

**CLINICAL ONCOLOGY SOCIETY OF AUSTRALIA POSITION STATEMENT ON  
EXERCISE IN CANCER CARE**

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## **ABSTRACT**

**Introduction:** Clinical research has established exercise as a safe and effective intervention to counteract the adverse physical and psychological effects of cancer and its treatment. This paper outlines the position of the Clinical Oncology Society of Australia (COSA) on the role of exercise in cancer care, taking into account the strengths and limitations of the evidence base. It provides guidance for all health professionals involved in the care of people with cancer about integrating exercise into routine cancer care.

**Main recommendations:** COSA calls for: 1) Exercise to be embedded as part of standard practice in cancer care and to be viewed as an adjunct therapy that helps counteract the adverse effects of cancer and its treatment; 2) All members of the multi-disciplinary cancer team to promote physical activity and recommend people with cancer adhere to exercise guidelines; and 3) Best practice cancer care to include referral to an accredited exercise physiologist and/or physiotherapist with experience in cancer care.

**Changes in management as a result of the guideline:** COSA encourages all health professionals involved in the care of people with cancer to 1) discuss the role of exercise in cancer recovery; 2) recommend their patients adhere to exercise guidelines (avoid inactivity and progress towards at least 150 minutes of moderate-intensity aerobic exercise and two to three moderate-intensity resistance exercise sessions each week); and 3) refer their patients to a health professional who specialises in the prescription and delivery of exercise (i.e. accredited exercise physiologist or physiotherapist with experience in cancer care).

**Key words:** exercise, physical activity, oncology, cancer, position statement

## BACKGROUND

The Clinical Oncology Society of Australia (COSA) is the peak national body representing multidisciplinary health professionals whose work encompasses cancer control and care. COSA members are doctors, nurses, scientists and allied health professionals involved in the clinical care of people with cancer. COSA is affiliated with, and provides medical and scientific advice to, Cancer Council Australia. This position statement outlines the position of COSA on the role of exercise in cancer care. [The full statement is available at www.cosa.org.au/publications/position-statements/.](http://www.cosa.org.au/publications/position-statements/)

The term physical activity applies to any movement produced by skeletal muscles that requires the body to exert energy. Exercise is structured physical activity for the purpose of conditioning the body to improve health and fitness. To maximise the therapeutic potential of exercise, well-established principles of training (including specificity, progression, overload, individualisation) should be applied and operationalised using the FITT formula – frequency (number of exercise sessions), intensity (how hard per session), time (session duration) and type (exercise modality) (1, 2).

Clinical research has established exercise as a safe and effective intervention to counteract many of the adverse physical and psychological effects of cancer and its treatment. To date, the strongest evidence exists for improving physical function (including aerobic fitness, muscular strength and functional ability), attenuating cancer-related fatigue, alleviating psychological distress and improving quality of life across multiple general health and cancer-specific domains (3-17). Emerging evidence highlights that regular exercise before, during and/or following cancer treatment decreases the severity of other adverse side effects and is associated with reduced risk of developing new cancers and comorbid conditions such as cardiovascular disease, diabetes and osteoporosis (3, 4). Furthermore, epidemiological research suggests that being physically active provides a protective effect against cancer recurrence, cancer-specific mortality and all-cause mortality for some types of cancer (research has predominantly focused on breast, colorectal and prostate cancers) (3, 18-27). These findings have set the scene for a number of clinical trials, which are currently underway to rigorously evaluate the effects of exercise on cancer survival.

The convincing body of epidemiological and clinical trial evidence on the benefits of exercise has led to the endorsement of exercise guidelines for people with cancer by major organisations internationally (28-33). These guidelines largely mirror guidelines for the general population. Despite this advice being widely disseminated by government and non-government cancer organisations, the majority of Australians with cancer do not meet these recommended targets (34-36). Reports indicate that approximately 60-70% of people with cancer do not meet aerobic exercise guidelines and it is estimated that approximately 80-90% do not meet resistance exercise guidelines (34-36). Thus, while many people with cancer have indicated a

desire to participate in appropriately designed and supervised exercise programs (37-45), only a minority are engaging in sufficient levels of exercise.

The COSA Position Statement on exercise in Cancer Care outlines the position of COSA with respect to exercise recommendations (28-33), taking into account the strengths and limitations of the epidemiological and clinical trials evidence base.

Key points:

- Being physically active and exercising regularly is important for the health, function, quality of life and potentially survival of people with cancer.
- The majority of people with cancer do not meet exercise recommendations.
- People with cancer express a desire to become and to stay sufficiently active but need advice and support to do so.
- To maximise safety and therapeutic effect, exercise should be prescribed and delivered under the direction of an accredited exercise physiologist or physiotherapist with a focus on transitioning to ongoing self-managed exercise.

## **METHODS**

This paper summarises the COSA Position Statement on Exercise in Cancer Care (available at [www.cosa.org.au/publications/position-statements/](http://www.cosa.org.au/publications/position-statements/)). The development of the statement was initiated by the COSA Exercise and Cancer Group. A proposal was submitted to the COSA Council ([www.cosa.org.au/about-us/who-we-are/cosa-council/](http://www.cosa.org.au/about-us/who-we-are/cosa-council/)) to develop the statement based on the available scientific evidence and expert consensus. The position statement was prepared following a thorough review of the literature by a multidisciplinary group of members from the COSA Exercise and Cancer Group. The authorship group represents experts across the fields of exercise physiology, physiotherapy, medical oncology, cancer nursing and public health. The draft position statement underwent review and revision with the broader COSA Exercise and Cancer Group (>200 professionals with an interest in exercise for people with cancer). Full consultation with all COSA members and relevant stakeholders was then undertaken. Responses and actions taken for all feedback were detailed and revisions incorporated. Another review of the position statement was then undertaken by the COSA Council. Following revisions, the final version of the position statement was presented to COSA Council for approval. After approval from the COSA Council, a number of relevant organisations were invited to endorse or support the position statement.

## RECOMMENDATIONS

Based on the available scientific evidence COSA has the following position on the role of exercise in cancer care (detailed in Box 1-3):

**1. Exercise should be embedded as part of standard practice in cancer care and viewed as an adjunct therapy that helps counteract the adverse effects of cancer and its treatment.**

The level of scientific evidence now available substantiates the inclusion of exercise as a component of routine cancer care (1-19). The body of scientific literature, including many randomised controlled trials involving thousands of cancer patients, provides evidence that exercise is an important adjunct therapy in the management of cancer (1-19). People with cancer who exercise experienced fewer/less severe adverse effects (1-19), thus it is likely that incorporating exercise within the cancer treatment paradigm will reduce disease burden (3). While epidemiological evidence suggests patients who exercise following a diagnosis of cancer have a lower relative risk of cancer mortality and recurrence (3, 20-27), randomised control trial data is required to determine the effect of exercise on survival outcomes.

**2. All members of the multi-disciplinary cancer team should promote physical activity and recommend people with cancer adhere to exercise guidelines.**

COSA calls for evidence-based exercise guidelines (28-33) to be implemented by all health professionals involved in the care of people with cancer. Specifically, all members of the cancer care team should advise their patients to: 1) avoid inactivity and be as physically active as current abilities and conditions allow; and 2) progress towards and, once achieved, maintain participation in at least 150 minutes of moderate-intensity or 75 minutes of vigorous-intensity aerobic exercise each week and two to three resistance exercise sessions each week involving moderate- to vigorous-intensity exercises targeting the major muscle groups. In line with evidence-based guidelines (28-33), COSA identifies that these recommendations should be tailored to the individual's abilities, noting that specific exercise programming adaptations may be required based on disease and treatment-related adverse effects, anticipated disease trajectory and patients health status.

**3. Best practice cancer care should include referral to an accredited exercise physiologist and/or physiotherapist with experience in cancer care.**

As university qualified allied health professionals specialising in the prescription and delivery of exercise, COSA recognises accredited exercise physiologists and physiotherapists as the most appropriate practitioners to implement exercise guidelines with cancer patients. While not all people with cancer will require ongoing supervision, these practitioners will allow for exercise to be prescribed in line with evidence-based guidelines (28-33). Specifically, exercise physiologists/physiotherapists with experience in cancer care will appropriately tailor exercise recommendations to the individual needs of each patient.

These practitioners are also trained to educate patients in behaviour change techniques to allow for positive long term exercise behaviour.

### Endorsing and Supporting Organisations

The COSA Position Statement on Exercise in Cancer Care is a stand-alone document, the content of which is not influenced by any other authority. COSA is pleased to have the support of the following endorsing organisations (in alphabetical order):

- Australian Physiotherapy Association
- Cancer Council
- Exercise and Sports Science Australia
- Medical Oncology Group of Australia

A range of other organisations have provided their support of the COSA Position Statement on Exercise in Cancer Care. COSA is pleased to have the support of the following supporting organisations (in alphabetical order):

- Australasian Gastro-Intestinal Trials Group
- Australasian Leukaemia & Lymphoma Group
- Australasian Lung Cancer Trials Group
- Australasian Sarcoma Study Group
- Australian and New Zealand Children's Haematology/Oncology Group
- Australia and New Zealand Melanoma Trials Group
- Breast Cancer Network Australia
- Cancer Nurses Society of Australia
- Cooperative Trials Group for Neuro-Oncology
- Counterpart
- Lung Foundation Australia
- Ovarian Cancer Australia
- Primary Care Collaborative Cancer Clinical Trials Group
- Prostate Cancer Foundation of Australia
- Psycho-oncology Co-operative Research Group
- Royal Australasian College of Physicians
- Trans-Tasman Radiation Oncology Group

**Deleted:** The complete listing of supporting organisations is available within the full position statement (available at [www.cosa.org.au/publications/position-statements/](http://www.cosa.org.au/publications/position-statements/)).

### Box 1

COSA calls for:

1. Exercise to be embedded as part of standard practice in cancer care and to be viewed as an adjunct therapy that helps counteract the adverse effects of cancer and its treatment.
2. All members of the multi-disciplinary cancer team to promote physical activity and recommend people with cancer adhere to exercise guidelines.
3. Best practice cancer care to include referral to an accredited exercise physiologist and/or physiotherapist with experience in cancer care.

## Box 2

### **COSA's position on exercise in cancer care:**

1. All people with cancer should avoid inactivity and return to normal daily activities as soon as possible following diagnosis (i.e. be as physically active as current abilities and conditions allow).
2. All people with cancer should progress towards and, once achieved, maintain participation in:
  - a. at least 150 minutes of moderate-intensity or 75 minutes of vigorous-intensity aerobic exercise (e.g. walking, jogging, cycling, swimming) each week; and
  - b. two to three resistance exercise (i.e. lifting weights) sessions each week involving moderate- to vigorous-intensity exercises targeting the major muscle groups.
3. Exercise recommendations should be tailored to the individual's abilities, noting that specific exercise programming adaptations may be required for people with cancer based on disease and treatment-related adverse effects, anticipated disease trajectory and their health status<sup>1</sup>.
4. Accredited exercise physiologists and physiotherapists are the most appropriate health professionals to prescribe and deliver exercise programs to people with cancer<sup>2</sup>.
5. All health professionals involved in the care of people with cancer have an important role in promoting these recommendations.

<sup>1</sup> This position statement contains general principles only and should not be used as a substitute for individual exercise prescription. Consideration of exercise safety for an individual should be assessed by a health professional with knowledge of cancer, prior to exercise commencement.

<sup>2</sup> Services provided by accredited exercise physiologists and physiotherapists are eligible for subsidies through Medicare and private health insurers. An extensive number of exercise physiologists and physiotherapists are based in the community and can be located using

online search functions of the respective accrediting bodies: exercise physiologists – <https://www.essa.org.au/find-aep/>; physiotherapists – <http://www.physiotherapy.asn.au/apawcm/controls/FindAPhysio.aspx>. Effective exercise prescriptions can be delivered across a variety of settings including hospital-, cancer treatment centre-, community- and home-based (i.e. self-managed).

### Box 3

**COSA encourages all health professionals involved in the care of people with cancer to:**

1. Discuss the role of exercise in cancer recovery;
2. Recommend their patients adhere to the exercise guidelines;
3. Refer their patients to a health professional who specialises in the prescription and delivery of exercise (i.e. accredited exercise physiologist or physiotherapist with experience in cancer care).

### Box 4

#### **Glossary of Exercise Terminology**

- **Physical Activity:** any bodily movement produced by the contraction of skeletal muscles that results in a substantial increase in caloric requirements over resting energy expenditure.
- **Exercise:** a type of physical activity consisting of planned, structured, and repetitive bodily movement for the purpose of improving and/or maintaining health and physical fitness.
- **Aerobic exercise:** a form of exercise that predominately stresses the cardiovascular system; any exercise that uses large muscle groups, can be maintained continuously and is rhythmical in nature; examples include walking, jogging, cycling, swimming; also referred to as cardiovascular exercise or endurance exercise.
- **Resistance exercise:** a form of exercise that predominately stresses the musculoskeletal system; any exercise that requires a muscle or a muscle group to work against external resistance; examples include squats, chair rises, chest press, push ups; also referred to as muscle strengthening exercise or weight training.
- **FITT principle:** a method of prescribing exercise that includes specification of the frequency (i.e. number of exercise sessions), intensity (i.e. how hard/difficult the exercise is), time (i.e. duration of exercise) and type (i.e. exercise modality) of exercise to be performed; the exact composition of the FITT principle of exercise prescription should be revised according to the individual response, need, limitation and adaptations to exercise as well as evolution of the goals and objectives of the exercise program.
- **Exercise dosage:** the overall level of exposure to exercise; based on a combination of the volume and intensity of exercise.

- **Exercise volume:** the amount of exercise performed (i.e. how much exercise); based on a combination of the exercise duration and frequency.
- **Exercise intensity:** the level of exertion required when exercising (i.e. how hard/difficult the exercise is); based on the level of physiological stress required to complete the exercise.
- **Moderate intensity exercise:** exercise stimulus that requires patients to work at a level of exertion equivalent to 40-59% of heart rate reserve; exertion perceived as 'somewhat hard'; e.g. brisk walking, cycling and/or swimming as a somewhat hard pace.
- **Vigorous intensity exercise:** exercise stimulus that requires patients to work at a level of exertion equivalent to 60-89% of heart rate reserve; exertion perceived as 'hard to very hard'; e.g. running, cycling and/or swimming at a hard pace.
- **Specificity:** a principle of exercise prescription that stipulates physiological adaptations are specific to the body system/s trained with exercise.
- **Overload:** a principle of exercise prescription that stipulates exercise dosage must be increased for continued improvement; i.e. exercise below a minimum threshold does not sufficiently challenge the body to result in physiological adaptation.
- **Progression:** a principle of exercise prescription that stipulates a gradual increase in exercise dosage is required for continued physiological adaptation; i.e. the dosage must increase to maintain overload.
- **Individualisation:** a principle of exercise prescription that stipulates the customised application of exercise towards the physiological status of the patient.
- **Recovery:** a principle of exercise prescription that stipulates time between exercise sessions is required in order to permit the necessary biological resynthesis to replace the required constituents of the body system/s stressed by exercise.

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