

Exercise Factsheet

Exercise can hasten recovery from the immediate effects of cancer treatment, prevent long-term effects, and may reduce the risk of recurrence and increase survival.¹ Benefits include reduced fatigue, anxiety, and depression and improved physical function, self-esteem, happiness, and quality of life in cancer survivors.¹⁻³

Key facts

- > Exercise may improve the experience of, and recovery from, cancer treatment.^{4, 5}
- > Exercise is considered safe and effective for the majority of survivors, both during and after cancer treatment when commenced at an appropriate level and progressed gradually.²⁻⁴
- > Exercise may reduce recurrence of cancer and cancer mortality. The strongest effect has been reported in breast, colorectal and prostate cancers:^{4, 5}
 - 40% lower risk of breast cancer-specific mortality and breast cancer recurrence reported in women reaching the equivalent of the recommended minimum levels of physical activity, compared with women active for less than one hour a week^{6 7}
 - 50% reduction of disease recurrence and cancer mortality reported in colorectal cancer survivors performing the equivalent of six hours of moderate intensity physical activity per week^{8, 9}
 - 30% lower risk of prostate-specific mortality and 57% lower rate of disease progression in prostate cancer survivors performing three hours per week of moderate intensity physical activity.^{10, 11}
- > Exercise following treatment may improve cardiovascular fitness and strength and have positive effects on balance, body composition, and quality of life.^{2, 4, 12}
- > Exercise may reduce the risk of developing other co-morbid conditions such as cardiovascular disease, diabetes and osteoporosis^{2, 5}
 - Risk reductions of 20-50% may be possible for people who are active at the recommended levels relative to those who are inactive¹³
- > Exercise may help maintain independence and wellbeing towards the end of life:⁵
 - Supervised resistance exercise for 12 weeks led to improvements in muscular fitness and quality life in a randomised control trial of men with prostate cancer receiving androgen deprivation therapy with palliative intent¹⁴
- > It has been suggested that exercise can help to reduce health care usage.⁵ Further research is needed to ascertain the effect of exercise interventions on health care-related cost savings.¹⁵

How can I help cancer survivors become and remain active?

Source: Exercise & Sports Science Australia, 2011. Exercise and cancer³

Encourage: emphasise the importance of avoiding inactivity and progressing gradually

Educate: help survivors to understand why being active is important, and provide information about the benefits of exercise during and after cancer treatment; teach survivors how to overcome barriers to exercise

Equip: help survivors become independent exercisers, work together to set short-term and long-term goals that are specific, measurable, achievable, realistic and timely

Assessment and monitoring

Baseline and regular assessment of the individual's activity is useful. All health professionals can assess the type, duration and frequency of current exercise to determine an individual's scope for change.⁴

The type of cancer, treatment modalities received, and the number and severity of treatment effects and comorbidities may influence what is regarded as appropriate exercise. Some individuals will benefit from further clinical assessment and professional exercise prescription to develop an optimal plan within safe limits for them. Referral to an exercise physiologist may be indicated to:^{3, 12}

- > Develop an individualised exercise prescription
- > Address significant neuromuscular weakness to maintain muscle function and reduce risk of falls
- > Improve balance through functional movement training

Factors which may be considered in developing an individualised plan include:⁴

- > Peripheral neuropathy
- > Bone metastases
- > Poor bone health
- > Arthritis
- > Musculoskeletal issues
- > History of lung surgery
- > History of major abdominal surgery
- > Presence of an ostomy
- > Cardiopulmonary comorbidities
- > Extreme fatigue
- > Lymphoedema

Exercise may be contraindicated for individuals immediately (30 days) after surgery, and in those with severe anaemia, deteriorating condition or active infection.⁴

There are a range of formal tools to assess the individual's physical activity:⁴

- > [Godin Exercise Leisure-time Questionnaire](#)
- > [The Active Australia Survey](#)

Recommended intervention strategies

- > All individuals should be encouraged to be physically active during treatment and return to daily activities as soon as possible.⁴
- > Exercise recommendations should be tailored to individual survivors' abilities and preferences, their disease site and stage.^{1, 2, 4}
- > General exercise recommendations for cancer survivors:^{4, 5}
 - Overall volume of weekly activity of at least 150 minutes of moderate-intensity activity, accumulated on 5 or more days per week, or 75 minutes of vigorous-intensity activity or equivalent combination.
 - 2-3 weekly sessions of strength training that includes major muscle groups.
 - Stretch major muscle groups following strength training
- > Individuals may need to be supported to progress to recommended level of activity. Inactive survivors should commence with one to three light/moderate-intensity 20-minute sessions per week with progression based on tolerance and guideline recommendations.⁴
- > The National Lymphoedema Network has published a [Position Statement](#) with additional guidance for exercise in individuals with lymphoedema.
- > Evidence from studies among people with other long-term conditions supports the use of a range of approaches to promote exercise:¹⁶
 - Motivational interviewing
 - Behavioural counselling
 - Tailored interventions based on stages of change/transtheoretical model
 - Walking promotion including use of pedometers
 - Supervised exercise training (often through referral to an exercise specialist)

Key messages:^{2, 3}

- Some is better than none
- More is generally better than less BUT
- Start slow and build slowly
- Don't make worse (if symptoms are exacerbated by exercise, reduce)
- Recognise importance of referral and support

Key Resources

[Physical Activity Concise Evidence Review](#)

[Physical Activity Evidence Based Guidance](#)

[Position Statement of the National Lymphedema Network – Exercise](#)

Cancer Council (Queensland) Physical Activity Rehabilitation Series:

[Preparing to exercise](#)

[Intermediate exercise](#)

[Progressed exercise](#)

[Exercise for people living with cancer](#). Cancer Council (Western Australia)booklet

[Exercise & Sports Science Australia Factsheets:](#)

- > [Breast cancer](#)
- > [Cancer](#)
- > [Colon cancer](#)
- > [Gynaecological cancer](#)
- > [Prostate cancer](#)

[Australian Association for Exercise and Sport Science position stand: Optimising cancer outcomes through exercise.](#)

[Exercise for breast cancer survivors: bridging the gap between evidence and practice.](#)

[Exercise for health: a randomized, controlled trial evaluating the impact of a pragmatic, translational exercise intervention on the quality of life, function and treatment-related side effects following breast cancer.](#)

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References:

1. Siegel R, DeSantis C, Virgo K, Stein K, Mariotto A, Smith T, et al. Cancer treatment and survivorship statistics, 2012. CA: A Cancer Journal for Clinicians. 2012;62(4):220-41.
2. Hayes SC, Spence RR, Galvao DA, Newton RU. Australian Association for Exercise and Sport Science position stand: Optimising cancer outcomes through exercise. Journal of Science and Medicine in Sport. 2009;12:428-34.
3. Exercise & Sports Science Australia. Exercise and cancer. 2011; Available from: <http://exerciseismedicine.org.au/health-care-providers/factsheets-2>.
4. National Comprehensive Cancer Network. NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines) Survivorship Version 1.2013. 2013.
5. DH, Macmillan Cancer Support & NHS Improvement. Living with & Beyond Cancer: Taking Action to improve Outcomes (an update to the 2010 The National Cancer Survivorship Initiative Vision). 2013.
6. Holick CN, Newcomb PA, Trentham-Dietz A, Titus-Ernstoff L, Bersch AJ, Stampfer MJ, et al. Physical Activity and Survival after Diagnosis of Invasive Breast Cancer. Cancer Epidemiology Biomarkers & Prevention. 2008;17(379-386).
7. Holmes CN, Chen WY, Feskanich D, Kroenke CH, Colditz GA. Physical activity and survival after breast cancer diagnosis. The Journal of the American Medical Association. 2005;293(20):2479-86.
8. Meyerhardt JA, Giovannucci EL, Holmes MD, Chan AT, Chan JA, Colditz GA, et al. Physical Activity and Survival After Colorectal Cancer Diagnosis. Journal of Clinical Oncology. 2006 August 1, 2006;24(22):3527-34.
9. Meyerhardt JA, Heseltine D, Niedzwiecki D, Hollis D, Saltz LB, Mayer RJ, et al. Impact of Physical Activity on Cancer Recurrence and Survival in Patients With Stage III Colon Cancer: Findings From CALGB 89803. Journal of Clinical Oncology. 2006 August 1, 2006;24(22):3535-41.
10. Richman EL, Kenfield SA, Stampfer MJ, Paciorek A, Carroll PR, Chan JM. Physical Activity after Diagnosis and Risk of Prostate Cancer Progression: Data from the Cancer of the Prostate Strategic Urologic Research Endeavor. Cancer Research. 2011 June 1, 2011;71(11):3889-95.
11. Kenfield SA, Stampfer MJ, Giovannucci E, Chan JM. Physical Activity and Survival After Prostate Cancer Diagnosis in the Health Professionals Follow-Up Study. Journal of Clinical Oncology. 2011 February 20, 2011;29(6):726-32.
12. Exercise & Sports Science Australia. Prostate Cancer. 2011; Available from: http://exerciseismedicine.org.au/wp-content/uploads/2011/03/Prostate-cancer_full.pdf.
13. Chief Medical Officer. At least five a week: evidence on the impact of physical activity and its relationship to health. London,2004.
14. Segal RJ, Reid RD, Courneya KS, Malone SC, Parliament MB, Scott CG, et al. Resistance Exercise in Men Receiving Androgen Deprivation Therapy for Prostate Cancer. Journal of Clinical Oncology. 2003 May 1, 2003;21(9):1653-9.
15. Campbell A, Foster J, Stevinson C, Cavill N. The importance of physical activity for people living with and beyond cancer: A concise evidence review.2012.
16. Ness KK, Wall MM, Oakes JM, Robison LL, Gurney JG. Physical Performance Limitations and Participation Restrictions Among Cancer Survivors: A Population-Based Study. Annals of Epidemiology. 2006;16(3):197-205.

