

DISCORDANCE BETWEEN MEASURED AND PERCEIVED PHYSICAL ACTIVITY LEVELS AMONG BREAST CANCER SURVIVORS: A MIXED METHODS STUDY

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BACKGROUND

- New National Standards for Cancer Survivorship Care emphasize the importance of assessing lifestyle behaviors, including physical activity, and offering exercise oncology services as standard of care.¹
- ≥ 90 minutes aerobic moderate-vigorous physical activity (MVPA) per week can promote clinically meaningful reductions in cancer-treatment-related adverse effects (e.g., fatigue, distress).²
- Thus, intervention studies in the domain of physical activity promotion for breast cancer survivors are needed.
- In a prior study conducted by Stevens et al., (2025), a sample of breast cancer survivors recruited from the Dartmouth Cancer Center had high rates of accelerometer measured MVPA at Baseline, despite self-identifying as physically inactive.³ Typically, the opposite pattern is observed in the broader literature.⁴
- Why might this be? Possible explanations may include:
 - Measurement reactivity or demand characteristics⁵
 - Peak-end rule⁶
 - Cancer related worry or fear of recurrence⁷

PRIMARY RESEARCH QUESTION

What helps to explain why high rates of MVPA are observed among breast cancer survivors self-identifying as physically inactive?

METHODS

STUDY DESIGN

This is a planned ancillary study utilizing data collected during the Baseline phase of a longitudinal proof-of-concept study testing a novel exercise intervention for breast cancer survivors (NCT06258993).

- **Baseline Phase = Physical Inactivity Verification Period:** MVPA measured across 10 days to determine baseline physical activity prior to intervention phase (see Figure 1).
- **Baseline Survey:** All participants complete an electronic survey administered via REDCap prior to starting the physical inactivity verification period.
- **Post-Baseline Exit Interview:** Participants who perform > 90 minutes of MVPA/week at baseline are invited to complete a 30-minute semi-structured interview, audio-recorded with participants' permission.

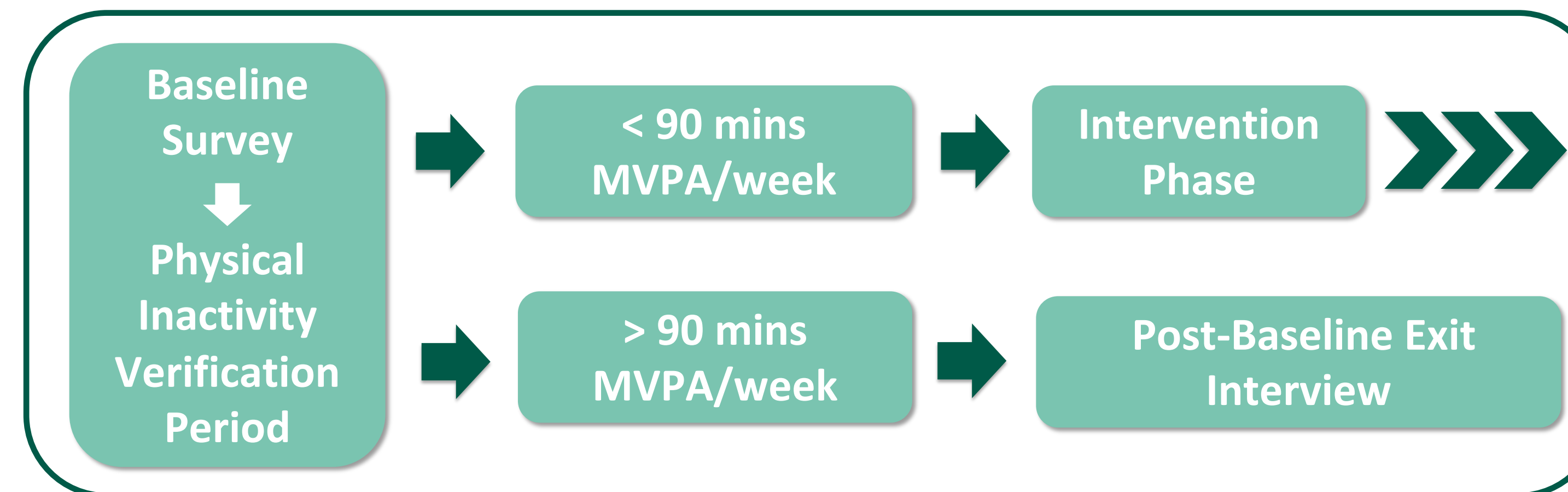


Figure 1. Flow of study procedures

PARTICIPANTS

Stage 0-III breast cancer survivors who completed primary cancer-treatment within the last 5 years were recruited from the Dartmouth Cancer Center.

- Participants in the current study are those who are found to be “too active” (> 90 minutes of MVPA/week) during the baseline physical inactivity verification period for the parent trial (see Figure 1).

MEASURES

- **Moderate-Vigorous Physical Activity (MVPA):** Participants' daily accelerations (movement) along vertical, horizontal, and lateral axes are measured using waist-worn ActiGraph wGT3X-BT accelerometers (ActiGraph, LLC, see Figure 2).
 - 1 valid day = 10 hours of accelerometer wear time
- **Semi-Structured Interview:** Gathers qualitative data on the experiences and perceptions of participant's who exceed 90 minutes of MVPA/week. Audio recordings are transcribed and reviewed for accuracy.
- **Fear of Cancer Recurrence Scale-Short Form:** 9-item self-report measure assessing degree of worry related to cancer returning.⁸
 - Items are scored on a 5-point Likert scale ranging 0 (not at all/never) to 4 (a great deal/all the time).
 - Items are summed and total scores range from 0-36. Higher scores indicate greater severity of fear regarding cancer recurrence.
- **Cancer Worry Scale:** 6-item self-report measure assessing degree of worry related to cancer that impacts daily life.⁹
 - Items are scored on a 4-point Likert scale ranging 1 (not at all/rarely or never) to 4 (a lot/almost always).
 - Items are summed and total scores range from 6-24. Higher scores indicate cancer related worry has a greater impact on daily life.



Figure 2. ActiGraph Accelerometer (wGT3X-BT)

PLAN FOR ANALYSIS

QUALITATIVE

Practical thematic analysis (PTA): A 3-step qualitative method used to identify and organize key patterns across post-baseline interviews.¹⁰

- **Step 1) Read:** Individually read through interview transcripts, produce summative memos, compare memos with team.
- **Step 2) Code:** Individually code a sample of the transcripts, compare codes with team, develop a shared codebook, code remaining transcripts.
- **Step 3) Theme:** Individually draft themes, compare themes with the team, develop shared themes, write thematic analysis report.

QUANTITATIVE

Raw accelerometer data are processed using ActiLife software to calculate periods of non-wear¹¹ and sedentary, light, and MVPA minutes calculated using validated algorithms.¹²

- Self-report measures will be examined for completeness and scored.
- Sub-groups of participants will be defined based on demographics, self-report measure scores, and MVPA minutes.

Mixed Method Analysis: Qualitative themes identified by PTA will be compared across sub-groups defined by quantitative data.

NEXT STEPS / DISCUSSION

- Qualitative and quantitative data collection procedures are ongoing and anticipated through April 2026.
- Step 1 of PTA is underway.

IMPLICATIONS

- Results will provide insights to inform future MVPA intervention research with breast cancer survivors.
- Oncology providers should discuss physical activity with breast cancer survivor patients, per National Guidelines, by:
 - Probing for understanding of what “counts” towards recommended weekly MVPA guidelines.
 - Helping survivors identify strategies for monitoring their physical activity levels (e.g., activity monitor).
 - Providing support/referrals to behavioral health, as indicated.