Impact of a 16-Week Multimodal Exercise Intervention on Sarcopenia in Breast, Prostate, and Colorectal Cancer Survivors

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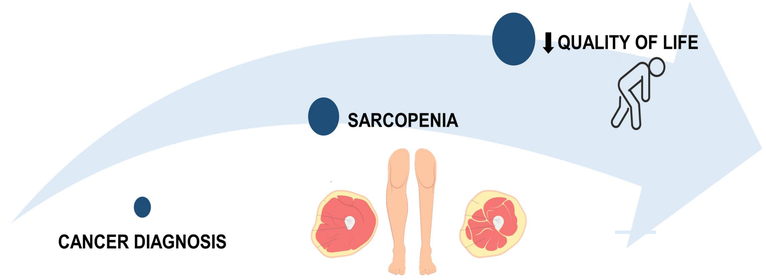
INTRODUCTION

- Sarcopenia, characterized by a decline in skeletal muscle mass and function, is prevalent in 14% to 79% of cancer survivors and is linked to lower quality of life and increased mortality risk in cancer patients (**Figure 1**).
- The goal of this secondary analysis was to evaluate the effects of a 16-week circuit, interval-based aerobic and resistance exercise intervention on sarcopenia among sedentary, overweight or obese survivors of breast, prostate and colorectal cancer.

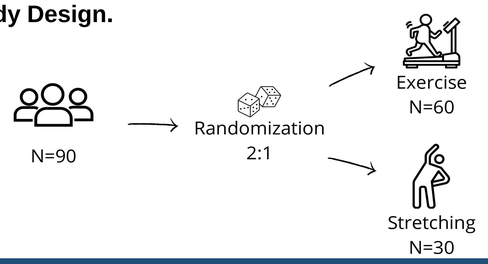
Figure 1: From Cancer to Poor Quality of Life: the Sarcopenia Link.



METHODS

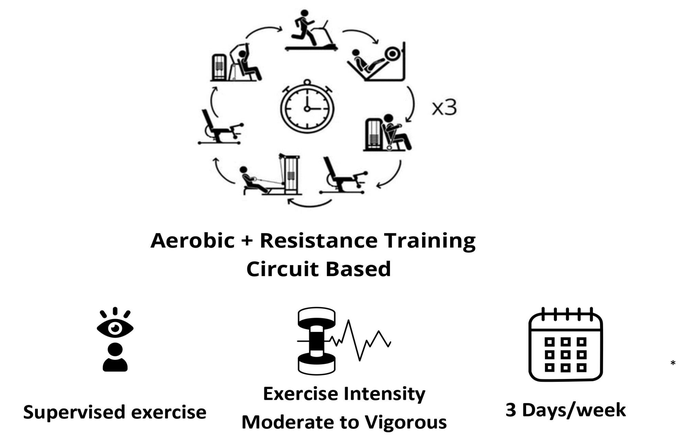
- This randomized controlled trial involved 90 survivors of breast, prostate, and colorectal cancers, overweight or obese (body mass index>25.0 kg/m2) and sedentary (<60 mins of exercise per week). Participants were randomized 2:1 to exercise group (n=60) or usual care (n=30; **Figure 2**).
- The exercise intervention was a supervised, 16-week, thrice-weekly program featuring a circuit interval-based approach. Participants engaged in moderate-to-vigorous aerobic (65-85% VO2 max) and resistance (65-85% 1-repetition max) exercise (**Figure 3**).
- Sarcopenia was assessed at baseline and post-intervention using a whole body dual-energy X-ray absorptiometry scan to measure appendicular skeletal muscle mass index (ASMI). ASMI was calculated as appendicular skeletal muscle mass (kg) / height (m2). Repeated measure ANCOVA were used to determine the between-group differences pre and post intervention

Figure 2: Study Design.



METHODS cont.

Figure 3: Exercise Session Overview.



RESULTS

- Participants were 63.2 ± 10.8 years, 55% female, mean body mass index was 34.7±5.9 and 75% had undergone chemotherapy and/or radiation therapy (**Table 1**). Adherence to the exercise intervention was high (92%). At baseline, 75% of the participants presented with sarcopenia.

Table 1: Participant Characteristics.

	TOTAL N=90	EXERCISE N=60	USUAL CARE N=30
Age, y*	63.2 (10.2)	64.7 (9.5)	62.6 (11.2)
Cancer diagnosis, n (%)			
Breast	38(42)	20 (52)	18 (48)
Colon or rectum	28(31)	23 (82)	5(18)
Prostate	24(27)	17(71)	7 (29)
Treatment history			
Chemotherapy	28(30)	15(54)	13 (46)
Radiation	7(1)	5(71)	2(19)
Both	65(69)	45(71)	20(30)
BMI (Kg/m²)*	34.6(36.1)	33.2(5.3)	35.5 (6.8)
Weekly physical activity (min/week)*	18.1(6.6)	15.8 (5.3)	20.7 (7.7)

*Data expressed as mean (SD), **No significant differences were observed between group (p>0.05)

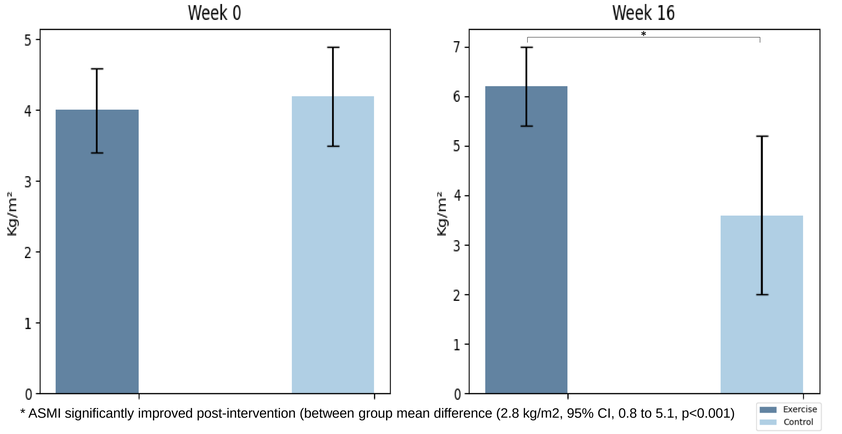
RESULTS cont.

- Compared to usual care, ASMI significantly improved post-intervention (between group mean difference (2.8 kg/m2, 95% CI, 0.8 to 5.1, p<0.001). Post-exercise, 35% of the participants in the exercise group presented with sarcopenia.

Table 2: Baseline and Post-Exercise Values for ASMI (Kg/m²).

	Week 0		Week 16	
	Mean	**SD**	**Mean**	**SD**
Exercise	4.0	0.6	6.2	0.8
Control	4.2	0.7	3.6	1.6

Figure 4: Changes in ASMI (Kg/m²) Post-Exercise.



* ASMI significantly improved post-intervention (between group mean difference (2.8 kg/m2, 95% CI, 0.8 to 5.1, p<0.001)

CONCLUSIONS

- A 16-week circuit, interval-based aerobic, and resistance exercise program produces improvements in sarcopenia in overweight or obese breast, prostate, and colorectal cancer survivors.
- Considering the impact of sarcopenia on quality of life and mortality outcomes in cancer survivors, larger-scale trials are necessary to confirm our findings.

CONTACT US

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