

# Prostate cancer and exercise

## What is prostate cancer and how is it treated?

Prostate cancer is an abnormal growth of cells in the prostate gland and is the most common cancer in Australian men. Each year, about 20 000 cases are diagnosed, and 3300 men die from the disease (it is the second most prevalent cause of death from cancer). The cancer is usually confined to the prostate, but can also spread to other parts of the body, particularly the skeleton. Prostate cancer usually develops relatively slowly and a blood test (the Prostate Specific Androgen test, or PSA) has resulted in earlier detection and improved outlook; fewer men die and many men with prostate cancer live for 10 years or more.

Treatments include surgical removal of the cancer, which can cause urinary incontinence and sexual dysfunction. Exercise can play a role both before surgery to improve recovery and outcomes, and after surgery for rehabilitation, especially to treat incontinence. Radiation therapy is also used alone and in combination with other treatments and can cause fatigue among other side effects. Because prostate cancer cells are responsive to the hormone testosterone, a very common therapy is the pharmaceutical suppression of either testosterone production or blockage of binding sites on the cells. Both strategies result in testosterone availability for all cells in the body being reduced to castrate levels and grouped under the term Androgen Suppression Therapy (AST). AST drastically reduces testosterone levels in the body and is highly effective for slowing prostate cancer growth however, AST also causes many side effects, including muscle and bone loss, weight gain, cognitive impairment and increased risk of cardiovascular disease, type 2 diabetes and other consequences of metabolic syndrome. Anxiety and depression are also more prevalent due to both the cancer diagnosis and treatment. Exercise has a well-established role as medicine to reduce all these side effects.

## Exercise and prevention of prostate cancer

Established scientific evidence shows that regular and vigorous physical exercise prevents some cancers, and can also reduce the incidence of cancer by 30–70% (1). The effect is strongest for breast and colorectal cancer. Evidence of the protective effect on prostate cancer is increasing, although the effect is greatest in more advanced disease and in older men. One study (2) reported reduced prostate cancer incidence by 70% for advanced forms and in older men if performing more than 3 hours of vigorous exercise per week. The protective mechanisms are not well understood, but maintaining normal body weight, controlling stress and anxiety, and maintaining physical fitness all optimise the function of the immune system, which reduces the risk for all cancers.

## Exercise for management of prostate cancer

If you have been diagnosed with prostate cancer, exercise is an important adjunct therapy to reduce your symptoms, lessen the side effects of radiation and drug therapies, improve your psychological wellness and increase your survival rate. Exercise is particularly important for preventing and managing other, often more life-threatening, chronic diseases, such as cardiovascular disease and type 2 diabetes. These conditions are increasingly recognised as side effects of cancer therapy, particularly AST (3). Additionally, many men with prostate cancer often experience reduced fitness, loss of muscle and bone mass and increased body fat. These effects are partly caused by reduced physical activity, poor nutrition and depression. There is now irrefutable evidence from large prospective studies that regular exercise after cancer diagnosis will actually increase cancer survival rates by 50–60%, with the strongest effect for breast, colorectal and prostate cancers (4). A recent study has reported a 49% reduction in deaths from all causes in patients with prostate cancer who did more than three hours of weekly vigorous activity and 61% lower risk of prostate cancer death (5).

Men are generally older when they develop prostate cancer, and so muscle and bone loss and weight (fat) gain before diagnosis are common. These factors are considerably exacerbated by AST (6). Therefore, exercise programs must be prescribed to address specific issues facing the patient. Muscle loss and the associated low strength and power capacity increases the risk of falls, which is a major concern if the patient also has osteoporosis (weak bones). Functional capacity, the ability to perform the tasks of daily living and quality of



life are also reduced in these circumstances. An appropriately prescribed exercise program (7) has been demonstrated to increase muscle mass and neuromuscular strength, enhance functional performance and reduce risk factors for metabolic syndrome, cardiovascular disease and type 2 diabetes. These effects, along with improved immune capacity resulting from exercise are the most likely mechanisms for increased survival rates in patients who remain, or become, sufficiently active (5).

## What type of exercise is recommended?

If you have been diagnosed with prostate cancer, you should aim to meet or exceed the following:

**Do continuous or intermittent aerobic exercise for 20 to 60 minutes per session, three to five times per week at 60–90% of your maximal heart rate** (the maximal heart rate is estimated as 220 minus your age in years). Rating of perceived exertion (RPE) is also a useful method to prescribe the desired intensity of the exercise. RPE for older people should be between 13 and 15 on a 20-point scale, provided you have no other health issues that require a lower intensity. Your total weekly exercise should be 120–150 minutes, depending on the intensity of your aerobic exercise.

**Resistance (weight) training at an intensity of 6–12 repetitions maximum (RM) performed over 3 sets of 6–8 exercises is recommended for each session with the goal of 2 or more sessions per week.** It is important to exercise all the major muscle groups each week and select functional movements such as squat, upright row, shoulder press and other exercises that are similar to tasks of daily living. RM intensity refers to the maximum weight that can be lifted for a given target set. For example, 6RM is the weight that can be lifted only 6 times through the full range of movement and while maintaining correct technique.

**Flexibility exercises for major muscle groups involving 2 to 4 sets of each exercise two to three times per week should also be completed.** Low bone mineral density and osteoporosis are common in men with prostate cancer, due to their age and particularly if they are undergoing AST. If your bone density is compromised then it is recommended that impact loading exercise be completed to slow or even reverse your bone loss. However, if you have severe osteoporosis or if your cancer has spread to the bones, a modified program is best for reducing your risk of fractures. An exercise program should not exclude exercises which load the skeleton as this strategy will exacerbate bone loss. Rather, prudent exercise and load selection employed in more controlled environments under the supervision of an Accredited Exercise Physiologist is advised.

**Exercise physiologists** can also help you to address any significant neuromuscular weakness to maintain your muscle function and reduce your risk of falls. Balance training that includes recovery from being off balance and functional movement training may be beneficial. If you have muscle wasting, increase your resistance training to build muscle mass — this may be more effective if combined with nutritional strategies to optimise muscle growth. If you have a high level of body fat, particularly if you have other signs of metabolic syndrome, exercise and nutritional strategies will help you to attain a more healthy body composition. As per the guidelines of the American College of Sports Medicine, a higher total volume of weekly aerobic exercise combined with reduced energy intake is recommended in this case.

## References and further information

Exercise is Medicine Australia [www.exerciseismedicine.org.au](http://www.exerciseismedicine.org.au)

Find an Accredited Exercise Physiologist [www.essa.org.au](http://www.essa.org.au)

Exercise Right [www.exerciseright.com.au](http://www.exerciseright.com.au)

Prostate Cancer Foundation of Australia [www.prostate.org.au](http://www.prostate.org.au)

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