

Restoring Balance, a Physical Activity Intervention for Native Cancer Survivors and their Familial Support Persons (NNR.14.192)



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Introduction

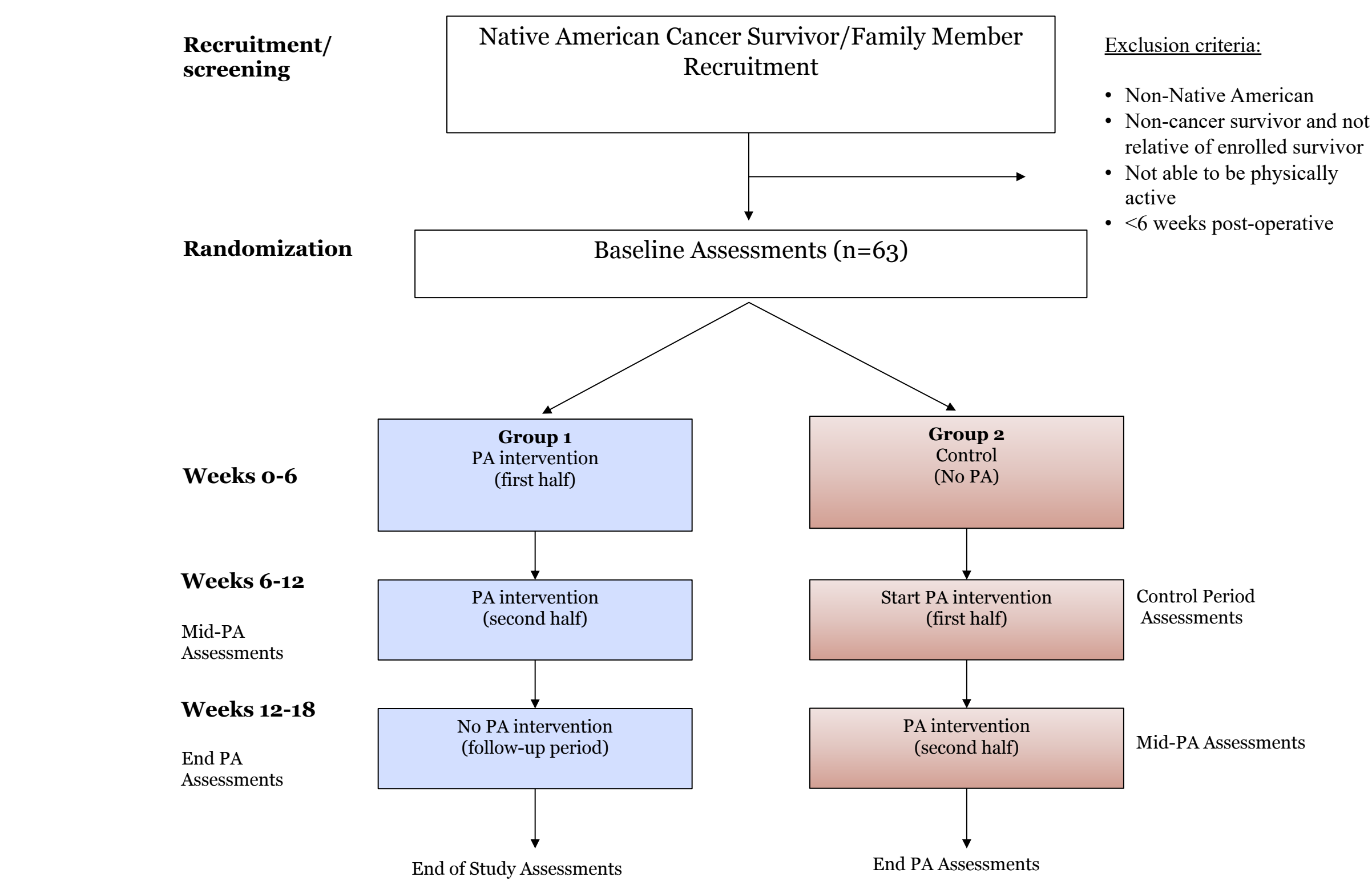
- Native Americans are diagnosed with cancer at more advanced stages compared to non-Hispanic Whites and have the poorest five-year cancer survival rate of any group in the US
- Physical activity has been shown to improve fatigue, quality of life, body composition, body image, & physical function among survivors in other populations
- Physical activity has been shown to decrease cancer recurrence and mortality for some common cancers (i.e. colon and breast)
- Despite substantial disparities in survivorship outcomes among Native Americans, culturally tailored evidence-based physical activity programs have not been developed for any tribal nation

Aim

To test a culturally tailored physical activity program among Native cancer survivors and familial support persons for effects on fitness, metabolic function, body composition, and quality of life.

Methods

Figure 1. Randomized controlled trial design



Methods

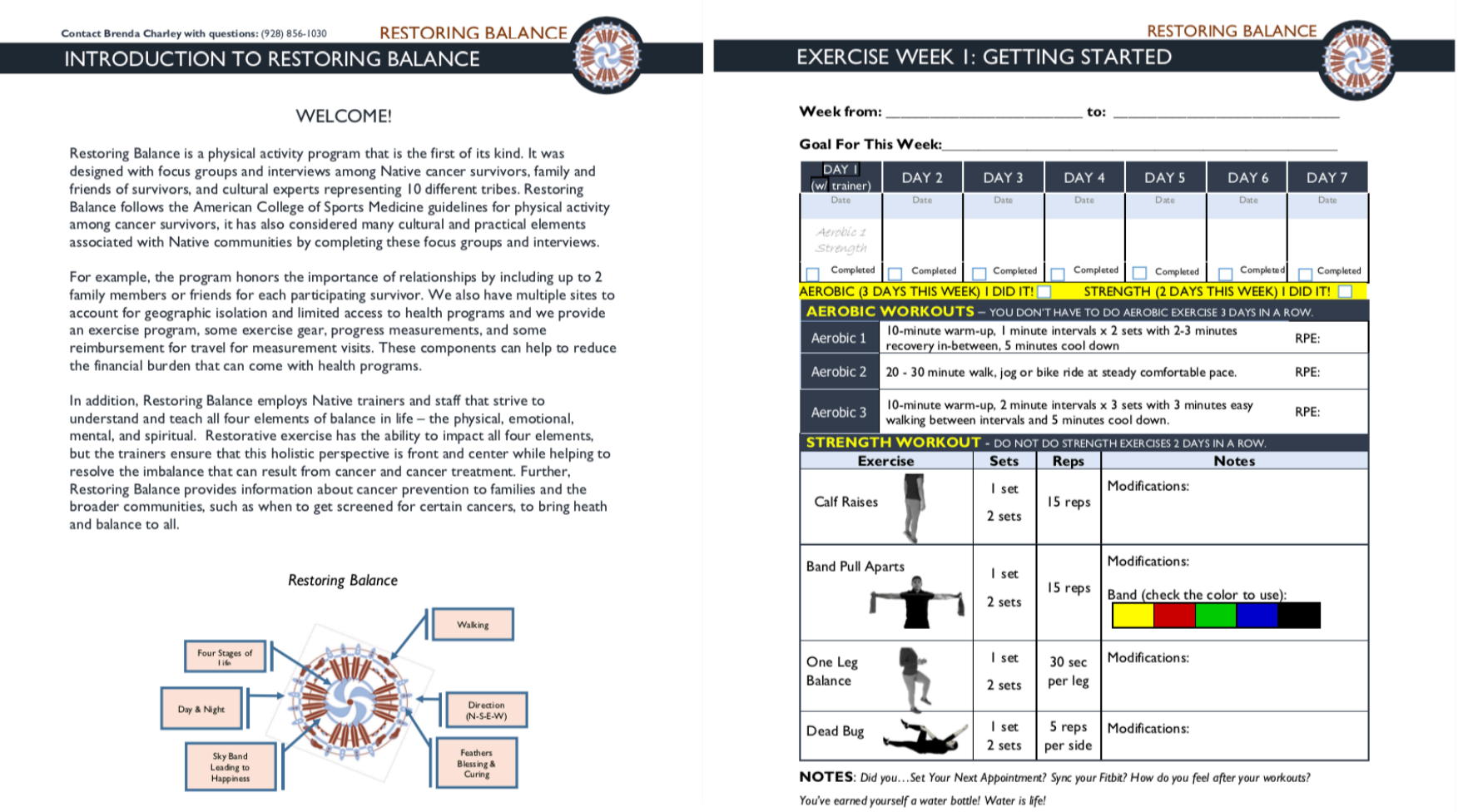
INTERVENTION

- Multi-site intervention to progress toward ACSM targets for cancer survivor exercise (resistance, aerobic, flexibility and balance training)
- 1d/wk supervised exercise
- 2-5 d/wk home-based
- Culturally tailored
- Symptom limited

Figure 3. Multi-site intervention locations in Arizona, USA



Figure 2. Program booklet example pages



MEASUREMENTS: Measures taken at baseline, 6wks, 12wks, & 18wks

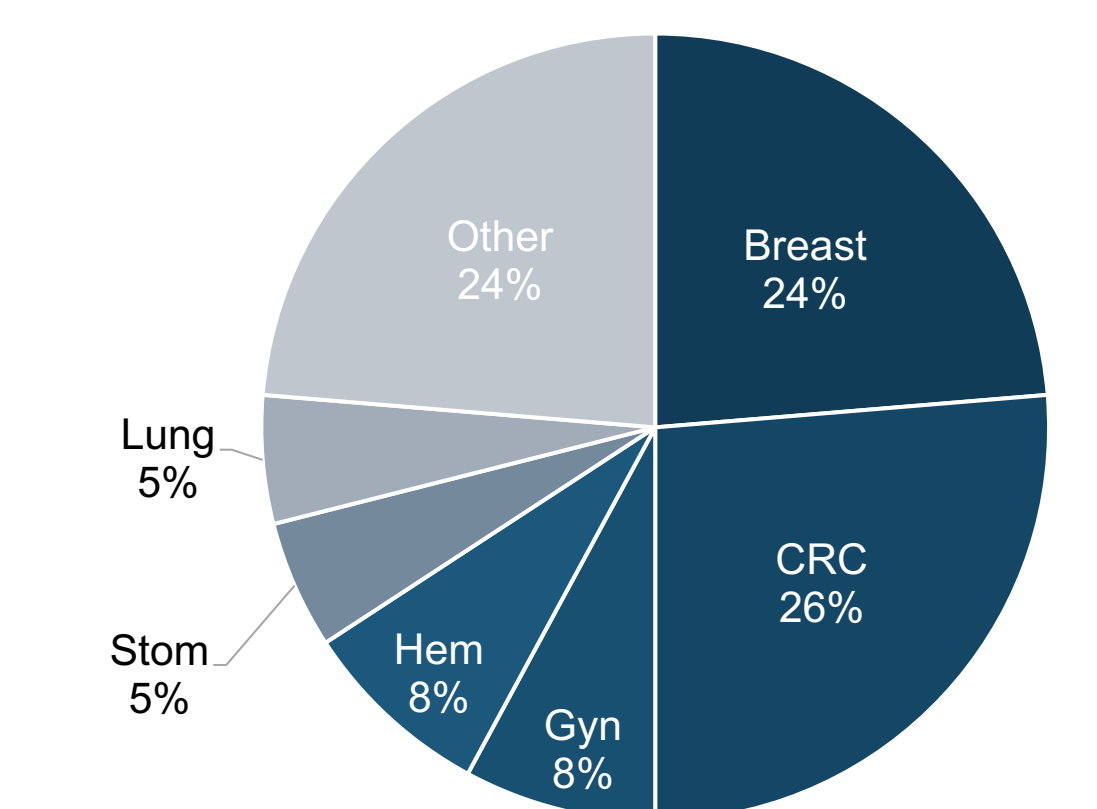
- Fitness & Exercise: 6 minute walk test, FitBit wearable activity monitor, Leisure Time Physical Activity Questionnaire
- Body Composition: height, weight, waist circumference, BIA
- Metabolic Function: blood pressure and HbA1c finger stick blood test
- Quality of Life: PROMIS10 questionnaire

Results

COMMUNITY BENEFIT

- 10 Native trainers hired to implement cancer exercise intervention
- Navajo and Grand Traverse Band of Ottawa & Chippewa Indians
- Certifications advanced: NAFC CPT, ACSM CPT, ACSM EP
- Trained in human subjects research processes, biosafety, data collection and security
- Program available for community use across sites

Figure 4. Cancer types among survivors

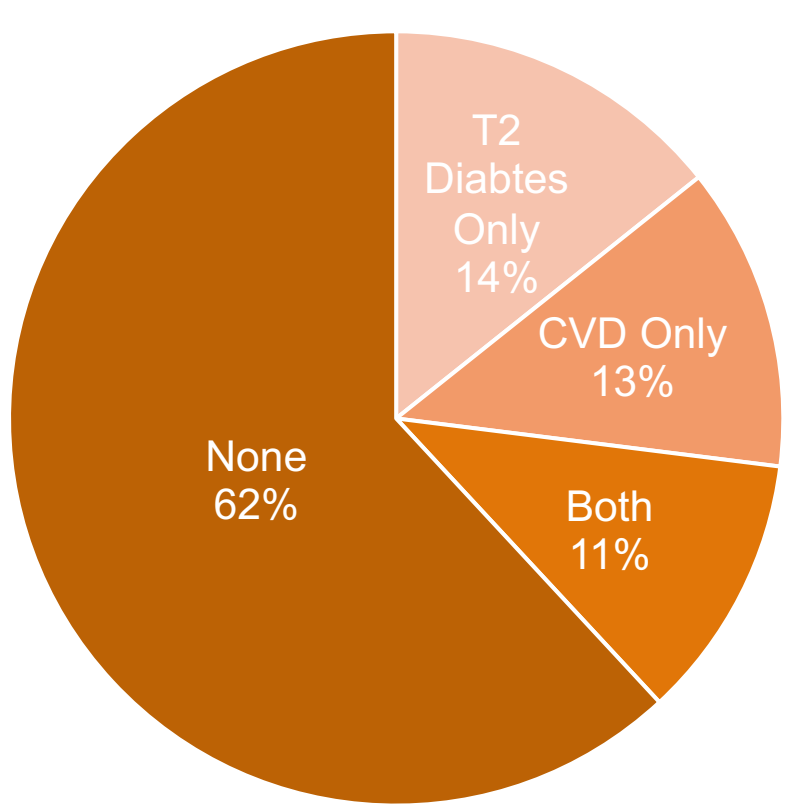


Hem, Hematologic; CRC, colorectal; Gyn, gynecologic

Table 1. Descriptive characteristics of sample (n = 63)

Characteristic	Survivors		Supporters	
	Immediate (n = 20)	Delayed (n = 18)	Immediate (n = 11)	Delayed (n = 14)
Age (y), mean ± SD	57.5 ± 13.9	58.0 ± 10.1	37.2 ± 16.2	42.3 ± 13.8
American Indian, n (%)	20 (100)	18 (100)	11 (100)	11 (78.6)
Navajo, n (%)	19 (95)	16 (88.9)	11 (100)	11 (78.6)
Female, n (%)	14 (70)	14 (77.8)	8 (72.3)	8 (57.1)

Figure 5. Comorbid conditions among survivors and familial support persons



Sample size N=63

Results

Table 2. Key biomarker changes among Native American cancer survivors participating in the Restoring Balance physical activity program using mixed-effects modeling.

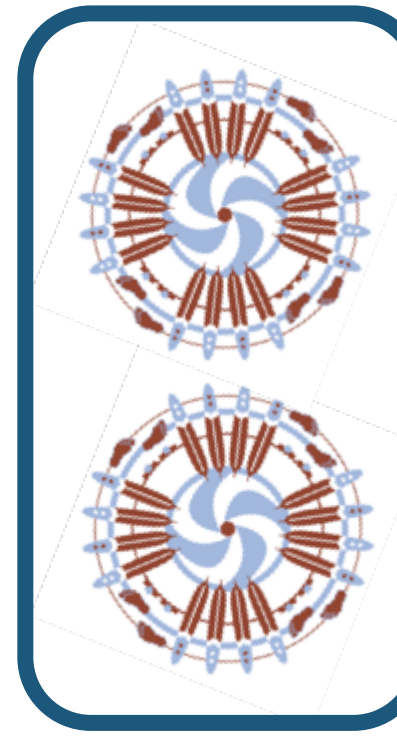
Measure	Intervention Time Point for Cancer Survivors (n = 37)	
	Baseline	Change 12wks
Weight (kg)	79.4	0.05
BMI	29.29	0.11
Body Fat (%)	39.99	0.17
HbA1c (%)	6.17	-0.06
6min walk test	430.72	73.56 ^a
QOL Score	32.94	1.5

*Note: missing fat mass and A1c data for one person. HbA1c, hemoglobin A1c; QOL, quality of life (PROMIS-10 score). a. p < .001.

Table 3. Key biomarker changes among support persons participating in the Restoring Balance physical activity program using mixed-effects modeling.

Measure	Intervention Time Point for Support Persons (n = 25)	
	Baseline	Change 12wks
Weight (kg)	92.46	-0.94
BMI	33.39	-0.51 ^c
Body Fat (%)	44.91	-0.46
HbA1c (%)	6.91	-0.38 ^b
6min walk test	467.43	65.15 ^c
QOL Score	31.3	2.26 ^a

HbA1c, hemoglobin A1c; QOL, quality of life (PROMIS-10 score); SI, social isolation. a. p < .05; b. p < .01; c. p < .001.



Conclusions

- Physical activity improves fitness in Native cancer survivorship, which may be shown to influence other important health outcomes with a longer intervention or greater follow-up.
- Cancer risk biomarkers reductions with physical activity among Native family members of cancer survivors may have a meaningful impact on cancer prevention in this population with shared heritable and environmental risks.

Acknowledgments

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