

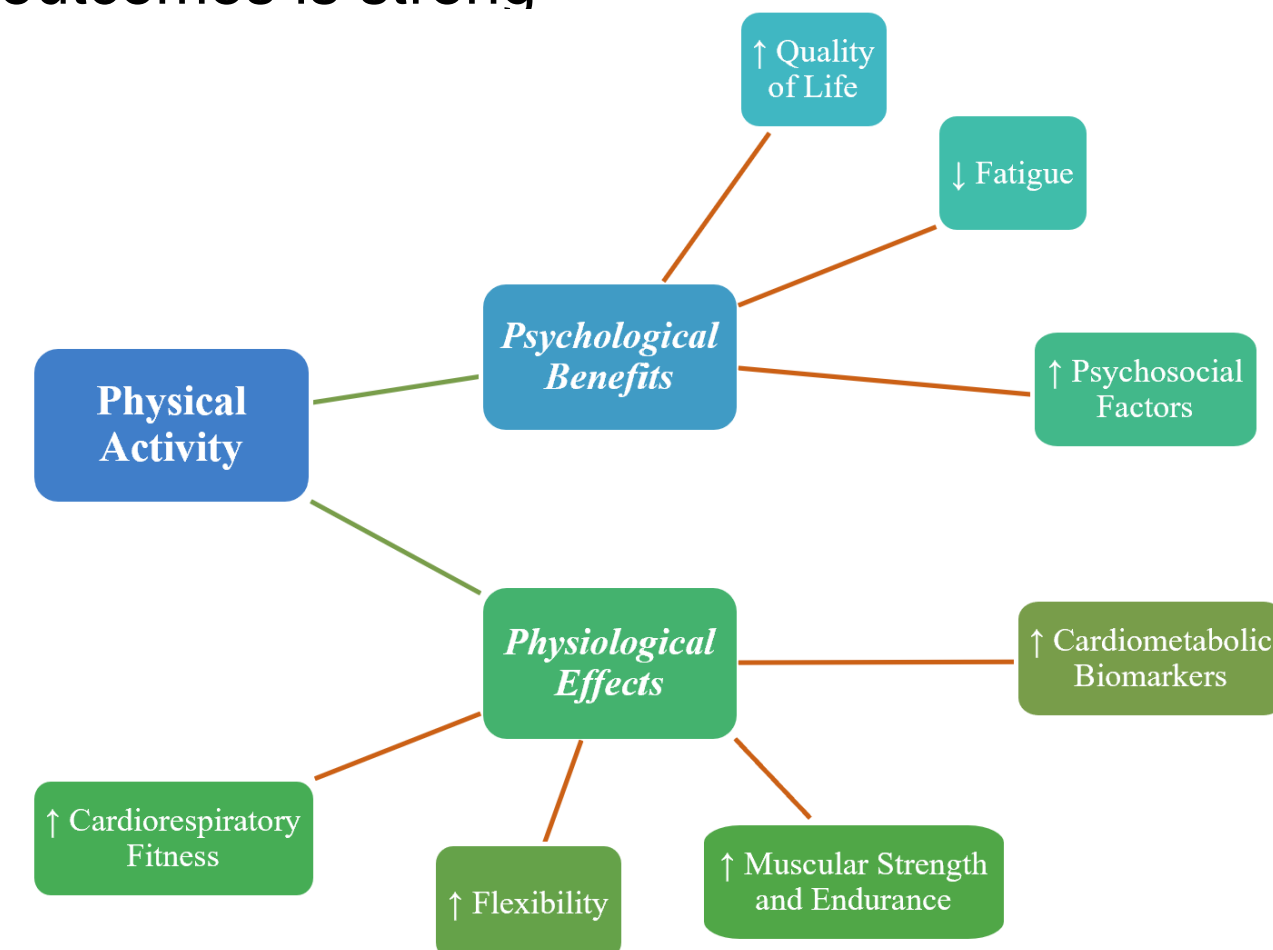
Association between Daily Physical Functioning and Accelerometer-measured Physical Activity in Colon Cancer Patients: An Ecological Momentary Assessment Study

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Background

- Number of cancer survivors in the U.S. is growing
- Optimizing cancer survivors' long-term health after treatment is being increasingly emphasized as part of their clinical care
- Evidence for physical activity's beneficial effects on cancer survivors' physical and psychosocial outcomes is strong



- This study tested if daily self-reported physical functioning is associated with device-measured physical activity in colon cancer patients

Methods

- Data was from the pilot arm in the Cyberinfrastructure for Comparative Effectiveness Research (CYCORE) feasibility trial
- Colon cancer patients (stage I-IV)
- Two bursts of 5-day monitoring of ecological momentary assessment (EMA) and accelerometer
- Evening EMA surveys asked 10 questions about physical functioning (from SF-36) as shown below
- A summary score was calculated (ranges 0-100)

Today, how much did your health limit you in...

1. Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports
2. Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf
3. Lifting or carrying groceries
4. Climbing several flights of stairs
5. Climbing one flight of stairs
6. Bending, kneeling, or stooping
7. Walking more than a mile
8. Walking several blocks
9. Walking one block
10. Bathing or dressing yourself

- Actigraph data estimated daily minutes in moderate-to-vigorous physical activity (MVPA)
- Multilevel linear regression models were conducted to test the between-subject (BS) and within-subject (WS) associations between daily physical functioning scores and total MVPA minutes

Colon cancer patients who engaged in more physical activity also reported better physical functioning.

However, on a day per day basis the correlations between levels of physical functioning and physical activity were insignificant.

Acknowledgements

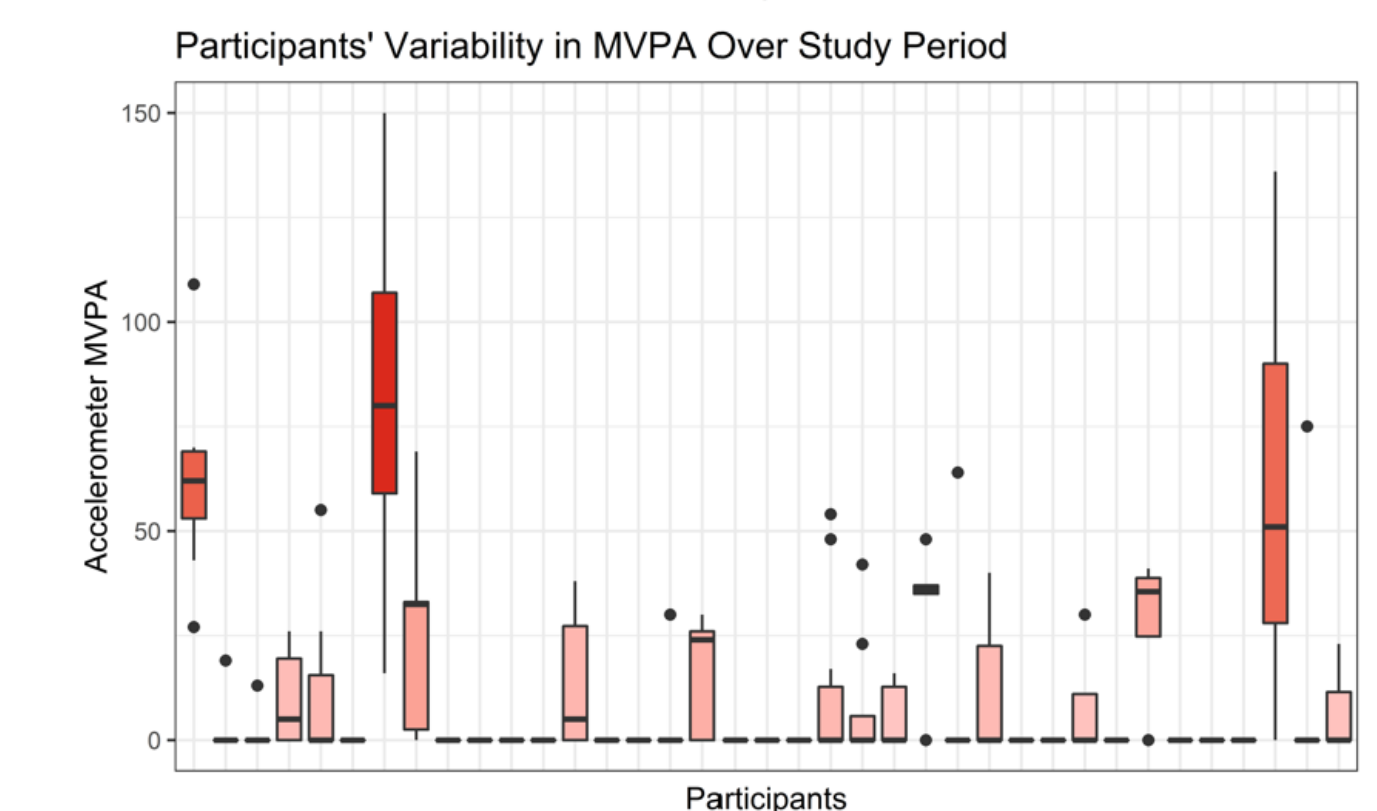
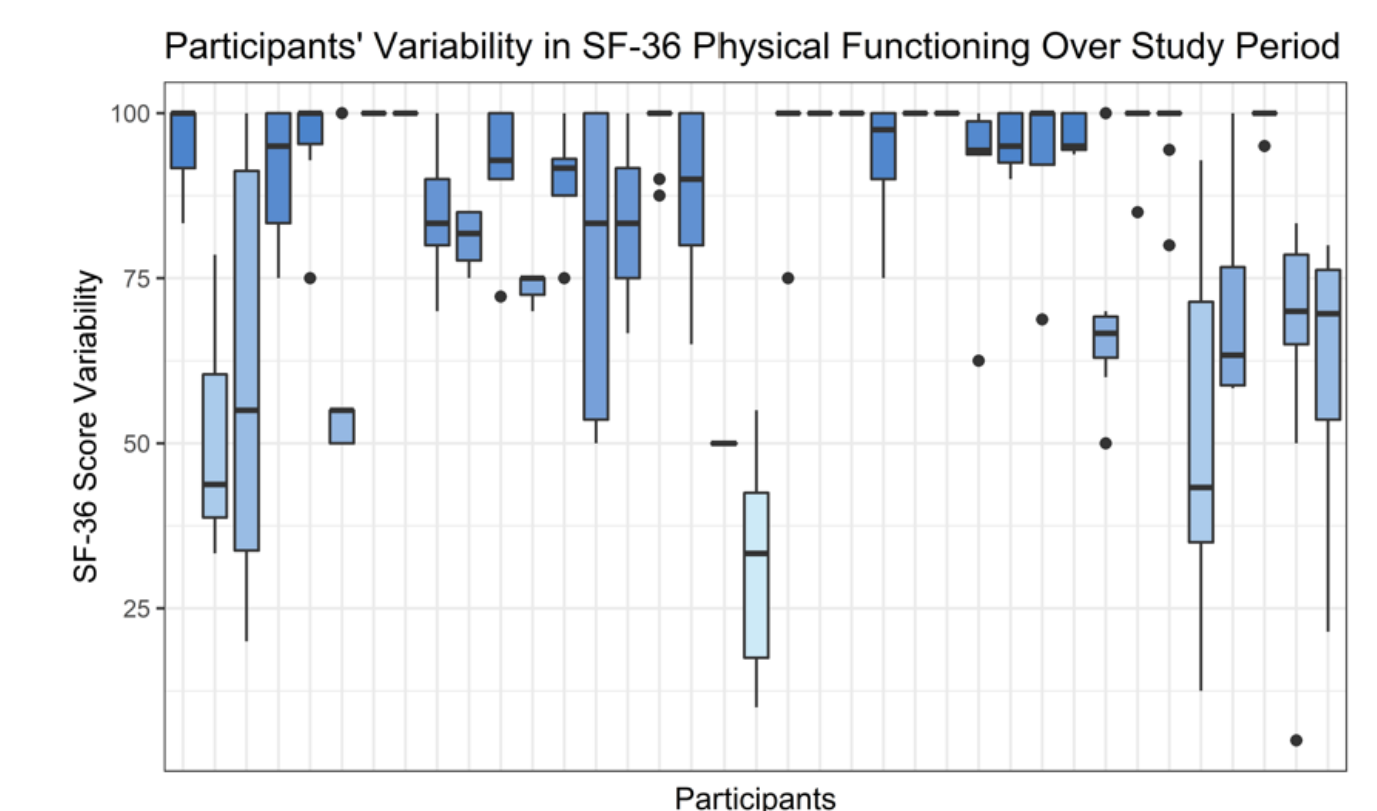
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Results

- Forty-nine colon cancer patients enrolled in the pilot study
 - Three did not have valid accelerometer data
 - Nine did not have any completed EMA evening survey
- Total analytical sample was 37 patients
 - 49% female & 76% white
 - Mean age = 54 (ranged 25-71, SD=11.7)
 - Average 7 EMA-accelerometer matched days (ranged 1-10, SD=2.8)
 - Mean physical functioning = 84 (ranged 29-100, SD=18) with ICC = .69
 - Mean daily MVPA minutes = 11 (ranged 0-92, SD=18) with ICC = .52



- Positive association was found between physical functioning and MVPA minutes at the BS level ($\beta=0.39$, $p=0.01$)
- No significant association at the WS level.

Conclusion and Implications

- Colon cancer patients experienced variations in daily physical functioning and physical activity
- Remote monitoring tools such as EMA and accelerometry provide us opportunity to investigate dynamic associations in cancer patients' behavioral performance and outcomes in their daily lives