National Cancer
Control Programme

A Scoping Review of Physical Activity and Exercise Initiatives for Cancer Patients in Ireland

Executive Summary

The National Cancer Control Programme commissioned external researchers to conduct a scoping review of physical activity and exercise services available to cancer patients across the cancer continuum, including secondary prevention, prehabilitation, during treatment, rehabilitation, and for those living with and beyond cancer. The research was carried out by the EasCaR Research Consortium, with Dr. Sarah Hardcastle independently leading the data collection, analysis, and report writing.

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Background

Improved early detection and treatment has led to an increase in the numbers of people surviving cancer and it is estimated that 200,000 patients previously diagnosed with cancer were living in Ireland at the end of 2019 (National Cancer Registry Ireland, 2021). Ireland's National Cancer Strategy (2017-2026) aims to improve cancer outcomes for the Irish population and with increased survival rates comes an increase in the number of individuals concerned with their quality of life in survivorship and potentially living with the side effects of cancer and its treatment. These side effects can include declines in cardiorespiratory fitness and physical function, adverse changes in body composition, and fatigue, neuropathy, pain and lymphoedema (Ligibel et al., 2022). These side effects may have detrimental effects on functional capacity and quality of life (QoL), but also cause cancer survivors to be susceptible to comorbidities such as cardiovascular disease (CVD), diabetes (Ligibel et al., 2022) and increased risk of secondary cancers (Siegel et al., 2022).

The National Cancer Control Programme (NCCP) commissioned this scoping review of existing physical activity and exercise programmes in Ireland to determine the current provision in this area. A strategic steering group was set up to support the work with key stakeholders including patients and knowledge experts. This steering group was available to feedback, oversee and support the work of the research group.

Introduction

One strategy that can have positive effects across the cancer journey is to engage patients and survivors in physical activity (PA). PA can mitigate many of the effects of cancer treatments. There is consistent evidence for the effectiveness of exercise interventions during active treatment across cancer types to maintain or improve cardiorespiratory fitness (Bjorke et al., 2019; Scott et al., 2018) and physical function (Sweegers et al., 2018). PA interventions during treatment also reduce fatigue (Oberoi et al., 2018; Hilfiker et al., 2018). There has also been increasing interest in the benefits of PA prior to surgery or treatment (often referred to as prehabilitation) for cancer patients to reduce post-operative stress, duration of hospital stays and improve cardiopulmonary function (Carli & Scheede-Bergdahl, 2015; Nelson et al., 2019). Being physically active post diagnosis and post treatment is vital to reduce the risks of cancer-specific and all-cause mortality and improve survival (Patel et al., 2019). Cancer survivors who are physically active have lower CVD-related morbidity, lower recurrence risk, and improved survival compared to those who are inactive (Keats et al., 2016; Brown & Gilmore, 2020).

Given the myriad of benefits of PA, several international guidelines recommend PA for those living with and beyond cancer (Campbell et al., 2019; Rock et al., 2022; Campbell et al., 2011). The American Cancer Society recommends that adult cancer survivors participate in 150 minutes of aerobic moderate-intensity PA per week and muscle-strengthening activities on two or more days a week (Rock et al., 2022) for improved health outcomes and longevity. The American College of Sports Medicine (ACSM) have also proposed similar exercise recommendations (i.e., moderate-intensity aerobic PA such as brisk walking three times per week and twice-weekly resistance training) for targeting specific symptoms for those undergoing cancer treatment such as fatigue, anxiety, depression, QoL, physical function, sleep, and bone health (Campbell et al., 2019). Physical activity is also recommended for those living with advanced cancer to maintain or improve physical function and QoL with an ACSM guideline making five recommendations for this cohort in addition to the standard PA recommendations (Campbell et al., 2022).

The above recommendations have been developed based on the conclusion that exercise is generally safe for cancer survivors and is therefore, suitable for the majority of patients. There is a small proportion of cancer survivors who may be unable to achieve or tolerate the recommendations due to the nature and extent of their side effects and physical limitations (Campbell et al., 2019). Patients with complex needs may require more individualised or intensive rehabilitation and appropriate assessment can inform suitable modifications to an individual's PA prescription (Schmitz et al., 2019). Every cancer survivor should avoid inactivity (Campbell et al., 2019).

Despite the increasing evidence that PA improves cancer outcomes, international literature indicates that most survivors (~75%) fail to meet the PA guidelines. Therefore, efforts and resources need to be made to find strategies to effectively promote PA to cancer survivors across the cancer continuum. A first step is the identification of existing PA provision for cancer survivors living in Ireland and an exploration of the main barriers to PA promotion to form national recommendations in this area.

Aim of Scoping Review

The aims of the scoping review were to:

- identify the existing cancer-related PA services and programmes in Ireland across the cancer continuum
- identify gaps in current provision and the differences between research-led interventions and existing community or facility-based programmes
- identify potential ways to expand PA services for cancer in Ireland
- identify the main barriers to PA promotion in cancer survivors and potential solutions
- propose national recommendations and strategies to implement PA programmes and services in this area.

Methodology

The methodological approach included three stages.

Stage 1. The first stage involved a scoping review to identify current provision of exercise programmes and PA services in Ireland.

Stage 2. The second stage involved a review of systematic reviews of international literature on the types and effectiveness of PA interventions in cancer survivors to identify evidence-based interventions in this area. PA was chosen as the primary outcome to delimit the scope of the literature review. This was to ensure a manageable output in the timeframe of the project. The literature has focused on the effects of PA on numerous outcomes in cancer patients and PA is beneficial at all stages of the cancer journey. However, once short-term interventions are complete, the effect on PA behaviour is important to maintain health outcomes and to provide more long-term health benefits and survival.

Stage 3. The final stage involved roundtable discussions with a variety of stakeholders to identify barriers to PA promotion and potential solutions concerning the expansion of PA services for cancer in Ireland.

Based on the findings from these three stages, potential strategies on the way forward and national recommendations to implement PA programmes and services in this area were proposed.

Key Findings

1. The results from this scoping review indicate that availability of existing community exercise provision and PA interventions nationally in this area is limited. Limited access to PA programmes included availability in general, but also the costs of referral to some community programmes.

2. It is apparent that most cancer survivors do not routinely receive PA assessment, information, advice, or counselling as part of usual care and that referral to PA programmes is not standard practice.

3. There are some existing exercise programmes available for cancer survivors in the community and in some hospitals. However, most existing PA services are not consistently available. Overall, there is very little dedicated PA provision for cancer survivors.

4. Little is known concerning the overall effectiveness of existing PA services for cancer survivors within community or hospital settings in Ireland. Research in exercise oncology in Ireland is limited to a small number of settings and tumour groups, with both positive and mixed findings in terms of efficacy.

5. There have been few eHealth and mHealth interventions in Ireland yet internationally there is growing support for the efficacy of wearable interventions to increase PA in cancer survivors. Similarly, few PA interventions in Ireland have been based on a theory of behaviour change or utilised counselling approaches.

6. The primary barriers to PA promotion in cancer survivorship included (i) a lack of awareness by healthcare professionals concerning the importance of and benefits of PA in cancer, (ii) a lack of knowledge concerning the PA guidelines for cancer survivors including ways to effectively counsel patients for exercise, and (iii) a lack of availability of PA programmes or services specifically for cancer survivors.

7. There was little referral to existing community exercise programmes by consultants and hospital staff, and the lack of a simple triage and referral mechanism for healthcare professionals was noted as a barrier to referral.

8. The dominant mode internationally and in Ireland has been the delivery of facility and group-based exercise programmes for cancer survivors. However, access and cost were identified as barriers to facility-based programmes and there was recognition that many survivors prefer individual 1:1 support and programmes.

9. The NCCP was viewed as the entity with the authority to ensure that PA promotion becomes part of routine practice in the oncology setting and integrated into the cancer pathway nationally. The summary and overarching recommendations to the NCCP, based on the scoping review are detailed below.

Summary of Recommendations

Overarching Recommendations

1. Structural and policy change is needed to ensure that PA promotion is implemented in practice. The NCCP should ensure that guidance and recommendation for PA is *standard of care for cancer patients through the development and implementation of a PA cancer care pathway* with appropriate triaging and to include monitoring and impact evaluation.

2. Healthcare professionals should verbally encourage cancer patients to be physically active throughout the cancer pathway. This should include provision of appropriate written materials, support, referral and signposting to both hospital and community-based supports where available.

3. PA services should incorporate evaluation and further research is required to identify patient-centred PA interventions for cancer survivors that are appropriate, acceptable, effective, and scalable in the Irish context. The NCCP should support the development of PA interventions which are evidence-based and adhere to international and national guidance and the PA cancer care pathway.

Clinical Practice

- PA should be embedded into the cancer care pathway and a PA model of care developed, implemented and supported by the relevant stakeholders.

- PA should be assessed and discussed as part of usual care throughout the cancer pathway.

- All newly diagnosed cancer patients should receive written information on the importance of PA in cancer survivorship and should be provided with the PA guidelines.

- From diagnosis and throughout the cancer pathway, patients should be advised and encouraged to participate in regular PA by every healthcare professional that they meet (MECC - Make Every Contact Count).

- All healthcare professionals should verbally encourage patients to be physically active during and following active treatment.

- PA interventions should be individualised and tailored according to stage on the cancer pathway, treatment-related impairments, comorbidities, exercise preferences and support needs of individual cancer survivors.

- A stepped care approach should be considered and incorporate cancer-specific considerations (e.g., cachexia, lymphoedema, chronic pain) in tailoring an exercise prescription. All patients with complex needs or high symptom loads should be given the opportunity to be assessed by a physiotherapist and/or exercise physiologist who are the recognised specialists in this area, and can assist with mobility concerns and with PA tailoring.

Education and Training

- All healthcare professionals should be offered bespoke exercise oncology training (as Continuous Professional Development (CPD)) to help embed PA into routine practice.

- Bespoke training should include (i) the rationale for PA; (ii) the PA guidelines for cancer survivors; (iii) ways to briefly counsel patients for PA and promote behaviour change.

- Community cancer support centre managers and support staff should receive training on PA and

cancer and be supported to offer appropriate exercise programmes by the NCCP.

Capacity Building and Development of an Evidence Base

- Identify patient-centred PA interventions that are acceptable and effective and support the implementation of evidence-based PA strategies in Ireland.
- Further research is needed to evaluate the potential and effectiveness of eHealth and mHealth interventions and consultant and nurse-delivered interventions.
- Research trials should include objective measures of PA, be adequately powered to detect change in PA, utilise implementation science and assess PA maintenance following intervention cessation.
- Health economic research will be valuable to assess the cost-effectiveness of PA interventions and services.

In conclusion, a number of recommendations have been made to further encourage and embed physical activity into the cancer care pathway. Stakeholders from across the system should be encouraged to review the results and consider the recommendations from this scoping study. The NCCP is committed to addressing these recommendations and will design action plans to begin working on them. This will require a collaborative approach and will need to utilise both the expertise of Irish specialists such as physiotherapists and exercise physiologists working both in oncology and those in the wider community services. Awareness and knowledge of the importance of physical activity to cancer patients is key and education and training for oncology professionals and primary and community care healthcare professionals will need to be ongoing. The importance of the promotion and engagement with physical activity for people living with and beyond cancer is evident from this review and national and international evidence. Sustained effort, resourcing and further policy will be required to implement these recommendations. Policy in this area should align with national health policy for prevention, chronic disease management, and community based health promotion. Progress in these areas and oncology care will create great benefit for cancer patients and wider population health.

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National Cancer Control Programme / An Clár Náisiúnta Rialaithe Ailse
Kings Inns House, 200 Parnell Street, Dublin 1 D01 A3Y8, Ireland
Email info@cancercontrol.ie

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