

*My biggest achievement, thanks to the programme, is the fact that I can lift my children again! They are 6 and 5. The delight on their faces that I could give them a cuddle while standing was breathtaking.*

*This course has been a blessing. Meeting people in the same situation, getting support and understanding. The encouragement we gave each other. It has changed my life for the better.*

**The successful implementation of a pilot physical activity programme for breast cancer survivors in Ireland.**

Authors: Grant, T., CSTAR, the HRB Centre for Support and Training in Analysis and Research

Murphy, M., The Irish Cancer Society

Cotter, E., The Irish Cancer Society

Crispino, G., CSTAR

and Vance, J., The Irish Cancer Society

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## **Introduction**

In 2010-2011, the Irish Cancer Society began a new programme to assess how an exercise programme would affect the physical health and quality of life of breast cancer survivors. A growing number of studies indicate that both physical activity and strength training can improve the overall health and attitude of people recovering from breast cancer. These studies have shown that by being physically active after a breast cancer diagnosis can help reduce the risk of a recurrence by up to 50%<sup>1</sup>

Research studies have shown that cardiovascular and resistance training are an important part of living beyond cancer. Over 20 studies have looked at how exercise programmes can affect the physical well-being of cancer survivors<sup>2</sup>. Also these studies have shown how resistance training is an important part of the healing process for breast cancer survivors. Over 500 women took part in these studies around the world and there were no adverse effects reported.

## **Aims**

In response to this evidence, the Irish Cancer Society decided to pilot a physical activity programme for breast cancer survivors. The programme aimed to increase the overall fitness and health of the women, increase their understanding of the role of exercise in prevention of recurrence of cancer, as well as overcome their fears in relation to resistance training. An additional aim of the programme was to empower the participants to be able to continue to develop and improve their fitness beyond the initial programme and continue exercising throughout their life.

## **How did the programme work**

The Irish Cancer Society appointed an Exercise Specialist, Ms Marie Murphy to design a pilot exercise programme for breast cancer survivors. The Irish Cancer Society recruited 48 breast cancer survivors through the Irish Cancer Society's Annual National Breast Cancer Conference and through the ARC Cancer Support Centre. The women ranged in age from 36 to 72 years of age and 15 of the participants either had or were at risk of

lymphoedema. Lymphoedema is a swelling that can occur in the arm if the lymph nodes have been removed or damaged during surgery or the treatment of breast cancer<sup>3</sup>. The programme was 15 weeks long and consisted of a cardiovascular walking programme and supervised resistance training classes.

The walking programme was based around the concepts of METs (metabolic equivalents of energy expenditure). METs measure how hard your body is working at a given time and how much oxygen your body uses especially when exercising. Research has shown that achieving 9 MET/hour per week can help reduce your risk of a breast cancer recurrence and improve quality of life<sup>4</sup>. Each woman learnt how to use the MET/hour as a way of measuring their cardiovascular exercise. Over the 15 weeks the participants increased the amount of time and the pace at which they walked to achieve this goal of 9 MET/hours per week.

In the resistance training programme participants performed 10 exercises twice a week using light weights to develop the ten major muscles of the upper body. Participants attended a group supervised class once a week and completed the second session in their own time. Weight training sessions allowed the exercise specialist to ensure that each participant learned the proper technique for lifting light weights in a safe way. The training took place in the Phoenix Park, the Irish Cancer Society and the ARC Cancer Support Centre in Eccles St, Dublin 7.

## **Results**

A quantitative and qualitative evaluation was carried out to see if the programme had an impact on the physical fitness and health of the breast cancer survivors taking part. The programme also looked to see if being physically active would have any impact on the quality of life of the women involved.

The statistical analysis showed that the overall fitness of the women taking part significantly improved with the programme. In order to evaluate the effect of the programme the Irish Cancer Society looked at the MET/hours per week that the

participants achieved, their body fat percentages, the time they took to walk a mile and the amount of weight they lifted in the resistance training classes over the 15 weeks of the programme.

Each participant in the programme completed a fitness test at the start of the programme. This consisted of a walking a fixed mile as fast as they could. In the first week the group had an average walking mile of 13 mins and 30 seconds. After 15 weeks of training this had improved to 12 minutes and 23 seconds.

Throughout the programme each participant recorded and submitted their walking training times per week to the coach. At the start of the programme the women walked an average of 11.36 MET/hours per week. At the end of the 15 weeks the women walked an average of 19.36 MET/hours per week.

Body fat percentages were measured at the start of the programme and at 5 weeks intervals throughout the programme. At the first measurement the group had an average body fat percentage of 33.7%. At the end of the 15 weeks the group had an average body fat of 31.7%.

The resistance training classes were analysed to investigate if there was any improvements over the 15 weeks. The average weight lifted in the classes increased from 364 pounds in the first week to over 3126 pounds in week 12. During these 15 weeks there were no reports of adverse events such as flare-up of lymphoedema.

A participant evaluation was carried out to investigate how the programme impacted on the general well-being and overall satisfaction with the programme. Using the World Health Organization Quality Of Life questionnaire (WHO-QOL) it was found that the participants ended the study with a positive outlook.

After the programme over 75% of the participants were satisfied or very satisfied with their health. Less than 15% were dissatisfied and none were very dissatisfied with their

health. When asked if their well being had improved during the course of the programme, two-thirds of the participants commented on increased physical fitness as an aspect of their improved well being. Additionally, when asked what things participants were able to do after the programme that they were not able to do before the women reported increases in strength, stamina and flexibility. Responses mentioned dropping dress sizes, returning to tennis, lifting and walking with children as benefits of the programme.

Over a third of responses included comments of improved confidence, positive attitude and mood, and increased energy levels. Most heartwarming of the responses were the comments highlighting the improved relationship with children and grandchildren. The comments included spending more time with children, doing more activities with family, and being able to spend longer stretches of time with loved ones. The comments also demonstrated the impact the programme has on the loved ones of participants. Participants remarked that the delight and joy was apparent on the faces of their children as they could lift them and cuddle with them while standing. Clearly the programme is having an impact on the physical well-being and personal attitudes to physical well-being such as confidence and positive mood among participants of the programme.

A surprising benefit of the programme was that participants consistently commented that the programme was successful because of the networking and social function of exercise groups. Specifically the participants discussed how meeting like-minded people made the experience more meaningful. The bonding experience was strong enough that many participants plan to continue meeting and walking to maintain the friendships they have developed. The support network provides encouragement and improves motivation. More importantly, the responses also highlighted how the improvements in the physical health were as a result of the social aspect of the programme

The programme also improved the participants' general outlook on life. In some cases completely reversing how the participants saw themselves and leading to a more enriched and engaged life experience. One participant commented that prior to the programme,

they ‘thought of themselves as handicapped’. After the programme, participants talked of being more positive, ‘more hopeful about recovery’, ‘looking forward much better’, and simply being more energetic. The participants found themselves returning to a normal lifestyle and no longer being held back.

The implementation of an exercise programme by the Irish Cancer Society for breast cancer survivors which combined walking and resistance training was a great success. Fitness results exceeded expectations of the Irish Cancer Society with the group achieving much more than the recommended 9 MET/ hours per week. There were no adverse events as a result of the programme and there were no reported flare ups of lymphoedema amongst those with or at risk of the condition. In fact the physical well-being, emotional well-being and overall quality of life of the participants improved greatly. The participants reported that the only shortcoming of the programme is that it is a pilot programme and had to come to an end. Many called for more programmes and more extensive programmes. The next challenge for the Irish Cancer Society is to make the programme available on a wide reaching basis across the country.

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<sup>1</sup> Schmitz, K, Courneya, K, Matthews, C, et al. American College of Sports Medicine Roundtable on Exercise Guidelines for Cancer Survivors. *Medicine & Science in Sports & Exercise*. July 2010; 42 (7) 1409-1426.

<sup>2</sup> DeBacker, I.C., Schep, G., Backx, F.J., Vreugdenhil, G. and Kuipers, H. (2009). Resistance training in cancer survivors: A systematic review. *International Journal of Sports Medicine* 30, 703-712.

<sup>3</sup> [http://www.cancer.ie/pdf/Types\\_of\\_Cancer/Patient\\_Information\\_factsheet\\_Arm.pdf](http://www.cancer.ie/pdf/Types_of_Cancer/Patient_Information_factsheet_Arm.pdf)

<sup>4</sup> Michelle D. Holmes, MD, DrPH; Wendy Y. Chen, MD; Diane Feskanich, ScD; Candyce H. Kroenke, ScD; Graham A. Colditz, MD, DrPH Physical Activity and Survival After Breast Cancer Diagnosis; *JAMA* 293(20):2479