The IMPAACT Study

Improving Physical Activity After Cancer Treatment

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Post-Treatment Concern for Cancer Survivors

- Adult cancers are most frequently diagnosed among adults between the ages of 55-74, with the median age of diagnosis at 65 years of age.[1]

- Advances in screening and treatment have led to improvements in survival rates with 67% of current cancer patients expected to survive for at least 5-years post-treatment.[2]

- Anxiety and depression affect up to 29% of survivors.[3]

Benefits of Physical Activity in Cancer Survivors

Physical activity is linked to:[4,5]

- Increased functional capacity
- Improved mood
- Increased immune function
- Decreased fatigue, reduced stress and inflammation
- Improved health perceptions and quality of life

Participating in physical activity provides a positive feedback loop as the cancer survivor sees his/her body respond and engage successfully in exercise.[6]

Effect of Group Exercise

With group exercise, the dynamic of peer affirmation and social support can positively influence the perception of health and physical ability.[7]

IMPAACT Study Research Questions

Research Question #1

Does participation in a 26-week supervised combined aerobic and resistance training (CART) program modify the self-reported quality of life of cancer survivors (NIH PROMIS)?

Research Question #2

Does participation in a 26-week CART program modify biomarkers of stress and inflammation (cortisol, c-reactive protein (CRP))?

IMPAACT Study Research Questions

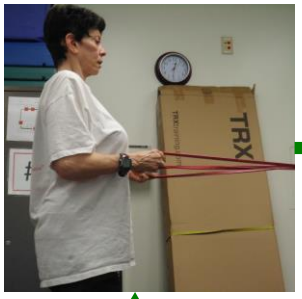
Research Question #3

Is the paper-based SF-36 quality of life survey feasible to deliver in this population of cancer survivors?

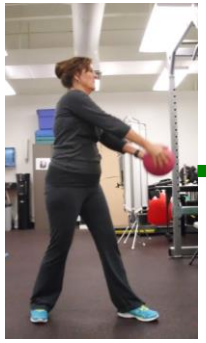
The CART Program

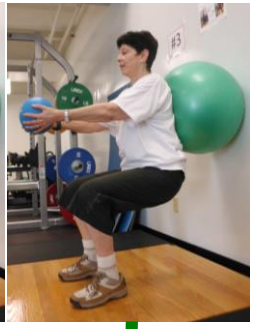
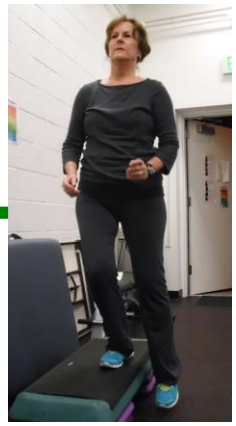
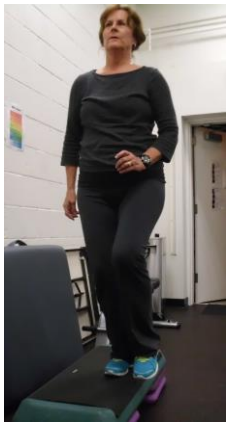
- 26 weeks of supervised exercise
- Combined Aerobic and Resistance Training
- Three times per week: Mondays, Wednesdays, Fridays
- 60 minutes per session:
  - 15 minutes aerobic walk/run at 35-85% HRR
  - 30 minutes whole body circuit training
  - 15 minutes flexibility and core training

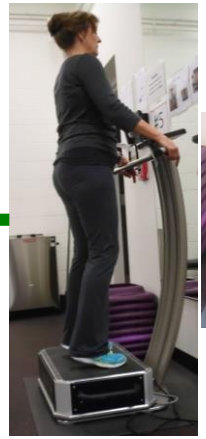
The CART Program





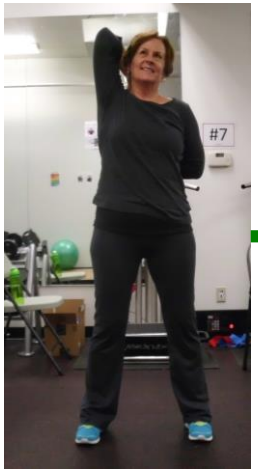
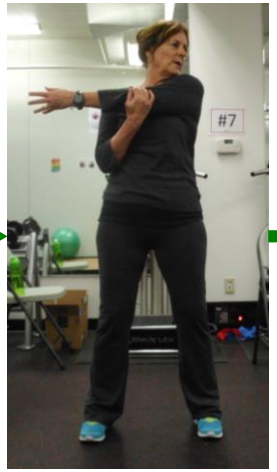
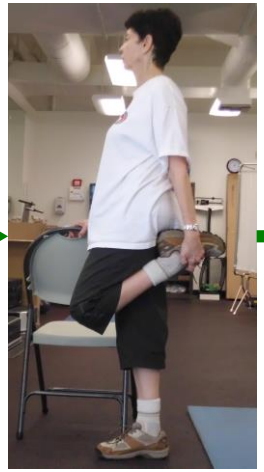



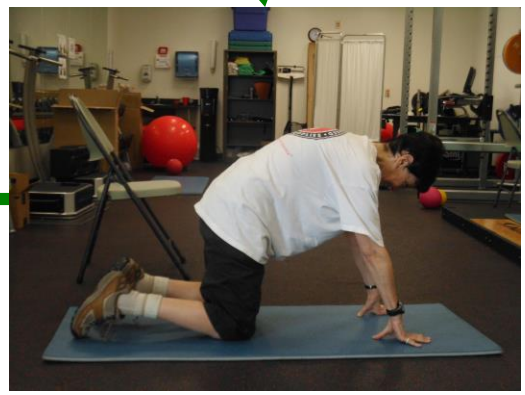
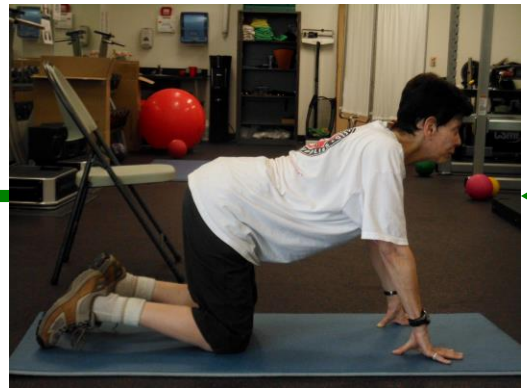
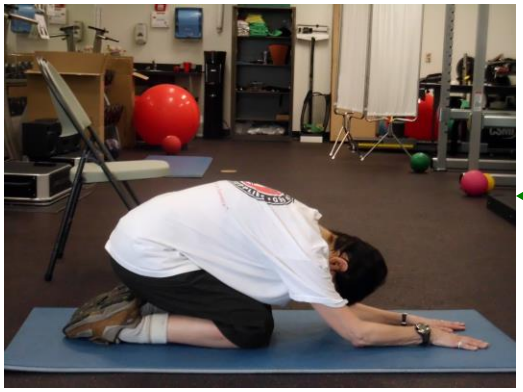


3 circuits of 8 stations for 60 seconds each

The CART Program


15 minutes of flexibility and core training

Health-Related Quality of Life (HRQoL) Assessment

- Participants used iPads to complete the NIH PROMIS:
  - Fear and anxiety, fatigue, pain interference, physical function, and satisfaction with social roles

- Participants that completed the nine-month intervention were mailed a paper-based SF-36:
  - Physical functioning, physical roles, bodily pain, general health, vitality, social functioning, emotional roles, and mental health

Study Population Demographics

Variable	Participants (N=33)
Age (mean years ± SD)	61 ± 12.58
Sex, male	6 (18%)
Sex, female	27 (82%)
Race	
White	20 (61%)
African American, Hispanic	11 (33%)
Other/Multiracial	2 (6%)
High School education	11 (33%)
4-Year College education	21 (64%)
Employment status	
Employed	9 (27%)
Retired	11 (33%)
Unemployed	3 (9%)
Other	10 (30%)
Time Since Treatment (Mean years ± SD)	1.67 ± 0.84
Number of Diagnosed Chronic Conditions (Mean ± SD)	2.34 ± 0.74

Participant Cancer Types

- Cancer diagnoses of participants were as follows:
  - **Breast n=17**
  - **Colorectal, n=7**
  - Myeloma/Lymphoma, n=3
  - Gynecologic, n=2
  - Thyroid, n=2
  - Prostate, n=1
  - Skin, n=1

HRQoL Prior to Intervention

- Time Since Treatment (TST) was positively associated with physical function ($r = 0.373$, $p = 0.042$) and social role satisfaction ($r = 0.531$, $p = 0.003$).

- TST was negatively associated with fatigue ($r = -0.533$, $p = 0.002$) and pain interference ($r = -0.565$, $p = 0.001$).

HRQoL Prior to Intervention

- Comorbid burden was positively related to:
  - Pain interference ($r = 0.355$, $p = 0.046$)
  - Anxiety/fear ($r = 0.355$, $p = 0.046$)
  - Fatigue ($r = 0.331$, $p = 0.065$) (suggested relationship)

- Physical function was greater among those participants with lower comorbidity ($r = 0.486$, $p = 0.005$).

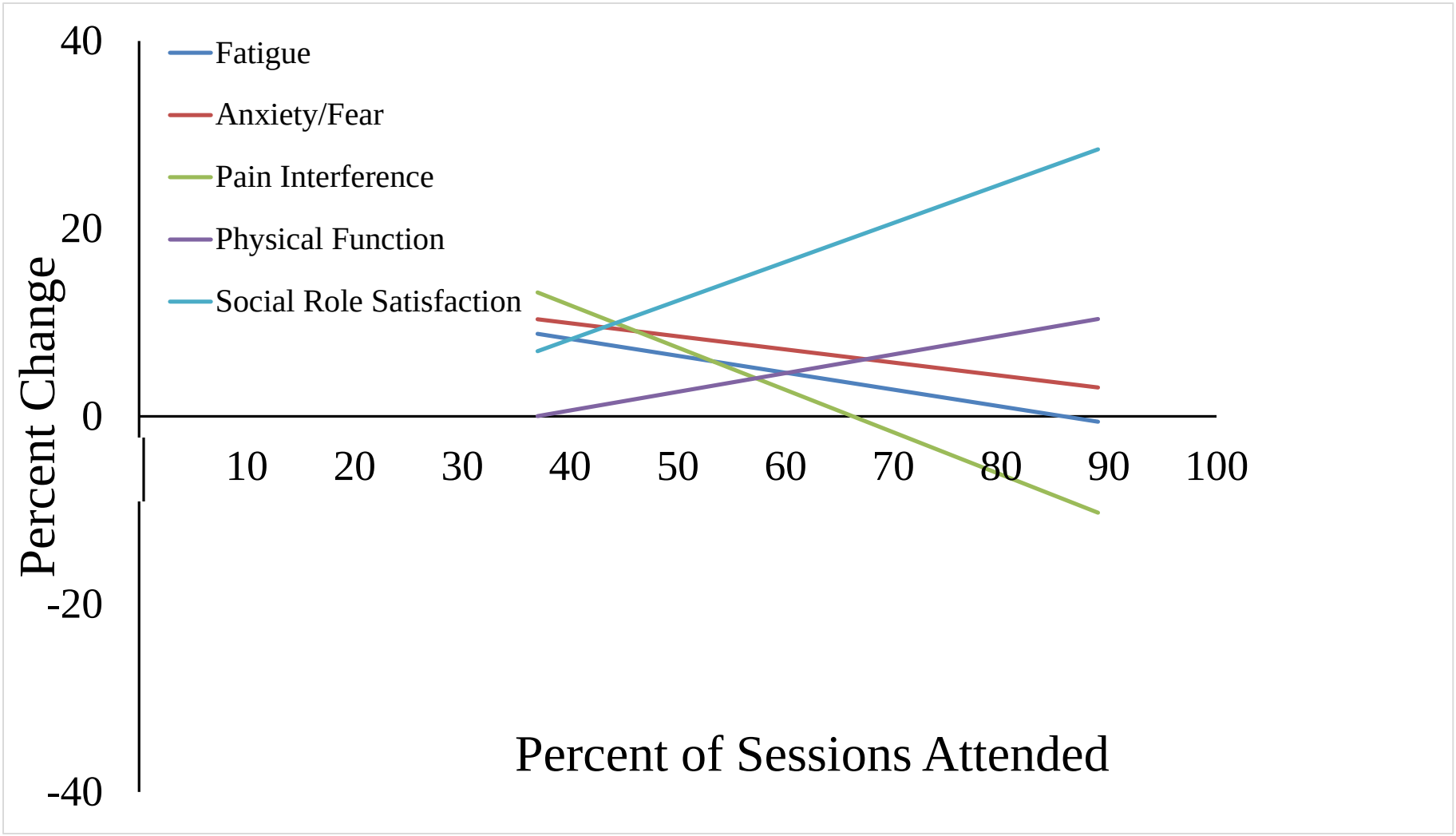
PROMIS HRQoL Results

	NIH PROMIS	
Domains	**Baseline average (SD)**	**Post-Intervention average (SD)**
Fatigue	55.42 (8.36)	52.63 (6.05)
Pain Interference	54.18 (8.49)	53.08 (7.79)
Anxiety & Fear	54.15 (8.13)	51.60 (7.14)
Physical Functioning	44.73 (5.58)	46.40 (5.00)
Social Role Satisfaction	45.45 (8.12)	50.24 (8.33)

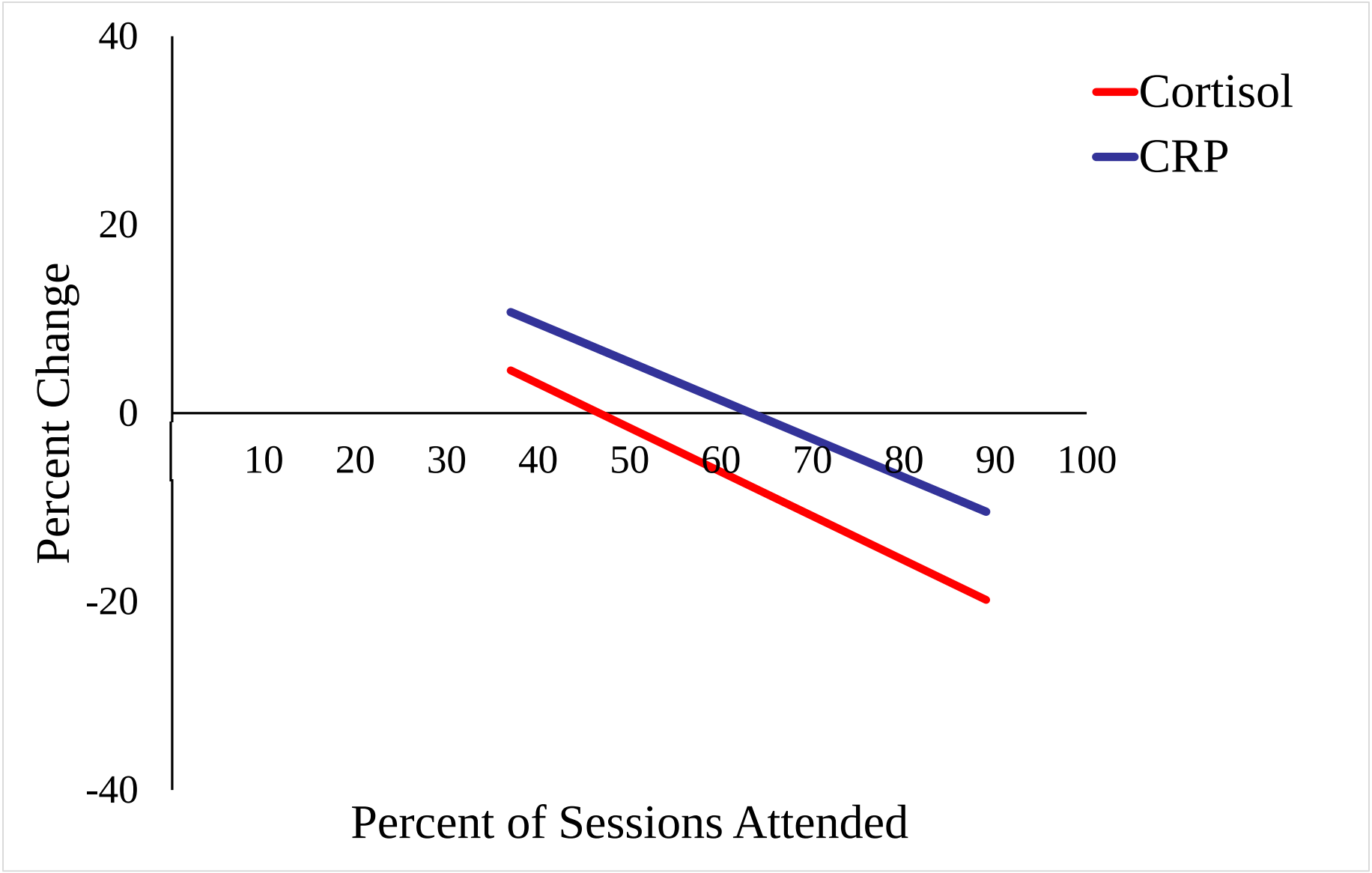
Comorbidity and HRQoL

- After 26-weeks of CART, participants that had a higher comorbid burden at baseline appeared to experience the greatest improvements in:
  - Fatigue ($r = 0.555$, $p = 0.005$)
  - Anxiety/fear ($r = 0.547$, $p = 0.005$)
  - Social role satisfaction ($r = 0.611$, $p = 0.002$)

NIH PROMIS Domains after 26-weeks of CART



Biomarkers after 26-weeks of CART



SF-36 HRQoL Results

	SF-36
Domains	**Post-Intervention average (SD)**
Vitality	50.22 (11.0)
Bodily Pain	48.88 (8.51)
Mental Health	51.04 (8.53)
Physical Functioning	48.13 (9.38)
Social Functioning	47.65 (9.17)
Emotional Roles	49.44 (7.49)
Physical Roles	48.47 (9.05)
General Health	53.91 (9.33)

SF-36 Results

- In response to the question “Compared to one year ago, how would you rate your health in general now?” the average reported score was 1.73 ± 0.70, which is between “much better now than one year ago” (ordinal = 1) and “somewhat better now than one year ago,” (ordinal = 2).

Summary and Conclusions

- In this pilot study, we found that there is a greater burden of fatigue and pain interference, as well as decline in physical function and social role satisfaction, among cancer survivors within two years of treatment cessation.

- Lower levels of HRQoL in cancer survivors has been demonstrated previously[8,9].

- Impact of comorbid burden on QoL among cancer survivors should be explored further.

Summary and Conclusions

- We observed that 26-weeks of CART was effective in improving upon social role satisfaction, fear/anxiety, fatigue, physical function, and pain interference, as well as leading to noteworthy decreases in serum levels of cortisol and CRP.

- Improvements in HRQoL following individualized home-based exercise have been demonstrated[10].

- Previous studies report a mixture of outcomes regarding changes in CRP serum levels[11,12].

Summary and Conclusions

- Anecdotally, our participants seemed to prefer the paper-based SF-36 survey.

- Participants felt that the questions were easier to understand and less redundant than the electronic PROMIS survey questions.

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Questions?

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