

Review Article

Role of Physiotherapy in Improving Lifestyle of Female Cancer Patients

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Cancer patients are frequently treated by physical therapists. Chemotherapy, radiation, and surgery are examples of cancer treatments that are always improving and thereby increasing patient survival with each new cancer diagnosis. More specifically, with each cancer diagnosis, 5-year survival rates rise. Muscle weakness, lung dysfunction, weariness, and discomfort are all issues that cancer patients face. Finally, cancer patients' activities of daily living (ADL) and quality of life tend to deteriorate (QOL). The increment of increased breast and ovarian cancer in females are leading year by year. The psychological consequences of breast and ovarian cancer on women, as well as the psychosocial elements that may influence the cancer's disease process and psychophysical result. The female cancer patients frequently experience worsening disease, sadness, and worry. Physical therapy can help patients regain strength and physical function, as well as enhance their quality of life and daily living independence, which may have been lost as a result of cancer or its treatment. Physical therapy may become increasingly important in the treatment of female cancer patients in the future.

Keywords: Cancer; Diagnosis; Physical Therapy; Breast cancer; Ovarian Cancer

Introduction

Cancer and its treatments are linked to a wide spectrum of debilitating physical and psychological effects that can last for years after treatment. Chemotherapy, radiation therapy, and surgery often cause physical dysfunction and deficiencies in muscle strength, flexibility, and endurance in cancer patients.

Physiotherapy is an important part of symptomatic treatment for cancer patients who are still receiving palliative care. Its major goal is to enhance their overall quality of life. This is accomplished, among other things, by reducing the most annoying symptoms linked with cancer and other conditions that limit patients' activities. Maintaining a realistic degree of physical activity and self-reliance in patients within the constraints set by the disease's characteristics is also critical, as is effectively assisting them in adapting to their new functional restrictions [1].

Cancer-related fatigue (CRF) is one of the symptoms that have been shown to have a significant impact on overall quality of life in those individuals. Unfortunately, CRF is frequently misdiagnosed by physicians as a genuine component, and is thus rarely mentioned when discussing specific coping strategies with patient. The lack of physical activity among patients is one of the reasons that aggravate CRF [2]. As a result, physical activities have become one of the most important aspects of non-pharmacological fatigue syndrome treatment. Many studies have confirmed the overall benefit of various forms of physical activity in CRF patients who are still undergoing intensive cancer treatment as well as cancer survivors.

Breast and ovarian cancer are two of the most often diagnosed cancers in Indian women. Early identification of these tumours

requires cost-effective approaches. Breast and ovarian cancer diagnosis, treatment, and recurrence are difficult experiences that can have a variety of effects on a woman's mental health and family life [3]. The physical effects of such an illness are clear, but the emotional, mental, and psychological changes that accompany a breast cancer or ovarian cancer diagnosis are also significant. A terminal illness affects all element of a person's life. They are constantly worried about experiencing all of these events if they relapse. A lot of research has gone into figuring out of cancer patients and survivors are more likely to have poor mental health and a poor quality of life (QOL) [4].

Strength, soft tissue tightness, joint stiffness, fatigue, and swelling or edema can all be improved with physical therapy. Experts can use physical therapy to determine the best strategies for cancer patients to stay active. Clinically effective physical therapy-led exercise can assist cancer patients improve their quality of life. Stretching, strengthening, and aerobic exercises are included in the therapy for inpatients, outpatients, and cancer survivors. It frequently aids patients in regaining strength, physical function, quality of life, and independence in activities of daily living (ADL) that they may have lost as a result of cancer or therapy [5]. Physical therapists work in a variety of settings, including pre- and post-operative care, acute care, nursing homes, and inpatient and outpatient rehabilitation. In order to enhance overall functional results, physical therapists collaborate with the rehabilitation team to construct components of a survivorship care plan. There are four stages of cancer, and each stage has its own set of symptoms and limitations. Physical therapists frequently use four cancer rehabilitation stages to identify the stage of cancer patients before beginning physical therapy. During each stage of cancer, several ways to treatment are used [6].

General Concept of Physiotherapy

Physical therapists give services to individuals and populations to help them develop, maintain, and restore their full mobility and functional ability throughout their lives. The service is provided in situations where movement and function are threatened by ageing, injury, pain, diseases, disorders, conditions, and/or environmental variables, with the understanding that functional movement is fundamental to being healthy [7]. Physical therapy is a process in which the physical therapist interacts with patients/clients, other health professionals, families, caregivers, and communities to examine/ assess movement potential and set goals using knowledge and abilities specific to physical therapists. Before, during, and after physical treatment, physical therapists must examine each cancer patient using the International Classification of Functioning, Disability, and Health (ICF) model [8]. ICF allows physical therapists to deliver therapy to cancer patients. Cancer patients face numerous issues as a result of cancer treatment or the disease itself. Manual muscle testing (MMT), range of motion (ROM), balancing test, endurance test, and ADL test should all be included in a physical therapy evaluation. Performance status, Palliative Performance Scale [9], Barthel index (BI), functional independence measure (FIM), and quality of life (QOL) are also employed as cancer patient assessment measures. Physical therapists should be aware that cancer patients are at risk for infectious illnesses as a result of the treatment's immunosuppressive effects. As a result, physical therapists must address cancer and treatment-related risks. Physical therapists must also understand that cancer is a disease that progresses [10]. In general, cancer patients' physical function deteriorates over time. Physical therapists must be informed of cancer progression and patients' prognosis once a goal has been defined. Patients with cancer may be afraid about recurrence or death. Physical therapy may help cancer patients reduce tiredness, increase muscle strength and exercise capacity, and improve their quality of life (Table 1-3).

- PPS percent scores are calculated by reading horizontally at each level to discover the patient's "best match", which is then assigned.

- Begin at the left column and read downward until the appropriate ambulation level is found, then read over to the next column and downward until the illness activity/evidence is found. Before assigning the real PPS for that patient, these processes are

repeated until all five columns have been covered. As a result, "leftward" columns (columns to the left of any given column) are "stronger" determinants and take precedence over others.

- PPS are only given in ten percent increments. Occasionally, numerous columns are easily positioned at one level, but one or two appear to be better placed at a higher or lower level. After that, a "best fit" selection must be made [13].

Physical Therapy in Female Cancer Patients

Breast cancer

Breast cancer is a disorder in which the cells of the breast get uncontrollably large. There are various types of breast cancer. The type of breast cancer is determined by which cells in the breast become cancerous [14]. Breast cancer can start in a variety of places in the breast. Lobules, ducts, and connective tissue are the three primary components of a breast. The glands that generate milk are known as lobules [15]. The ducts are tubes that transport milk from the breast to the nipple. Everything is held together by connective tissue, which is made up of fibrous and fatty tissue. Breast cancer usually starts in the ducts or lobules. Breast cancer can spread to other parts of the body via blood and lymph vessels. Breast cancer is said to have metastasized when it spreads to other regions of the body. Surgery (breast-conserving surgery and mastectomy), radiation therapy, chemotherapy, and hormone therapy are the main treatment choices for breast cancer patients [16,17]. Lymph nodes near the damaged breast may need to be surgically removed in some circumstances. The ICF, examination of shoulder ROM, MMT, pain levels, exhaustion, upper limb volume, an upper limb disability questionnaire, and QOL evaluation are all used in the physical therapy assessment of cancer patients. Additionally, physical therapists evaluate exercise tolerance in breast cancer patients. Physical therapy has been shown to be beneficial in breast cancer patients in a number of prior trials [18]. In general, combined physical therapy is beneficial in the treatment of postoperative lymphedema, discomfort, and decreased range of motion following breast cancer treatment [19]. Lymphatic drainage massage, vantage, manual stretching, myofascial therapy, relaxation massage, stretching, strengthening, resisted exercise, proprioceptive neuromuscular facilitation (PNF) exercises, isometric exercises, aerobic exercises, TENS, heat and cold, patient education, and behavioural training are all examples of physical therapy for breast cancer patients. ADL training for breast cancer patients includes

Table 1: Type of Cancer stage and rehabilitation.

Stage	Characteristic	Rehabilitation
I	Cancer is a tiny tumour that is contained within the organ from where it began. The term " <i>in situ</i> " refers to cancer that has spread throughout the body. Cancers in stage 1 haven't spread to neighbouring tissues. This stage of cancer is usually highly treatable, requiring surgery to remove the entire tumour.	Preventive Prior to the commencement of the cancer's symptoms and therapy, the intervention focused on enhancing the patient's level of function, patient education, and psychological support.
II	Although the cancer has not yet spread to surrounding tissue, the tumour is larger than it was in Stage 1. Stage 2 refers to cancer cells that have migrated to lymph nodes near the tumour. At this stage, the cancer or tumour is still small and hasn't spread too far into the surrounding tissues. It hasn't spread to lymph nodes or other parts of the body, either. It's also known as an early-stage cancer.	Restorative rehabilitation The intervention aimed to restore the patient's former level of function while also addressing cancer-related deficits.
III	Cancer has grown in size. It could have started to expand into nearby tissues, and cancer cells could be found in the lymph nodes. This stage denotes the presence of more advanced malignancies or tumours.	Supportive rehabilitation The goal of intervention is to help the cancer patient perform at their best within the limitations imposed by his or her impairments, activity limitations, and participation restrictions.
IV	Cancer has spread to other organs or regions of the body from where it began. This type of cancer is often referred to as secondary, advanced, or metastatic cancer.	Palliative rehabilitation The intervention aimed to prevent consequences including pressure ulcers, contractures, and muscular deconditioning while also providing enough pain relief and emotional support to the family [12].

Table 2: Performance status.

Grade	ECOG (Eastern Cooperative Oncology Group)performance status
0	Fully active, able to carry on all pre-disease performance without restriction
1	Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, e.g., light house work, office work
2	Ambulatory and capable of all self-care but unable to carry out any work activities. Up and about more than 50% of waking hours
3	Capable of only limited self-care, confined to bed or chair more than 50% of waking hours
4	Completely disabled. Cannot carry on any self-care. Totally confined to bed or chair
5	Dead

Table 3: Palliative Performance Scale (PPS).

PPS level	Ambulation	Activity and evidence of disease	Self-care	Intake	Conscious level
100	Full	Normal activity and work no evidence of disease	Full	Normal	Full
90	Full	Normal activity and work Some evidence of disease	Full	Normal	Full
80	Full	Normal activity with effort Some evidence of disease	Full	Normal or reduced	Full
70	Reduced	Unable normal job/work Significant disease	Full	Normal or reduced	Full
60	Reduced	Unable hobby/house work Significant disease	Occasional assistance necessary	Normal or reduced	Full or confusion
50	Mainly sit/lie	Unable to do any work Extensive disease	Considerable assistance required	Normal or reduced	Full or confusion
40	Mainly in bed	Unable to do most activity Extensive disease	Mainly assistance	Normal or reduced	Full or drowsy ± confusion
30	Totally bed bound	Unable to do any activity Extensive disease	Total care	Normal or reduced	Full or drowsy ± confusion
20	Totally bed bound	Unable to do any activity Extensive disease	Total care	Minimal to sips	Full or drowsy ± confusion
10	Totally bed bound	Unable to do any activity Extensive disease	Total care	Mouth care only	Drowsy or coma ± confusion
0	Death				

bathing, showering (body cleaning), and dressing [20].

Points to remember

Physical therapists should reduce the volume of upper extremities to promote mobility. Following that, an attempt should be made to regain upper limb function in ADL.

Gynecologic Cancer

Any cancer that begins in a woman's reproductive organs is referred to as gynecologic cancer. Cervical, ovarian, uterine, vaginal, and vulvar cancers are the five main forms of cancer that affect a woman's reproductive organs. They are collectively known as gynecologic cancer. The highly rare fallopian tube carcinoma is a sixth kind of gynecologic cancer. The five gynecologic malignancies all start in various parts of a woman's pelvis, which is the area beneath her stomach and between her hip bones [21]. Each type of gynecologic cancer has its own set of signs and symptoms, risk factors, and prevention techniques. Gynecologic malignancies are a danger for all women, and the risk increases with age. Treatment is most successful when gynecologic malignancies are discovered early. In general, vigorous treatment involving surgery, chemotherapy, and/or radiation can cure gynecologic malignancies. The goal of treatment for recurring and metastatic cancer is to slow the disease's progression. Pelvic floor muscle weakness, decreased ADL, dizziness, lack of appetite, difficulty breathing, and depression are all symptoms that patients experience during or after their initial treatment (surgery, radiation, and/or chemotherapy) [22,23]. Lower extremity weakness is prevalent in gynecologic cancer patients, resulting

in locomotion impairment [24]. Following gynecologic surgery, physical therapists must be aware of the incidence of musculoskeletal and lymph vascular problems in the lower extremities. After lymph node removal, lymphovascular diseases might occur [25]. Patients report reduced range of motion, muscle weakness, discomfort, and a reduction in ADL as a result.

Physical therapy evaluation

Because gynecologic tumours cause urine incontinence following treatment, physical therapists should measure pelvic floor muscle strength first [26]. Second, physical therapists should evaluate the following ICF categories: lower extremities, including hip, knee, and ankle range of motion; MMT; pain evaluation; tiredness; upper limb volume; locomotor ability, including walking speed; balancing function; QOL; ADL; and sexual function [27]. Physical therapists should also evaluate exercise tolerance.

Physical therapy has been shown to benefit gynecologic cancer patients in a few prior studies [28]. Pelvic floor physical therapy should be used by physical therapists to help with pelvic floor symptoms [29]. In general, locomotion ability exercises such as standing and walking, lymphatic drainage massage, vantage, manual stretching, myofascial therapy, relaxation massage, stretching, strengthening, resisted exercise, PNF, aerobic exercise, TENS, patient education, and behavioural training are included in physical therapy for gynecologic cancer patients [30].

Points to remember

Physical therapists should work to enhance lower extremity

muscular strength and minimize volume as soon as possible. After that, you should learn how to move around.

Conclusion

The current review looks at the consequences of breast and ovarian cancer on women, as well as the psychosocial aspects that may influence the cancer's disease process and psychophysical prognosis. Physical therapy is beneficial and aids in the healing of patients. During physical treatment, cancer patients are exposed to several risk factors. As a result, physical therapists must be aware of and address these risk factors. In several cancer diseases, cancer survivors boost their 5-year survival rate. Physical therapy may play a significant role in improving cancer patients' and survivors' physical function, ADL, and QOL.

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References

- Burgess C, Cornelius V, Love S, Graham J, Richards M, Ramirez A, et al. Depression and anxiety in women with early breast cancer: Five year observational cohort study. *BMJ*. 2005; 330: 702.
- Zigmond AS, Snaith RP. The hospital anxiety and depression scale. *Acta Psychiatr Scand*. 1983; 67: 361-370.
- Goldberg R, Tull RM. *The Psychosocial Dimensions of Cancer*. New York: Free Press. 1983.
- Andersen RM. Revisiting the behavioral model and access to medical care: Does it matter? *J Health Soc Behav*. 1995; 36: 1-10.
- Wenzel LB, Fairclough DL, Brady MJ, Cella D, Garrett KM, Kluhsman BC, et al. Age-related differences in the quality of life of breast carcinoma patients after treatment. *Cancer*. 1999; 86: 1768-1774.
- Wilson SE, Andersen MR, Meischke H. Meeting the needs of rural breast cancer survivors: What still needs to be done? *J Womens Health Gend Based Med*. 2000; 9: 667-677.
- Shinagawa SM. The excess burden of breast carcinoma in minority and medically underserved communities: Application, research, and redressing institutional racism. *Cancer*. 2000; 88: 1217-1223.
- Lau F, Maida V, Downing M, Lesperance M, Karlson N, Kuziemy C. Use of the palliative performance scale (PPS) for end-of-life prognostication in a palliative medicine consultation service. *J Pain Symptom Manage*. 2009; 37: 965-972.
- Collin C, Wade DT, Davies S, Horne V. The Barthel ADL index: A reliability study. *Int Disabil Stud*. 1988; 10: 61-63.
- Hamilton BB, Laughlin JA, Fiedler RC, Granger CV. Interrater reliability of the 7-level functional independence measure (FIM). *Scand J Rehabil Med*. 1994; 26: 115-119.
- Linacre JM, Heinemann AW, Wright BD, Granger CV, Hamilton BB. The structure and stability of the functional Independence measure. *Arch Phys Med Rehabil*. 1994; 75: 127-132.
- Vargo MM, Gerber LH. Rehabilitation for patients with cancer diagnosis. In: *Physical medicine and rehabilitation: principles and practice*. edn. Edited by Delisa JA, Gans BM, Walsh NE. Philadelphia: Lippincott Williams & Wilkins. 2005: 1771-1794.
- Gerber LH, Stout NL, Schmitz KH, Stricker CT. Integrating a prospective surveillance model for rehabilitation into breast cancer survivorship care. *Cancer*. 2012; 118: 2201-2206.
- Buffart LM, van Uffelen JG, Riphagen II, Brug J, van Mechelen W, Brown WJ, et al. Physical and psychosocial benefits of yoga in cancer patients and survivors, a systematic review and meta-analysis of randomized controlled trials. *BMC Cancer*. 2012; 12: 559.
- Parkin DM, Bray F, Ferlay J, Pisani P. *Global cancer statistics, 2002*. *CA Cancer J Clin*. 2005; 55: 74-108.
- Torre LA, Bray F, Siegel RL, Ferlay J, Lortet-Tieulent J, Jemal A. *Global cancer statistics, 2012*. *CA Cancer J Clin*. 2015; 65: 87-108.
- Yadav BS, Sharma SC, Singh R, Singh G. Patterns of relapse in locally advanced breast cancer treated with neoadjuvant chemotherapy followed by surgery and radiotherapy. *J Cancer Res Ther*. 2007; 3: 75-80.
- Mannino M, Yarnold JR. Local relapse rates are falling after breast conserving surgery and systemic therapy for early breast cancer: can radiotherapy ever be safely withheld? *Radiother Oncol*. 2009; 90: 14-22.
- Rietman JS, Dijkstra PU, Hoekstra HJ, Eisma WH, Szabo BG, Groothoff JW, et al. Late morbidity after treatment of breast cancer in relation to daily activities and quality of life: a systematic review. *Eur J Surg Oncol*. 2003; 29: 229-238.
- Chan DN, Lui LY, So WK. Effectiveness of exercise programmes on shoulder mobility and lymphoedema after axillary lymph node dissection for breast cancer: systematic review. *J Adv Nurs*. 2010; 66: 1902-1914.
- Stubblefield MD, Custodio CM. Upper-extremity pain disorders in breast cancer. *Arch Phys Med Rehabil*. 2006; 87: S96-S99; quiz S100-101.
- Armer J, Fu MR, Wainstock JM, Zagar E, Jacobs LK. Lymphedema following breast cancer treatment, including sentinel lymph node biopsy. *Lymphology*. 2004; 37: 73-91.
- Stuiver MM, ten Tusscher MR, Agasi-Idenburg CS, Lucas C, Aaronson NK, Bossuyt PM. Conservative interventions for preventing clinically detectable upper-limb lymphoedema in patients who are at risk of developing lymphoedema after breast cancer therapy. *Cochrane Database Syst Rev*. 2015: CD009765.
- Cho Y, Do J, Jung S, Kwon O, Jeon JY. Effects of a physical therapy program combined with manual lymphatic drainage on shoulder function, quality of life, lymphedema incidence, and pain in breast cancer patients with axillary web syndrome following axillary dissection. *Support Care Cancer*. 2016; 24: 2047-2057.
- De Groef A, Van Kampen M, Dieltjens E, Christiaens MR, Neven P, Geraerts I, et al. Effectiveness of postoperative physical therapy for upper-limb impairments after breast cancer treatment: a systematic review. *Arch Phys Med Rehabil*. 2015; 96: 1140-1153.
- Hayes SC, Johansson K, Alfano CM, Schmitz K. Exercise for breast cancer survivors: bridging the gap between evidence and practice. *Translational behavioral medicine*. 2011; 1: 539-544.
- McLeod KE, Norman KE. "I've found it's very meaningful work": Perspectives of physiotherapists providing palliative care in Ontario. *Physiotherapy Research International*. 2019: e1802.
- Cancer Care Ontario. *Guideline 19-5: A Quality Initiative of the program in Evidence-Based Care, Cancer Care Ontario. Exercise for People with Cancer*. 2015.
- American Cancer Society. *Physical Activity for the Cancer Patient. Precautions for cancer survivors who want to exercise*. 2017.
- O'Connor D, Lennon O, Minogue C, Caulfield B. Design considerations for the development of neuromuscular electrical stimulation (NMES) exercise in cancer rehabilitation. *Disability and Rehabilitation*. 2021; 43: 3117-3126.