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HOME-BASED HIGH-INTENSITY INTERVAL TRAINING TO IMPROVE COLORECTAL CANCER SURVIVORSHIP: FEASIBILITY AND RELATIONSHIP WITH NOVEL SURROGATE BIOMARKERS OF COLORECTAL CANCER RECURRENCE

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Introduction: This 12-week clinical trial will randomize 30 stage II-III colorectal cancer (CRC) survivors post-resection and adjuvant therapy into one of two groups for a home-based exercise intervention: high-intensity interval training (HIIT) or moderate-intensity continuous aerobic exercise (MICE). The primary objective is to demonstrate the feasibility of home-based HIIT among CRC survivors. The exercise dose being tested, per observational evidence, is associated with a 50% reduction in CRC recurrence. The utility of HIIT is that the tested dose can be achieved in less time, and time is the greatest reported barrier to exercise in CRC survivors. The literature also suggests that CRC survivors prefer home-based over supervised exercise. A secondary objective of this feasibility study is to assess preliminary efficacy of the tested home-based exercise regimens on physical outcomes linked with CRC survival: body composition, physical function, fitness, and chemotherapy-induced peripheral neuropathy (CIPN)). Additionally, this study will explore the relationship between changes in exercise behavior and changes in novel surrogate biomarkers of CRC recurrence [circulating tumor DNA (ctDNA) and carcinoembryonic antigen (CEA)].

Methods: Assessments among the following outcomes will be conducted pre- and post-exercise intervention: body composition (BOD POD), physical function tests (handgrip strength, short physical performance battery, PROMIS physical function questionnaire), cardiorespiratory fitness (cardiopulmonary exercise test), CIPN (total symptom score-6 questionnaire and Utah Early Neuropathy Scale). We will also collect plasma samples pre- and post-intervention for ctDNA assessment. CEA will be extracted from the medical record. Following completion of the pre-intervention assessment, participants complete an Equipment and Exercise Protocol Familiarization Session pertaining to the fitness tracking device and exercise prescription within the exercise group they were randomized to. Study personnel will monitor participant adherence to HIIT and MICE weekly with use of the Polar Coach application. The feasibility of HIIT and preliminary efficacy of the tested interventions will be assessed at end-of-study.

Results: This trial is ongoing. To date, five participants have been enrolled, two completed and three active. Preliminary evidence suggests feasibility of home-based HIIT among stage II-III CRC survivors post-resection and adjuvant therapy. Clinical trials #: NCT0408414.

Impact: One of the major research priorities for CRC survivorship is to identify lifestyle strategies that can impact survival outcomes. This study is the first step in identifying a feasible, acceptable, and effective exercise intervention that can improve physical outcomes linked with survival and reduce recurrence rates. An effective and acceptable exercise prescription may result in reduction of CRC recurrence and health care costs over time.