

The benefits of tailored exercise in cancer patients includes improved functional capacity, reduced fatigue, decreased depression, improved sleep patterns and overall quality of life.¹

Recent evidence supports the use of “anabolic exercise” (resistance exercise) during cancer management to counteract side effects of both the disease and standard treatments such as chemotherapy.

Clinically supervised resistance training programs that provide strong anabolic effects for muscle and bone may have an impact on counteracting some of the side effects of cancer management, assisting patients to improve physical function and quality of life.²

To date, all studies involving exercise and cancer patients, either during or after treatment, have shown no detrimental effects to the patient’s wellbeing. It must be noted, that the exercise programs were performed under the supervision of suitably qualified health professionals (exercise physiologists).

Clinicians (oncologists) should encourage structured physical activity for patients, and policy makers should consider including exercise opportunities in cancer rehabilitation services.^{2,3}

BREAST CANCER

Exercise has a large potential to improve physical and psychosocial aspects of quality of life in women with breast cancer during and after treatment. Supervised group exercise provides functional and psychological benefits in both short term and long term for women undergoing treatment for breast cancer. Most studies involved home-based programs or individualised strength exercise in a clinical setting.

A systematic review of the effects of exercise on breast cancer patients and survivors concluded that exercise is an effective intervention to improve quality of life, cardiorespiratory fitness, physical functioning and fatigue. The exercise interventions included supervised strength training.⁴

In another study published recently, 203 women undergoing treatment for early stage breast cancer (chemotherapy, radiotherapy or combination) were randomised to a control group receiving usual care or an intervention group receiving exercise therapy.³ The age of the participants ranged from 29 to 76 years with a mean age of 51 years.

Supervised by exercise physiologists, the exercise group were provided with an individualised program including strength training. After 12 weeks of supervised exercise, the intervention group showed significant improvement in physical and psychological function in comparison to the control group. No adverse events were reported. Furthermore, the

intervention group reported fewer nights in hospital and fewer visits to their general practitioner than the control group.

PROSTATE CANCER

As the standard treatment for prostate cancer, the side-effects of androgen deprivation therapy (ADT) include a large reduction in lean tissue (muscle) and bone mass and an increase in bodyfat.⁵⁻¹⁰ Moreover, it has been suggested that these negative changes in soft tissue are more severe in the first 12 months of ADT.⁶ Research suggests that resistance training should be provided to prostate cancer patients receiving ADT to counteract side effects of both the disease and treatment.¹¹⁻¹²

A study involving 155 prostate cancer patients undergoing ADT were randomly assigned to an intervention group that participated in a 12 week whole-body resistance training program.¹¹ Results showed decreased fatigue levels, improved health-related quality of life, and increased muscle strength in the group that performed resistance training.

These findings were supported in a recent publication involving a similar trial.¹² A group of men aged between 59 to 82 years and undergoing androgen deprivation therapy participated in progressive resistance training for 20 weeks in a university exercise rehabilitation clinic. The results showed the men had increased their strength, physical function and balance. Moreover, the study demonstrated that resistance training preserves body composition and bone mass to reduce treatment side-effects.

References

1. Humpel N and Iverson DC. Review and critique of the quality of exercise recommendations for cancer patients and survivors. *Support Care Cancer*. 2005;13:493-502.
2. Galvao DA and Newton RU. Review of exercise intervention studies in cancer patients. *Journal of Clinical Oncology*. 2005;23(4):899-909.
3. Mutrie N, Campbell AM, Whyte F, McConnachie A, Emslie C, Lee L, Kearney N, Walker A, Ritchie D. Benefits of supervised group exercise programme for women being treated for early stage breast cancer: pragmatic randomised controlled trial. *British Medical Journal*. 2007;334:517-524.
4. McNeely ML, Campbell KL, Rowe BH, Klassen TP, Mackey JR, Courneya KS. Effects of exercise on breast cancer patients and survivors: a systematic review and meta-analysis. *Canadian Medical Association Journal*. 2007;175(1):34-41.
5. Diamond T.H, Higano CS, Smith MR, Guise TA, and Singer FR. Osteoporosis in men with prostate carcinoma receiving androgen-deprivation therapy: recommendations for diagnosis and therapies. *Cancer* 2004;100:892-899.
6. Greenspan SL, Coates P, Sereika SM, Nelson JB, Trump DL, and Resnick NM. Bone loss after initiation of androgen deprivation therapy in patients with prostate cancer. *Journal of Clinical Endocrinology and Metabolism*. 2005;90:6410-6417.

7. Lee H, McGovern K, Finkelstein JS, and Smith MR. Changes in bone mineral density and body composition during initial and long-term gonadotropin-releasing hormone agonist treatment for prostate carcinoma. *Cancer* 2005;104:1633-1637.
8. Shahinian VB, Kuo YF, Freeman JL, and Goodwin JS. Risk of fracture after androgen deprivation for prostate cancer. *New England Journal of Medicine*. 2005;352:154-164.
9. Sharifi N., Gulley JL, and Dahut WL. Androgen deprivation therapy for prostate cancer. *Journal of American Medical Association*. 2005;294:238-244.
10. Smith MR, Lee WC, Brandman J, Wang Q, Botteman M, and Pashos CL. Gonadotropin-releasing hormone agonists and fracture risk: a claims-based cohort study of men with nonmetastatic prostate cancer. *Journal of Clinical Oncology*. 2005;23:7897-7903.
11. Segal RJ, Reid RD, Courneya KS, et al. Resistance exercise in men receiving androgen deprivation therapy for prostate cancer. *Journal of Clinical Oncology*. 2003;21:1653-1659.
12. Galvão DA, Nosaka K., Taaffe DR, Spry N., Kristjanson L, McGuigan MR, Suzuki K, Yamaya K, & Newton RU. Resistance training and reductions in treatment side effects in prostate cancer patients. *Medicine and Science in Sports and Exercise*. 2006;38(12):2045-2052.