



Exercising Together[®] for Couples during Radiation Therapy for Prostate Cancer: A Pilot Feasibility Study

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Abstract

We developed Exercising Together[®], a partnered strength training program, as an exercise-based approach to improve patient, spouse and relationship health for couples coping with cancer. Exercising Together[®] may be most effective during cancer treatment, when couples experience the most stress, but the program has only been tested in couples post-treatment. **PURPOSE:** To determine the feasibility and acceptability of Exercising Together[®] during a course of radiation therapy for prostate cancer and the preliminary efficacy of the program on physical function, symptoms and dyadic coping in both the patient and spouse. **METHODS:** Couples were recruited from a radiation oncology clinic to participate in group classes of Exercising Together[®] 3x/week throughout his treatment. Classes consisted of moderate-intensity strength training performed by the couple who worked as training partners. The Physical Performance Battery (timed walk, stance and chair stand) and 400m walk time, and anxiety (SCL-90 ANX), depressive symptoms (CES-D), intimacy (Physical Intimacy Scale) and dyadic coping (active engagement and protective buffering) were assessed at baseline and at the end of radiation, with self-report measures assessed again 8 weeks after training stopped. Independent Wilcoxon-signed rank tests were used to assess change in each patients and spouses. **RESULTS:** 10 couples were enrolled within 3-months. Retention was 100% and average adherence to prescribed classes was 78%. No adverse events occurred. Patients showed significant increases in 4m walk speed (p=0.017), reductions in anxiety (p=0.027) and more active engagement based on the dyadic coping scale (p=0.039) at the end of training. Spouses had improvements in PPB scores (p=0.023) and chair stand time (p=0.024) post-training. At 8-week follow-up no further changes occurred in men, but spouses had significant reductions in depressive symptoms (p=0.016) and nearly significant reductions in anxiety (p=0.066). **CONCLUSION:** Exercising Together[®] is feasible, acceptable and improved physical, mental and relationship health over a course of radiation therapy. Comparisons to a control group may further identify benefits; however, based on these data a larger, multi-site trial of Exercising Together[®] in the radiation oncology setting is warranted.

Introduction

- Cancer affects both the patient and their partner, and their relationships which may cause reciprocal effects on health and behaviors that may include:
 - Reduced physical and sexual function.
 - Poor emotional health and lower quality of life.
 - Poor communication and increased relationship strain.
 - Decreased intimacy and marital quality.
- Partnered training may be a countermeasure to the triple threat of cancer.
- Exercise is an effective countermeasure to cancer treatment related side effects.
 - Exercise may benefit the spouse/caregivers, though studies are few, limited and focused on behavior.
 - Couples studies are rare and typically focus on adherence and patient outcomes, rather than focusing on **both** the patient and the spouse.
- Purpose:** Determine the feasibility and acceptability of Exercising Together[®] during a course of radiation therapy for prostate cancer and the preliminary efficacy of the program on physical function, symptoms and dyadic coping in both the patient and spouse.

Funding: OHSU Knight Cancer Institute Radiation Oncology.

Methods

- Pilot, one group pre-post test.
- Exercising Together[®] is a functional resistance training program performed 3x/week designed for couples coping with cancer.
- Eligibility criteria:
 - Men undergoing radiation treatment for prostate cancer & their spouse/partner.
 - Residing in the Portland area during radiation treatment
- Data collected immediately prior to and following radiation treatment (5.5-8weeks), and self-report measures were assessed again at an 8-week follow-up.
- Independent Wilcoxon-signed rank tests were used to assess change in patients and spouses on the following outcomes:
 - Physical performance battery (PPB; standing balance, chair stand time, 4 meter walk time)
 - 400 meter walk time
 - Anxiety (SCL-90 ANX)
 - Depressive symptoms (CES-D)
 - Intimacy (Physical Intimacy Scale)
 - Dyadic Coping (active engagement & protective buffering)

Table 1. Participant Demographics and Health-Related Symptoms.

Characteristic	Patient (n=10) Mean (SD) or %	Spouse (n=10) Mean(SD) or %
Age (yrs)	70.9 (7.8)	68.4 (5.5)
Race		
Caucasian	100%	90%
Other	-	10%
Education		
>High school	70%	80%
Employment		
Retired	70%	80%
Full/part-time	30%	20%
Relationship Length (yrs)	38.1 (16.8)	-
BMI (kg/m ²)	33.7 (6.4)	31.2 (9.7)
Time Since Diagnosis (mths)	24.4 (31.0)	-
Currently on ADT	38%	-
Metastatic Disease	25%	-

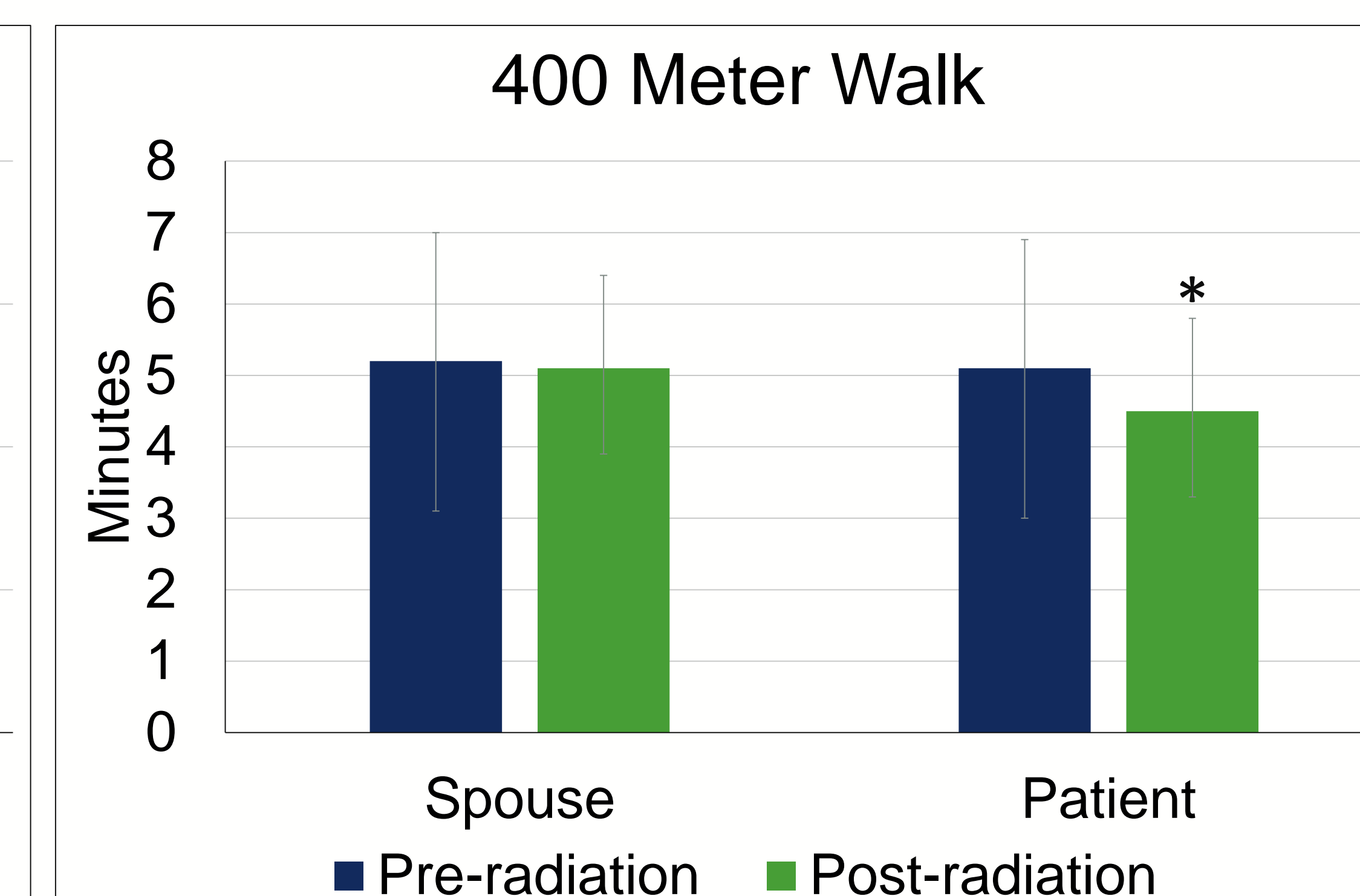
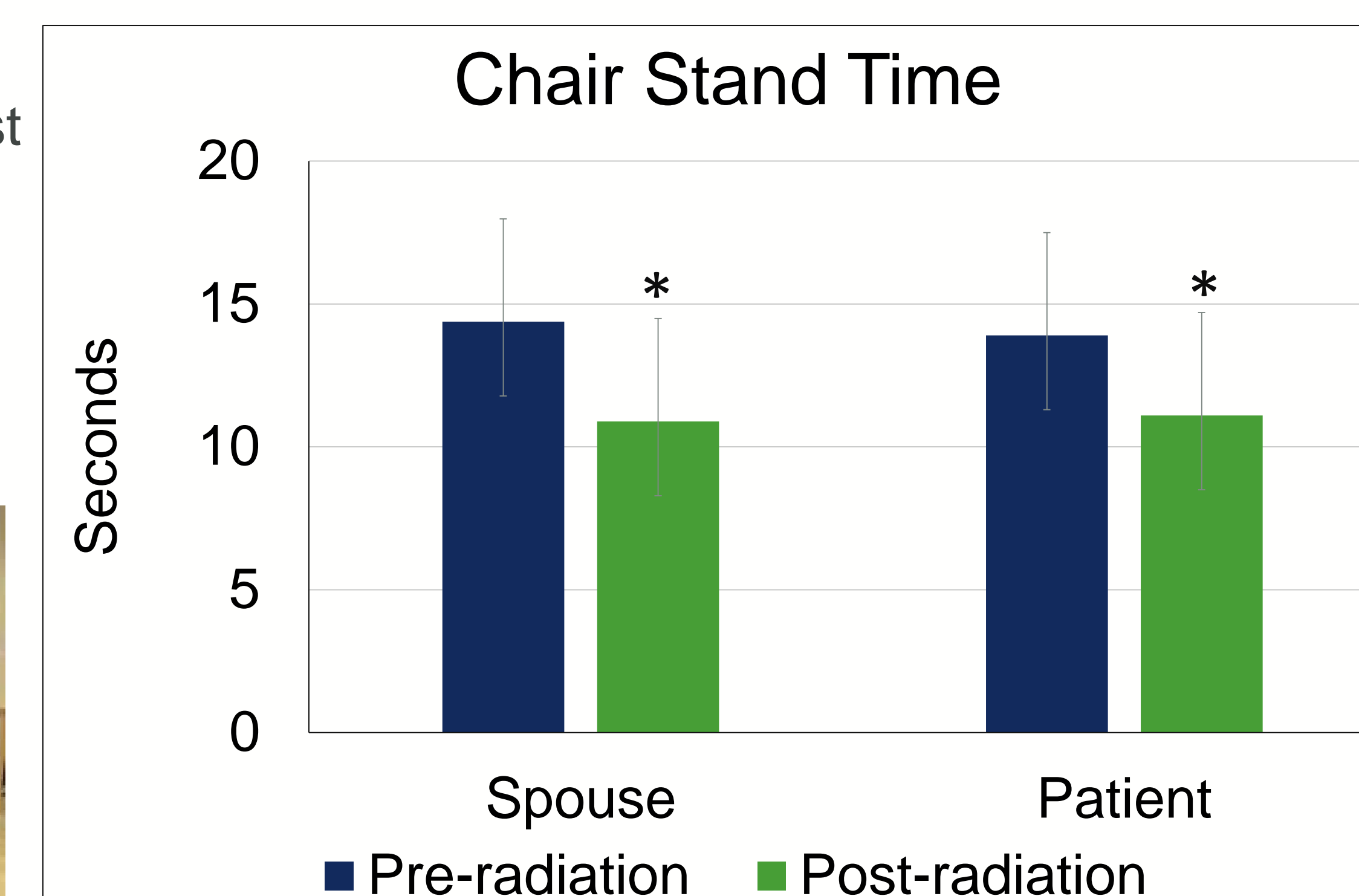
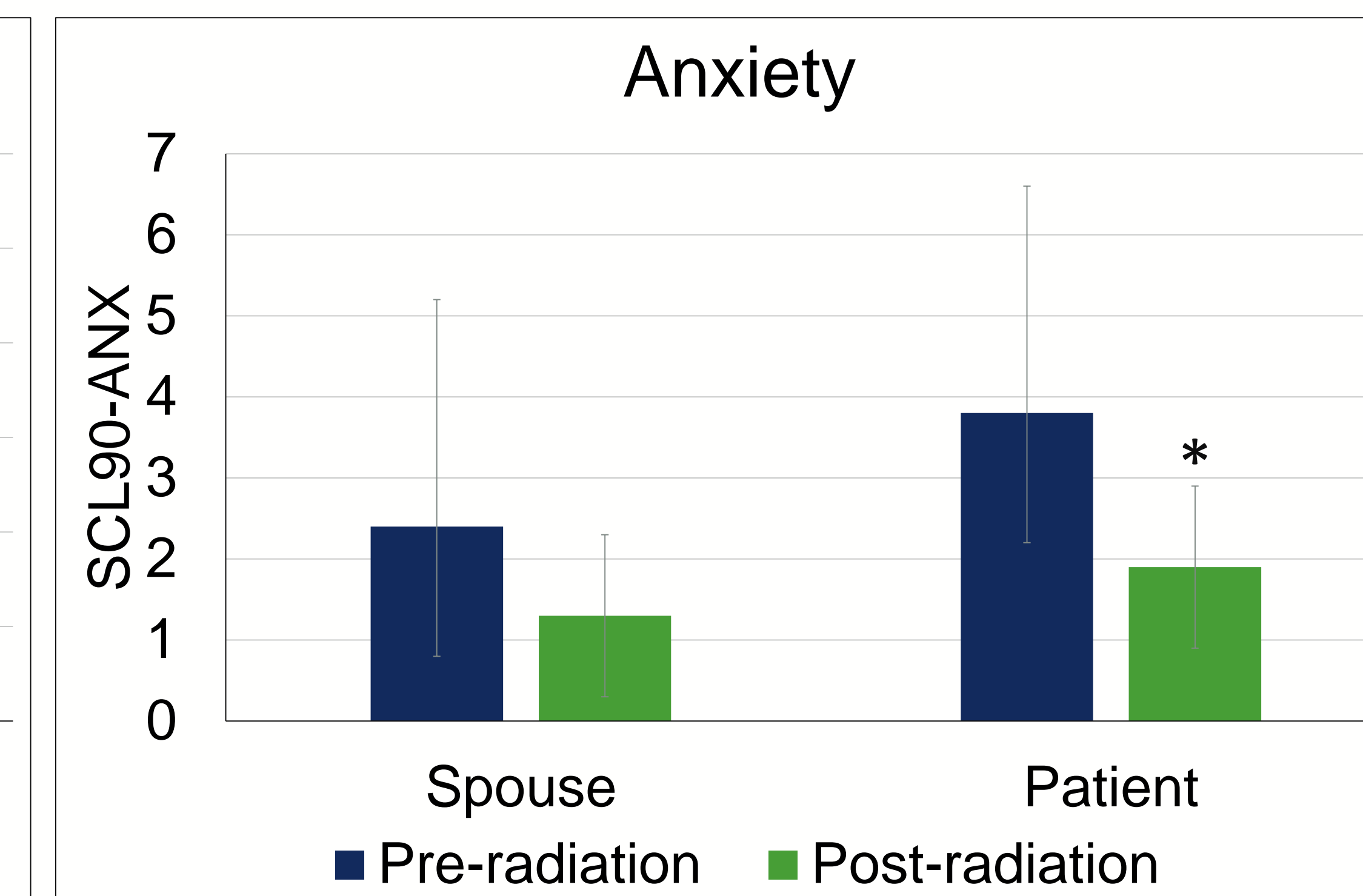
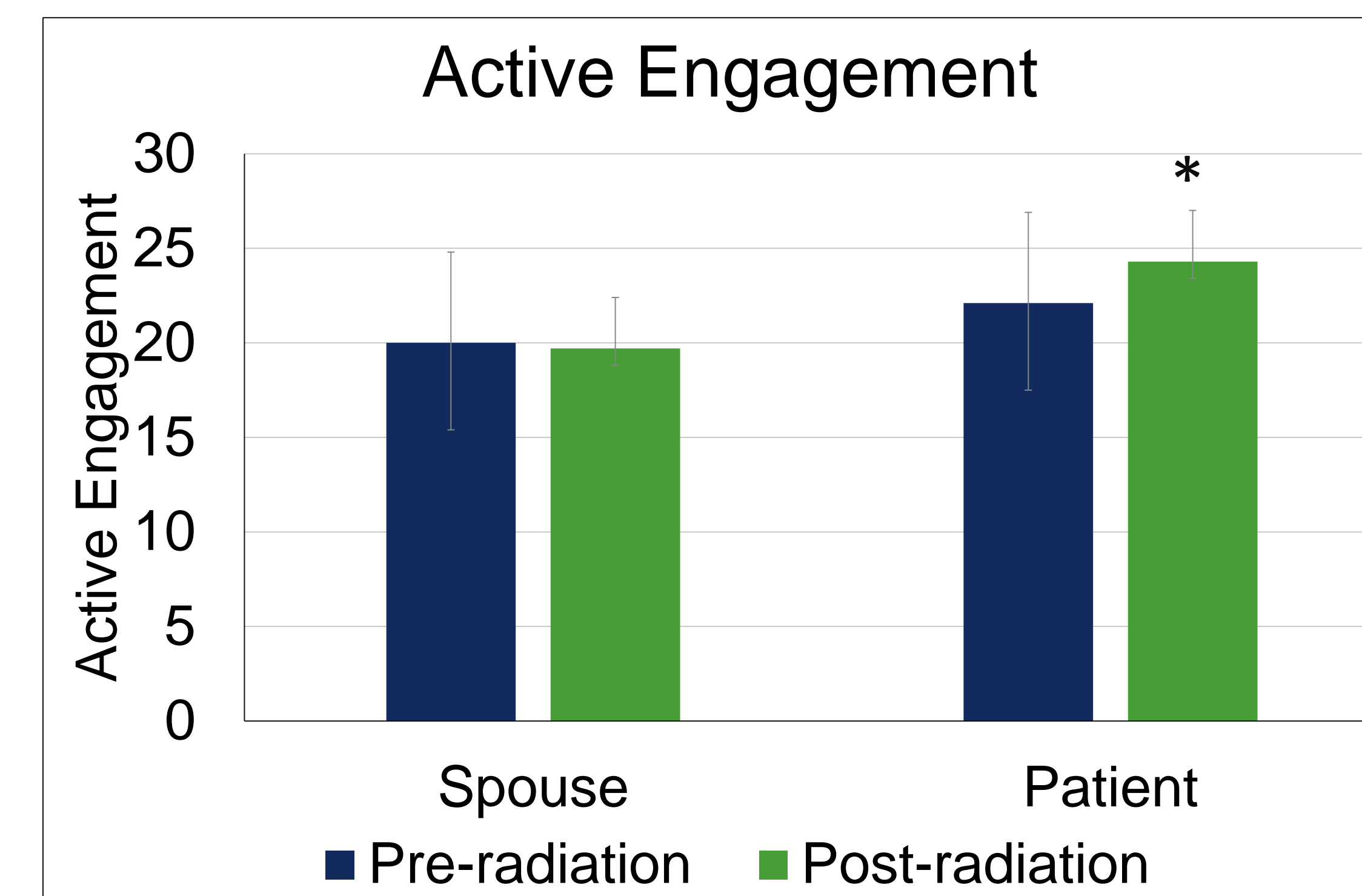
Figures 1-4. >>>> Changes in Active Engagement, Chair Stand Time, Anxiety & 400 meter Walk Time among Spouses and Patients from Pre to Post Radiation. *Significant change.

Figure 5. Exercising Together Participants



Results

- Enrollment: n=10 (within 6 months).
 - Retention: 100% over 8 weeks (1 couple did not complete any post-testing due to illness).
 - Class attendance: 81% patient, 79% spouse.
 - Class rating (1-10 scale; 10 best): patient=9.5, spouse=9.8.
 - 83% of patients and spouses would prefer group couple exercise class over general community class.
- Changes in Outcomes from Pre to Post Radiation:**
- Significant improvement in PPB in spouses ($\Delta=12\%$, p=0.02) but not in patients ($\Delta=8\%$, p=0.08).
 - Significantly faster 400 meter walk times in patients ($\Delta=11\%$, p=0.02) but not in spouses ($\Delta=2\%$, p=0.16).
 - Significantly lower anxiety in patients ($\Delta=50\%$, p=0.03) but not in spouses ($\Delta=45\%$, p=0.11).
 - Significant increase in active engagement in patients ($\Delta=9\%$, p=0.04) but not in spouses ($\Delta=1.5$, p=0.63).
 - No significant changes in depressive symptoms or physical intimacy among spouses nor patients.



Conclusions

- Enrolling couples into an exercise program during treatment is feasible, acceptable and desired
- Physical function and mood improved among patients who typically experience declines in physical function and worsening mood across treatment.
- A partnered exercise program could be implemented into radiation oncology practice & tested in other cancer types.