



survivor



## **Cancer Survivor Program**

**From Surviving to Thriving:**  
Key Findings from the  
Cancer Survivor Program



# Contents

<b>Introduction</b> .....	<b>3</b>
<b>Results</b> .....	<b>5</b>
Body Strength .....	5
Aerobic Endurance .....	6
Flexibility.....	7
Physical Activity Levels.....	8
Health-Related Quality of Life Outcomes.....	9
Social Outcomes.....	11
<b>Conclusion</b> .....	<b>12</b>
<b>Participant Testimonials</b> .....	<b>13</b>
<b>References</b> .....	<b>15</b>

# Introduction

## Cancer survivors encounter a plethora of health challenges stemming from their cancer diagnosis and the effects of treatments on their physical and mental well-being.

Survivors frequently experience declines in physical functioning and quality of life, coupled with an increased risk of cancer recurrence.

Extensive research has highlighted the crucial role of functional training in improving cancer survivors' physical and psychological health (Campbell, 2019; Niedzwiedz et al., 2019; Australian Journal of General Practice., 2020; Chan., et al., 2022). Functional training addresses concerns such as fatigue, loss of strength, and overall quality of life (Niedzwiedz et al., 2019).

Substantial evidence indicates that specific doses of aerobic exercise, combined aerobic and resistance training, and/or resistance training can significantly enhance cancer-related health outcomes, such as anxiety, depressive symptoms, fatigue, physical functioning, and health-related quality of life (Campbell et al., 2023).

Whenever possible, survivors are encouraged to maintain an active lifestyle to reap the benefits of regular exercise (Campbell et al., 2019). Integrating regular physical activity and engaging in support groups can play a crucial role in enhancing survival outcomes and the overall well-being of cancer survivors. Individuals diagnosed with cancer who consistently participate in exercise can improve their quality of life (Cancer.org, 2019) and reduce their risk of mortality from all causes by 25% compared to those who are less active (Lavery et al., 2023).

A peer support-exercise model has the potential to lessen comorbidities, strengthen physical and mental well-being, and significantly ease the burden of cancer (Adlard, 2019).

Despite considerable evidence showing the benefits of physical activity (PA) and exercise for cancer survivors, only a small percentage of survivors follow the exercise oncology guidelines due to a range of reasons, including, but not limited to, a lack of awareness about the benefits of exercise, fear of exacerbating symptoms, cost, and limited access to appropriate exercise programs.

Support groups like the Y Queensland Cancer Survivor program help close the gap by providing survivors with a safe and supportive space to maintain an exercise routine alongside their peers.



The Y Queensland Cancer Survivor program (CSP) is an Accredited Exercise Physiologist-designed program (AEP) which aims to improve the quality of life for individuals living with cancer, irrespective of their stage. This free, 12-week initiative focuses on physical activity and support for those currently facing or who have overcome cancer.

The program is conducted in small classes with six to twelve participants across five locations: Bowen Hills, Victoria Point, Warwick (WIRAC), Caloundra, and Jamboree Heights in Queensland, Australia.

Since its launch in 2016, the program has benefited over 930 participants. In addition to focusing on physical activity, the program emphasises the significance of building social connections among participants and nurturing friendships with others who share similar health experiences.

The program's exercise regimen includes resistance training, aerobic training, and flexibility exercises. The instructors delivering the program are trained in cancer management, post-rehabilitation exercise, and supportive cancer care. Safety is a top priority for participation, and participants must be cleared by their doctors before participating.

**This free, 12-week initiative focuses on physical activity and support for those currently facing or who have overcome cancer.**

At the end of the program, we expect improvements in participants' physical, social, and emotional outcomes through the program. This report showcases the progress made by the 2024 cohort of participants throughout the year.

Participants ranged in age from 25 to 83, with an average age of 68. The majority of participants (58%) were diagnosed with breast cancer.

Other reported cancers included ovarian cancer (11%), prostate cancer (6.7%), and 4.5% with lymphoma, along with one each of leukemia, bowel cancer, lung cancer, rectal cancer, and brain cancer.

The program had more female participants than males, making up 89%. Thirty-two participants (13%) advanced to Phase 2 of the program and became members of Y Fitness Centres, committing to continued exercise regimens.

Many of these individuals continue to train with their program friends in the general fitness centre.

Two assessments to measure changes were carried out throughout the program:

1. Physical Assessments included functional fitness tests for Body Strength, Aerobic Endurance and Flexibility. Participants completed the assessments before and after the program. Forty-five participants had paired data for physical assessments.
2. The Functional Assessment of Cancer Therapy - General (FACT-G) version 4 Survey was also administered to participants. The survey measures four domains of Health-Related Quality of Life (HRQOL) in cancer patients, focusing on Physical, social, emotional, and functional well-being. Participants also completed the FACT-G survey before and after the program. Twenty-four participants had paired data on the survey.

Data were analysed using the Statistical Software Package for the Social Sciences (SPSS) statistical software package (version 29.1, IBM Corporation).

# Results

## Body Strength

Lower body strength is essential for various daily activities such as climbing stairs, walking, and getting out of a chair, bathtub, or car. It also decreases the likelihood of falling.

The 30-second sit-to-stand test was conducted before and after the program to evaluate lower body strength. According to the guidelines, participants at risk for low extremity strength achieved fewer than eight unassisted stands within 30 seconds.

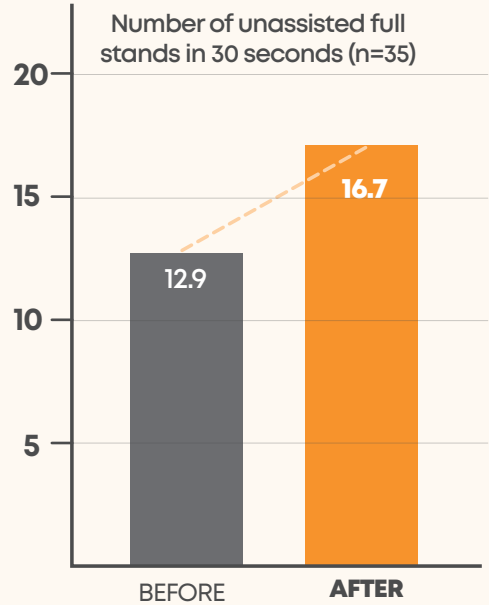
Before the program, two participants were at risk – having managed fewer than eight unassisted sit-to-stand movements, achieving five stands each. Two participants reached exactly eight stands, the minimum risk-free repetitions.

By the end of the program, only one participant had a lower count, performing six unassisted stands. Most (86%) participants increased their number of unassisted stands by the end of the program, with increases ranging from 1 to 13 and an average increase of 3.8.

This average increase of 3.8 (12.9 pre-program to 16.7 post-program) unassisted stands was statistically significant at the 95% confidence level, demonstrating the program’s effectiveness.

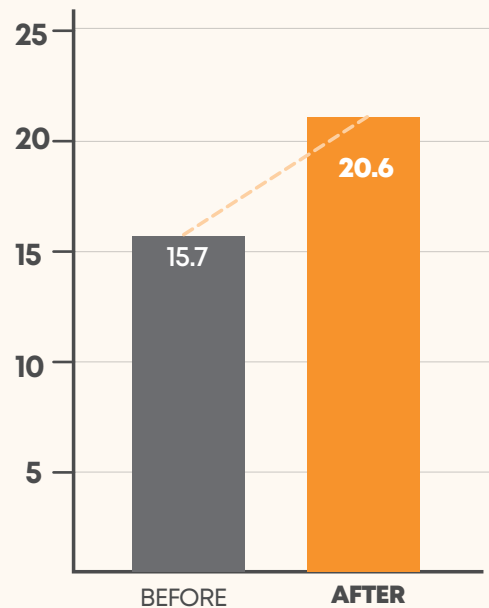
Upper body strength allows for performing household tasks and other activities that involve lifting and carrying items like groceries and suitcases. The number of bicep curls performed in 30 seconds is a good measure of upper body strength.

Figure 1: Sit to Stand test results

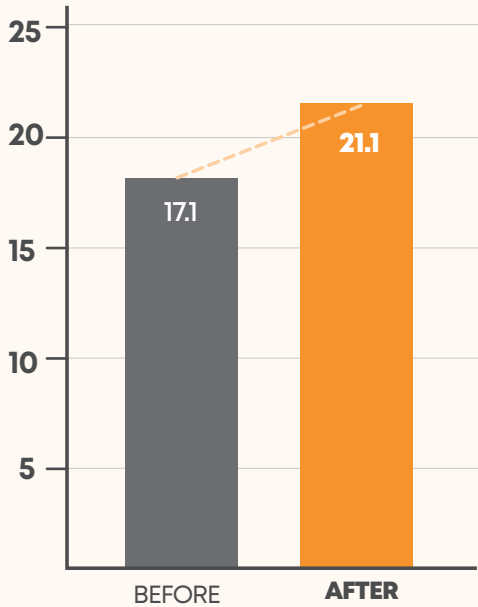


Men and women are tested with different dumbbell weights: 2kg for women and 4kg for men. To demonstrate functional upper-body strength, men and women must complete at least 11 curls using the correct form. Upper-body strength is assessed for both the right and left sides.

Figure 2: Number of bicep curls (left arm)



**Figure 3: Number of bicep curls (right arm)**



Four participants (11%) performed fewer than 11 curls on the left side before the program, and by the end, none scored below 11. The average increase was 4.8 curls per arm across the 35 participants assessed.

For the right side, one participant (2.7%) had fewer than 11 curls before the program, and none had fewer than 11 by the end of the program. The average growth for the right side was 4.1. The improvements were statistically significant for both sides.

### Aerobic Endurance

Aerobic endurance is the ability to exercise moderately for prolonged periods. It reflects the efficiency of the body’s cardiorespiratory system in supplying nutrients and oxygen to active muscles during sustained activity. Aerobic endurance is crucial for everyday tasks such as walking long distances, climbing stairs, and shopping.

The distance (in metres) that participants can walk around a 40-metre course in six minutes is measured to assess aerobic endurance. A result of less than 340m is deemed low for both men and women.

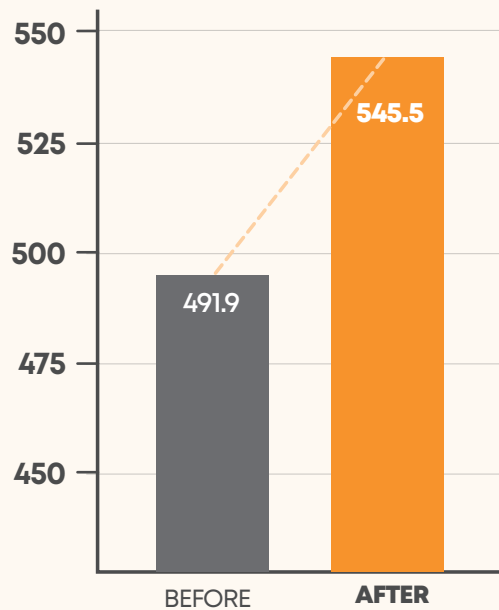
Participants’ blood pressure and heart rate were closely monitored during the six-minute walk test to ensure safe and appropriate exercise participation before and after the program.

Before the program, only one participant did not reach the 340m distance in 6 minutes; instead, they managed to cover only 213m. By the end of the program, this participant had achieved a distance of 383m, and no participant fell below the high-risk threshold of 340m or less.

Despite this, one participant’s score declined slightly by 10m (from 475m to 465m). Another participant’s score remained unchanged at 568m between the two-time points.

The remaining participants showed improvement, with distances varying from 7.5m to 170m, resulting in a mean increase of 69.5m. The differences in distances covered before and after the program were statistically significant.

**Figure 4: Distance (in meters) walked in 6 minutes**



## Flexibility

The flexibility test administered to the CSP participants evaluated lower body flexibility using the chair sit-and-reach test. Lower body flexibility is crucial for maintaining good posture, standard gait patterns, and various mobility tasks, like entering and exiting a bathtub or car.

The test is straightforward: it measures the number of centimetres (cm) (+ or -) between extended fingers and the tip of the toe while sitting in front of a chair, with the leg extended and hands reaching towards the toes. Flexibility targets vary by gender, and risk zones differ for men and women. Participants at risk score -4 or lower (for men) or -2 or lower (for women).

### Chair Sit And Reach (Left-hand side)

Before the program, female participants (n=40) had an average score of -0.98, which increased to an average of 4.54 cm by the end of the program.

For men (n=3), the scores were poorer, with an average distance of -27 in Week One, with all three male participants scoring in the risk zone of -4 or lower.

By the end of the program, this gap had narrowed somewhat to -22, and one of the three male participants scored out of the risk zone with a score of 0. The result was statistically significant, highlighting the program's effectiveness.

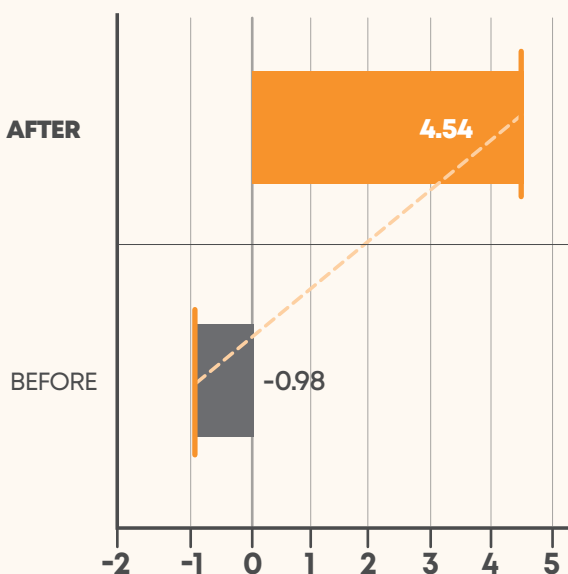
### Chair sit and Reach (Right-hand side)

On the right-hand side, female participants had an average score of 1.13 before the program, higher than the risk zone of -2. At the end of the program, this increased by 2.94 to an average of 4.07 cm.

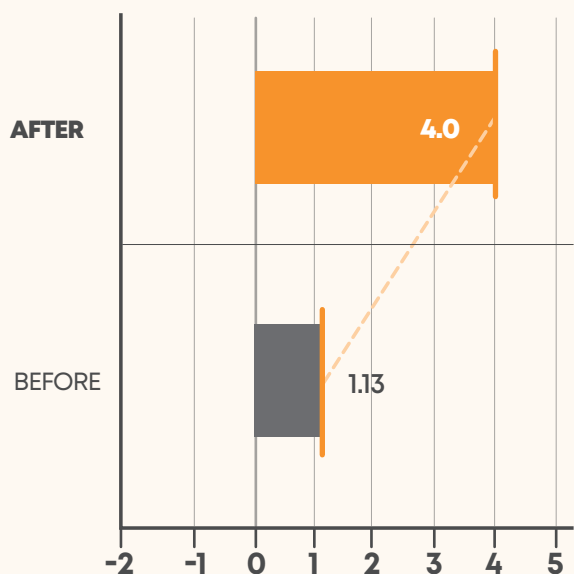
For men (n = 3), the scores were consistent with those on the left-hand side. Before the program commenced, the average score was -27.3, placing all three participants in the risk zone of -4 or greater.

By the end of the program, this was improved to -23.8 cm, with all three men remaining in the risk zone (with scores of -10, -18.5, and -43). The results were statistically significant, highlighting the program's effectiveness.

**Figure 6:** Distance (in centimeters) between extended fingers and tip of toe on the Left hand side

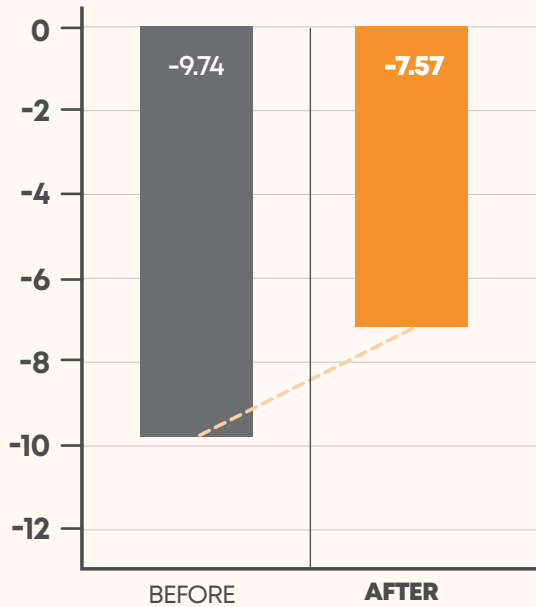


**Figure 7:** Distance (in centimeters) between extended fingers and tip of toe on the Right hand side





**Figure 8:** Distance (in centimeters) between the participants two hands behind their back, with one hand over the shoulder (left-hand side).



Upper body (shoulder) flexibility is important for combing hair, putting on overhead garments, and reaching for a seatbelt. The Back-Scratch Test measures the distance in centimetres (cm)—positive or negative—between one hand reaching over the shoulder and the other reaching up the middle of the back. Participants at risk score -4 or more (for men) or -2 or more (for women).

Before the program, the average score of female participants was -9.74 cm. By the end of the program, this improved by 2.17, resulting in a score of -7.57 cm. Initially, 84% of female participants were in the risk zone, defined as -2 cm or more, but this proportion only decreased by 4%, leaving 80% in the risk zone by the end of the program. This low score and improvement for females is likely reflective of the disproportionate representation of breast cancer survivors and the impact this has on upper body flexibility.

For men (n = 3), the scores were lower, consistent with lower body flexibility—an average distance of -35 cm in Week One and -32 cm at the program’s conclusion. All three male participants scored in the risk zone of -4 or more before and after the program. These results were not statistically significant.

For the back-scratch test of the left-hand side, the average score of female participants was -4.5 cm before the program, and by the end of the program, this decreased to -3.89 cm. Although the gap was reduced by 0.61 cm, most (53%) of the female participants remained in the risk zone of -2 cm or more, with this percentage only dropping to 52% at the program’s conclusion.

For men (n=3), the scores averaged -19 at both time points. One of the three men was not in the risk zone before and after the program. These results were not statistically significant.

### Physical Activity Levels

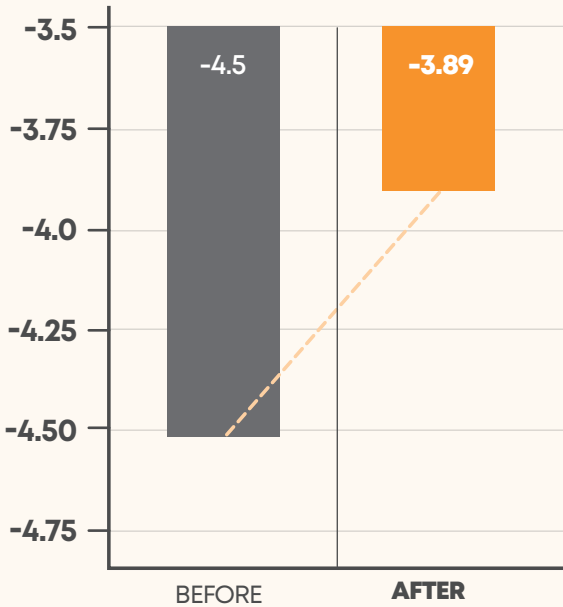
Australia’s physical activity and sedentary behaviour guidelines outline how much physical activity adults should engage in to help them understand how active they need to be.

According to the guidelines, adults aged 18-64 should be active most days, preferably every day, doing either 2.5 to 5 hours of moderate-intensity physical activity – such as a brisk walk, golf, mowing the lawn or swimming or 1.25 to 2.5 hours of vigorous-intensity physical activity – such as jogging, aerobics, fast cycling, soccer or netball, or an equivalent combination of moderate and vigorous activities per week (Australian Government Department of Health and Aged Care, 2021).





**Figure 9:** Distance (in centimeters) between the participants two hands behind their back, with one hand over the shoulder (right-hand side).



Self-reported weekly physical activity levels of participants increased during the program.

**Moderate intensity exercise**

By the end of the 12 weeks, moderate intensity levels improved from an average of 1.9 to 2.9 hours per week for all participants. At the program’s outset, 12 participants (50%) exercised less than the recommended 2.5 hours weekly. By the program’s conclusion, this decreased to one participant reporting less than the recommended duration weekly. However, this improvement in moderate exercise levels was not statistically significant.

**Vigorous intensity exercise**

Vigorous intensity rates also increased during the program, from an average of 1 to 1.8 hours out of 4, indicating a 62.5% increase in participants reporting meeting and exceeding the minimum of 1.25 hours of vigorous activity. This increase was also not statistically significant.

**Health-Related Quality of Life Outcomes**

The FACT-G results for HRQOL demonstrated significant improvements across the four subscales, based on a Paired Samples T-test of 24 participants. The FACT-G subscale contains statements on a Likert scale from 0 to 4, including positive and negative statements and reverse-coded scores.

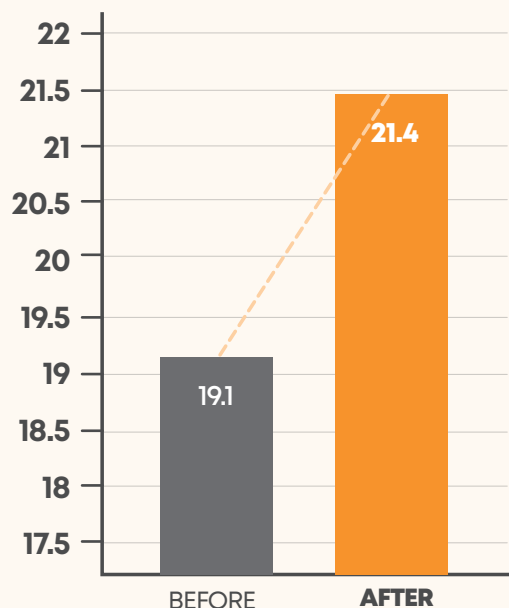
**Physical Wellbeing**

This subscale has six statements and five Likert-scale answer choices on participant’s physical health. A comparison of the before-and-after CSP scores on this subscale showed a statistically significant increase in Physical Wellbeing, with the average scores increasing from 19.1 to 21.4 (out of a possible 28). See Figure 10: Physical Wellbeing Outcomes.

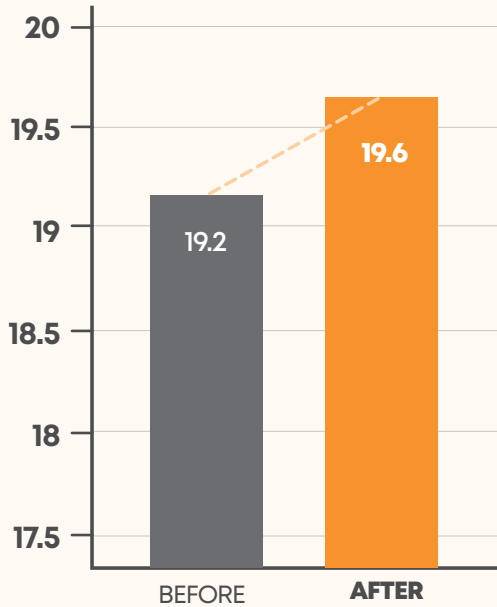
**Social and Family Wellbeing**

The Social and Family Wellbeing subscale includes statements related to support and satisfaction with family, friendships, and intimate relationships. Scores increased from 19.2 to 19.6 (out of a total of 24), though this change was not statistically significant. See Figure 11: Social and Family Wellbeing Outcomes.

**Figure 10:** Physical Wellbeing Outcomes



**Figure 11: Social and Family Wellbeing**



### Emotional Wellbeing

Emotional wellbeing statements reflected the feelings and concerns of survivors, including worries about how their condition may progress.

The statements were negatively framed, for example, “I worry about dying” and “I am losing hope in the fight against my illness”, but scores were reverse coded.

A high score still represented a positive outcome. Results showed an increase in participant’s emotional well-being before the program (18.8) to after the program (22.1); the change was statistically significant. See Figure 12: Emotional wellbeing.

### Functional Wellbeing

The functional wellbeing subscale assessed participants’ ability to perform the usual tasks of daily living, such as sleeping, working, and recreational activities. Scores increased from the start of the program, from 16.2 to 17.9 by the end. This was not statistically significant. See Figure 13: Functional wellbeing.

The overall FACT-G score, out of 108, a sum of all the subscales, increased from 72.7 at the start to 81 by the end of the program. This overall score increase was statistically significant. See Figure 14: FACT-G outcomes.



### Social Outcomes

The last area of change was assessed only in the post-program survey. Participants reflected retrospectively on three statements about how the program increased their sense of connectedness.

- Sixteen participants (66%) reported that participating in the Cancer Survivor program made them feel more accepted for who they were.
- Approximately 80% of participants reported forming at least one new friendship with another participant in the program.
- All survey participants reported establishing at least one positive connection with an employee or volunteer at their YMCA fitness centre.

Figure 12: Emotional Wellbeing

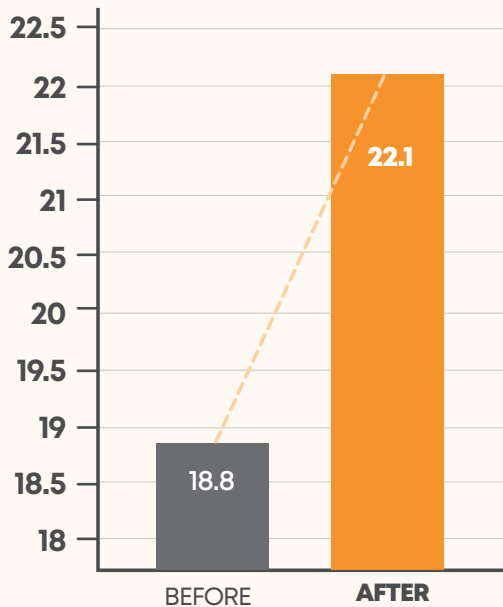


Figure 13: Functional Wellbeing

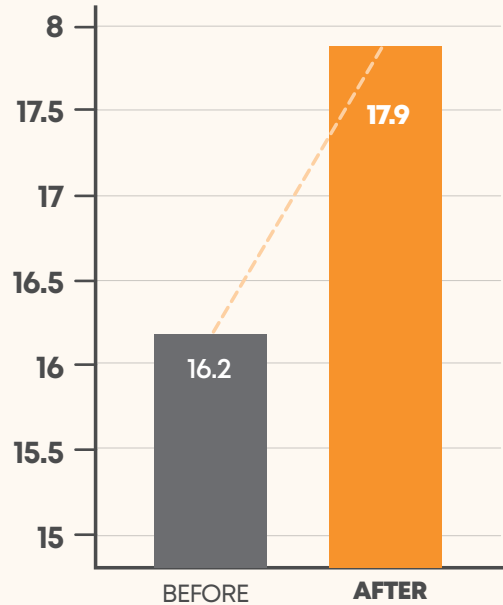
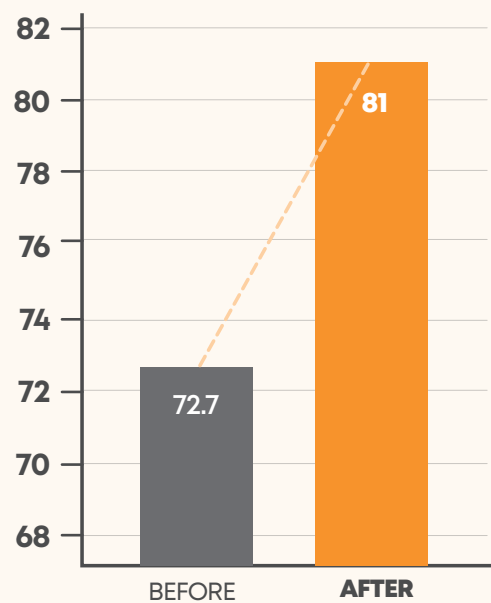


Figure 14: FACT-G Overall Score



**Sixteen participants (66%) reported that participating in the Cancer Survivor program made them feel more accepted for who they were.**





# Conclusion

As anticipated, the CSP demonstrated significant positive effects on participants' physical strength, aerobic endurance, flexibility, and overall health-related quality of life.

## Physical Strength and Endurance

Both lower and upper body strength improved considerably, as shown by statistically significant increases in sit-to-stand repetitions and bicep curls. Aerobic endurance also showed marked improvement, with all participants surpassing the high-risk threshold for the six-minute walk test by the end of the program.

## Flexibility

Lower body flexibility significantly improved, particularly for female participants, with most surpassing the risk zone threshold. While men showed some improvement, they remained in the risk zone, highlighting a need for continued focus on flexibility training for this group. Shoulder flexibility improvements were modest, and a large proportion of participants, particularly women, remained in the risk zone, likely influenced by prior medical conditions such as breast cancer.

## Physical Activity Levels

Self-reported physical activity levels increased, with a higher percentage of participants meeting national exercise guidelines. However, the improvements in moderate and vigorous exercise levels were not statistically significant, suggesting the need for further engagement strategies to sustain and enhance physical activity habits and reduce sedentary time.

## Health-Related Quality of Life (HRQOL)

Participants experienced statistically significant improvements in physical and emotional well-being, reflecting enhanced overall health and resilience. Functional and social well-being also improved, although these changes were not statistically significant. The overall FACT-G score, however, showed a significant positive change.

## Social Outcomes

The program fostered a strong sense of community, with most participants forming new friendships and connections with staff and volunteers, enhancing their social support network.

Overall, the CSP proved to be an effective intervention for improving participants' physical health, emotional resilience, and social connectedness. While gains in flexibility and physical activity levels suggest areas for further improvement, the program's overall success highlights the value of structured exercise and peer support in cancer recovery.

# Participant Testimonials

“As a recent Cancer survivor, I started the 12-week course offered at Wirac to help my physical and mental well-being. At my first session, I arrived on a walking stick to help my balance after having had seven falls while enduring chemo treatment.

With the help of our two wonderful instructors, I gained strength, balance and confidence and now I no longer require a walking stick...I consider myself a walking miracle.

I also particularly enjoyed the atmosphere of the room where participants were able to engage in different circuit exercises. Many thanks for your time, energy and planning with such a successful outcome.”

**(Participant, Warwick)**

“Just wanted to let you know that this course is well worth while to help those who have suffered this terrible disease.

It gives you the opportunity to get back into a physical wellbeing as well as meeting people who understand what you have been through. I have made some good friends through this course as well.”

**(Participant, Victoria Point)**

“A cancer diagnosis in March 2023 led to a year of intensive treatment involving surgery and chemotherapy. Some wonderful advances have been made in cancer care, however on completion of treatment I was left feeling exhausted, frail and had lost some muscle mass.

An appointment with Caroline from Achieve Exercise Physiologists led to my enrolment in your twelve week “Cancer Survivor” program. Having not been inside a gym since the 1980’s “leg warmers” era I had some trepidation.

However, I could not have wished for a better reintroduction to the world of exercise. Both Jai and Leslie were encouraging, positive and supportive.

Meeting fellow survivors certainly boosted our mental health and plans are already made for future coffee morning catchups. The 12 weeks are now behind me and the results are in! I not only feel like my life is back on track - the stats prove it – I am ready to fight back.

A big thank you to the warm and welcoming reception staff – first impressions do count. This program certainly compliments and hopefully remains an integral part of cancer care.”

**(Participant, Jamboree Heights)**

## Participant Testimonials Cont....

“...The Cancer Survivor sessions were helpful in guiding us to improve our flexibility and balance.

This has got us moving, and enabled us to keep active and enjoy life. [My partner] said he was impressed by your patience and good humour & was happy to improve to the extent he could get up from the floor unaided by the end of the program.”

**(Couple, Warwick)**

“I joined the above programme after three years fighting stage 4 cancer and major surgeries including chemotherapy and radiotherapy. I was a weak wreck!! Kody and the staff were friendly and welcoming, and it was a great step to socialising again especially with folks going through the same horrors.

The programme was so helpful, and I would recommend it to everyone. Gradually my strength returned and stamina and when Kody compared my notes from the beginning with the tests at the end the improvement physically was amazing.

It also helped my mental state as one becomes insular and institutionalised with so much time in hospitals and clinics. I was 81 when I started the programme, so age is no excuse!! Thank you to YMCA Victoria Point for a wonderful boost back to health.

**(Participant, Victoria Point)**

“As a cancer survivor of both cervical cancer and breast cancer during the last 12 months, I would like to take this opportunity to commend the program that Anne and Sam delivered for the last 12 weeks here in Warwick.

I honestly feel that this program was so beneficial to my strength and fitness needs as the program targeted my balance, core strength, and both upper and lower body. I feel more benefit and strength has been achieved from this program rather than the gym regime used previously.

The hormone therapy that I am on at the moment has left me with excruciating body pain. The combination of aqua, pilates/yoga and the fitness regime used has eased the pain dramatically and I will be forever grateful for this opportunity.

Anne and Sam both went above and beyond to deliver the program suitable to all our needs.

The professionalism displayed by Anne and Sam was second to none, and not to mention the friendships formed during the 12 weeks have left me with more confidence, strength and self-worth. The program used by Anne was perfect for my specific needs.”

**(Couple, Warwick)**



## References

- Adlard, K. N., Jenkins, D. G., Salisbury, C. E., Bolam, K. A., Gomersall, S. R., Aitken, J. F., Chambers, S. K., Dunn, J. C., Courneya, K. S., & Skinner, T. L. (2019). Peer support for the maintenance of physical activity and health in cancer survivors: the PEER trial - a study protocol of a randomised controlled trial. *BMC cancer*, 19(1), 656. <https://doi.org/10.1186/s12885-019-5853-4>.
- Australian Government Department of Health and Aged Care (2021). Physical activity and exercise guidelines for adults (18 to 64 years). [online] Australian Government Department of Health and Aged Care. Available at: <https://www.health.gov.au/topics/physical-activity-and-exercise/physical-activity-and-exercise-guidelines-for-all-australians/for-adults-18-to-64-years>.
- Australian Journal of General Practice. (2020). Clinical Oncology Society of Australia position statement on cancer survivorship care. [online] Available at: <https://www1.racgp.org.au/ajgp/2019/december/clinical-oncology-society-of-australia-position-st>.
- Campbell, K. L., Winters-Stone, K. M., Wiskemann, J., May, A. M., Schwartz, A. L., Courneya, K. S., Zucker, D. S., Matthews, C. E., Ligibel, J. A., Gerber, L. H., Morris, G. S., Patel, A. V., Hue, T. F., Perna, F. M., & Schmitz, K. H. (2019). Exercise Guidelines for Cancer Survivors: Consensus Statement from International Multidisciplinary Roundtable. *Medicine and science in sports and exercise*, 51(11), 2375–2390. <https://doi.org/10.1249/MSS.0000000000002116>.
- Campbell, N. J., Barton, C., Cutress, R. I., & Copson, E. R. (2023). Impact of obesity, lifestyle factors and health interventions on breast cancer survivors. *Proceedings of the Nutrition Society*, 82(1), 47-57.
- Cancer.org. (2019). Physical Activity and the Person with Cancer. [online] Available at: [https://www.cancer.org/cancer/survivorship/be-healthy-after-treatment/physical-activity-and-the-cancer-patient.html?utm\\_source=chatgpt.com](https://www.cancer.org/cancer/survivorship/be-healthy-after-treatment/physical-activity-and-the-cancer-patient.html?utm_source=chatgpt.com) [Accessed 31 Jan. 2025].
- Chan, R. J., Agbejule, O. A., Yates, P. M., Emery, J., Jefford, M., Koczwara, B., ... & Nekhlyudov, L. (2022). Outcomes of cancer survivorship education and training for primary care providers: a systematic review. *Journal of Cancer Survivorship*, 1-24.
- Lavery, J. A., Boutros, P. C., Scott, J. M., Tuomas Tammela, Moskowitz, C. S., & Jones, L. W. (2023). Pan-Cancer Analysis of Postdiagnosis Exercise and Mortality. *Journal of Clinical Oncology*, 41(32), 4982–4992. <https://doi.org/10.1200/jco.23.00058>
- Niedzwiedz, C.L., Knifton, L., Robb, K.A. et al. Depression and anxiety among people living with and beyond cancer: a growing clinical and research priority. *BMC Cancer* 19, 943 (2019). <https://doi.org/10.1186/s12885-019-6181-4>

## **Y QUEENSLAND**

**Phone:** 07 3253 1700

**Email:** [brisbane@ymcaqueensland.org.au](mailto:brisbane@ymcaqueensland.org.au)

**Visit:** 107 Brunswick St, Fortitude Valley QLD 4006

