



## Editorial

## The expanding role of exercise oncology in cancer care: An editorial highlighting emerging research



### 1. Introduction

Cancer remains a leading cause of global morbidity and mortality [1]. Despite improved survival rates, many survivors face treatment-related side effects that compromise recovery, increase disease risk, and lower quality of life [2]. Over the past 20 years, exercise oncology has gained recognition for improving physical, psychological, cognitive, and clinical outcomes in cancer patients [4]. Epidemiological studies have also demonstrated that cancer survivors can reduce their recurrence risk when participating in regular exercise [3]. Due to this growing evidence base, physical activity and exercise are now recommended by major cancer organizations across the continuum of care—before, during, and after treatment [5,6].

This Editorial introduces the Special Issue on Exercise Oncology in *JSAMS Plus*, features nine innovative articles that explore various cancer types, interventions, and outcomes.

### 2. The past: Reviewing exercise oncology research

Two articles in this Special Issue review past research in exercise oncology. Ackah et al. conducted a systematic review on exercise intervention adherence in breast cancer survivors during and after treatment [7]. The authors identified that participants adhered to the prescribed exercise programs 63 % during treatment and 68 % after treatment. The definition of exercise adherence differed across studies including step goals, meeting physical activity guidelines and number of sessions completed. Factors such as baseline physical fitness, physical activity levels, fatigue, education, and social support influenced adherence, while body mass index was negatively associated. Gourshettiwar et al. explored the endocannabinoid system response to exercise in cancer patients, highlighting areas for future research on how exercise may alleviate the negative effects of cancer treatments on this system [8].

### 3. The present: Advancing the field

Six original articles in this issue push the field forward with novel interventions and study designs. Schneider et al. conducted a randomized cross-over study aiming to identify the effectiveness of performing centre-based exercise training during (intervention) or after (control) anthracycline-based therapies on cardiorespiratory fitness, quality of life, and fatigue [9]. All participants 57 participants with breast cancer or lymphoma from Switzerland received physical activity advice and were provided a fitness tracker. The authors did not find any differences between the groups for the timing of exercise, and concluded that the advice

and activity tracking were as effective as supervised clinic-based exercise for improvements in fitness, fatigue, and quality of life.

Wagoner et al. presented interim results and program satisfaction from the EXercise for Cancer to Enhance Living Well (EXCEL) 10–12 week study [10]. A total of 804 participants living with cancer or <3 years post treatment were enrolled in the study, with 699 completing the intervention (50 % breast cancer, 50 % other cancer types). EXCEL's group-based exercise program with behaviour change support, delivered in an online supervised setting to individuals reported high satisfaction with the intervention, and demonstrated benefits in patient-reported outcomes and physical function.

Munck et al. evaluated the acute lymphatic responses to upper-extremity high-load versus low-load resistance exercise from a randomised cross-over trial of 16 women with breast cancer [11]. They did not observe any evidence to support that the acute response to resistance exercise can predict breast cancer-related arm lymphedema development as they appear unrelated.

Grimshaw et al. assessed the measurement properties and feasibility of physical activity and physical function assessments in children undergoing acute cancer treatment (75 % leukaemia) [12]. They evaluated one physical activity assessment tool (Fitbit Inspire); and six physical function assessment tools (Movement ABC-2, Timed Up and Go, 30-s Chair Stand, Timed Rise from the Floor, Timed Up and Down Stairs, 6-min Walk Test). They found that some physical function assessments were feasible and reliable such as the 30-s Chair Stand, 6-min Walk Test and Timed Up and Go, while others, such as the Fitbit have limitations as a physical activity assessment tool in children undergoing treatment.

Orchard et al. compared cancer and all-cause death rates in famous Australian musicians and professional athletes with the general population [13]. They identified a higher rate of cancer deaths among a cohort of Australian rock and pop musicians, and significantly decreased death rates in male athletes compared to the general Australian population.

Macdonald et al. conducted a qualitative study to understand the thoughts and experiences of 17 women previously treated for breast cancer in Australia who participated in the *Ballet after breast cancer* program [14]. The key themes emerging from participants included embracing normal, connection to others, acceptance without judgement, engagement, learning and progress. These findings may guide future exercise interventions that promote ballet and other forms of dance in breast cancer survivors.

### 4. The future: Emerging research

In this Special Issue, we look ahead to planned and ongoing work, which will contribute to the expanding exercise oncology literature.

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Martin et al. present a protocol which is the first to explore the feasibility and acceptability of exercise for the management of sleep disturbance in primary brain tumour survivors and their caregivers [15]. The exercise program will consist of aerobic and resistance exercise over eight weeks, and supervised using telehealth with an accredited exercise physiologist.

## 5. Conclusion

The studies in this *JSAMS Plus* Special Issue address key gaps and introduce innovations in exercise oncology research. Their findings contribute to a growing body of evidence supporting exercise as a low-cost, impactful intervention in cancer care, with increasing rationale to become a standard part of treatment worldwide.

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