Physical Activity Across the Cancer Continuum

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In our commentary, we will address ways to consider this research across the cancer continuum, with a focus on the cancer survivor, highlighting some of the challenges in interpreting the research evidence for translation into clinical practice and noting some research gaps.

Research on the potential influence of physical activity on cancer outcomes is extensive, and it encompasses basic science; animal models; large-scale prospective epidemiologic research; and randomized controlled trials of a wide range of physical activity interventions designed to improve quality of life, functional status, and a number of physiologic parameters that may influence cancer risk and recurrence. In this issue of ONCOLOGY, the review by Lemanne et al provides selected highlights of this field of research. In our commentary, we will address ways to consider this research across the cancer continuum, with a focus on the cancer survivor, highlighting some of the challenges in interpreting the research evidence for translation into clinical practice and noting some research gaps.

Physical activity encompasses the following types of activities: aerobic (walking or biking), strength training, flexibility, and coordination. Decades of research have demonstrated that these types of physical activity may have various degrees of importance to different health outcomes. The majority of research into the association of physical activity with cancer risk is based on observational studies in humans that use self-reported measures of leisure time or recreational physical activity, and the most common activity reported is walking. While the evidence suggests that the greatest health benefit is found among people who have been consistently active over a lifetime, substantial benefit is also observed among people who become physically active later in life. Given the extensive benefits of a physically active lifestyle on overall health, the US Department of Health and Human Services released Physical Activity Guidelines for Americans in 2008, which advised daily aerobic physical activity, as well as strength training types of activity twice a week, for everyone, including cancer survivors. For the majority of the US population who are not physically active, exercise testing is not required before adopting a physically active lifestyle. The Physical Activity Guidelines website gives useful suggestions for how to initiate a physically active lifestyle, and outlines factors that predict the ability to maintain one (http://www.health.gov/paguidelines/).[1]

Research on physical activity and outcomes in cancer survivors has exploded in the last 2 decades and is extensive and compelling.[2] Evidence from randomized controlled trials has demonstrated that exercise during and after cancer treatment can prevent decline, and can improve many clinical, physiologic, and psychological parameters, including factors such as cardiorespiratory fitness, functional status, strength and flexibility, body composition, immune function, cognition, self-esteem and mood, depression, anxiety, and stress. Exercise interventions during treatment can improve chemotherapy completion rates, and can reduce the number and severity of treatment side effects, including nausea, fatigue, pain, and lymphedema (in breast cancer survivors). While the majority of the early research was in breast cancer survivors, research has expanded to include survivors of many other types of cancer. In the last several years, observational research suggests physical activity following a diagnosis of cancer is associated with reduced overall mortality among patients with a number of different types of cancer, as well as a reduction in cancer-specific mortality for breast and colon cancer patients.[3]

However, before reaching a global conclusion that the doses and types of exercise recommended by US general guidelines are equally beneficial for all cancer patients during or after treatment, it is important to understand that the majority of randomized controlled trials of exercise in cancer patients have a strong healthy volunteer recruitment bias and have focused on patients with early-stage cancer. Few trials recruit more than 10% of the potentially eligible populations, and all exclude potential participants who are currently physically active. With the expansion of screening for many common cancers, such as breast cancer, many cancer patients are diagnosed with early-stage disease, and many are in overall good health. For this group of patients who represent a
large proportion of participants in exercise intervention trials, exercise during and after the course of treatment appears to be safe and have many benefits; however, the type and dose of activity needed to optimize outcomes, or whether these differ based on host factors, remain unknown. For cancer patients with more advanced disease, or for the older cancer patient with many complex comorbid conditions, evidence is very limited. Therefore, it may be premature to conclude that exercise is safe and efficacious for all cancer survivors. Furthermore, none of the trial evidence addresses the cancer survivor who was active before being diagnosed with cancer and maintained activity during and after treatment. Research is needed on valid, standardized risk-stratification tools that can accurately identify which patients need more intensive assessment before beginning an exercise program and how much of what types of activity are optimally beneficial for which types of survivors.

Among patients diagnosed with advanced cancer, the effects of the late-stage disease and more extensive treatments may result in marked declines in functional status, with difficulty in ambulation. However, these patients are rarely referred to rehabilitation to improve their functional status.[4] This is an example of the well-documented increase in the complexity and fragmentation of care for cancer patients, and the oncology community has recognized the need to develop cancer care plans to identify and coordinate the full range of care required.[5,6] Such plans should incorporate assessments of physical activity, as well as functional status and referral to rehabilitation for patients who require it.

Tremendous progress has been made in understanding how exercise and a physically active lifestyle may improve cancer survivorship. Examples of some future research needs include: (1) studies that test physical activity interventions in survivors other than breast cancer survivors, especially in people with advanced cancer; (2) studies determining how much of what types of activity are optimal for which types of survivors; and (3) dissemination and implementation studies of how to provide the interventions and environments that will enable survivors to exercise safely and maintain their positive behavior changes.

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References:

REFERENCES


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