

# A Pilot Exercise Intervention to Enhance Fitness and Quality of Life among African American and White Colorectal Cancer Survivors

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## Abstract

As the third most common occurring malignancy and 3rd leading cause of cancer-related mortality, colorectal cancer (CRC) represents an important public health concern. Substantial disparities exist for CRC with elevated incidence and relative survival rate among African Americans (AA) compared to White (W).

**Purpose:** To determine the feasibility of recruiting African Americans (AA) and White (W) subjects into a training intervention study to improve physiologic and quality of life measures.

**Methods:** Former CRC patients were contacted and if available, were consented and screened for eligibility. Eligible patients completed exercise and spirometry tests prior to 12 weeks of progressive exercise training.

**Results:** After fifteen months of recruitment, 119 AA, 125 W patients have been contacted. Of those contacted, 10 AA (8.4%), 5 W (4.0%) patients were available and consented to begin the study. 2 AA (1.7%) and 2 W (1.6%) have completed the entire study with 2 W in progress of completion.

**Conclusion:** Subject recruitment for a twelve week intervention study of colorectal cancer survivors has not been very successful with race not being an issue of consent or study completion.

## Background

As the third most common occurring malignancy and 3rd leading cause of cancer-related mortality, colorectal cancer (CRC) represents as a significant public health concern. CRC affects ~1 in 20 people over their lifetimes and 50,000+ deaths from CRC were expected in 2013. Substantial disparities exist for CRC with elevated incidence rates and mortality among African Americans (AA) compared to Whites (W). Further evidence of a disparity is the 5 year relative survival rate from colon cancer (2002-2008) which is 56% among AAs compared to 64% among whites. While many reasons have been suggested for these differences, the precise cause remains unknown and is likely multifactorial.

## Objectives

1. Determine the feasibility of recruiting AA and W subjects into a exercise training intervention study to improve physiologic and quality of life measures.
2. Determine effect sizes among AA and W survivors of CRC for pre/post exercise interventions assessing clinical/functional measures of fitness, diet, and Quality of Life.

## Methods

Pilot (proof of concept) clinical trial of a supervised exercise training intervention on selected physiologic and quality of life measures. All subjects receive the intervention. Study participants consisted of fourteen males and females from Western New York who were survivors of colorectal cancer. Subjects were mailed study information letters then called. If interested in participation, they were pre-screened over the phone prior to consenting to assess eligibility. If deemed potentially eligible based on this pre-screening, subjects came to the lab for consenting and baseline measurements of exercise capacity (VO<sub>2</sub> Peak) and quality of life tests (SF-36). They then began a twelve week progressive exercise program on a cycle ergometer. Subjects came into the lab twice a week for the exercise sessions. Baseline measures were assessed again after the twelve weeks of exercise training.

Table 1. Subject Characteristics

Anthropometrics and Background Information (n=14)			
Characteristics	Mean ± SD	White (n = 5)	African American (n = 9)
Age (yrs)	58.9 ± 7.8	57.0 ± 5.6	59.8 ± 8.5
Weight (kg)	96.2 ± 23.9	103.8 ± 21.3	94.3 ± 25.4
Body Mass Index	32.8 ± 5.7	32.8 ± 5.1	32.8 ± 6.2
Years from last treatment	3.0 ± 2.1	3.2 ± 1.5	3.2 ± 2.3
Years from diagnosis	3.5 ± 2.3	3.2 ± 1.5	4.0 ± 2.5
VO <sub>2</sub> peak (mL/kg/min)	19.4 ± 7.4	22.2 ± 10.1	22.4 ± 5.0
Gender		Male = 4 Female = 1	Male = 5 Female = 4

## Results

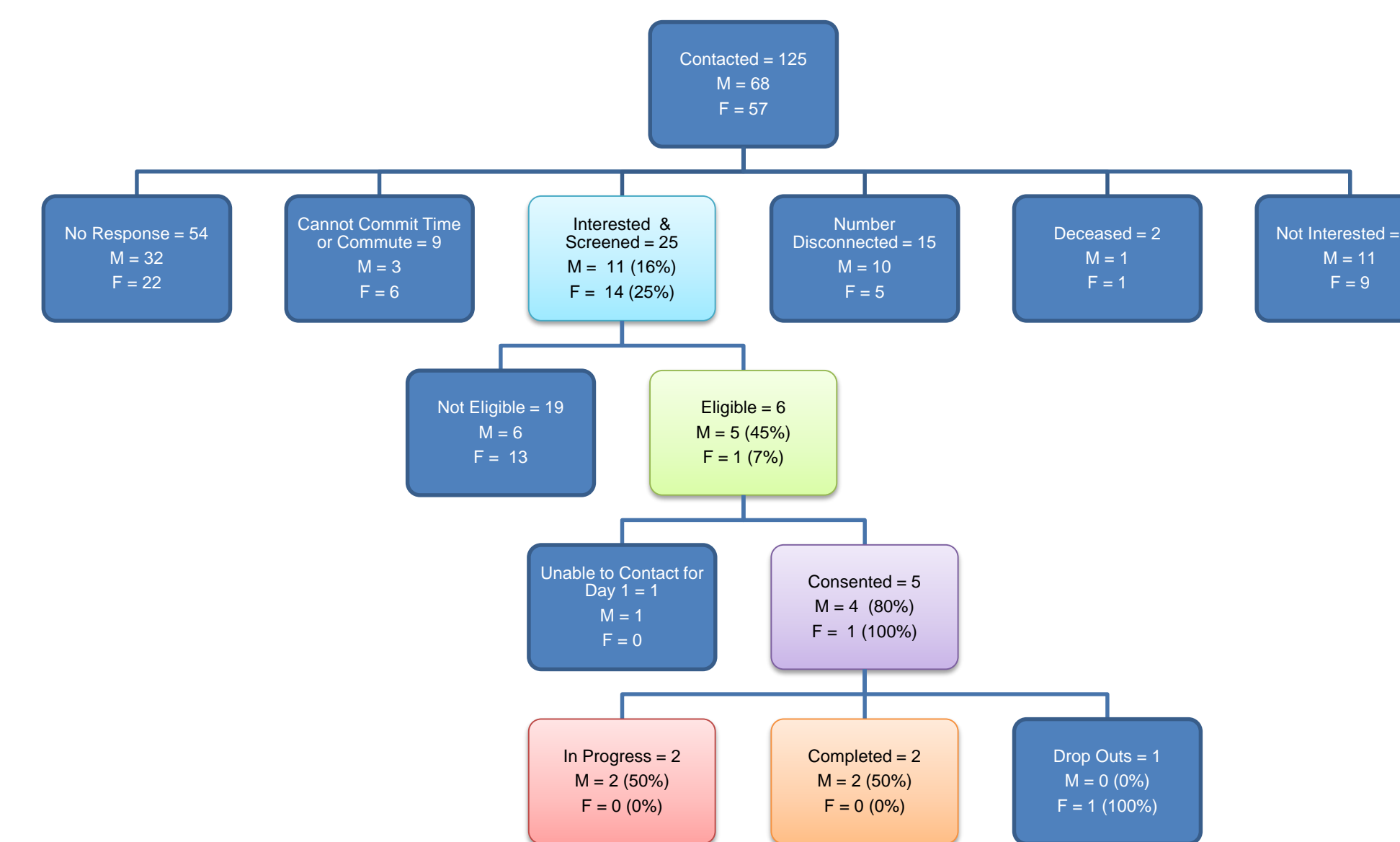
Table 2. Functional Fitness and Quality of Life Measures, Baseline Assessment

Functional Fitness & QOL Measures			
Functional Fitness Tests	Total Mean ± SD	White Mean ± SD	African American Mean ± SD
Six Minute Walk Distance (m)	525.1 ± 51.0	543.2 ± 35.6	517.8 ± 55.9
Six Minute Walk % Predicted	103.4 ± 20.3	125.6 ± 9.4	90.7 ± 11.3
Timed Up and Go (s)	7.3 ± 2.1	6.8 ± 1.4	7.5 ± 2.3
Sit to Stand (reps)	13 ± 3.1	13.3 ± 2.3	12.5 ± 3.3
Quality of Life			
SF36 Physical Health	48.9 ± 10.1	39.5 ± 10.2	54.8 ± 2.0
SF36 Mental Health	52.5 ± 6.8	51.8 ± 5.1	53.0 ± 8.2
SF36 Total	72.4 ± 48.8	91.4 ± 14.0	107.8 ± 8.7

Table 2: Functional fitness and quality of life measures of all subjects and separated by race.

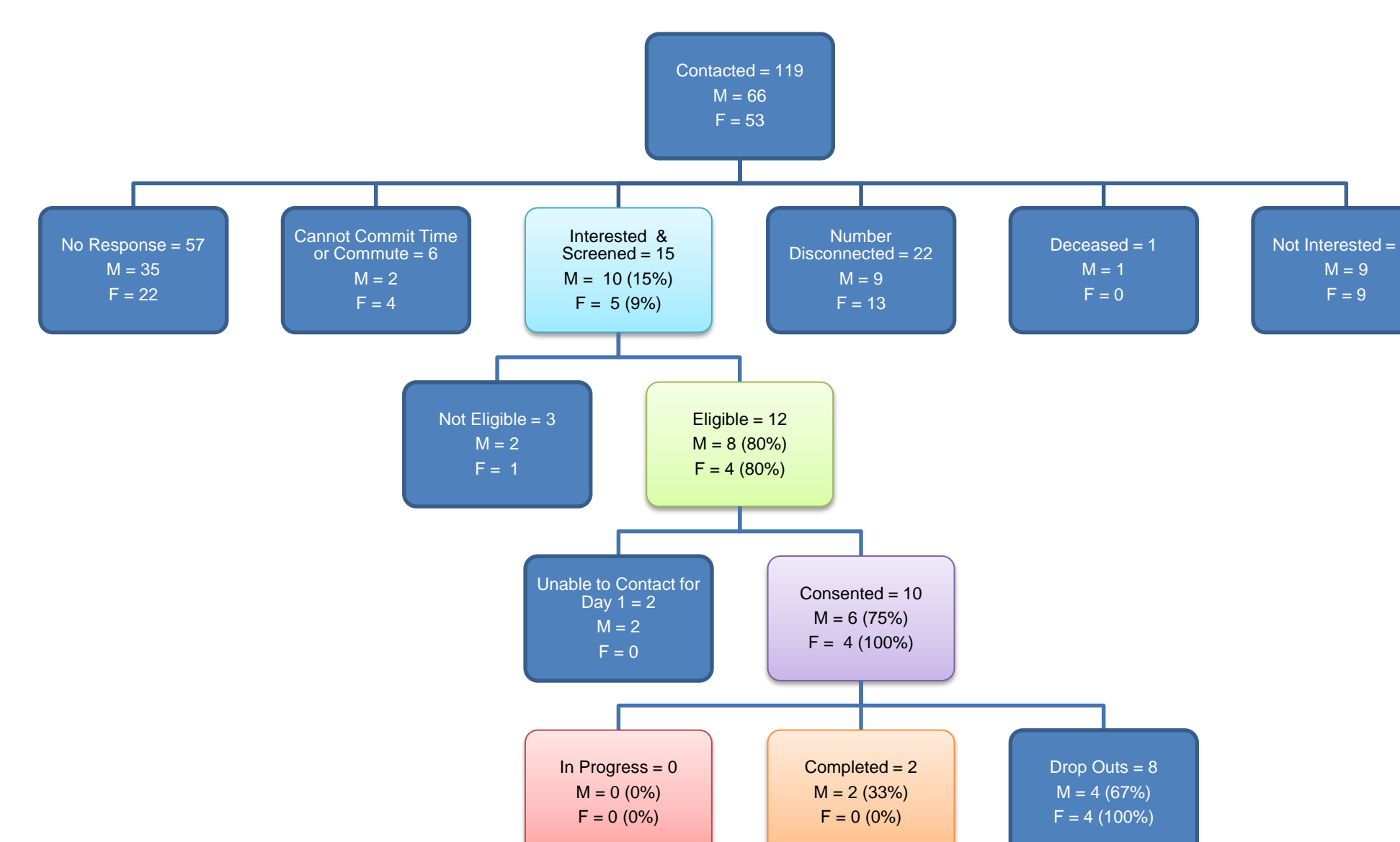
## Results

Figure 1. White Subjects



**Figure 1:** Recruitment chart for White subjects divided by genders. Blue indicates those who were interested in the study and went through a phone screening process. Green indicates the subjects who passed the phone screening. Purple indicates those who gave consent to begin the study and completed screening visits. Red indicates subjects currently training in the study. Orange indicates subjects have successfully completed the training study. M indicates male and F indicates female. Elapsed time over 15 months. % denotes successful passage from original contact to next state of recruitment or training. Out of 68 males and 58 females contacted, respectively 3% and 0% have completed the study along with 2 males who are currently in progress.

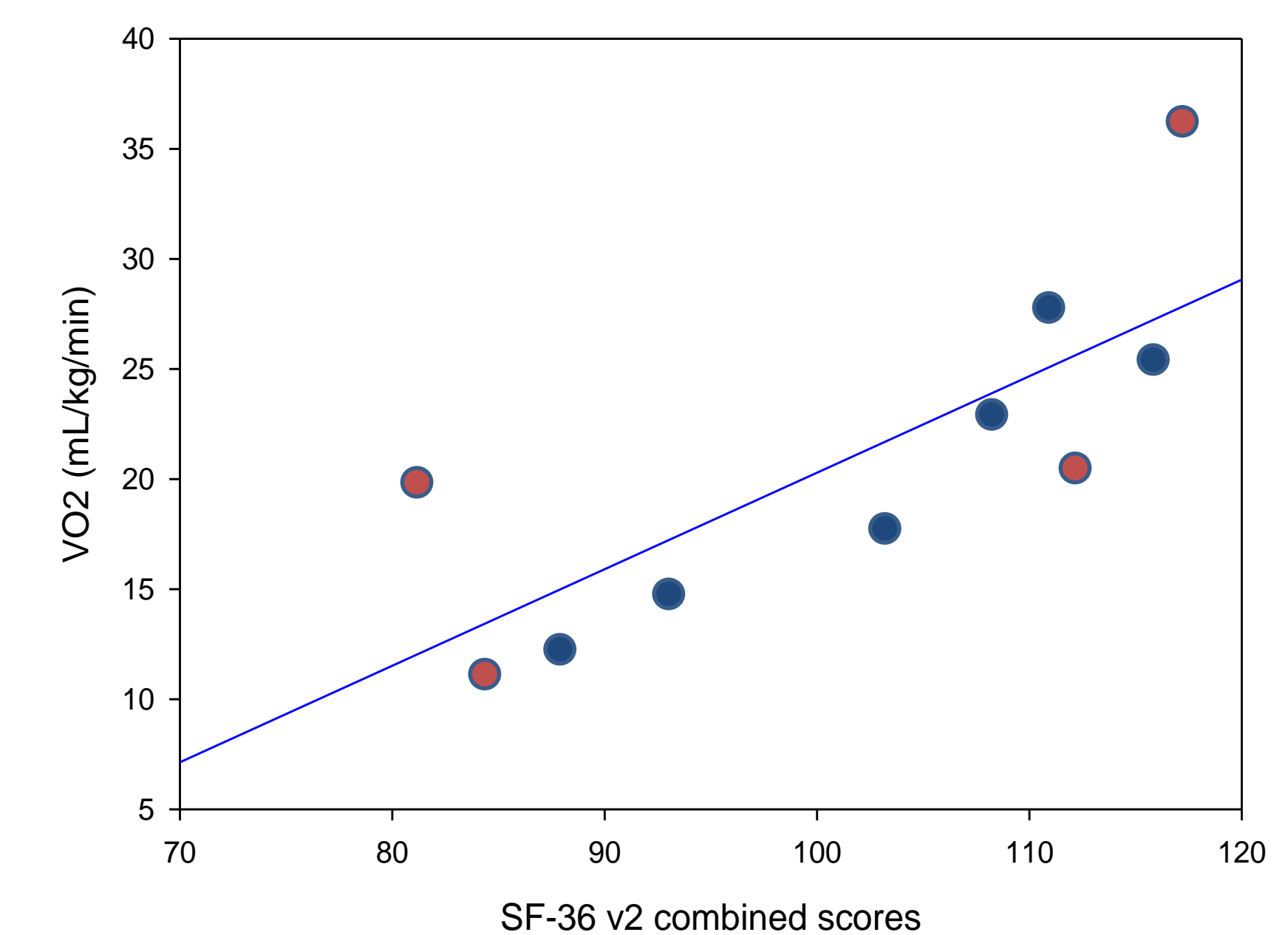
Figure 2. African American Subjects



**Figures 2:** Recruitment chart for African Americans divided by genders. Blue indicates those who were interested in the study and went through a phone screening process. Green indicates the subjects who passed the phone screening. Purple indicates those who gave consent to begin the study and completed screening visits. Red indicates subjects currently training in the study. Orange indicates subjects have successfully completed the training study. M indicates male and F indicates female. Elapsed time over 15 months. % denotes successful passage from original contact to next state of recruitment or training. Out of 66 males and 53 females contacted, respectively 3% and 0% have completed the study. No subjects are currently in progress.

## Results

Figure 3. VO<sub>2</sub> vs. SF-36 Scores



**Figure 3:** VO<sub>2</sub> measures (19.4 ± 7.4) at baseline vs. SF-36 v2 combined (72.4 ± 48.8) mental health and physical health scores N= 10, p <0.05, R=0.7 Red dot denotes White, Blue dot denotes African American.

## Discussion

Overall subject recruitment has been difficult. Recruitment has been even more challenging among AA compared to W with a majority of the reason being a limited number of AA subjects. Baseline exercise capacity does correlate to quality of life measures among this small group of CRC survivors, further validating the need for CRC survivors to increase physical fitness. We are currently conducting a qualitative study to gain further insights from CRC survivors about their preferences for an exercise intervention.

## Conclusion

The current preliminary results show a clear difference in gender recruitment ability amongst races. Further determination of the cause for the gender difference may be an aim of future studies.

## Funding

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