

# Exercise's Impacts on the Capacity to Survive Breast and Gynecologic Cancer

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## Introduction

Physical activity is beneficial at all stages of survival and enhances physical functionality, cancer-related symptoms, and quality of life. Observational studies suggest that high levels of physical exercise may help improve cancer outcomes, such as survival, although further research is required. Exercise therapy for cancer patients must be evaluated in randomised controlled trials with survival rates as the main objective. This review's primary focus is on how physical exercise affects breast and gynecologic cancer survivorship based on the data that are currently available. It highlights the role of the clinician in encouraging physical activity, looks at specific prescription guidelines for exercise, and provides cancer survivors with useful resources.

## Exercise's role in enhancing quality of life

Physical activity improves physical functionality, cancer-related symptoms, and quality of life at all phases of survival [1]. High levels of physical activity may aid with cancer outcomes, such as survival, according to observational studies, but more research is needed. The major goal of randomised controlled trials for exercise therapy for cancer patients must be survival rates. Based on the data that are currently available [2,3], the primary focus of this review is on how physical activity improves breast and gynecologic cancer survivorship. It emphasises the importance of the clinician in promoting physical activity, examines particular exercise prescription recommendations, and offers helpful resources to cancer patients.

Cancer-related fatigue, depressive symptoms, anxiety, sleeplessness, a low quality of life, and physical function impairment are all decreased by exercise while receiving active treatment. Exercise therapies improve general health-related QOL and QOL domains like sexual functioning, social functioning, and emotional well-being after active therapy while also lowering pain, anxiety, and weariness. In a recent thorough analysis of 40 meta-analyses and 23 RCTs on cancer survivors published after 2010 (both during and after treatment), exercise improved a number of treatment-related symptoms, with the strength of the evidence being particularly high for fatigue and psychological distress. In their evaluation of meta-analyses primarily relevant to breast cancer, exercise significantly improved QOL.

Gynecologic cancer survivors' QOL did not appear to improve, which is most likely due to the small number of studies that were undertaken. Three RCTs were included in a systematic review and meta-analysis of lifestyle interventions to promote physical activity and their effects on QOL in survivors of gynecologic cancer, which found that while these interventions improved physical functioning, reduced fatigue, and led to weight loss, they did not improve overall QOL [4].

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Our study did not include the large RCT of 144 ovarian cancer survivors who exercised at home, which demonstrated significant gains in QOL (discussed below). Lymphedema may also benefit from exercise. A one-year, gradually increasing weight training program or a control group was randomly assigned to breast cancer survivors who had stable lymphedema at baseline. The weight training group had fewer exacerbations and less symptoms of lymphedema.

## Ovarian cancer survivors

Several small single-arm pilot studies (N=17 to 30) have demonstrated the feasibility of low-to-moderate intensity exercise during chemotherapy for ovarian cancer, with typically more than two-thirds of patients adhering to the intervention/exercise goal. 144 physically inactive ovarian cancer survivors who were not undergoing chemotherapy were randomly assigned to either a 6-month moderate-intensity home exercise program or a control group in a recent large RCT. Participants in the intervention exercised for an average of 166 minutes per week, and 65% of them achieved the weekly goal of N150 minutes of moderate-intensity activity [5]. Women in the intervention group significantly improved their physical health-related QOL compared to the control group.

## Exercise's role in enhancing cancer survival

Estimates from a 2015 meta-analysis of eight cohorts of breast cancer survivors showed that the greatest vs. lowest levels of post-diagnosis physical activity were connected with a 48% reduction in risk of all-cause mortality. A 2016 meta-analysis of 10 cohorts found that the greatest vs. lowest levels of post-diagnosis physical activity were associated with a 38% decreased risk of breast cancer-specific mortality [6]. The latter analysis showed that the incidence of recurrence was significantly reduced in four cohorts and one study that recorded recurrence data.

A notable drawback of these observational studies is the possibility of reverse causation, which postulates that cancer patients with occult recurrence may be less likely to be physically active due to disease symptoms, explaining the worse outcomes reported in less active individuals. Reverse causality, however, is less plausible because cancer patients who experienced recurrence or died soon after physical activity measurement were typically omitted from the bulk of cohort studies used in meta-analyses [7]. Even if various confounding factors were largely taken into account in the included research, lower activity levels may be a sign of other underlying causes for a poor prognosis. Potential other restrictions include inaccurate reporting of physical activity and the fact that several studies only looked at present activity levels, which may not correctly reflect levels of routine exercise.

## Benefits of exercise for cancer survivors

The ACSM stated that, depending on their health status, medical history, and anticipated course of the disease, cancer survivors may need to change their exercise plan [8]. However, they came to the conclusion that the majority of cancer survivors without substantial co-morbidities can start exercising without stress testing or a comprehensive medical evaluation. They still suggest people to visit their doctor before starting an exercise program. They do, however, advise a general assessment for peripheral neuropathy and musculoskeletal morbidities, which may necessitate modifying an exercise program. Individuals with known cardiac conditions or metastatic disease to the bone also need medical evaluation to determine whether exercise is safe for them. The risk of an exercise-related incident, such as myocardial infarction or sudden cardiac

death, is highest among people who are exercising vigorously and for the first time.

### Guidelines for exercise prescription

Even though the benefits of exercise for cancer patients are clear, there are still many questions about the ideal exercise program for improving physical functioning and QOL. A recent meta-analysis evaluated the effects of exercise interventions on physical function and QOL before, during, and after cancer treatment using data from 66 RCTs, most of which were breast cancer survivors [9]. There was no appreciable variation in the intervention's effect on QOL or physical functioning across cancer types, timing of the intervention, or duration of the intervention. The results of interventions involving various degrees of exercise frequency, intensity, kind, and time did not show any appreciable differences.

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