

Evaluation of the pilot PaddleOn cancer rehabilitation programme:  
Report to the New Zealand Breast Cancer Foundation



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## Executive Summary

The increasing amount of research literature associating exercise with increased wellbeing and decreased morbidity and mortality after cancer supports the need for further development of targeted exercise programmes. This evaluation presents data gathered from a pilot standup paddle boarding programme developed to meet the exercise needs for breast cancer patients following their initial surgery and treatment. Participants were screened prior to enrolment to ensure that they were well and strong enough, with adequate balance. Those still receiving adjuvant therapy were able to apply.

Overall, the participants reported improvement in a range of quality of life measures including those relating to fatigue, mood and memory, and improvements in body and general confidence, strength and balance. The percentage of women reporting their overall health and quality of life in the previous week to be 'Excellent' approximately doubled between the start and finish of the PaddleOn programme. Skill development relating specifically to paddle boarding was rated positively, as was the actual experience of learning something new. An overall increase in exercise and decrease in body weight was also reported. The overwhelmingly positive response included comments such as being more interested in getting fit, wanting to continue paddle boarding and the desire to recommend PaddleOn to friends who had experienced breast cancer. Feedback from participants was particularly positive with respect to learning new skills from very good teachers, the enjoyment of being out on the water and how relaxing that was, and the support derived from learning in a group of women who had also experienced breast cancer.

## Background

There is an increasing body of literature indicating that exercise is associated with improved outcome after treatment for cancer. Specifically, exercise during recovery from cancer has been associated with reduced fatigue <sup>(1)</sup>, improved mental health and reduced depression, and improved executive function including memory and attention <sup>(2)</sup>, lower body fat, improved bone density and reduced arthralgia <sup>(3, 4)</sup>.

The exercise most commonly associated with breast cancer has been dragon boating, which was made popular for women after breast cancer as it provides a "strenuous, repetitive upper body activity that projects a visible message to all people with breast cancer" (p376) <sup>(5)</sup>. Despite its wide appeal and popularity, for logistical reasons it is not accessible to all patients after breast cancer. However, the increasing popularity of paddle boarding in New Zealand, and the possibility of taking part in either a small group or individually, suggests it may be a preferable alternative for many women after breast cancer. Ongoing commitment to

"I was so grateful for the opportunity and loved the experience. I would really like to do more paddle boarding, and while people suggest we can carry on as 'normal people', not cancer survivors, I felt a sense of safety and understanding amongst the group that was really reassuring and something that is hard to find post treatment."

exercise programmes can be problematic for cancer patients, especially for those suffering from fatigue<sup>(1)</sup>. We anticipated that a novel and popular exercise, such as paddle boarding, would be likely to enhance engagement in the exercise programme.

A high quality of teaching and understanding of the limitations that may result from cancer treatment required the course to be taught by a suitably qualified paddle board instructor in conjunction with physiotherapists trained in fitness for cancer rehabilitation.

### Aim

The aim of this research was to evaluate the health and psychosocial outcomes of an eight week paddle boarding programme for women who had undergone treatment for breast cancer.

“My fitness and confidence have definitely improved. The anxiety I'm feeling has just started as I am heading back to work after a term off and have been warned by others that the workload has increased ..... When you are out on the water all cares disappear and it starts your day incredibly.”

### Methods

Women who expressed interest in participating in the pilot PaddleOn programme were initially screened by their PINC physiotherapist to determine whether their strength, balance and overall health was sufficient for them to safely take part in the programme. Participants were told that this was a pilot programme designed to assess the efficacy of paddle boarding in breast cancer recovery. Written informed consent was gained from all participants.

The programme was divided into eight modules, each with a specific rehabilitation and learning focus: balance and posture, shoulder and thoracic flexibility, core stability, shoulder strengthening and stability, arm strength and turnover, dynamic balance and turns and cardiovascular fitness and endurance.

The programme was run in 7 different groups, with a maximum group size of 10 participants. These groups used four different locations which were chosen because of calm water with no significant currents and a nearby alternative location such as a lake or estuary which could be used in windy weather.

Data on health, quality of life and exercise engagement was gathered by participant-completed questionnaire, sent via Survey Monkey, both before and after completing the PaddleOn programme. The follow-up questionnaire also included questions focused on aspects of paddle

boarding. Participants who had difficulty completing the questionnaire online completed an identical paper questionnaire, with the answers then entered manually.

Likert scales were used to gather data on exercise engagement, Quality of Life <sup>(6)</sup> and specific paddle board related questions. Physical and psychological health questions were a 1 – 9 scale, Paddle boarding a 1 – 5 scale, and Quality of Life a standard 1 – 4 scale. Data from Likert scales were combined into positive and negative responses, e.g ‘very true’ plus ‘true’ and ‘not very true’ plus ‘not at all true’. The percentage of positive responses to each question before and after PaddleOn was compared to evaluate any differences.

Participants were asked to provide further comment, including in the after PaddleOn assessment to say what they like most and least about the course.

## Results

Pre PaddleOn data was collected from 62 women. Post assessment questionnaires were received from 58 (94%) women. Of those enrolled, 54 (87%) were diagnosed with breast cancer in the last 5 years and the remaining 8 within the past 5 – 11 years.

“Being on the water at 7:15am was magical. Plus the guidance of trained instructors and meeting the other ladies and getting to know each other. I feel way more confident now and I'm keen to continue paddle boarding as a form of exercise.”

Within this pilot study group 24 (38%) women had a lumpectomy, 43 (70%) mastectomy, 7 (11%) bilateral mastectomy, 37 (60%) chemotherapy, 35 (56%) radiotherapy and 31 (50%) breast reconstruction. At the start of PaddleOn 47 (82%) had done no paddle boarding and 9 (16%) had done a little. Attendance was good with 22 (39%) attending all 8 sessions, 23 (40%) 6 or 7 sessions, with the remainder attending fewer sessions for a range of reasons including health, changes in work schedules and school holidays.

Since diagnosis and treatment 32 (52%) women reported weight increase and 13 (21%) weight decrease. In the 2 months since starting PaddleOn 3 (8%) women reported weight increase and 14 (41%) reported weight decrease.

Overall, the amount of exercise women did in the 2 months of the PaddleOn programme was greater than prior to their breast cancer diagnosis, with the number of women who reported exercising quite a lot or frequently increasing from 30 (48%) to 33 (57%), and those who reported exercising ‘not much’ decreasing from 5 (8%) to 1 (2%).

Positive changes were noted in the series of questions relating specifically to the benefits anticipated from the PaddleOn programme and prompted by the question “Thinking about my health now, I would like...”, with percentages decreasing (indicating improvement) with respect to feeling stronger, improving balance, spending more time outside, being able to feel more relaxed and receiving more support from people who understand breast cancer (Fig. 1).

Improvements in psychological wellbeing were also recorded with an appreciable decrease after PaddleOn in the percentage of participants reporting having problems with fatigue, feeling less confident about their bodies, feeling less confident in general, feeling down, and having difficulty sleeping (Fig. 2).

Questions relating to Quality of Life were included in the data collection. Few participants report problem pertaining to physical symptoms such as nausea and vomiting either before or after the programme. However, in answer to the question “How would you rate your overall health during the past week?” before PaddleOn 7 (11%) women rated their health as Excellent, while after PaddleOn this number had increased to 14 (25%). In answer to the question: “How would you rate your overall Quality of Life during the past week?” before PaddleOn 10 (16%) rated their quality as Excellent while after PaddleOn 17 (30%) rated their quality as Excellent. Specific areas of Quality of Life which showed notable decreases in the percentage of participants reporting problems after PaddleOn were the need to rest, feeling weak, tired, irritable and depressed and having difficulty remembering things (Fig. 3).

The questions relating specifically to how participants felt about aspects of paddle boarding showed that 91% chose ‘Very True’ or ‘True’ for the statement “I loved the whole course”, 98% for “I learnt a lot of new skills”, 96% for “I would recommend this course to a friend”, 84% for “I would like to do more paddle boarding”, 81% for “I enjoyed the social support of the group”, 82% for “Being on the water allowed me to unwind”, 70% for “PaddleOn has made more interested in getting fit”, 61% for the statement “PaddleOn has improved my confidence”, 84% for “PaddleOn has improved my balance”, 67% for “PaddleOn has improved my strength” and 53% for “PaddleOn has improved my flexibility” (Fig. 4).

Prior to PaddleOn 40 (65%) women felt ‘somewhat’ to ‘very’ relaxed in the water, while after PaddleOn this number had increased to 43 (74%).

“I found that when I have a paddle session before work I have more energy and a much more positive feel for the day. I also seem to have a real confident buzz from it as I constantly surprise myself that I can do something I thought was too hard for me. I loved being out on the water early and enjoying the sunrise and peace at that time.”

Fig 1: Percentage of group participants before and after PaddleOn who responded 'Quite a lot' or 'Very much' to questions about specific aspects of health and activity which followed the prompt "Thinking about my health now, I would like..."

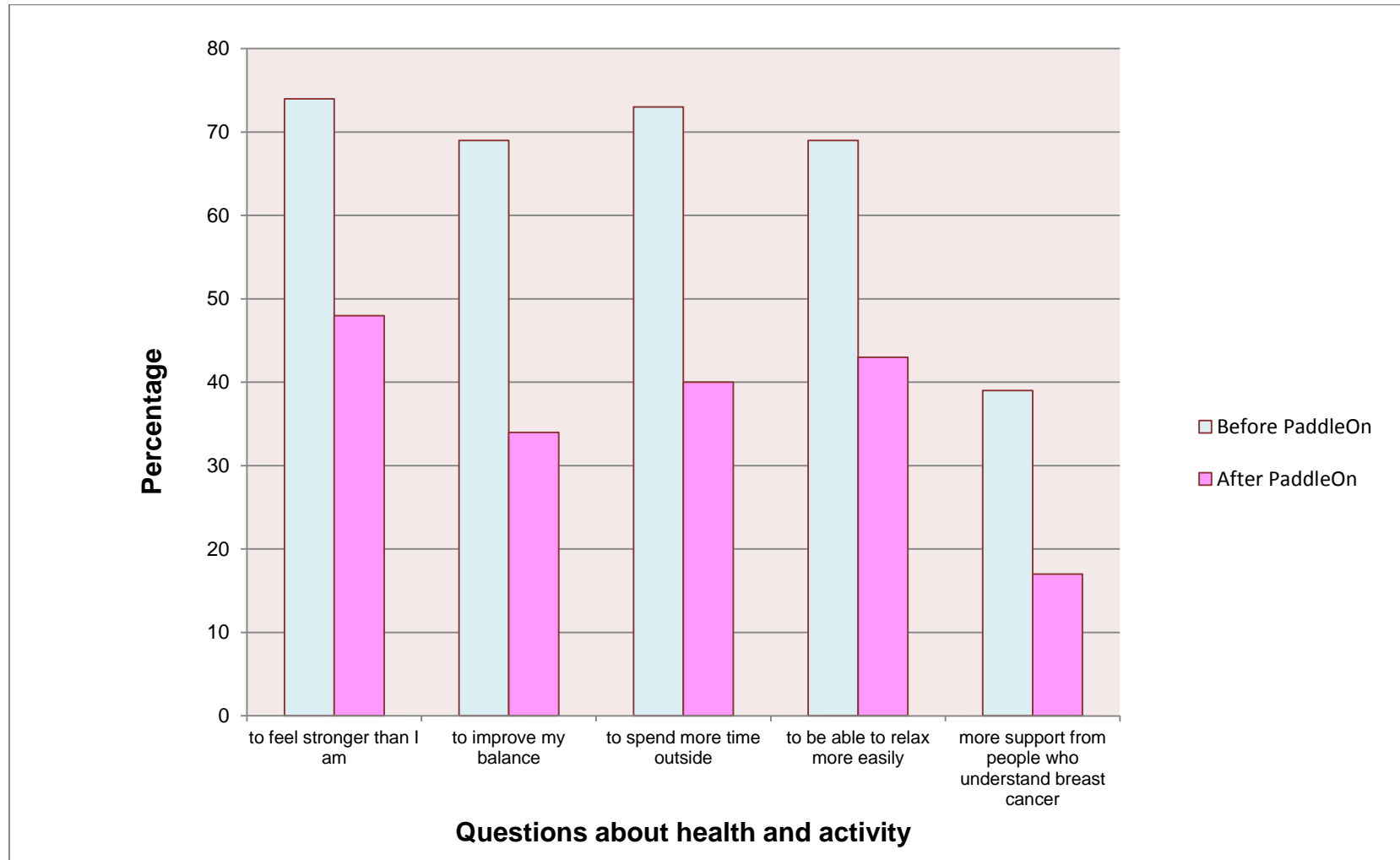


Fig 2: Percentage of group participants before and after PaddleOn who responded 'Quite a lot' or 'Very much' to questions about psychological aspects of health and wellbeing

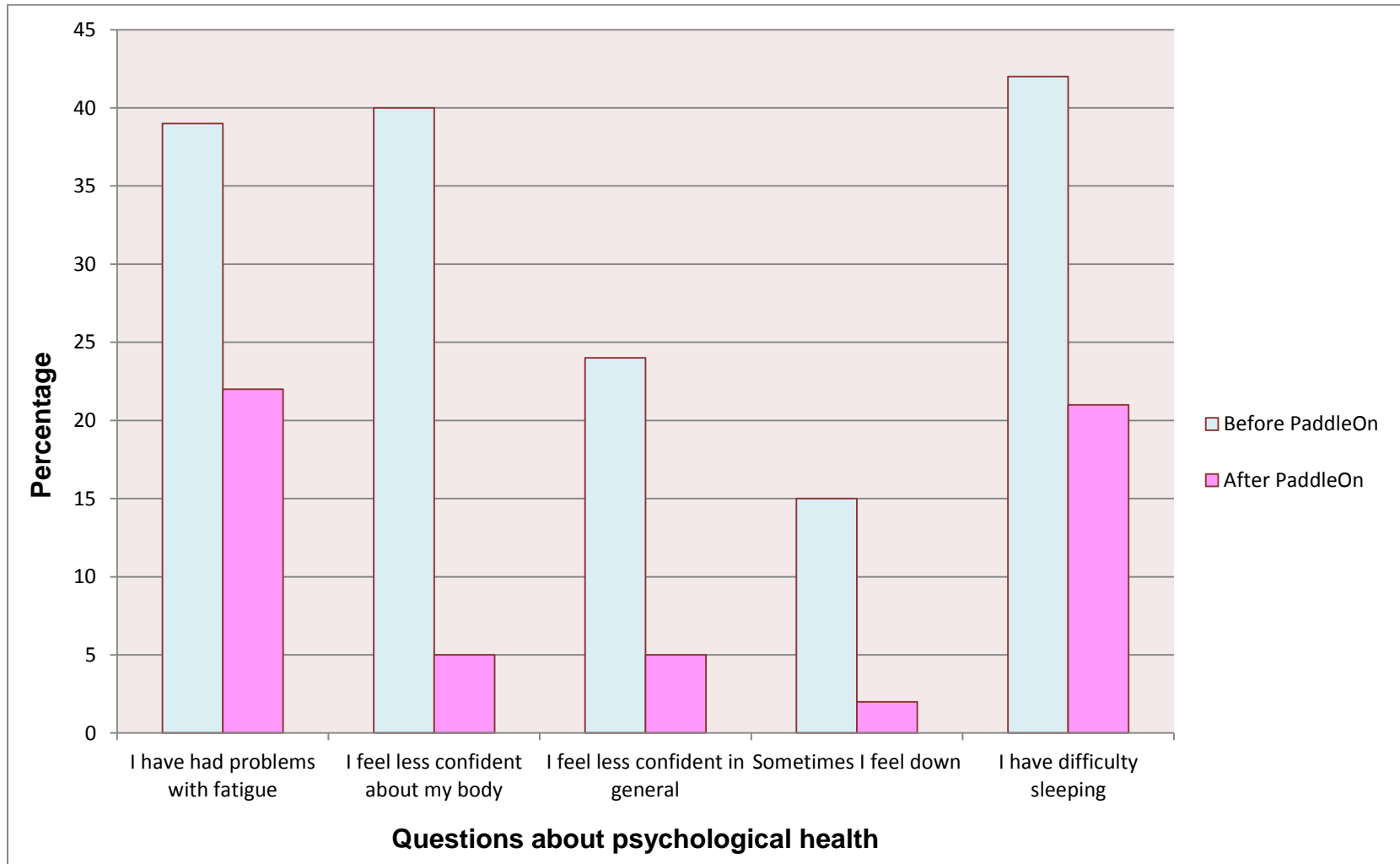


Fig 3: The percentage of participants reporting problems on a sample of Quality of Life questions in the week prior to answering the questionnaire before and after PaddleOn

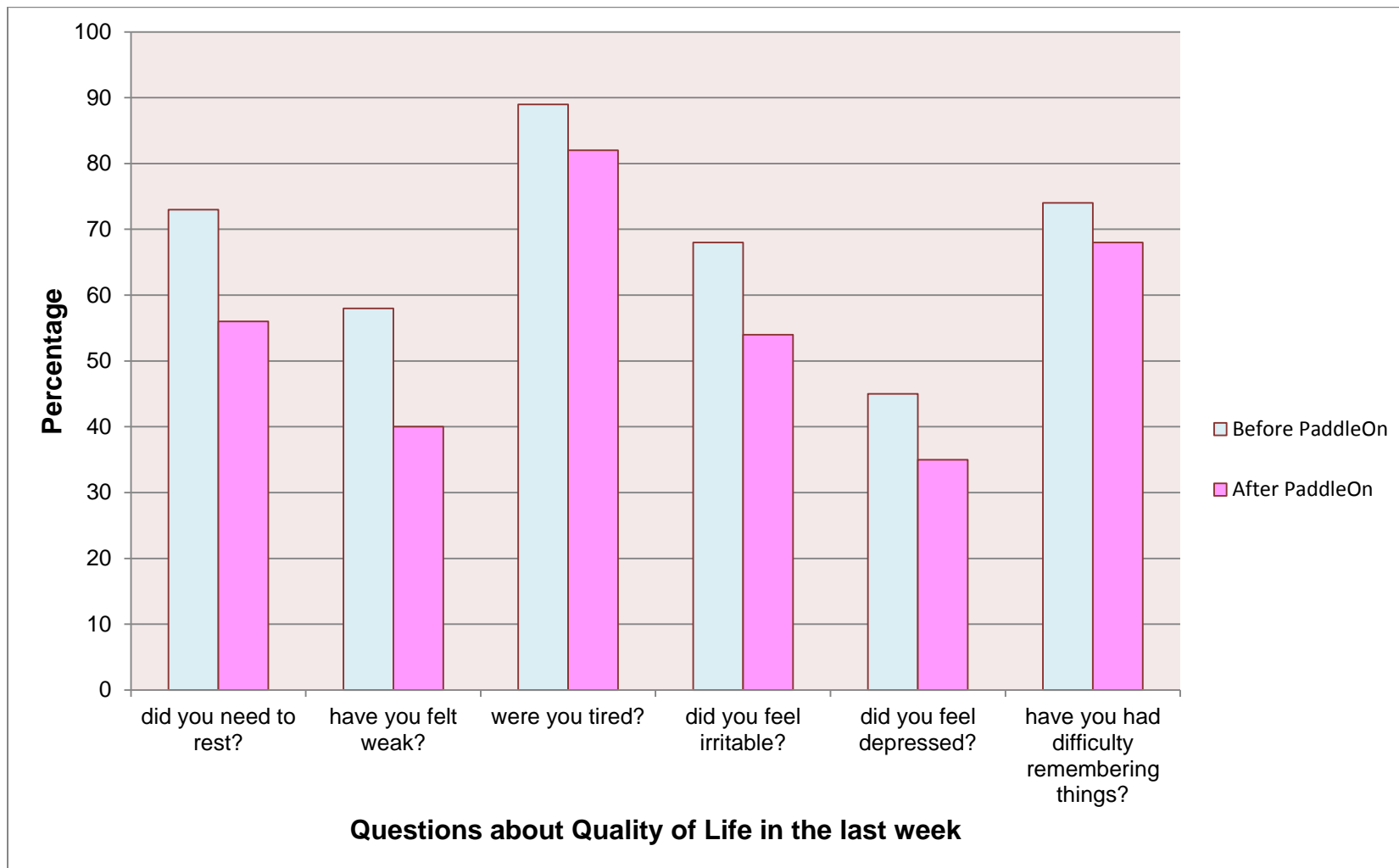
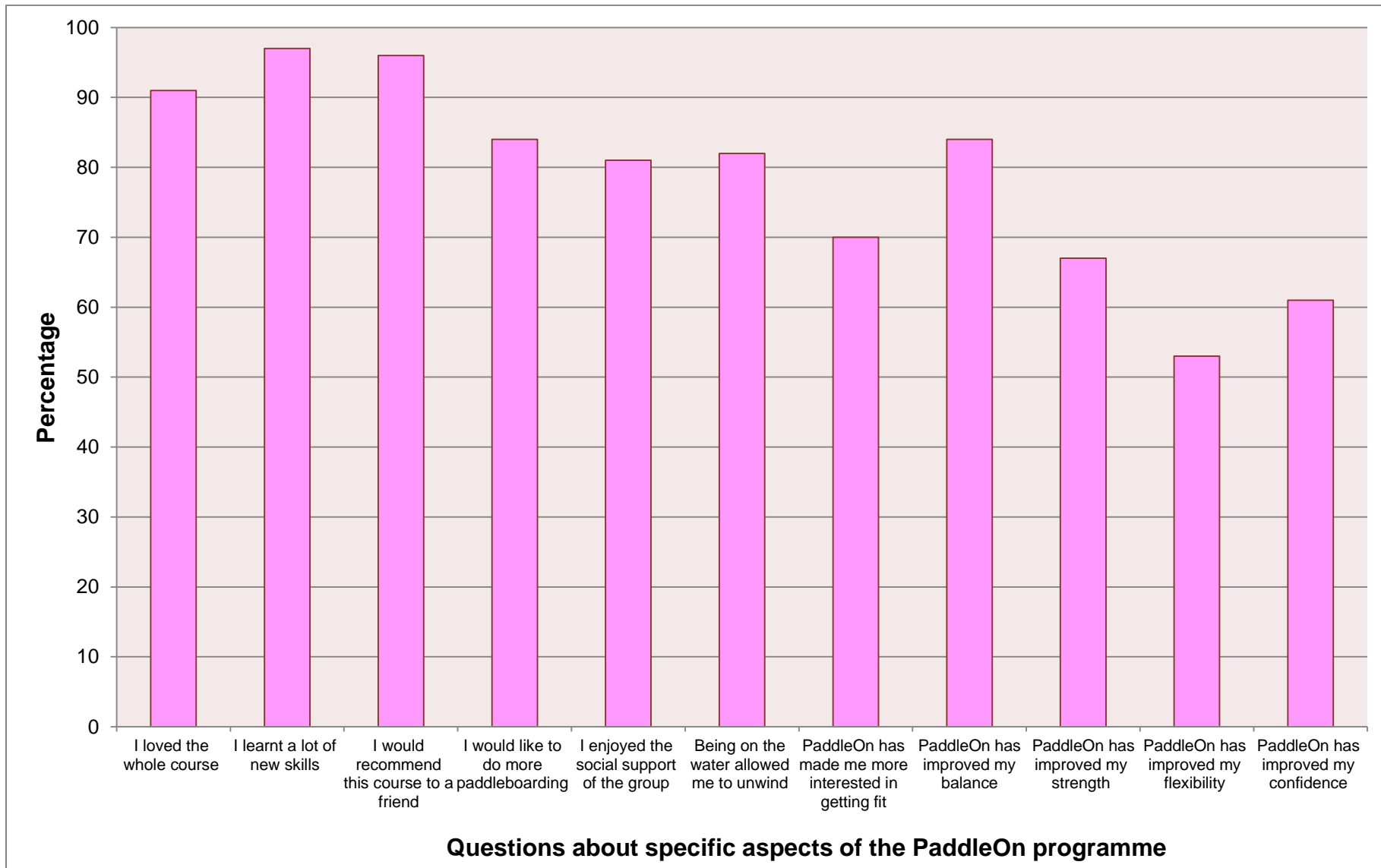




Fig 4: Percentage of group participants who responded 'Very True' or 'True' to questions about specific aspects of PaddleOn



## Discussion and recommendations

The PaddleOn pilot programme was reported by the participants to be a very positive experience, with a high completion rate, which appears to be related to the enjoyment of learning new skills and experiencing new challenges, in comparison with some other reported outcomes of exercise programmes that have had poor compliance <sup>(3)</sup>. The amount of weekly exercise undertaken by participants increased overall and 41% reported weight loss, which is potentially a valuable health change as 52% reported a weight increase since cancer diagnosis and elsewhere this has been linked to an increased risk of cancer recurrence, overriding the benefits of regular physical activity <sup>(3,7)</sup>.

The main change in Quality of Life measures were an improvement in mood, strength and memory, and decreased tiredness, which is in accordance with previous reports on exercise and cancer patients from elsewhere <sup>(2)</sup>. Other reports of exercise programmes measuring changes in Quality of Life ran for longer periods of time, including up to 12 months so these changes after 8 weeks are a positive indication of what can be achieved by an engaging exercise programme. Executive function and memory loss as a result of cancer treatment, primarily chemotherapy has been reported as a serious side effect by many women <sup>(8)</sup>. We found no other reports of notable improvements after such a short intervention so these reported improvements are interesting and underscore the need for further research. Many of the standard quality of life measures relate to health issues during earlier stages of treatment (eg nausea and vomiting) and these ratings didn't change appreciably during the 8 weeks of PaddleOn. This is not surprising as many of these items had not been a concern to participants as they were already through the initial stages of treatment.

Many of the participants commented on the increased sense of confidence gained from learning new skills and the enjoyment specifically related to learning paddle boarding. An essential component of this was the well trained instructors, and this was commented on by many participants. Another aspect of the positive responses was the opportunity to be on the water, particularly for those women who were there for sunrise. Many of the participants commented on the support and confidence they experienced being in a group of other women who had also experienced breast cancer.

"I loved being on the water and getting to know other woman who have experienced breast cancer. I felt relaxed and free on the water. Was a great way to start my day."

## Constructive feedback

Suggestions for changes to the programme all related to logistical issues such as timing of classes within the day and the elapsed time of the course for women with families and who had school holidays to consider. Weather is an inescapable reality for this type of activity and morning classes are generally likely to provide the calmest sea with less sea breeze. However,

this is not always an easy time to commit to for women with school aged children or who work. Our response to these suggestions is to plan for future courses within Auckland to be provided by the trained physiotherapist at a range of times and different days and for any enrolled PINC clients to sign up for any one of the courses so that they can find a class time and day best suited to their needs. Additionally, consideration is being given to running PaddleOn with classes twice a week, rather than once as was the case with this pilot programme, so that the elapsed time between start and finish could maximize the summer weather and fit between school holidays.

A further possibility being considered is a combined first day, probably in the weekend for all of the participants to get together for a 'fun day' of first time on the board, with lots of practice falling off the board and getting back on to relieve nerves about this part of the learning.

To satisfy the strong demand for more classes we are also considering a range of options for providing ongoing learning and group development for graduates of the PaddleOn programme.

### Conclusion

A positive outcome of the PaddleOn programme appears to be not only the reported increased strength, balance and flexibility but also psychological aspects such as increased confidence and overall Quality of Life, and reduced tiredness and fatigue. The positive outlook that many women had at the end of the programme resulted in a high percentage reporting that PaddleOn had made them more interested in getting fit. That an eight week programme can result in such a wide range of positive outcomes provides encouragement for continuing the programme as a means to support improved well-being for women after breast cancer.

"It was a WONDERFUL course and experience. I'm grateful to have been a part of it and I think it's a great course to be offering to survivors of cancer. I loved that we learned a new technique each week.....it felt like we were truly advancing in the skill and not just getting on a board and paddling. The course was well designed.....thank you xxxx"

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Sunrise Step Paddle Boarding Legs Loved

Challenge Learning a New Skill

Mastered the Technique **Group** Great Instructors

Breast Cancer Able Confidence

New Sport **Getting** Learning a New Activity

Enjoyed Encouraging Morning Pushed Opportunity

Text analysis - 21 most common words in answer to the question "What did you like best about PaddleOn?"