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Group Trajectory Analysis Helps Identify Older Cancer Survivors Who Benefit from Distance-Based Lifestyle Interventions

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Abstract

Background—The number of older cancer survivors is increasing as more adults are surviving to older ages. The objectives of the study are **t**o examine trajectories of physical activity and physical function over a two-year lifestyle counseling study and identify characteristics of trajectory groups.

Methods—This is a secondary analysis of the Reach Out to Enhance Wellness (RENEW) trial, a randomized controlled home-based lifestyle counseling trial. Participants were 641 older (≥ 65years), overweight (body mass index [BMI] 25 to < 40), long term (>5 years) community dwelling survivors of breast, prostate, and colorectal cancer randomly assigned to immediate intervention versus 12-month wait-listed control arms from Canada, the United Kingdom, and 21 United States. The main outcome measures were physical activity and physical functional trajectory group membership.

Results—Three physical activity and five physical function trajectory groups were observed. Baseline bmi ($p<0.001$), self-efficacy for performing strength ($p<0.0001$) and endurance ($p<0.0002$) exercise were the strongest predictors of achieving the highest amount of physical

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activity and most favorable functional trajectory over two years. Individuals with low baseline self-efficacy, no physical activity, and a SF-36 physical function subscale score <65 did not benefit from the intervention.

Conclusion—We identified characteristics of survivors who benefit from home-based interventions and suggest alternative approaches for survivors requiring more structured and intensive interventions to promote behavior change.

Keywords

Aged; Breast Neoplasms; Colorectal Neoplasms; Counseling; Exercise; Health Behavior; Prostatic Neoplasms; Prevention and Control; Lifestyle; Survivors

Introduction

The number of older, cancer survivors is growing rapidly and expected to increase even more over the next few decades. Cancer is a disease of aging, and more than 60% of cancer survivors are over age 65.[1] This growing group of survivors will largely be cancer-free and managing chronic conditions common in aging populations.[1] The interplay between age-related and cancer treatment-related declines in health present a challenge to older cancer survivors who are likely to survive with more functional loss.[2] With increasing numbers of older cancer survivors there is a need to identify approaches that maximize the adoption of positive health behaviors.

Physical activity (PA) is a widely-recognized behavior that is positively associated with chronic disease management, quality-of-life, well-being, longevity and improved function.[3-5] Despite this evidence, uptake of PA remains low among older adults.[6] Moreover, few PA interventions have targeted the older cancer survivor. Two recent reviews of PA and cancer survivorship endorsed PA as a relevant health promoting activity.[7-9] However, significant gaps remain in our understanding of the characteristics of individuals who adopt or fail to adopt PA as a sustained lifestyle.

The Reach-Out to Enhance Wellness (RENEW) randomized controlled trial is one of the largest lifestyle intervention trials directed at older (≥ 65 years), long-term cancer survivors (≥ 5 years post-diagnosis).[10,11] The study, a multi-component home-based counseling trial, promoted increased PA, weight control, and healthy eating to improve physical function (PF). To advance our understanding of PA adoption and related PF, we performed group-based trajectory analyses to: (1) examine trajectories of PA and PF among study participants over two-years, (2) identify trajectory group characteristics, and (3) examine correlations between trajectory groups.

Methods

Design and participants

This is a secondary analysis of the RENEW trial. The design and results of RENEW have been reported previously.[10,11,12] The primary aim of the RENEW study was to determine whether a diet and exercise intervention delivered via telephone counseling and mailed

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materials was effective in reorienting trajectories of physical function in older, overweight cancer survivors. The study included 641 breast, prostate and colorectal cancer survivors who were 5 years or more post-diagnosis and who were initially diagnosed with early stage, loco-regionally confined cancer who did not manifest clinical evidence of progressive disease or second primaries. Eligible survivors self-reported that they were not meeting recommended guidelines of 150 minutes/week of moderate-to-vigorous PA. Study participants were randomly assigned to an immediate intervention (IM-INT) arm (n=319) consisting of 12-months of lifestyle counseling; or a wait-listed control arm in which individuals received the entire 12-month intervention during months 12-24 (Wait-Listed Intervention (W/L-INT) (n=322). Both groups received quarterly assessments of self-efficacy for strength and endurance exercise, PA, and PF for the entire 24-month study period. Individuals in the IM-INT arm received tailored mailed-print materials and telephone counseling promoting increased PA and healthy eating for twelve months. At twelve months, the W/L-INT group crossed over to receive the full 12-month lifestyle intervention. The *a priori* designed primary endpoint was a group comparison of baseline to 12-month PF. At this assessment there was a significant attenuation of functional decline in the IM-INT group compared to the W/L-INT group.[11] Subsequent analysis of this study indicated that from year 1 to year 2 follow-up, PA behaviors were sustained in the IM-INT group, and significantly improved in the W/L-INT group who were now receiving the intervention.[12] For the proposed analyses, we focus on the measures of PA and PF collected during the quarterly assessments. The protocol was reviewed and approved annually by the Duke University institutional review board and the North Carolina Central Cancer Registry. Written consent was obtained from all study participants and participants received a stipend, up to $50, for returned surveys.

Measures

This analysis is based on two outcomes, PA and PF, that were assessed prior to randomization, and then quarterly for 24-months (nine evenly-spaced assessment points). PA, reported as the number of minutes/week of PA was assessed by combining the total reported number of minutes/week from three items of the Community Healthy Activities Model Program for Seniors (CHAMPS) questionnaire.[13] These three items best represent the intervention goals related to PA, which were strength training (15 minutes, three non-consecutive days/week) and endurance or aerobic exercise (≥30 minutes/day for ≥5 days/week). Two walking-related items, walking briskly for exercise and walking uphill, and one item assessing strength training were combined as the estimate of total weekly minutes of PA. PF was assessed using the PF subscale (10 items) of the Medical Outcomes Study Short Form 36 (SF-36).[14] The SF-36 PF subscale ascertains the impact of health on the ability to perform vigorous to self-care activities. SF-36 subscale scores (0-100) are normalized with higher scores indicating better function. Gender, race, baseline age, body mass index (BMI), and self-efficacy were assessed by self-report as covariates. Self- efficacy was assessed as a single item for confidence (self-belief) in the ability to perform aerobic exercise for ≥30 minutes on ≥5 days/week, and separately, for the confidence in ability to perform strength training for ≥15 minutes, three non-consecutive days/week. Each item was scored on a Likert scale (1 to 5) with a higher score indicating higher self-belief in the ability to perform the behavior.

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Analysis

Group based trajectories for PA and PF were calculated for each intervention arm using the method of group-based trajectory modeling described by Nagin using SAS ProcTraj.[15,16] This method was used to identify clusters of individuals (groups) following similar progressions (trajectories), of a behavior or outcome over time. Each individual has a personalized estimate of belonging to each trajectory group; for our purposes individuals were assigned to the group with the highest probability. Group trajectories were compared using Bayesian Information Criterion to determine the optimum number of group trajectories for each outcome. PA minutes were log transformed to meet model assumptions for group trajectory modeling. Race, gender, baseline age, BMI, and self-efficacy for aerobic exercise and strength training were examined as covariates associated with group trajectory membership using general linear modeling techniques. The correlation between PA and PF trajectory groups was assessed by a chi-square goodness of fit test. Group-based trajectory modeling does not exclude individuals with missing data; thus the analytic sample consisted of all 641 trial participants. The pattern of missing data for the quarterly surveys reflected overall drop-out, and participants still active in the study completed their quarterly assessments. All analyses were conducted using SAS v9.3 statistical software (SAS Institute, Inc.)

Results

The study participants were 73.1 ± 5.1 years, mostly white, female, and college educated (Table 1). Sixty percent were overweight (BMI: 25.0-29.9 kg/m^2) and 40% were obese (BMI: ≥30 kg/m^2). The mean number of years since diagnosis of cancer was 8.6 ± 2.7 years. While participants only reported a median of 60 minutes/week of total moderate-to-vigorous PA at baseline, about 70%, reported high self-efficacy in their ability to engage in aerobic exercise and strength training.

Separate PA and PF trajectories for the IM-INT and W/L-INT arms are depicted in Figures 1 and 2. For each trajectory figure (1a and 2a), the solid line represents the observed means while the dotted lines depict the trajectory estimated from the model for each group.

Physical Activity Trajectories

Immediate Intervention—Three group trajectories were identified for weekly minutes of PA for the IM-INT group (Figure 1a). Within the IM-INT group, a small percentage of individuals (Group 1, 7.1%) reported virtually zero minutes of PA at baseline and remained inactive throughout the study. This group had a baseline PF subscale score of 62 which declined to and then remained at 49 at 12- and 24-month follow-up (Figure 1b). About one-third of the group (Group 2, 32.7%) increased PA immediately, to about 103 minutes/week, peaking at 3-month follow-up and then declined steadily throughout the observation period. At baseline, this group had a PF subscale score of 70 which declined to 64 and then 59 at the 12- and 24-month follow-up, respectively. Group 3 consisted of 60.2% of the sample and showed a marked improvement in PA, to about 212 minutes/week at 3 months that was largely sustained around 160-145 minutes/week throughout the 12-month intervention and 12-month observation periods. The PF subscale score for this group ranged from 81 at

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baseline to 82 and 79 at 12- and 24-month follow-up, respectively. Of the covariates examined, age, gender, and race did not differ between trajectory groups (Figure 1c). Baseline BMI, and self-efficacy for aerobic exercise and strength training differed between the three trajectory groups with higher BMI and lower self-efficacy more prevalent in the PA trajectory group reporting the lowest PA over time.

Wait-List Intervention—Three group trajectories also were observed for PA for the W/L-INT group (Figure 2a). Groups 1 and 2 remained relatively inactive during the first year, indicating that they maintained their usual activity levels during the wait-listing period. Upon initiation of the intervention, Group 1, 8.9% of the sample did not engage in PA, remaining below 20 minutes/week of reported PA throughout the study period (Figure 2a). The baseline mean PF score of this group was 64 points and declined to 54 and 51 points at 12- and 24-month follow-up, respectively (Figure 2b). Conversely, Group 2, 24.2% of the sample, following the onset of the intervention at 12 months, increased PA to 77 minutes/ week over the initial 9-months of intervention and remained active with a slight tapering-off during the final three months of intervention. Group 3, 66.9% of the sample, was more physically active at baseline than the other groups and then substantially increased and sustained PA throughout the intervention. The baseline PF score of this group was 79 and only declined to76 and 74, respectively at 12- and 24-month follow-up. Of the covariates examined, age differed significantly between groups ($p=0.04$) but not monotonically, BMI was higher and self-efficacy (both measures) was lower in the group reporting the lowest amounts of PA throughout the study period (Figure 2c).

Physical Function Trajectories—Five group trajectories were observed for the IM-INT and W/L-INT groups (not shown) and are described in Table 2. In the IM-INT group (Group 1), 13.2% of the sample started at a low PF score (50 of 100) and continued to steadily decline during the intervention period. In contrast, Groups 4 and 5, 46.8% of the sample, had PF scores that started high (86 and 97, respectively) and remained high during the entire follow-up period. While most trajectory groups demonstrated a leveling or decline in function over the intervention period, Group 2 charted modest improvement in function over 9 months of the intervention period, which tapered with cessation of the intervention. The W/L-INT groups had similar trajectory groups, with Group 1 consisting of individuals with very low functional status (39) whose function continued to decline steadily throughout the 24-month observation period and Groups 4 and 5 consisting of individuals of relatively high functional status (83 and 94, respectively) that was sustained during the observation period. Groups 2 and 3 appear to have an attenuation of functional decline with the onset of the intervention at 12 months. Being male, having a lower BMI, and higher self-efficacy (both measures) were significantly associated with membership in a more favorable (higher baseline function, less decline) PF trajectory group. Age was a predictor of PF only in the W/L-INT group, in which the average age of the membership in Group 2 was slightly older than that of the four other trajectory groups.

The PA and PF trajectory groups were significantly correlated for both the IM-INT ($p<0.0001$) and W/L-INT groups ($p<0.0001$). On average individuals in the two highest functional trajectory groups were largely comprised of the most physically active

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individuals, about 65% of the total sample, with low representation among the least physically active group, about 15% of the total sample.

Discussion

Trajectory group analysis allows the examination of behaviors or outcomes of subgroups as they progress through a trial. These analyses are informative and point to subgroups of individuals who require alternative approaches to achieve optimal results. In this study we identified three physical trajectory groups and identified characteristics associated with their membership. Among this group of overweight or obese older adults, lower BMI and high self-efficacy for strength and aerobic exercise were associated with high levels of baseline PA and higher adoption of, and maintenance of, increased PA over time. These same characteristics were associated with higher PF and functional trajectory over time. Conversely, individuals reporting virtually no PA at baseline and PF scores <65, did not initiate PA behavior change.

One encouraging finding of this study is that the strongest predictors of PA and PF trajectories, BMI and self-efficacy for strength and aerobic exercise, are largely modifiable. Lower BMI has long been associated with increased PA and PF.[17,18] In our study, lower BMI at baseline was associated with membership in both a more favorable PA trajectory group (group 3; adoption and maintenance of PA) and PF trajectory groups (groups 4 and 5; highly functioning at baseline, with little attenuation of function). Additionally, self-efficacy is a known predictor of behavior change,[19,20] and has been shown to predict both adoption and maintenance [19,21,22] of PA. Our study is unique because we assessed self-efficacy separately for two domains of exercise (aerobic exercise and strength training). Self-efficacy for strength training was a highly significant predictor of engaging in both aerobic and strength training exercise and in PF. We are not aware of randomized controlled trials that have assessed self-efficacy for strength training in this population, therefore it is underutilized in efforts to promote increased activity and function.

Similarly, approximately 30% and 21% of participants in the lowest and middle PA trajectory groups, respectively, scored <50 on the PF subscale. Scores in this range reflect a preponderance of moderate to severe limitations in daily tasks. Therefore, an intervention that prescribed moderate intensity activities may have been too difficult to adopt and maintain for these poorly-functioning individuals. This problem may have been amplified by the absence of weekly PA at baseline. Understanding the characteristics of membership in different trajectory groups may help clinicians more easily identify individuals who may need additional support to both adopt and maintain a physically active lifestyle. It is possible that scoring <50 on the SF-36 PF subscale represents a cut point for individuals needing a different type of intervention to initiate a new behavior, such as a supervised program, referral to a physical therapist or personal trainer, or a program that gradually increases the frequency, duration, and intensity of activity.

The PA trajectories in this study illustrate the remarkable success of the RENEW trial in that a substantial portion of the entire sample assigned to the IM-INT arm, Groups 2 and 3, 92.9% of the sample, embraced the intervention and increased their PA. Group 3, which

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consisted of 60% of the sample and those with the lowest baseline BMI and highest baseline self-efficacy, maintained increased levels of PA throughout the year-long observation period even though all counseling and mailed intervention materials stopped at 12 months. The long-term sustainability of such a behavior change is unusual in the absence of continued intervention. Although rare, similar findings have been reported among older frail adults following a lifestyle intervention.[23] Furthermore, the trajectory patterns of the W/L-INT group during the second year of the observation period demonstrated that a large portion of the group, Groups 2 and 3 (91.1% of the sample), increased PA upon receiving the intervention despite a one-year waiting period.

Maintenance of the intervention behavior is one of the five components of the Reach, Efficacy/Effectiveness, Adoption, Implementation, and Maintenance (RE-AIM) framework, and thus is vital for informing the translation of research into practice and promoting long-term health benefits and well-being. Despite the call for trials to assess long-term maintenance of PA behavior change,[24-26] few trials in either the general adult population or in cancer survivors specifically have reported maintenance outcomes beyond six months following intervention completion. In recent reviews of post-intervention maintenance of dietary or PA behavior change, less than 20% of randomized controlled trials included a post-intervention at 3-months, and even fewer (8%) at 6-months.[24,26] Virtually no trials have included a post-intervention follow-up of one year or longer, which has been suggested as the optimal length of time for evaluation of maintenance of behavioral change.[24,25]

Direct comparisons between our results with other trials of PA for cancer survivors are difficult since few trials have been of long-term duration or have examined long-term maintenance of PA.[23] Consistent with our findings, two long-term trials in breast and prostate cancer survivors reported maintenance of PA among a proportion of the intervention group.[27,28] In a study of breast cancer survivors (N=44) assigned to a 1-year intervention of resistance plus impact training, 56% continued to exercise during the 1-year follow-up; however, 43% of those who continued to exercise did so at a reduced effort.[27] In a large home-based lifestyle intervention among breast and prostate cancer survivors (N=400), the intervention arm generally maintained PA levels from 1- to 2-year follow-up.[28] While these studies report findings similar to ours, to our knowledge, no one has used trajectory groups to examine characteristics of subgroups of study participants.

The RENEW study had several limitations which might impact our findings. Of primary concern is that all of the outcomes were self-reported and subject to recall bias, social desirability, and other biases inherent in self-reported outcomes. Nonetheless, the primary outcomes associated with this analysis, PA and PF, as assessed by the CHAMPS questionnaire and the SF-36 PF subscale have high validity and reliability in both older adults and cancer survivors.[13,14,29-31] Furthermore, our findings may have limited generalizability to survivors of cancers other than breast, prostate and colorectal and survivors within the oldest-old age categories. Our study, however has numerous strengths. It is the largest lifestyle behavior randomized controlled trial among older adult cancer survivors, and one of the few with long-term follow-up. Our approach to examine PA and PF trajectory groups both during the intervention and after intervention completion also is unique in the field of cancer survivorship.

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Our study fills a research gap by providing a group trajectory analysis with multiple PA assessments during and after the intervention. This in-depth analysis provided information on patterns of change in PA, correlation between patterns and the primary trial outcome (PF), and characteristics of participants associated with each trajectory group. Our results can inform the development of targeted programs that promote the adoption and maintenance of PA in older cancer survivors and identify subgroups that may benefit from a targeted approach. Using PF score as the target indicator, we suggest the following recommendations for future tailoring of interventions delivered to older cancer survivors not meeting recommended PA guidelines. (1). For individuals with PF scores > 65, a home-based PA program delivered by telephone and mailed materials which encourages gradual incremental progression of PA directed at meeting PA guidelines can be a successful approach to adoption and maintenance of PA. This is most likely to be successful among those who are overweight (not obese), with high self-efficacy for aerobic exercise and strength training. (2) For individuals with PF scores < 65, a home-based approach is not likely to be effective. Within this subgroup, individuals who are extremely inactive, have low self-efficacy for exercise, or who have moderate-to-severe functional impairments may require more intensive and supervised interventions to even initiate behavior change. These findings also underscore the importance of self-efficacy as an important modifier of behavior change. We are encouraged that, in this study, a majority of study participants embraced and sustained positive behavior changes.

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Study concept and design: Morey, Snyder, Sloane, Cohen, Demark-Wahnefried.

Acquisition of data: Snyder, Sloane.

Analysis and interpretation of data: Morey, Blair, Snyder, Sloane, Cohen, Demark-Wahnefried

Drafting of the manuscript: Morey, Blair.

Critical revision of the manuscript for important intellectual content: Snyder, Sloane, Cohen, Demark-Wahnefried.

Statistical analysis: Morey, Blair, Sloane, Demark-Wahnefried.

Obtained funding: Morey, Snyder, Sloane, Cohen, Demark-Wahnefried.

Study supervision: Snyder, Demark-Wahnefried

Final approval of manuscript: Morey, Blair, Snyder, Sloane, Cohen, Demark-Wahnefried

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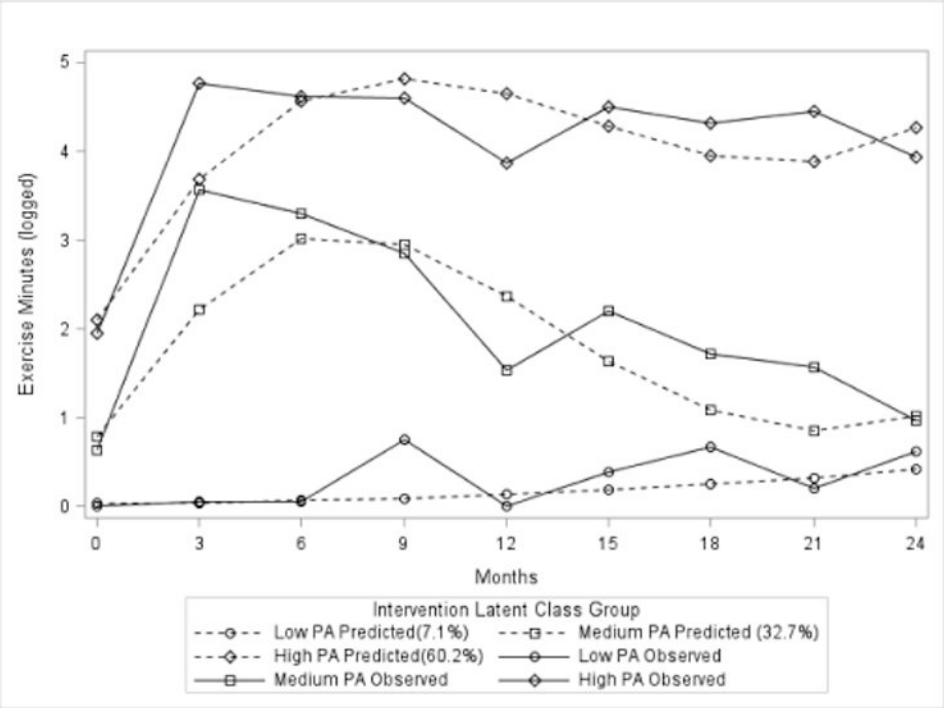
(a)



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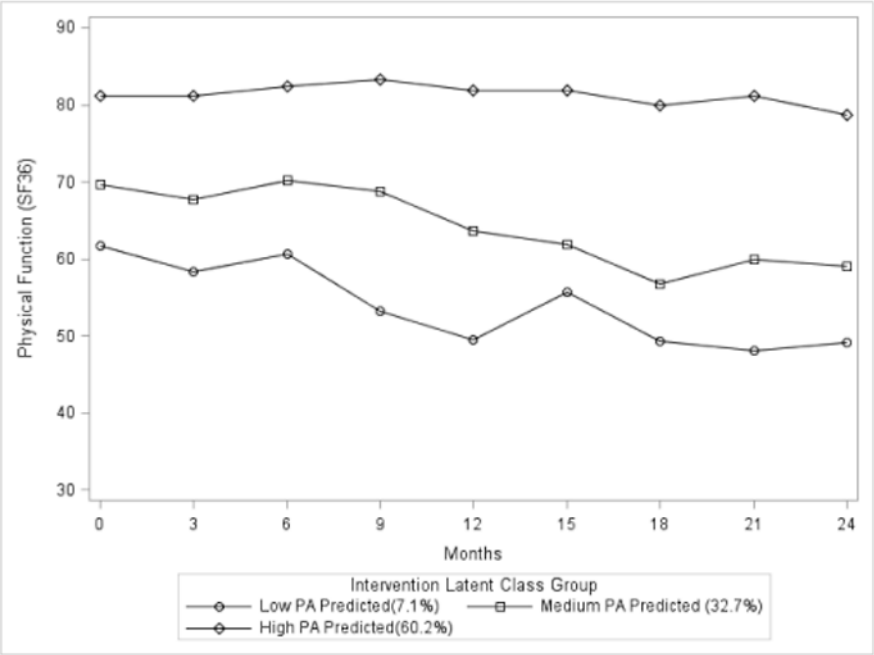
(b)



(c)

Group	Age Mean (SE)	Male %	BMI Mean (SE)	White %	Self-efficacy (strength) [a] Mean (SE)	Self-efficacy (endurance) [a] Mean (SE)
3	72.7 (0.37)	45.5	28.6 (0.24)	91.0	4.3 (0.06)	4.1 (0.08)
2	73.2 (0.48)	45.9	29.9 (0.31)	86.2	4.1 (0.09)	3.7 (0.10)
1	74.8 (1.10)	52.4	29.6 (0.71)	85.7	3.1 (0.19)	3.3 (0.23)
p-value	0.20	0.83	0.005	0.40	<0.0001	0.0001

Figure 1.

Physical activity trajectory groups in the immediate intervention group: (a) Quarterly total exercise minutes (logged) by trajectory group, (b) Physical function quarterly scores by trajectory group, and (c) Characteristics of physical activity trajectory groups.

[a]higher scores indicate greater self-efficacy to perform strength training or endurance exercise (range on each scale: 1 to 5: very unsure, unsure, somewhat sure, sure, very sure)

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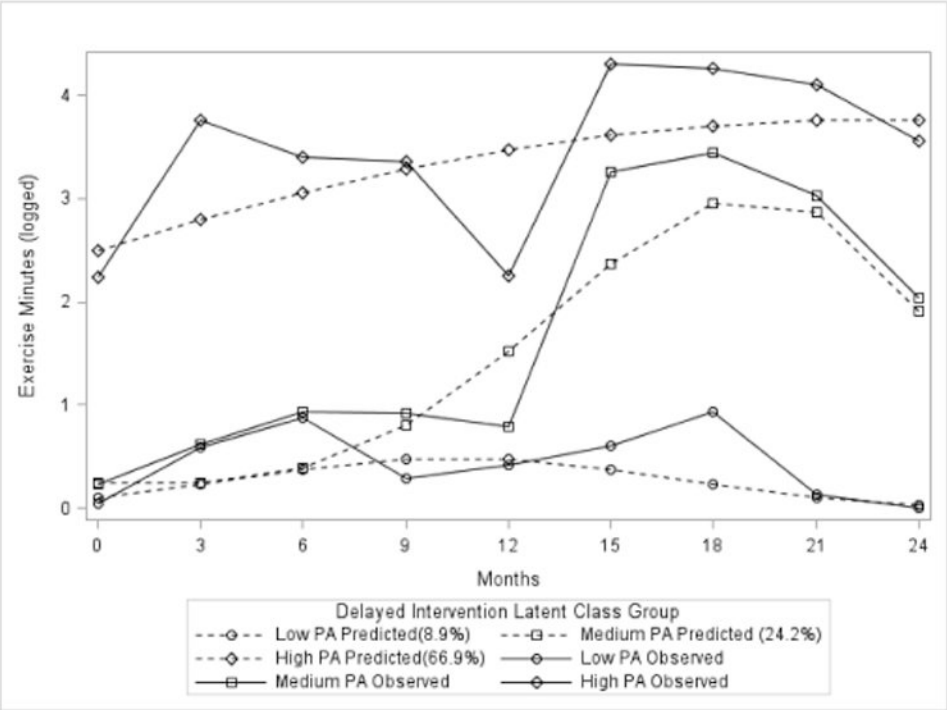
(a)



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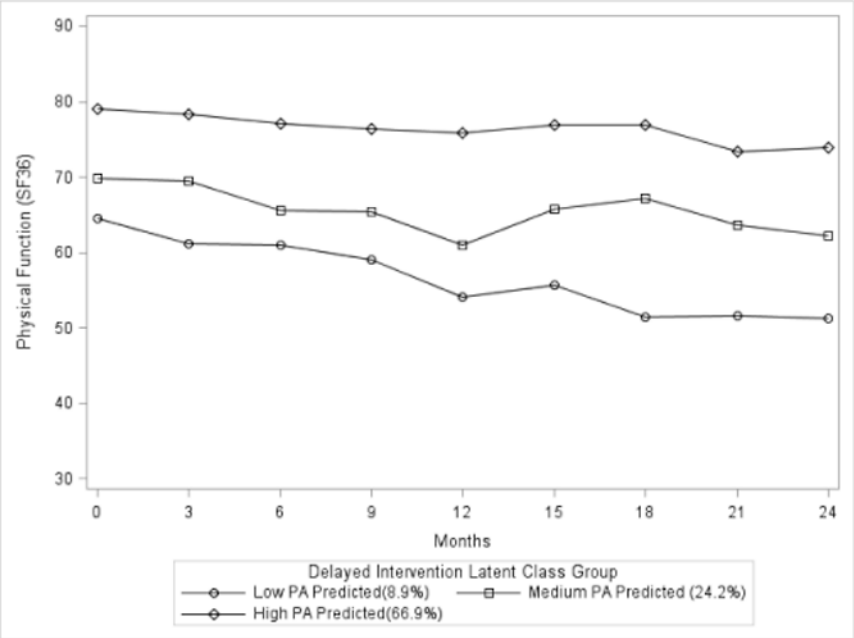
(b)



(c)

Group	Age Mean (SE)	Male %	BMI Mean (SE)	White %	Self-efficacy (strength) [a] Mean (SE)	Self-efficacy (endurance) [a] Mean (SE)
3	72.7 (0.34)	47.9	28.9 (0.25)	89.2	4.3 (0.06)	3.9 (0.08)
2	74.2 (0.54)	40.2	29.5 (0.39)	88.5	3.9 (0.09)	3.4 (0.12)
1	73.8 (1.08)	36.4	30.8 (0.77)	81.8	3.6 (0.19)	3.1 (0.24)
p-value	0.04	0.34	0.03	0.59	<0.0001	<0.0001

Figure 2.

Physical activity trajectory groups in the wait listed intervention group: (a) Quarterly total exercise minutes (logged) by trajectory group, (b) Physical function quarterly scores by trajectory group, and (c) Characteristics of physical activity trajectory groups.

[a]higher scores indicate greater self-efficacy to perform strength training or endurance exercise (range on each scale: 1 to 5: very unsure, unsure, somewhat sure, sure, very sure)

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Table 1
Baseline characteristics of participants in the RENEW randomized controlled trial

Variables	Immediate Intervention Group (N=319)	Wait-list Control Group (N=322)
Age, mean years (SD)	73.0 (5.0)	73.2 (5.1)
Race, No. (%) White	284 (89.0)	286 (88.8)
Sex, No. (%) Male	146 (45.8)	145 (45.0)
Education, No. (%) with some college	201 (63.2)	194 (60.6)
BMI, kg/m^2, mean (SD)	29.1 (3.3)	29.2 (3.6)
Number of comorbidities, mean (SD)	2.0 (1.3)	2.0 (1.2)
Cancer Type, No. (%)		
Breast	143 (44.8)	146 (45.3)
Prostate	131 (41.1)	130 (40.4)
Colorectal	45 (14.1)	46 (14.3)
Time since diagnosis, mean years (SD)	8.5 (2.7)	8.7 (2.7)
SF-36 Physical Function, mean score (SD) [a]	75.9 (18.7)	75.6 (19.1)
Physical activity, mean minutes per week (SD) [b]	21.7 (37.0)	28.7 (59.1)
Self-efficacy for endurance exercise, No. (%) sure or very sure [c]	220 (69.0)	209 (64.9)
Self-efficacy for strength training, No. (%) sure or very sure [c]	250 (78.4)	245 (76.1)

[a] Physical function normalized score (range: 0 to 100); higher scores indicate better functioning

[b] Number of minutes per week for three items from the CHAMPS questionnaire that were assessed quarterly: walking fast or briskly for exercise, walking uphill, and strength training.

[c] Possible values for self-efficacy: very sure, sure, somewhat sure, unsure, and very unsure

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Table 2

Characteristics of physical function trajectory groups: by randomization group

Immediate Intervention group						
Group, Physical Function Mean, (SE) [a]	**Age Mean (SE)**	**Male %**	**BMI Mean (SE)**	**White %**	**Self-efficacy (strength)[b] Mean (SE)**	**Self-efficacy (endurance)[b] Mean (SE)**
597.1 (1.1)	71.1 (1.09)	76.2	27.8 (0.69)	90.5	4.5 (0.19)	4.6 (0.21)
486.2 (0.9)	72.5 (0.43)	48.5	28.5 (0.27)	88.8	4.4 (0.08)	4.3 (0.08)
374.4 (1.3)	73.5 (0.55)	50.0	29.1 (0.34)	90.5	4.0 (0.10)	3.7 (0.11)
259.9 (2.2)	73.8 (0.85)	37.1	29.8 (0.53)	85.7	4.0 (0.15)	3.4 (0.17)
150.4 (2.9)	73.7 (0.75)	24.4	31.2 (0.47)	88.9	3.6 (0.13)	3.2 (0.14)
p-value	0.16	0.001	<0.0001	0.96	<0.0001	0.0002
Wait list group						
593.7 (0.7)	71.9 (0.64)	63.9	28.0 (0.45)	91.8	4.5 (0.11)	4.4 (0.13)
483.4 (0.8)	72.9 (0.45)	47.2	28.6 (0.32)	90.2	4.2 (0.08)	3.9 (0.09)
370.3 (1.6)	73.3 (0.60)	35.7	29.8 (0.42)	81.4	4.0 (0.10)	3.5 (0.13)
257.7 (2.4)	75.2 (0.76)	32.6	30.3 (0.54)	88.4	4.0 (0.13)	3.6 (0.16)
138.6 (3.1)	73.7 (1.00)	36.0	31.3 (0.70)	92.0	3.3 (0.17)	2.6 (0.21)
p-value	0.02	0.005	<0.0001	0.31	<0.0001	<0.0001

[a] physical function score from study baseline

[b] higher scores indicate greater self-efficacy to perform strength training or endurance exercise (range on each scale: 1 to 5: very unsure, unsure, somewhat sure, sure, very sure)