differed from the coaches.

Previous research explored the PA characteristics between coaches and participants. A study by Wilcox and colleagues showed no significant differences in PA between coaches and participants at baseline (Wilcox *et al.*, 2015). However, significant differences were seen for PA self-regulation, self-efficacy and social support, that is the coaches displayed higher scores consistent with being more ready for MVPA as compared to the participants at baseline. In a study by Castro and colleagues, mentors were active for at least one hour per day, with walking as their primary activity (Castro *et al.*, 2011). These studies suggest that readiness for activity and/or high levels of regular PA of coaches may be an important element in peer support for MVPA adoption.

In this study, we expected to see similarities between coaches and participants at post-intervention that related to the type of intervention received over 12-weeks (either PA counseling or no PA counseling). There was no significant difference in the mean number of calls delivered between RTR+PA 11.16 (SD=2.24) vs RTR Controls 10.97 (SD=2.27) (Pinto *et al.*, 2015b). During their RTR and study training, coaches were instructed to show empathy and provide social support to both groups. RTR+PA and RTR Control groups showed significant changes in many of the psychosocial variables after 12-weekly calls. RTR+PA improved their fatigue, quality of life and overall wellbeing such that they resembled their coaches at intervention completion. RTR Controls showed similar

improvements, however, quality of life (FACT B) and fatigue (FACIT-F) remained significantly different, that is they reported lower quality of life and higher fatigue as compared to the coaches. This finding may be related to the lack of MVPA in RTR Control group, as improvements were seen in RTR+PA.

As both groups received a weekly phone call with their assigned coach, it can be speculated that the overall improvement in mood and health status may be due to the general support integral to RTR (Pinto *et al.*, 2015a). Peers may have been seen as role models to the participants, providing personal experiences for their cancer experience and/or participation in routine MVPA. Our results are fairly consistent with the literature: in a systematic review by Hoey et al., psychosocial improvements were seen either during or post-intervention, through telephone-based social support interventions (Hoey *et al.*, 2008). However, the author also denotes the lack of well documented research trials within this field of research.

Participants receiving the exercise intervention improved upon their participation in MVPA such that after 12 calls (intervention completion), RTR+PA participants were no longer significantly different than their coaches' activity level. While this improved MVPA change is not surprising, it is critical to highlight the success of 12 MVPA counseling calls via telephone. In each call, coaches discussed barriers to MVPA, problem solved and developed an PA plan, which may have contributed to the similarities in MVPA between coaches and RTR+PA participants. Although we did not require coaches to be physically active at the onset, their level of MVPA may have helped them to become effective coaches for MVPA implementation. RTR Controls did not see any significant change within their activity, which is expected as they were asked not to join a structured program of MVPA during the 12-week intervention phase.

To the best of our knowledge, this is the first study to directly compare participants with coaches at baseline and after a 12-week intervention. This is an innovative approach that can add to the literature on peer-delivered programs for PA. While the results of this study are promising, there are limitations that should be addressed. The sample (both for coaches and participants) was primarily well-educated, Caucasian (98.7%) women. In addition, the sample size for the coaches (n=18) and RTR+PA participants (n=39) and RTR controls (n=39) is relatively small, which does not allow for a full representation of this population in the United States or in other countries. While the 7 Day PAR has been defined as a valid measure of MVPA, it remains self-report. Study participants wore an Actigraph to collect MVPA data but coaches were not asked to wear an Actigraph. Therefore, objective measurements were not available to compare coaches' and participants' MVPA. In addition, RTR Controls were asked not to participate in any PA during the intervention period, however we cannot be certain they met these expectations over the 12-week duration. However, a major strength of this study is the collection of similar measures of self-reported MVPA and psychosocial constructs from both the coaches and study participants.

The data presented allows for a greater understanding of the peer mentoring programs in reference to MVPA and psychosocial wellbeing among cancer survivors. The results show that the use of peer-mentoring programs for PA can improve cancer survivor/participants wellbeing to levels similar of those of the peer mentors. Peer mentoring programs can be

used in a variety of community settings where mentors are readily available. As the peer mentoring programs within cancer populations continue to expand, future research should examine how the mentors interact with their participants to encourage increased MVPA and deliver social support. Additionally, peer-delivered programs among other clinical populations (e.g., diabetes) should compare profiles of their peer mentors with the study participants at baseline and post-intervention. More insight into the peer mentor/participant relationship may allow for an improved intervention delivery for the participant.

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**Table 1**

Baseline Demographics and Medical History Variables for Participants vs Coaches

| | Coaches (N=18) | Participants (N=76) |
|---|---|---|
| Mean Age, years (±SD) | 54.89 (7.76) | 55.62(9.55) |
| Marital Status, (%) married/living with partner | 81.0% | 82.9% |
| Race, % Caucasian | 95.2% | 98.7% |
| Ethnicity, % Hispanic/Latino | 0% | 6.6% |
| Education, % At leastSome College | 90.5% | 89.5% |
| Employment, % Full-time | 33.3% | 39.5% |
| Income, % >=40k | 92.3% | 69.7% |
| *Breast Cancer Stage* | | |
| 0 | 5.3% | 6.6% |
| 1 | 36.8% | 38.2% |
| 2 | 47.4% | 44.7% |
| 3 | 10.5% | 10.5% |
| Mean Years Since Diagnosis * | 7.00 (4.67) | 1.11(1.05) |
| *Treatment* | | |
| Lumpectomy | 60.0% | 54.0% |
| Mastectomy | 25.0% | 36.8% |
| Radiation | 88.9% | 78.4% |
| Chemotherapy * | 95.0% | 71.6% |
| Hormone Treatment | 90.0% | 56.0% |

* $p<0.05$ for between group differences

**Table 2**

Unadjusted Means by Group

| | Baseline | | | Post Intervention | |
|---|---|---|---|---|---|
| | **Coaches** | **RTR+PA** | **RTR Control** | **RTR+PA** | **RTR Control** |
| **7 Day PAR** (MVPA min) | 223.75 (283.64) | 31.77 (33.87) | 17.14 (23.42) | 129.47 (73.43) | 25.00 (67.38) |
| **FACT B** | 119.81 (19.93) | 109.47 (13.85) | 103.40 (22.19) | 117.79 (12.73) | 113.98 (18.02) |
| **FACT B** Additional Concerns | 28.99 (4.35) | 24.54 (5.62) | 23.01 (5.56) | 27.03 (5.40) | 26.34 (4.95) |
| **FACIT-F** | 47.11 (4.52) | 37.33 (8.93) | 34.70 (12.53) | 43.83 (7.28) | 41.22 (8.49) |
| **SF-36 PF** | 91.94 (8.93) | 81.54 (16.59) | 77.84 (16.31) | 87.08 (14.41) | 84.69 (15.91) |
| **SF-36 PCS** | 53.63 (4.86) | 49.19 (8.76) | 46.40 (7.36) | 52.00 (6.71) | 50.93 (6.94) |
| **SF-36 MH** | 83.33 (11.11) | 75.51 (14.55) | 73.38 (17.36) | 81.81 (10.28) | 76.10 (15.75) |
| **SF-36 MCS** | 55.70 (7.52) | 48.68 (10.48) | 49.42 (10.74) | 54.21 (9.28) | 52.48 (9.62) |
| **POMS Total** | −1.89 (16.41) | 15.74 (18.57) | 17.16 (26.48) | −.67 (16.68) | 9.66 (21.36) |

Data are represented as means (standard deviations). 7 Day PAR= 7 Day Physical Activity Recall, MVPA= Moderate-to-Vigorous Physical Activity, PF=Physical Functioning, PCS= Physical Component Score, MH=Mental Health, MCS= Mental Component Score, POMS Total= Profile of Mood State Total Mood Disturbance.

## Table 3

Baseline: Adjusted differences between Participants (RTR+PA and RTR Control) and Coaches

| | Participants vs Coach | P |
|---|---|---|
| 7 Day PAR (MVPA min) | −165.47(47.57) | .001** |
| FACT B | −26.79(7.24) | <.001** |
| FACT B Additional Concerns | −6.77(2.16) | .002** |
| FACIT-F | −10.89(3.96) | .01* |
| SF36 PF | −18.86(6.01) | .002** |
| SF36 PCS | −6.68(3.08) | .03* |
| SF36 MH | −12.50(6.07) | .04* |
| SF36 MCS | −9.18(4.03) | .03* |
| POMS Total | 19.94(8.71) | .02* |

* p<0.05,

** p<0.01

Data are represented as mean differences (standard errors) and adjusted for time since diagnosis and chemotherapy use. 7 Day PAR= 7 Day Physical Activity Recall, MVPA = Moderate-to-Vigorous Physical Activity, PF=Physical Functioning, PCS= Physical Component Score, MH=Mental Health, MCS= Mental Component Score, POMS Total= Profile of Mood State Total Mood Disturbance.

**Table 4**

Follow-Up: Adjusted Mean differences between participants and coaches based on randomized group assignment.

| | RTR +PA vs. Coach | RTR Control vs. Coach |
|---|---|---|
| 7 Day PAR (MVPA min.) | −39.83 (39.29) | −135.45 (39.73)** |
| FACT B | −9.74 (5.60) | −15.12 (7.57)* |
| FACT B Additional Concerns | −1.56 (2.22) | −1.95 (2.12) |
| FACIT-F | −3.43 (2.88) | −6.84 (3.43)* |
| SF36 PF | −5.35 (5.74) | −9.44 (6.49) |
| SF36 PCS | 0.93 (3.33) | .003 (3.60) |
| SF36 MH | −2.82 (5.14) | −9.18 (6.36) |
| SF36 MCS | −3.27 (3.76) | −5.28 (3.95) |
| POMS Total | −3.16 (7.59) | 13.42 (9.50) |

* $p \leq 0.05$,

** $p \leq 0.01$

Data are represented as mean differences (standard errors) and adjusted for time since diagnosis and chemotherapy use. 7 Day PAR= 7 Day Physical Activity Recall, MVPA = Moderate-to-Vigorous Physical Activity, PF=Physical Functioning, PCS= Physical Component Score, MH=Mental Health, MCS= Mental Component Score, POMS Total= Profile of Mood State Total Mood Disturbance.