



Mr PHIP

Prostate
Health
Improvement
Program

**Repatriation
General Hospital,
Daw Park, SA.**

*A project of the
Primary Health Care
Initiatives Program, SA.
Health Commission*

There is a wide variability in sexual function as men grow older; however a gradual decline is normal.



Introduction

After treatment for prostate cancer, your sexual function can be affected. This information sheet describes what may happen and why, and what is available to assist you. Not all aspects of male sexual problems are covered here – just the ones you may encounter after treatment.

When a man has trouble gaining an erection, doctors call this 'erectile dysfunction' or ED. Many factors can influence normal sexual function and one of the most important is simply growing older! But others are diabetes, smoking, high alcohol intake and some medications. Emotional or psychological stress can also cause a decline in sexual activity. Many men will have a combination of these influential factors, and so there is a wide variability in sexual function as men grow older.

Prostate cancer therapy is an additional negative influence on whatever your normal level of function is. Thus men who had frequent sexual activity before their treatment are more likely to continue this after treatment, than men who were only occasionally sexually active. Similarly those who have weak erections before treatment are likely to have weak or no erections afterwards. The prostate cancer itself rarely has a direct effect on reducing erectile function.

But let us now look more closely at what sexual activity involves.



Normal sexual function

There are four parts to normal sexual function in men - sex drive (also called libido), erection, ejaculation (emission of fluid), and orgasm.

What causes sex drive?

At puberty, the brain increases production of hormones that stimulate greater production of testosterone by the testicles. Testosterone is the main hormone responsible for the development of male sex organs and sexual behaviour. When testosterone levels drop, sex drive diminishes. This occurs naturally with aging, but may also occur with illness, some commonly used medications and with hormone treatment for prostate cancer.

What happens when you have an erection?

The penis contains nerves, smooth muscle and blood vessels in three spongy chambers, also called sinusoids. When a man is sexually stimulated, the nerves release a substance which causes the smooth muscle to relax. This causes the spongy chambers to dilate and blood is pumped in. The penis elongates shutting off the veins so that blood doesn't leave the penis. After ejaculation, the nerves stop releasing the muscle relaxing substance, blood flow to the penis is reduced, blood flow out of it increases and the erection subsides. It follows that both nerves and healthy blood vessels are important for erections. The nerves necessary for erections separate from those involved in sensation from the penis or for orgasm.

What happens during ejaculation?

Sperm mature and are stored in a structure close to the testes called the epididymis and structures close to the bladder called the seminal vesicles. During ejaculation, semen, which contains sperm and fluid



from other sources (such as the prostate and seminal vesicles), is propelled by muscular contractions along a tube into the urethra (urine tube). During ejaculation, a muscular valve at the bladder outlet closes, forcing semen out of the penis.

What happens during orgasm?

Orgasm mainly happens in the brain and has little to do with the prostate. As long as normal sensation is intact, orgasm can occur even in the absence of an erection and ejaculation. This is the key reason why satisfactory sexual function can be restored to most men after prostate cancer treatment involving surgery or radiotherapy. The common exception here is men receiving hormone therapy, because this frequently causes loss of libido (sexual desire).



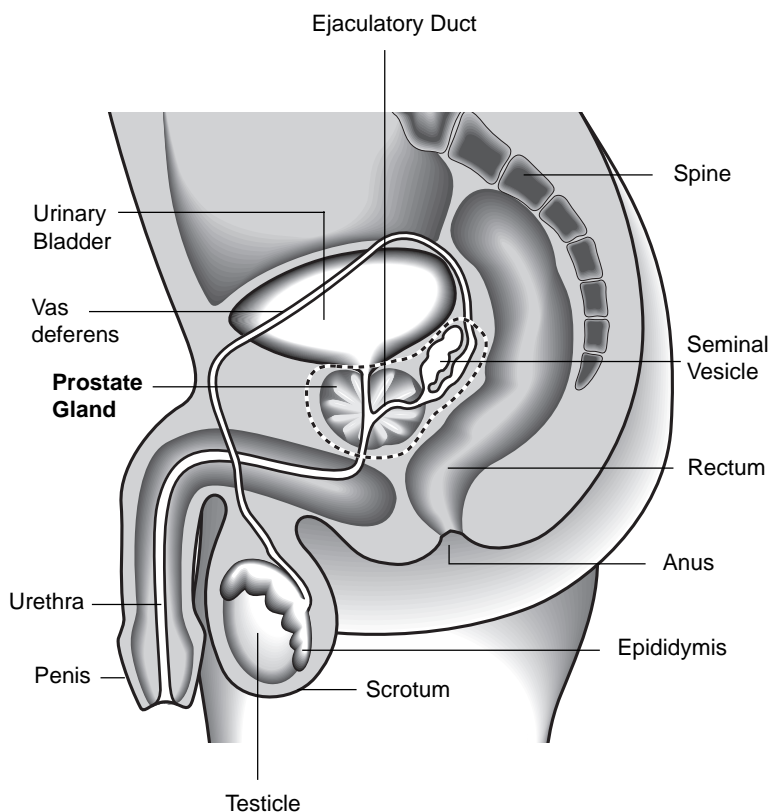
Why are erections affected by treatment to the prostate gland?

The prostate is not particularly important for normal sexual function. It adds secretions to the ejaculate, which help the sperm to survive. However it doesn't control the ability to have an erection.

Nevertheless, structures which are important to erectile function are in close proximity to the prostate and can be damaged when the prostate cancer is treated. A series of fine nerves which assist in the ability to have an erection lie in bundles against the prostatic capsule. During sexual arousal, blood fills the penis to create an erection, and small blood vessels expand in order to deliver enough blood. Prostate cancer treatment such as radiotherapy and surgery can damage the nerves and the blood vessels.

Figure 1 - Male Reproductive System

Radical Surgery removes the whole prostate (as indicated by dotted line)



Trans-urethral resection of the prostate gland

A trans-urethral resection of the prostate (TURP) is an operation to remove prostate tissue through the urine outflow tube (the urethra). It can improve urine flow when the tube is blocked by benign enlargement of the prostate, or by prostate cancer. *Only a part of the prostate is removed* and so some men call this a 're-bore'. During this operation, the constricting "valve" at the bladder outlet is often opened – so that during ejaculation (because there's no barrier to keep semen from going back into the bladder), semen is propelled into the bladder rather than through the penis to the outside. This results in a 'dry ejaculation'. It is not painful nor dangerous and the semen is passed out when the bladder is next emptied.

Radical prostatectomy

During this operation for cancer, the entire prostate and the seminal vesicles are removed. After a radical prostatectomy the focus of attention is initially on the return of urinary control (continence), as the nerves and muscles controlling urination also lie close to the prostate area.

A man will normally lose the capacity to have erections immediately after the operation, however with time, there is usually some return of erections. In part, the return of erections depends on the extent to which the nerves which lie close to the prostate could be spared during surgery. This is a choice that the surgeon is only able to make at the time of surgery since to spare the nerves and also leave cancer behind would defeat the purpose of the operation. If it is considered safe to do so, techniques are available to preserve these nerves. More recently some surgeons have been reconstructing the pathway by grafting nerves into the area. Nevertheless, although the nerves are important they are not essential. After a radical prostatectomy, approximately 20% of men who did not have nerves spared have some return of erections.

You may be advised by your doctor to 'give it time'. After surgery your body needs time to heal. The erection you may have 4 months after surgery is not necessarily the same one you'll have 2 years later. Many men experience improved natural erections over time; with continued improvement reported for up to 4 years postoperatively! Erections may return gradually. Aids to assist with an erection after surgery may improve your long-term function and so you may consider these only a few weeks after your operation.

After a radical prostatectomy, the stimuli that cause an erection may need to be altered. Visual stimulation may not be as important as direct stimulation of the penis. No damage can be done through experimenting with your sexual activity. If you have a partial erection, go ahead

and attempt intercourse - vaginal stimulation will encourage further and better quality erections. Continue with sexual relations even though erections may not occur and don't wait until the time when they 'just happen'.

Soon after surgery traditional vaginal penetration may not be easy. Some men have found that if they attempt sexual activity standing up, they can achieve a much firmer erection. Sexual activity can continue either while a man remains standing, or while he's kneeling. Lubrications such as K-Y jelly, may also help.

Radiotherapy

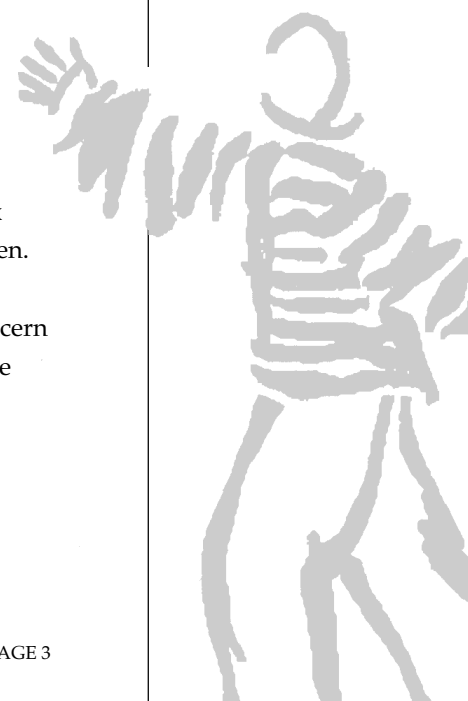
After radiotherapy to the prostate sexual function is not usually affected in the short to medium term. Several years after radiotherapy erectile function typically declines gradually. This is thought to be due to the progressive damage to the nerves and small blood vessels near the prostate that are important for erections. It is often stated that brachytherapy (interstitial radiotherapy) to control prostate cancer will reduce the risk of erectile dysfunction in comparison to radiotherapy delivered by external beam; however, further research is needed. Conformal radiotherapy and intensity modulated radiotherapy are newer delivery techniques that may reduce damage to healthy tissues adjacent to the prostate. Remember also that aging itself has an effect on sexual function!

Hormone Treatment

Control of prostate cancer using hormone therapy usually results in the reduction of testosterone and sex drive will be diminished for most men. However, continuation of simple physical expressions of love and concern between you and your partner can be very important in the ensuing years.

It is not necessary to achieve erection or penetration in order to achieve orgasm!

Natural erections can improve for up to 4 years after a radical prostatectomy.





What you can do

Medications

*Viagra*TM (sildenafil) first became available in Australia in 1998 and is not currently subsidized by the Governmental Pharmaceutical Benefits Scheme (PBS). It is a tablet that can assist some men to achieve an erection or a better quality erection. Perhaps 3 in every 10 men who have had a radical prostatectomy can achieve a better quality erection with *Viagra*TM. The recommended strength of tablet initially is 50 mg, increasing to 100 mg if unsuccessful.

*Viagra*TM is not an aphrodisiac (ie does not increase sex drive) and typically direct penile stimulation is required to stimulate an erection. Loss of an erection (detumescence) occurs after orgasm in a man taking *Viagra*TM, as would normally occur. The medication needs to be taken 30-60 minutes before attempting intercourse, but may remain active in the circulation for up to 12 hours (some men have noticed "spontaneous" erections the following morning).

Men who take nitrate medication (eg anginine) for a heart condition must not mix with *Viagra*TM as the risk of low blood pressure and sudden death is increased. Your doctor will advise you on your risk or may recommend you seek advice from a cardiologist (heart specialist). Bear in mind that sexual activity is indeed exercise, and heart attacks are more likely to occur during exercise than otherwise. Known side effects of taking *Viagra*TM include headache (15%), facial flushing (11%), indigestion (6%), visual disturbance (3%). Current cost is about \$55 for 4 tablets, regardless of tablet strength. If the medication doesn't work at the first attempt, it may be worthwhile retrying some months later.

*Viagra*TM may help some men taking hormone therapy, but sexual desire is usually low. Other tablet medications for male ED are being assessed in clinical trials in Australia and these may provide improved choices in the future.

Injection therapy

Direct penile injections are the most effective form of therapy to achieve erections after a radical prostatectomy. A drug is injected each time an erection is required - this occurs without any direct sexual stimulation - it is a chemical response. *Caverject*TM (alprostadil) is the most freely available and is supported by the PBS scheme.

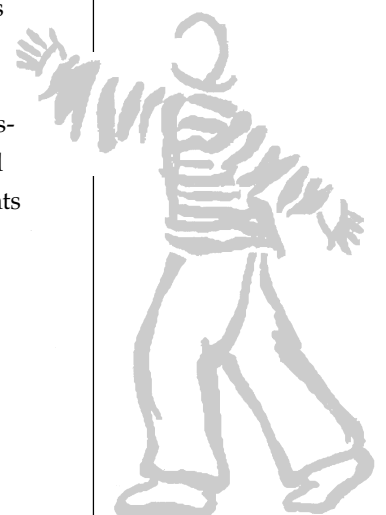
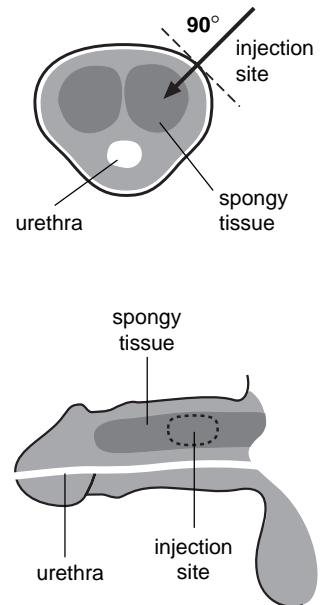
It is important to start by injecting small doses (eg 5 micrograms) and then gradually increase the dose until a satisfactory result is achieved.

This reduces the risk of one of the uncommon side effects - a painful prolonged erection, called priapism. Any erection lasting more than 4 hours with this type of medication requires urgent medical intervention. Typically blood is drained from the penis and an "antidote" injected into the penis. Some doctors prescribe a tablet to help deflate the erection should it last for 3 hours or more, eg pseudoephedrine 30 - 60 mg orally.

Most doctors recommend a maximum of 3 injections per week because more frequent use carries with it a greater risk of permanent scarring within the penis. The correct technique of injection therapy can be learned by most men, provided their eyesight and dexterity are reasonable.

There are injectable medications other than *Caverject*TM that have been used, some in combination. As all rely on a relatively normal blood supply to the penis, injection therapy can fail if this is inadequate. *Caverject*TM must be hard frozen to maintain activity although a powder form that can be stored or transported at room temperature is expected on the Australian market soon. Other agents usually require refrigeration to store.

Figure 2 - Injection therapy





Vacuum erection devices (VEDs)

An erection can be created by drawing blood into the penis by way of a vacuum pump placed over the penis. Once the erection is created, a constrictive band is placed onto the penile base close to the pubic bone to maintain the erection during sexual activity. The band should be released within 30 minutes to reduce the risk of damage to the penis itself. A VED is reusable.

Education and personal experience with these devices is very helpful and most companies make available video tapes which demonstrate their use.

They are not available on the PBS and cost between \$400 and \$600 each.

Penile prostheses

Devices can be placed within the penis to create a mechanical erection. Such an operation is normally not performed less than 2 years after radical prostatectomy since recovery may occur naturally prior to this. The normal spongy penile structure is destroyed to allow the device to be placed. Most of the cost of inserting these devices is covered by private health funds.

Figure 3 - Vacuum erection device

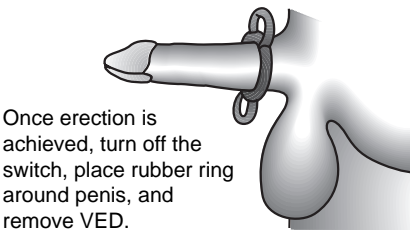
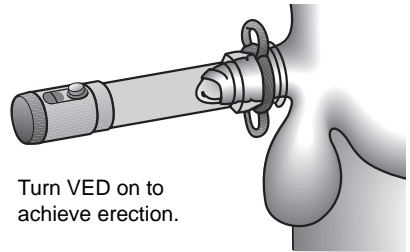
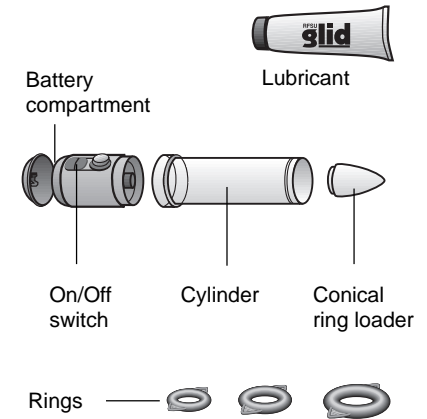
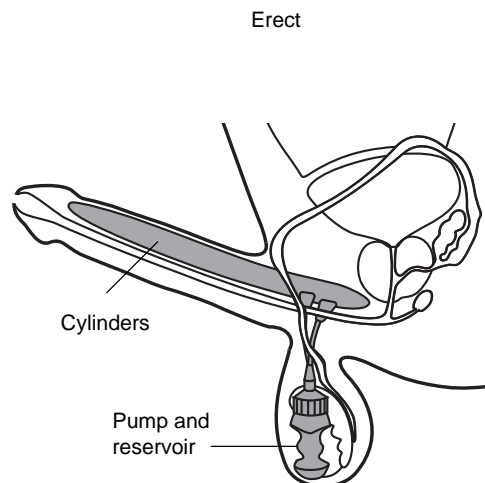
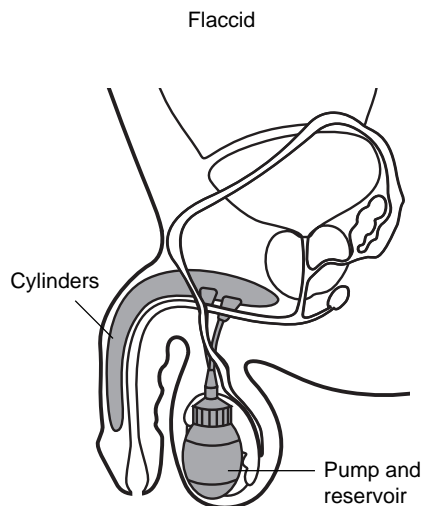


Figure 4 - Penile prostheses





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In conclusion

All men are able to enjoy a sexual relationship following surgery and radiotherapy, since their sensation of arousal, excitement and orgasm is typically unchanged. What is often lacking is the spontaneous event of a rigid penis. A number of options for achieving an erection have been mentioned and one or more of these is usually successful. You can experiment also with other forms of sexual intimacy - there may be new discoveries to be made!

Remember there is no potential for harm to your sexual partner from either the cancer or from any potential urinary leakage during a sexual encounter. Your partner, wherever possible should be included in discussions about your sexuality and treatment choices.

Finally, it is important to keep in mind the larger picture! There is far more to a fulfilling relationship than an erect penis, even though the latter often becomes the focus of attention during consultations with treating doctors! The purpose of your treatment is to rid you of a life threatening disease.



Further information

Initial contact with your urologist or general practitioner is recommended.

Relationships Australia in your state
Address the relationship aspects of erectile dysfunction. Call the national office on 02 6285 4466 for local contact details.

Books

Men and Sex. B. Zilbergeld, 1995. Harper Collins. Also provides wider understanding of male sexuality.

The Sexual Male: Problems and Solutions. R. Milsten and J. Slowinski, 1999. WW Norton. The authors are chief of Urology at Underwood-Memorial Hospital in the US, and Assistant Professor in Psychiatry at the University of Pennsylvania.

The Prostate. P. Walsh and J. Worthington (one chapter), 1997. Warner Books, NY.

Your Prostate, Your Choices. G. Hirst and S. Wilde (one chapter), 1999. Bantam Books, Sydney.

Check out these useful websites:

<http://www.impotence.org>

<http://www.prostatehealth.org.au/PHIP>

<http://www.pslgroup.com/erectile.htm>

For more information contact the cancer organisation in your state by phoning 13 11 20 or visit the Lions Australian Prostate Cancer Website at: www.prostatehealth.org.au

This information sheet is not intended to take the place of medical advice. Information on prostate disease is constantly being updated. We have made every effort to ensure that information was current at the time of production, however your GP or specialist may provide you with new or different information which is more appropriate to your needs.