



Guideline #19-5

A Quality Initiative of the
Program in Evidence-Based Care (PEBC), Cancer Care Ontario
(CCO)

Exercise for People with Cancer

*R. Segal, C. Zwaal, E. Green, J. Tomasone, A. Loblaw, T. Petrella and the Exercise for
People with Cancer Guideline Development Group*

Report Date: June 30, 2015

An assessment conducted in March 2022 placed Guideline 19-5 IN REVIEW. This means that it is undergoing a review for currency and relevance. It is still appropriate for this document to be available while this updating process unfolds. The PEBC has a formal and standardized process to ensure the currency of each document ([PEBC Assessment & Review Protocol](#))

Guideline 19-5 is comprised of 5 sections. You can access the summary and full report here:

<https://www.cancercareontario.ca/en/guidelines-advice/types-of-cancer/201>

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PUBLICATIONS RELATED TO THIS REPORT

A clinical practice guideline article and a meeting report have been published in Current Oncology (<http://www.current-oncology.com>)

- Segal R, Zwaal C, Green E, Tomasone JR, Loblaw A, Petrella T, and the Exercise for People with Cancer Guideline Development Group. Exercise for people with cancer: a clinical practice guideline. Current Oncology, v. 24, n. 1, p. 40-46, Feb. 2017. ISSN 1718-7729.
- Tomasone JR, Zwaal C, Kim GM, Yuen D, Sussman J, Segal R et al. Moving guidelines into action: a report from Cancer Care Ontario's event Let's Get Moving: Exercise and Rehabilitation for Cancer Patients. Current Oncology, v. 24, n. 1, p. e65-e74, Feb. 2017. ISSN 1718-7729.

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Guideline 19-5: Section 1

A Quality Initiative of the Program in Evidence-Based Care (PEBC), Cancer Care Ontario (CCO)

Exercise for People with Cancer: Recommendations Summary

R. Segal, C. Zwaal, E. Green, J. Tomasone, A. Loblaw, T. Petrella and the Exercise for People with Cancer Guideline Development Group

Report Date: June 30, 2015

GUIDELINE OBJECTIVES

- To provide guidance for clinicians with respect to exercise for patients living with cancer, specifically:
 - Benefits of specific types of exercise
 - Recommendation regarding pre-screening requirements for new referrals
 - Safety concerns
- To provide specific guidance around delivery models and exercise regimens for patients living with cancer at different points in the cancer journey.

TARGET POPULATION

Adult patients living with cancer, including those on active treatment and those who have completed treatment.

INTENDED USERS

Oncologists, exercise consultants, primary care providers, and other members of the healthcare team, such as physiotherapists, kinesiologists, social workers, psychologists, nurses, and occupational therapists.

PREAMBLE

The definition of exercise used in this guideline is any physical activity resulting in an increase in energy expenditure and involving planned or structured movement of the body performed in a systematic manner in terms of frequency, intensity, and duration, and designed to maintain or enhance health-related outcomes [1].

There are different types of exercise and exercise programs that can affect quality of life (QoL) and fitness. *Aerobic exercise*, or *endurance training*, impacts the cardiovascular system and depends primarily on oxygen use. *Resistance exercise*, or *strength training*, uses weights or elastic resistance bands to overload the muscle with the intention of improving strength and endurance. The intensity of the exercise dictates the amount of energy that is expended when the exercise is performed. Objective measures of intensity include heart rate, metabolic equivalents (METs), or amount of oxygen consumed during an activity (VO₂). Subjective measures include patient-reported outcomes such as rate of perceived exertion (RPE) on a scale of one to 10. Low-intensity exercise refers to physical activity or effort

performed at one to three times the intensity of baseline resting energy expenditure (<3 METs; e.g., walking); moderate intensity refers to physical activity three to six times the intensity of baseline, which requires a moderate amount of effort and noticeably accelerates the heart rate (3-6 METs; e.g., brisk walking/bike riding); and vigorous intensity refers to physical activity six or more times over baseline, which requires a large amount of effort and causes rapid breathing and a substantial increase in heart rate (>6 METs; e.g., running/jumping rope).

People with cancer who follow the exercise recommendations provided in this document can expect improvements in QoL and aerobic and muscular fitness. The degree of improvement will vary with each person and will be influenced by his or her past and current medical health status. The potential benefits of exercise far exceed the potential associated risks; however, people with cancer should consult with an exercise specialist to understand the modes and amounts of exercise appropriate for them (as per any other adult populations) before starting an exercise program. Cancer-specific modifications to exercise can be found in Appendix 8 [1].

For those who are physically inactive, performing levels of exercise below the recommended levels may bring some benefits. For these adults, it is appropriate to start with small amounts of exercise and gradually increase duration, frequency, and/or intensity under the guidance of an exercise specialist with the goal of meeting the recommendations.

RECOMMENDATIONS

1. People living with cancer can safely engage in moderate amounts of exercise (see Recommendation 3) while on active treatment or post completion of treatment.
2. Moderate amounts of exercise (see Recommendation 3) are recommended to improve the QoL, as well as the muscular and aerobic fitness of people living with cancer.
3. Clinicians should advise their patients to engage in exercise consistent with the recommendations outlined by the Canadian Society of Exercise Physiology and the American College of Sports Medicine. The recommended duration, frequency, and/or intensity are the following:
 - 150 minutes of moderate-intensity aerobic exercise spread over three to five days and resistance training at least two days per week;
 - Resistance sessions should involve major muscle groups two to three days per week (eight to 10 muscle groups, eight to 10 repetitions, two sets); and
 - Each session should include a warm up and cool down.

Added in 2021: The American College of Sports Medicine has released more detailed information about recommendations for specific cancer populations, which can be viewed in the following link: <https://www.acsm.org/blog-detail/acsm-certified-blog/2019/11/25/acsm-guidelines-exercise-cancer-download>

4. A pre-exercise assessment for all people living with cancer before starting an exercise intervention is recommended to evaluate for any effects of disease, treatments and/or comorbidities.

5. It is recommended, where possible, that people living with cancer exercise in a group or supervised setting as it may provide a superior benefit/outcome in QoL and muscular and aerobic fitness.
6. It is recommended, where possible, that people living with cancer perform exercise at a moderate intensity (three to six times the baseline resting state) on an ongoing basis as a part of their lifestyle so that improvements in QoL and muscular and aerobic fitness can be maintained for the long term.

In Review