

THE ROLE OF PHYSIOTHERAPY IN CANCER CARE IN THE EUROPE REGION: A POSITION PAPER OF THE CANCER WORKING GROUP OF EUROPE REGION WORLD PHYSIOTHERAPY

ABSTRACT

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Background

Physiotherapists have strong knowledge and skills to deal with many of the functional problems that result from cancer treatment. The role of physiotherapy spans from cancer prevention to palliative and end of life care. Physiotherapeutic interventions offer a solution for many of the impairments experienced by patients living with and beyond cancer such as declines in physical function and quality of life. Specialized physiotherapeutic interventions can manage complex cancer-related side effects. The aim of this position paper is to outline the role of physiotherapy in the cancer journey.

Material and methods

The research was performed by eleven physiotherapy experts in oncology between May and October 2021 by using PubMed, PeDro and clinical guidelines databases. The search was divided according to the phases of the cancer journey: primary and secondary prevention, prehabilitation, during cancer treatment, post-treatment cancer rehabilitation, long-term rehabilitation of people living after cancer and advanced cancer. The role of physiotherapy is described and statements for each phase are developed. The final text was reviewed by three external reviewers, who provided feedback to improve the final version.

Results

Ten statements were developed by the authors, including general statements and statements for the different phases of the cancer journey. An infographic compiles all the statements providing a general and graphic vision of the role of physiotherapy in cancer care, based on the evidence.

Conclusions

Physiotherapists play an increasingly important role in the multidisciplinary care of cancer survivors. Many oncology physiotherapists have skills that can help to manage cancer-related impairments such as lymphedema, functional decline and cancer-related fatigue. Physiotherapists have strong knowledge and skills to deal with many of the functional problems that result from cancer treatment.

Rehabilitation services, including physiotherapy, should be integrated at the point of diagnosis to assess an individual's baseline functional performance status and inform about the cancer care plan.

KEY WORDS

CANCER, ONCOLOGY, PHYSIOTHERAPY, EXERCISE-ONCOLOGY, REHABILITATION, PREHABILITATION

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INTRODUCTION

Europe region World Physiotherapy is a non-profit, non-governmental organization that represents the physiotherapy profession in Europe. The Organization has a membership of 37 Physiotherapy Associations representing around 200,000 physiotherapists in Europe. The purpose of the association is to lead, promote and represent the physiotherapy profession in the Europe region by driving excellence in education, practice and research advocating and influencing health policy. (<https://www.erwcpt.eu/about-us>)

During 2021, the European Commission published the Europe Beating Cancer Plan, knowing that in 2020, 2.7 million people in the European Union were diagnosed with cancer, and another 1.3 million people lost their lives to it. Unless there is no decisive action now, cancer cases are set to increase by 24% by 2035, making it the leading cause of death in the EU. There are estimated to be over 12 million cancer survivors in Europe, including around 300,000 childhood cancer survivors, due to advances in early detection, effective therapies

and supportive care. There is a need to develop the care provided to people diagnosed with cancer within Europe, and to ensure patients receive the supportive care needed to maximize their quality of life during and after cancer treatment. (https://ec.europa.eu/commission/presscorner/detail/en/ip_21_342)

The Role of Physiotherapy in Cancer Care

Cancer and its treatment often lead to impaired functioning in daily living and a decrease in quality of life. The immediate and long-term sequelae of cancer treatment, including deconditioning, fatigue, impaired bone health, altered body composition, depression and anxiety, is well documented.¹⁻³ Physiotherapeutic interventions offer a solution for many of these impairments during the cancer journey. Physiotherapists work with patients across the different cancer control categories in the cancer care continuum, as described by the Physical Activity and Cancer Control (PACC) framework (Figure 1).⁴

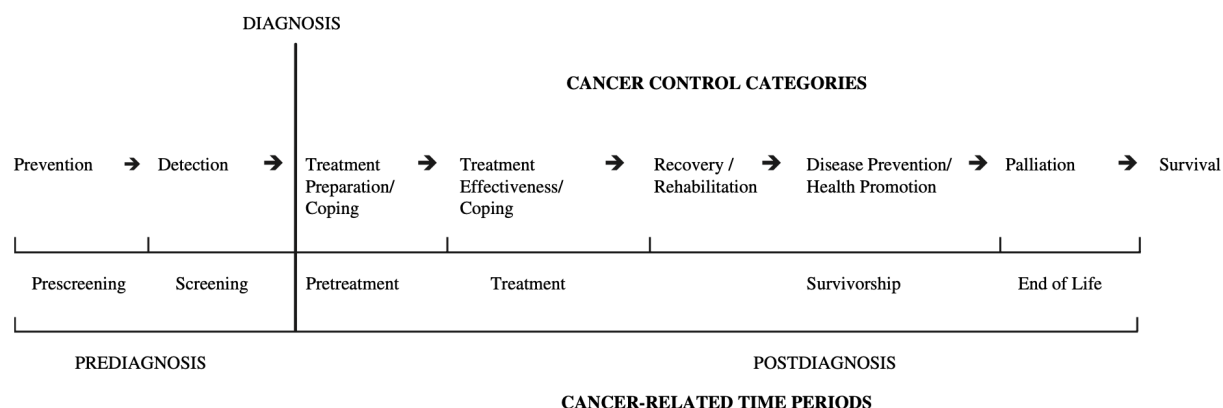


Figure 1. The Physical Activity and Cancer Control Framework⁴ (reproduced with approval of the author)

Rehabilitation services should be integrated at the point of diagnosis to assess an individual's baseline functional performance status and inform about the cancer care plan. Interval functional screening and reassessment then continue throughout medically directed treatment to identify and manage clinically meaningful declines in function. Physiotherapists are well placed to assess and treat patients in the acute hospital setting as well as in the community and provide the specialist and targeted assessments and interventions needed by many cancer survivors.⁵

Current recommendations provide specific guidance for improving cancer treatment-related symptom management and highlight the critical role of cancer rehabilitation services. Physiotherapists should be included as members of the care planning team from the point of diagnosis and throughout

the duration of the cancer care plan to provide evidence-based interventions to patients living with and beyond cancer.⁶

Exercise: A key physiotherapeutic intervention for the oncology patient

Exercise in patients living with and beyond cancer has been shown to be a feasible, safe, acceptable and effective treatment in every cancer-related period. There is growing evidence for the benefit of exercise on cancer-related health outcomes like improved survival, less fatigue (e.g. cardiac and skeletal muscle function), improved physical functioning and better quality of life.⁷⁻⁹ Based on the current evidence and established effectiveness, it is well accepted that exercise is and should be a part of standard care across the cancer care continuum (Figure 2).¹⁰

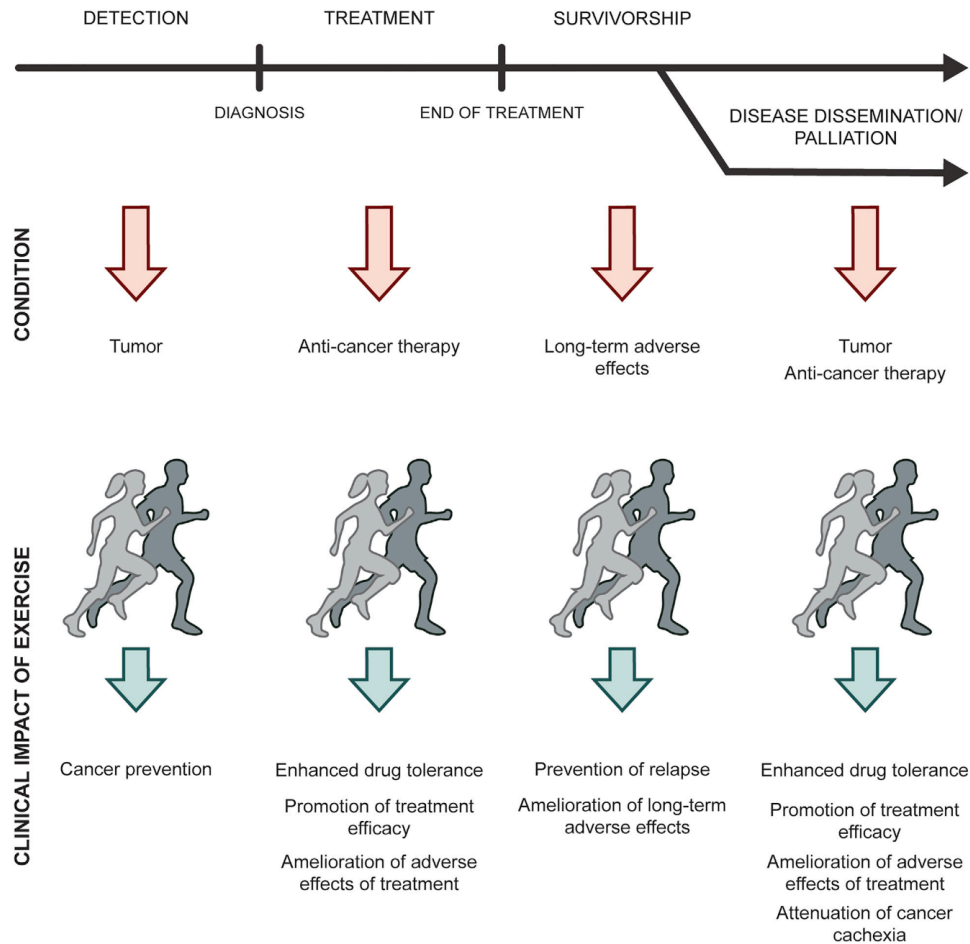


Figure 2. The Role of Physical Activity Throughout the Cancer Continuum¹⁰ (reproduced with approval of the author)

Therefore, the aim of this position paper is to outline the role of physiotherapy in the pathway of cancer patients, as an effective and cost-effective treatment.

MATERIALS AND METHODS

The Cancer Working group of Europe region World Physiotherapy is a Thematic Working Group, founded in October 2020. Members of the Working Groups (Professional Practice, Education and Advocacy&EU) of Europe region World Physiotherapy with expertise in the field of oncolog(ic) (y) (rehabilitation) were selected by their Member Organisation following a motivated candidature for a mandate of 2 years. Eleven PTs from ten different European countries were gathered online on December 18, 2020, where the methodology of the position paper was discussed.

The search of online databases was performed between May and October 2021 by using PubMed, PeDro and clinical guidelines databases. Members of the Working Group completed searches and synthesised research pertaining to the phase of the cancer journey that they were most experienced in: primary and secondary prevention, prehabilitation, during can-

cer treatment, post-treatment cancer rehabilitation, long-term rehabilitation of people living after cancer and advanced cancer. Summary statements were uploaded in a common draft document, that was shared on the shared digital platform of the organisation. The administrative support for the shared platform and the meetings was provided by the secretariat of Europe region World Physiotherapy. Every member revised the texts of the other phases and provided comments in the document. During an online common meeting on December 15, 2021, final consensus was reached on the document. Based on the evidence-based information that was found for each phase of the cancer trajectory, the general role of physiotherapy in cancer care was described and statements for each phase were finalised by the Working Group in a common online meeting on February 18, 2022. The final document was proofread for language (English) by a native speaking English member (GS). The final text was reviewed by three external reviewers in February and March 2022, who provided feedback to improve the final version. This feedback was processed in April 2022. The final step of the methodology was the approval of the General Meeting of Europe region World Physiotherapy on May 19-20, 2022 in Prague, Czech Republic and of the new Cancer Working Group 2022-2024 on September 16-17, 2022 in Brussels at the first in person meeting.

RESULTS

For each phase in the cancer trajectory, the role of physiotherapy is described below.

1. THE ROLE OF PHYSIOTHERAPY IN PRIMARY AND SECONDARY CANCER PREVENTION

For all adults, exercise is important for cancer prevention and specifically lowers risk of seven common types of cancer: colon, breast, stomach, oesophageal, bladder, endometrial and kidney cancer. In addition, exercise is linked to improved survival before and after breast, colorectal or prostate cancer diagnoses and reduces risk of recurrence of breast, colon and prostate cancers by 20% to 40%.¹¹ Physiotherapists can enable and encourage everyone to have a physically active lifestyle.

2. THE ROLE OF PHYSIOTHERAPY IN CANCER PREHABILITATION

Prehabilitation, provided after diagnosis and before subsequent treatments, aims to optimize physiological reserve and address modifiable risk factors prior to surgery to improve post treatment outcomes.¹² Prehabilitation is an intervention to enable people with cancer to enhance their own physical and mental health and well-being.^{13, 14} The core components of a multi-faceted prehab program include cardiovascular and strength training, nutritional management, wellbeing with psychological support, and medical optimization.¹⁵ Prehabilitation can improve a person's functional capacity following cancer surgery.¹⁶ It may also lead to reduced post-treatment complications, decreased hospitalization, increased physical and mental wellbeing after treatment and improved quality of life.^{13, 17, 18} Prehabilitation exercise programs that consist of cardiovascular and/or strength training provided at least two weeks before surgery are associated with positive outcomes.¹⁹ Physiotherapists can provide tailored exercise programs based on the current evidence supporting prehabilitation, including appropriate programs for patients with contraindications to exercise such as certain types of cancer (e.g. bone cancer) or certain types of treatment (e.g. reductions in normal blood counts).^{20, 21}

3. THE ROLE OF PHYSIOTHERAPY DURING CANCER TREATMENT

Physiotherapy led rehabilitation contributes to the prevention, management, and reduction of possible treatment side-effects. An increasing number of calls for the integration of exercise into clinical cancer care have since been issued and physiotherapists therefore play a central role in providing exercise guidance and programming to patients with cancer.^{22, 23} The variable and dynamic nature of cancer treatment necessitates ongoing interval assessment throughout cancer treatment, based on risk for, and presentation of, treatment-related functional morbidity.^{5, 24} There is strong evidence for the role of exercise prescription to manage the following side effects: anxiety, depressive symptoms, fatigue, health related quality of life, lymphedema and physical function. There is moderate evidence for the role of exercise in the management of bone health and sleep in patients living with cancer.²⁵ While exercise guidelines are in place for patients during and after treatment, physiotherapists have an important role to play in the prescription of individualized exercise programs to enable patients to meet these guidelines.

Physiotherapists have an important role to play in the exercise

screening of high-risk patients such as those at risk of skeletal related events, those treated with neurotoxic chemotherapy and those receiving cancer treatment that puts them at higher risk of cardiovascular disease.²⁶

All patients diagnosed with cancer who are exposed to treatments with high symptom load and/or physiological impact, and who are at risk of functional decline due to this treatment should receive a comprehensive assessment by a physiotherapist of all components of health related physical fitness (i.e., cardiorespiratory fitness, muscle strength and endurance, body composition, and flexibility), with some cancer-specific considerations to individualize an exercise prescription. Physiotherapists are well placed to complete detailed assessments as they are familiar with the common treatment approaches to cancer, the side effects and symptoms these treatments can cause, and the subsequent impact on exercise tolerance.²⁷

4. THE ROLE OF PHYSIOTHERAPY IN POST-TREATMENT CANCER REHABILITATION

Cancer survivors are almost three times more likely to report fair or poor health after treatment and twice as likely to have psychosocial disabilities and physical and functional limitations as persons without cancer or chronic illness.²⁸ Patient should have access to rehabilitation in order to manage any side-effects that cause a deterioration in the patients' ability, function and quality of life, e.g. cancer-related fatigue, deconditioning, lymphedema, pain, neuropathy, urinary and bladder problems.²⁹

As the side effects of cancer and its treatment are extremely varied, there are many indications for physiotherapy input. Internationally recognized frameworks are available to describe the consequences of cancer on an individual in the context of their environment, such as The International Classification of Functioning, Disability, and Health (ICF). These frameworks recognize that rehabilitation for cancer patients can involve a broad range of physical and psychosocial factors.³⁰ An example of the impairments associated with breast cancer are given in Figure 3,³¹ however physiotherapy input is indicated after several cancers and cancer treatments. Some of the most debilitating side-effects requiring physiotherapy input are included here. For example, early mobilization and bronchial hygiene techniques for surgical oncology patients.³² Other examples are the indication for physiotherapy to address shoulder complaints following both surgery and radiotherapy for head and neck cancer or to address incontinence and pelvic health impairments following uro-gynaecological surgery.³³⁻³⁶ Physiotherapists can provide all patients with sufficient knowledge/competency/self management skills to exercise on their own accord or supervised in a non-healthcare setting following cancer treatment.

Cancer-related fatigue is often cited by patients as the most debilitating and disabling symptom during medical treatment and following its completion.³⁷ Several reviews and meta-analysis have shown that exercise is effective in reducing fatigue and its impact in cancer patients and survivors.³⁸⁻⁴⁰ In particular, interventions supervised by an exercise professional were found to be more effective than unsupervised home programs in promoting adherence to exercise, resulting in more significant improvements in fatigue and quality of life.⁴¹ Existing guidelines recommend screening for fatigue at various time frames of treatment and survivorship as well as providing education and guidance. Physiotherapists can play an active role in educating and guiding patients through the management of cancer related fatigue and a referral to physiotherapy should

be considered for these patients.⁴¹ Lymphedema, a common side-effect of cancer treatment, can cause functional impairments and psychosocial morbidities and may lead to diminished health related quality of life.⁴²⁻⁴⁴ Physiotherapists are first-in-line to treat cancer related lymphedema by Complex Decongestive Therapy (CDT or Complex Physical Therapy, CPT).⁴⁴ CDT consists of 4 pillars including manual lymphatic drainage, compression by garments/sleeves or bandages, advice for skin care and infection prevention and exercise therapy methods like passive or active movements.^{45, 46} Physiothe-

rapists embrace the prospective surveillance model for physical rehabilitation and exercise in cancer. The goals of this model are to promote the surveillance of common physical impairments and functional limitations associated with cancer treatment, to provide education to facilitate early identification of impairments; to introduce rehabilitation and exercise intervention when physical impairments are identified; and to promote and support physical activity and exercise behaviors through the trajectory of disease treatment and survivorship.⁴⁷

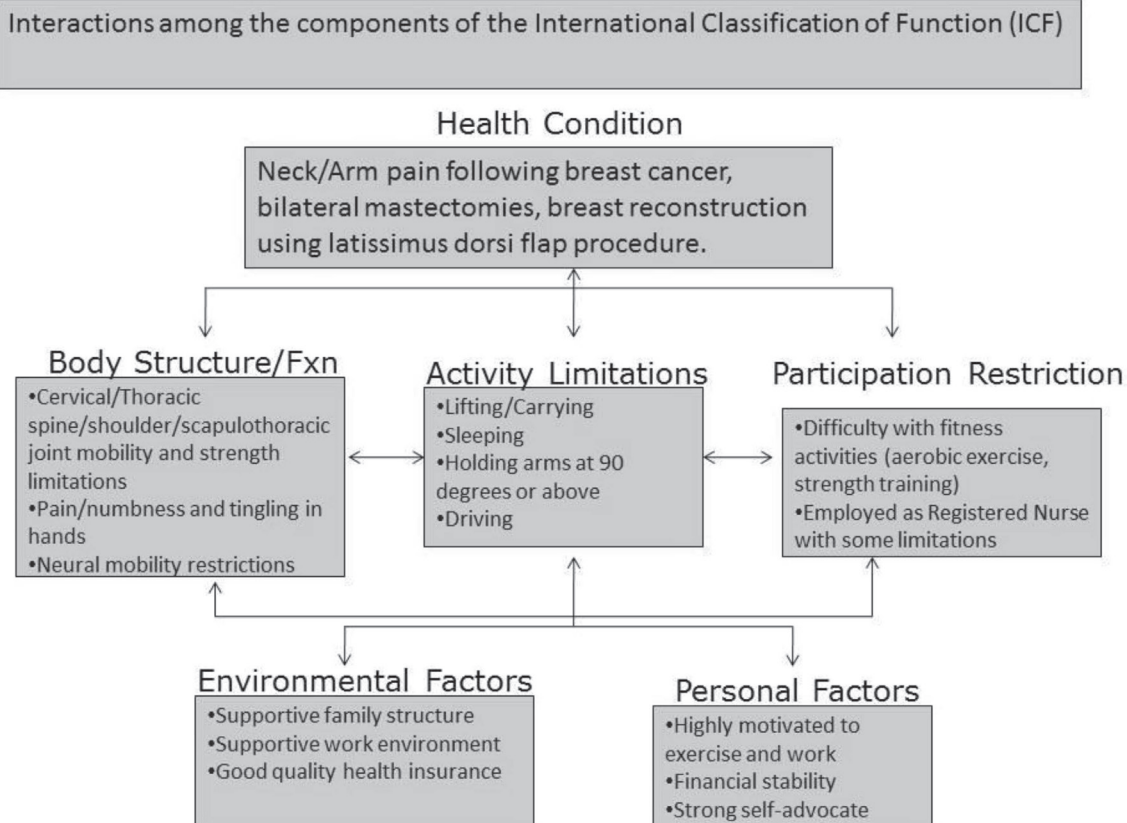


Figure 3. Example of the use of the ICF in cancer rehabilitation for breast cancer³¹ (reproduced with approval of the author)

5. THE ROLE OF PHYSIOTHERAPY IN THE LONG-TERM REHABILITATION OF PEOPLE LIVING AFTER CANCER

The absence of prehabilitation and rehabilitation, as described in the previous sections, can lead to an increase in long-term side effects for patients living with and beyond cancer. Survivorship care that lacks appropriate rehabilitation services could lead to unnecessary long-term physical and psychological suffering.⁴⁸ Several long-term side effects, i.e., those that persist after five years, remain under-documented. Patients suffering from long-term sequelae have difficulties in having their symptoms recognized and in accessing adequate treatment or support. Some cancers require lifelong treatment, and their side effects tend to become persistent, turning cancer into a chronic illness. The most common side effects of cancer and its treatment

are pain, fatigue, and emotional distress.⁴⁹ For all types of cancer, emphasis should be placed on appropriate physical activity. In both the short and long term, physical activity can prevent the development of new cancers and relapse, improve quality of life, and manage many symptoms such as cancer related fatigue.⁵⁰

6. THE ROLE OF PHYSIOTHERAPY IN ADVANCED CANCER

Developments in systemic therapies for cancer have prolonged survival even in patients who cannot be cured, and many people now live with advanced stages of cancer for longer periods.⁵¹ Patients with advanced cancer may experience high levels of functional disability related to disease progression, deconditioning, pain, local or systemic effects

of cancer treatment and its complications.⁵²⁻⁵⁴ Rehabilitation can enable people with advanced cancer to participate as fully as possible in all aspects of their daily lives. It represents an important route for people to fulfil meaningful goals, maintain dignity and adapt constructively to the uncertainty and loss that is often intrinsic in the lived experience of advancing illness.⁵⁵ Physiotherapy for patients receiving palliative care aims to maintain and/or improve physical function, minimize or eliminate complications, alleviate discomfort and pain, optimizing functional status, physical independence, and quality of life.⁵⁶⁻⁵⁸ Team based palliative care should be implemented to address the needs of patients and their families.^{59,60} Access to physiotherapy should be available to any patient, who requires palliative care or in the final stage of their life. A unique

approach with person-centered palliative care and integrated physiotherapy activities are essential.⁶⁰ The benefit of exercise has been covered earlier in this document and those benefits continue even for those patients requiring palliative care or are in the final stages of their life.^{57,61} Patients may also benefit from receiving equipment to enable the safe maintenance of physical function.⁶² Receiving palliative care may contribute to the general well-being of patients and to the reduction of the severity of the comorbid symptoms, especially pain, drowsiness, loss of appetite and depression.^{54,63,64}

10 summary statements on the role of physiotherapy in each phase of the cancer trajectory are listed below and visualized in Figure 4.

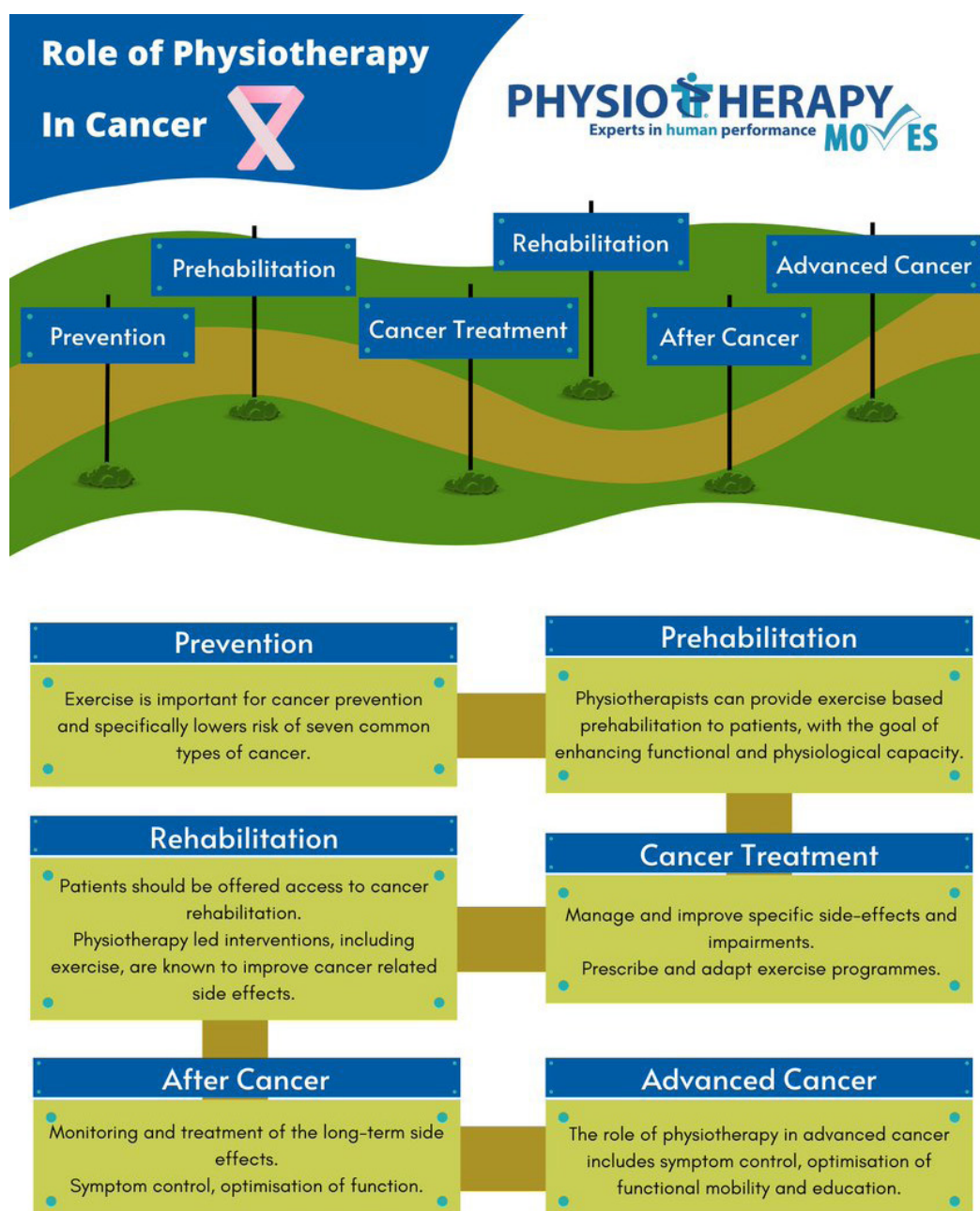


Figure 4. 10 summary statements on the role of physiotherapy in each phase of the cancer trajectory

– In cancer in general

1. Physiotherapists have strong knowledge and skills to deal with many of the functional problems that result from cancer treatment.
2. Rehabilitation services, including physiotherapy, should be integrated at the point of diagnosis to assess an individual's baseline functional performance status and inform about the cancer care plan.

– In primary and secondary prevention

3. Physiotherapists have an important role in encouraging and enabling patients to be physically active, essential for lowering risk of seven common types of cancer and improving survival before and after breast, colorectal or prostate cancer diagnoses.

– In cancer prehabilitation

4. Physiotherapists can provide exercise based prehabilitation to patients, with the goal of enhancing functional and physiological capacity to enable them to withstand cancer treatments and minimize any deterioration in function.

– During cancer treatment

5. Physiotherapists work with patients to manage and improve specific side-effects and impairments that arise as a result of cancer and its treatment.
6. Physiotherapists prescribe and adapt exercise programs suitable for patients receiving cancer treatment.

– In post-treatment cancer rehabilitation

7. Patients who experience cancer related impairments during and after cancer treatment should be offered access to cancer rehabilitation.
8. Physiotherapy led interventions, including exercise, are known to improve cancer related side effects such as symptoms of anxiety and depression, quality of life, physical function, cancer related fatigue and lymphedema.

– In the long-term rehabilitation of people living after cancer

9. Physiotherapists play a key role in the monitoring and treatment of the long-term side effects (5 years after diagnosis) of cancer.

– In advanced cancer

10. The role of physiotherapy in advanced cancer includes symptom control, optimization of functional mobility and education.

CONCLUSIONS

Physiotherapists have strong knowledge and skills to deal with many of the functional problems that result from cancer treatment. The role of physiotherapy spans from cancer prevention to palliative and end of life care. Physiotherapeutic interventions offer a solution for many of the impairments experienced by patients living with and beyond cancer such as declines in physical function and quality of life. Specialized physiotherapeutic interventions can manage complex cancer-related side effects e.g., lymphedema, chemotherapy induced peripheral neuropathy, cardiotoxicity,

bone metastases and cancer-related fatigue. With some cancers, research has shown that exercise can manage many side-effects of cancer and cancer treatment, may reduce the risk cancer recurrence, and increase survival. The management of cancer related impairments results in cost saving to hospitals and healthcare symptoms, as well as enabling patients to return to role functions in their communities. This document outlines the role physiotherapists may play in the pathway of cancer patients.

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Author contribution

NA, KL, NS,NR,GS,MC,LG, LT, AD,AM and CSS conceived and designed the manuscript and performed acquisition, analysis, interpretation of data and critical revision. NA, KL, NS,NR,GS,MC,LG, LT, AD,AM, CSS and MPN have drafted the manuscript. Administrative, technical, or material support were performed by ACG and MPN. CSS, GS and NA supervised this study. All authors read and approved the final manuscript.

Conflict of interest

The authors have no financial interest. National Physiotherapy associations have reimbursed their expenses for the Europe region World Physiotherapy's Cancer Working Group. Ethics approval was not required for this position paper, based on a narrative review.

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