

Cancer and exercise

What is cancer?

The term cancer describes a disease in which abnormal cells multiply without control. While there are more than 100 different types of cancer, prostate cancer, bowel cancer (colon and rectal cancers), breast cancer, melanoma of the skin, and lung cancer account for more than half (60%) of all cancers diagnosed in Australia. More than 120,000 new cases of cancer are diagnosed yearly, and one in two men and one in three women will be diagnosed with cancer by the age of 85 years. Survival after cancer varies and is influenced by the type of cancer and the stage of the cancer at diagnosis. For many cancers, including melanoma and prostate and breast cancers, current survival rates exceed 90% or are progressively improving. People diagnosed with cancer may be at greater risk of dying from other causes such as cardiovascular disease. Currently, about 710,000 Australians have survived cancer(1). While surgical removal of cancer remains the primary treatment for most cancers, radiation therapy, chemotherapy and other drug treatments are also used frequently as primary or adjunct treatments. Advances in treatment have led to more effective therapies. However, treatment-related side effects are still common and may persist for long-term survivors. Common side effects of treatment include fatigue, pain, impaired immune function, negative changes in body weight and composition (an increased percentage of fat), worsened bone health, fluid build-up that causes swelling in various body parts (lymphoedema), and gastrointestinal (bowel) changes.

Exercise and cancer prevention: Research has shown strong evidence that physical activity (PA) plays an important role in the prevention of cancer in particular colorectal, breast and endometrial cancer, as well as emerging evidence associated with reduced risk of other cancers such as prostate, lung and ovarian cancer (2, 3).

Why is exercise important for cancer survivors?

Exercise is widely accepted as important for maintaining good health, reducing the risk of chronic disease, and aiding rehabilitation from disease. The benefits of exercise *during* and *after* treatment are outlined in the table below(4). There is also a growing body of evidence that indicates exercise after diagnosis may improve long-term survival rates, at least in breast and colon cancer (5, 6).

Preservations or improvements	Reductions
Muscle strength, mass and power	Duration of hospitalisation
Physical functioning	Psychological and emotional stress
Range of motion	Depression and anxiety
Immune function	Number and severity of symptoms and side effects reported (e.g. pain, fatigue, nausea)
Chemotherapy completion rates	
Body image, mood and self esteem	

What type of exercise is best for cancer survivors?

An exercise program needs to be individualised according to past and current fitness level; previous and planned cancer treatment; disease and treatment-related risk factors; the presence and severity of symptoms, as well as interests and desires of each person. **The overall aim is to meet the physical activity guidelines recommended for the general population (7).** For some people, particularly immediately after surgery or during other associated treatment, these guidelines may be unrealistic. In these cases, people should be encouraged to:

- Limit sedentary behaviours, such as sitting or laying down;
- Maintain or gradually return to 'typical' activities of daily living;
- Gradually introduce planned, aerobic-based exercise such as walking, cycling or swimming. Aim



to build up to the recommended amount, which is at least 150 minutes of moderate-intensity (puffing) exercise weekly, or an equivalent amount of weekly exercise that includes high-intensity (puffing heavily) exercise;

- Include 2 sessions a week of resistance-based exercise (e.g. weights, body weight or theraband exercises) for the major muscle groups. Allow at least 48 hours between sessions;
- Importantly, some exercise is better than no exercise, and more is generally better than less.

A comprehensive overview of specific exercise programs can be found in the ACSM's exercise guidelines for cancer survivors (8) and the position stand of Exercise & Sports Science Australia (ESSA), *Optimising cancer outcomes through exercise* (4).

Is exercise safe for cancer survivors? Exercise is considered safe when commenced at an appropriate level and progressed gradually. Standard guidelines should be followed(7), particularly for people who have heart and lung problems. Some cancer survivors may have a higher risk of heart attack or other cardiovascular events than the general population. Extra care is also needed in choosing activities for certain survivors, such as people with increased fracture risk. Also, some exercise locations are not appropriate for survivors with suppressed immune systems (e.g. public exercise environments that may increase the chance of infections). Extra caution and supervision are required for people experiencing fluctuating treatment-related side effects and new side effects, and for those who have little or no history of exercising.

Barriers to Exercise Cancer survivors face unique challenges related to the risk of cancer recurrence and the development of other chronic diseases. In addition, treatment and disease-related physical and psychological side effects are very common. Unfortunately, side effects, such as pain, nausea, fatigue and other symptoms may make it difficult for cancer survivors to adhere to a regular exercise program. A well-designed program should take into consideration the daily struggles of each individual and provide a comfortable solution. Importantly, while exercising at appropriate levels may not improve these side effects, it should not make them worse.

Contraindications to Exercise Contraindications to exercise are the same for cancer survivors as for the general populations. However, additional concerns need to be considered. Specifically, exercise may not be suitable for cancer survivors when experiencing symptoms like fever, low blood cell count and / or a recent change in treatment-related symptoms. An accredited exercise physiologist (AEP) can help address common barriers to exercising during and after cancer treatment and provide exercise modification when needed. An AEP's professional support can ensure exercise is done safely.

How cancer survivors can become and remain active?

- Avoid inactivity and progress exercise gradually.
- Understand why being active during and following cancer treatment is important
- Recognise barriers to exercise and explore ways to overcome these.
- Goal-setting is important - short-term and long-term goals that are specific, measurable, achievable, realistic and timely, need to be defined.

References and further information

Exercise is Medicine Australia www.exerciseismedicine.org.au

Find an Accredited Exercise Physiologist www.essa.org.au

Exercise Right www.exerciseright.com.au

1. Australian Institute of Health and Welfare (AIHW). (2010). *Cancer in Australia 2010: An overview*. Cancer series no. 60. Cat. no. CAN 56. Canberra: AIHW.
2. World Cancer Research Fund and American Institute for Cancer Research. *Food, nutrition, and physical activity, and the prevention of cancer: A global perspective*. Washington, DC: WCRF/AICR.
3. Courneya, K, Friedenreich, C. 2011. *Physical Activity and Cancer*. Springer Publishing. New York.
4. Hayes SC, Spence RR, Galvão DA, Newton RU. Australian Association for Exercise and Sport Science position stand: optimising cancer outcomes through exercise. *J Sci Med Sport* 2009; 12(4): 428-34. Epub 9 May 2009.
5. Ibrahim, EM, Abdelaziz, AH. Physical activity and survival after breast cancer diagnosis: Meta-analysis of published studies. *Med Oncol* 2011; 28: 753-765.
6. Meyerhardt, JA et al. Physical activity and survival after colorectal cancer diagnosis. *J Clin onco* 2006; 24(22) 3527-3534.
7. American College of Sports Medicine. (2010). *ACSM's guidelines for exercise testing and prescription*. 8th ed. Philadelphia: Wolters Kluwer Health/Lippincott Williams & Wilkins.
8. Schmitz KH, Courneya KS, Matthews C, et al. [American College of Sports Medicine roundtable on exercise guidelines for cancer survivors](http://www.essa.org.au). *Med Sci Sports Exer* 2010; 42(7): 1409-26.

