



## Breast Cancer Survivors: Rehabilitation and Quality of Life

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### Abstract

**Background:** Breast cancer is the most common neoplasm in women, and it is worth highlighting not only the aspects of the treatment itself, but also its psychological effects on the patients. Currently, breast cancer survivors represent a significant population, and a considerable number of them have developed heart failure due to oncologic treatment. Numerous damages may occur from cancer treatments, besides the cardiovascular effects. These women may present sarcopenia and osteoporosis, depression, anxiety, sexual dysfunction, sleep disorders, cognitive problems, fatigue.

**Development:** Exercise interventions are well established as safe and beneficial for individuals receiving cancer [10]. The credibility of a possible role of exercise in improving quality of life, reducing the risk of relapse, and increasing survival in cancer patients is increasing today. Physical activity may reduce risk of cardiovascular disease, which is a major cause of death for many people who have survived cancer.

**Conclusion:** Regarding the benefits of physical exercise, there is no doubt that in patients undergoing oncological treatment, as well as in cancer survivors, it contributes significantly, improving the response to treatment and reducing the adverse effects of the therapy in question.

**Keywords:** Breast Cancer; Cancer Survivors; Physical Activity

### Introduction

The growing advance in oncologic treatments with new drugs, diagnostic techniques, radiotherapy and surgery has allowed cancer patients to survive. In this population of survivors, we observed in a subgroup the occurrence of sequelae resulting from treatment as cardiovascular damage.

Some adverse effects to the heart may occur during the treatment itself and often compromise the antineoplastic treatment. In this context, developed expertise in cardiologists who

attend these individuals, who sought strategies for prevention and treatment of these adverse effects, allowing patients to complete their oncological treatment [1].

Breast cancer is the most common neoplasm in women, and it is worth highlighting not only the aspects of the treatment itself, but also its psychological effects on the patients. Currently, breast cancer survivors represent a significant population, and a considerable number of them have developed heart failure due to oncologic treatment.

An important fact to consider is that the 5-year survival rate of these women from their diagnosis at an early stage has increased considerably. In 1990 it was 79% and in 2020 it reached an average survival of 90% [2]. Antineoplastic therapies are associated with several direct cardiovascular effects such as myocardial toxicity, ischemia, hypertension, and arrhythmias. Its incidence induced by oncological treatment varies widely, depending on the specific therapy, time of treatment, and especially the presence of underlying comorbidities. In a review conducted in the United States, it was observed that women who survived breast cancer showed a significant increase in the risk of death from CVD [3].

These results have significant implications for adult cancer survivors who face the cardiovascular effects of aging compounded by the detrimental impact of antineoplastic therapy [3]. The experience and impact of health-related quality of life (QoL) symptoms in this subgroup of women may differ from the experience of other patients with heart failure. Women with heart failure due to cardiotoxicity may require different interventions for symptom management [4]. Among the etiological factors related to cardiotoxicity in patients treated for breast cancer are anthracyclines, particularly doxorubicin, and trastuzumab, a monoclonal antibody indicated in HER2-positive patients. Anthracyclines promote structural myocardial dysfunction and trastuzumab, on the contrary, has a reversible effect on the myocardium in most cases [5]. Radiotherapy, particularly in the left breast, presents deleterious cardiac effects [1].

The most frequent and feared clinical manifestation is left ventricular dysfunction, leading to heart failure. However acute coronary syndromes, hypertension and cardiac arrhythmias may occur. It is known that heart failure can occur at any time after the initiation of cancer treatment [6,7].

### **Impact on the quality of life of survivors**

Numerous damages may occur from cancer treatments, besides the cardiovascular effects. These women may present sarcopenia and osteoporosis, depression, anxiety, sexual dysfunction, sleep disorders, cognitive problems, fatigue [8,9].

All these factors compromise the quality of life of them, compromising cardiorespiratory fitness, muscle strength and bone health. Obesity also appears as an aggravating factor, especially in

those women who are physically inactive. The evaluation of quality of life parameters has become an important criterion in women's cancer rehabilitation.

Physical exercise is an effective non-pharmacological strategy to minimize the harmful effects of cancer treatment, improving quality of life, cardiorespiratory conditioning, and muscle strength in these women [9].

Exercise interventions are well established as safe and beneficial for individuals receiving cancer [10]. The credibility of a possible role of exercise in improving quality of life, reducing the risk of relapse and increasing survival in cancer patients is increasing today. Physical activity may promote a favorable outlook for cancer biomarkers, normal energy balance and reduced risk of cardiovascular disease, which is a major cause of death for many people who have survived cancer [11].

### **Physical reconditioning of survivors**

To maximize the exercise's benefit, it is important to target subgroups of patients who respond best to a particular intervention. Several randomized trials have shown that demographic, clinical and personal factors, such as age, marital status, disease stage and type of treatment, determine the effects of exercise in cancer patients [12].

Optimizing its benefits also requires a better understanding of characteristics related to the intervention, including the timing and mode of application of the intervention, duration and dimensions of exercise, in terms of frequency, intensity, type and time. Those patients who refuse to engage in physical activity may be less motivated, however it is believed that this group would have more benefits [12].

Different types of exercise interventions have been studied in the cancer population and have resulted in general recommendations to increase overall physical activity and include resistance and aerobic exercise regimes in the therapeutic strategies [10,12]. Therapeutic exercise is recommended as a rehabilitation approach for individuals who have more specific functional impairments and disabilities. The results demonstrate a positive benefit of exercise interventions across a variety of cancer types using various forms of movement-based exercise. There was significant variability regarding the frequency, duration and intensity of commonly prescribed exercise regimens [11].

## Discussion

Despite the excellent results in the survival rates of women with breast cancer, there is already evidence that chemotherapy and radiotherapy should be considered an additional cardiovascular risk factor. Frequently, after cancer diagnosis patients cease their physical activities, gain weight and tend to become depressed, thus increasing their cardiovascular risk [13]. The occurrence of cardiovascular risk factors prior to the diagnosis of cancer, enhances these deleterious cardiac effects [6].

When we evaluate the cardiotoxicity in women undergoing treatment for breast cancer, we observe alarming data, it is estimated that a quarter of women undergoing this standard treatment will present ventricular dysfunction [16,17]. The symptoms resulting from this ventricular dysfunction will compromise the quality of life of these women, often leading to disability and a high risk of death. They will require different interventions to manage their symptoms [16-18].

Supervised physical exercise acts preventively and therapeutically, reducing pre-existing comorbidities and improving cardiorespiratory fitness, strength, balance, blood pressure levels, and also promotes increased bone mass, which is compromised in these women due to cancer treatments [18]. In addition to cancer therapy, it usually promotes a better efficacy of the treatment itself, as well as maintenance of physical fitness, prevention of cardiovascular events, muscle loss, fat gain, and deterioration of QoL. Exercise usually aims to speed recovery, reduce fatigue, distress and the risk of developing chronic diseases or secondary cancers. It contributes to improved health and functional outcomes in the cancer population [19].

## Conclusion

Regarding the benefits of physical exercise, there is no doubt that in patients undergoing oncological treatment, as well as in cancer survivors, it contributes significantly, improving the response to treatment and reducing the adverse effects of the therapy in question.

However, lack of studies on the subject limit which exercises are most appropriate and at what moment they should be started in order to achieve concrete benefits and with applicable protocols.

## Bibliography

1. Bovelli D., *et al.* "Cardiotoxicity of chemotherapeutic agents and radiotherapy-related heart disease: ESMO clinical practice guidelines". *Annals of Oncology* 21.5 (2010): 277-282.
2. Siegel RL., *et al.* "Cancer statistics, 2020". *CA Cancer Journal of Clinic* 70.1 (2020): 7-30.
3. José Luis Zamorano. "The cancer patient and cardiology". *European Journal of Heart Failure* 22.12 (2020): 2290-2309.
4. Harrison JM., *et al.* "Cardiotoxic heart failure in breast cancer survivors: a concept analysis". *Journal of Advanced Nursing* 72.7 (2016): 1518-1528.
5. Eyigor S., *et al.* "Can yoga have any effect on shoulder and arm pain and quality of life in patients with breast cancer? A randomized, controlled, single-blind trial". *Randomized Controlled Trial Complement Therapies in Clinical Practice* 32 (2018): 40-45.
6. Cardinale., *et al.* "Strategies to prevent and treat cardiovascular risk in cancer patients". *Seminar on Oncology* 40.2 (2013): 186-198.
7. Ording AG., *et al.* "Comorbid diseases interact with breast cancer to affect mortality in the first year after diagnosis--a Danish nationwide matched cohort study". *PLoS One* 8.10 (2013): e76013.
8. Phillips SM., *et al.* "Objectively measured physical activity and sedentary behavior and quality of life indicators in survivors of breast cancer". *Cancer* 121 (2015): 4044-4452.
9. Speck RM., *et al.* "An update of controlled physical activity trials in cancer survivors: a systematic review and meta-analysis". *Journal of Cancer Survive* 4.2 (2010): 87-100.
10. Christina M Dieli-Conwright., *et al.* "Aerobic and resistance exercise improves physical fitness, bone health, and quality of life in overweight and obese breast cancer survivors: a randomized controlled trial". *Breast Cancer Research* 20.1 (2018): 124.
11. Schmitz KH., *et al.* "American College of Sports Medicine roundtable on exercise guidelines for cancer survivors". *Medicine and Science in Sports and Exercise* 42.7 (2010): 1409-1426.

12. Laurien M Buffart, *et al.* "Effects and moderators of exercise on quality of life and physical function in patients with cancer: An individual patient data meta-analysis of 34 RCTs". *Cancer Treatment Review* 52 (2017): 91-104.
13. Moore SC., *et al.* "Association of Leisure-Time Physical Activity With Risk of 26 Types of Cancer in 1.44 Million Adults". *JAMA Internal Medicine* 176.6 (2016): 816-825.
14. Chipperfield K., *et al.* "The impact of physical activity on psychosocial outcomes in men receiving androgen deprivation therapy for prostate cancer: A systematic review". *Health Psychology* 33.11 (2014): 1288-1297.
15. Harrison., *et al.* "Functional status and quality of life among breast cancer survivors with heart failure:- results of the Medicare Health Outcomes Survey". *Cancer Care* 25 (2017): 2463-2473.
16. Wadhwa D., *et al.* "Trastuzumab mediated cardiotoxicity in the setting of adjuvant chemotherapy for breast cancer: a retrospective study". *Breast Cancer Research and Treatment* 117.2 (2009): 357-364.
17. Walker LO and Avant KC. "Strategies for Theory Construction in Nursing, 5<sup>th</sup> edn". Pearson Prentice Hall, Upper Saddle River, NJ. Wenger N.K. (2002) Women, heart failure and heart failure therapies. *Circulation* 105.13 (2002): 1526-1528.
18. Frank W Booth., *et al.* "Lack of exercise is a major cause of chronic diseases". *Compressive Physiology* 2.2 (2012): 1143-1211.
19. Silvia Schutz., *et al.* "Different Methods of Physical Training Applied to Women Breast Cancer Survivors: A Systematic Review". *Frontiers in Physiology* 12 (2021): 639406.

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