

Cancer Association of South Africa (CANSA)



Fact Sheet on Cancer Treatment and Erectile Dysfunction

Introduction

Erectile dysfunction (ED) or impotence is sexual dysfunction characterised by the inability to develop or maintain an erection of the penis during sexual activity. A penile erection is the hydraulic effect of blood entering and being retained in the sponge-like structures within the shaft of the penis. The process is often initiated as a result of sexual arousal, when signals are transmitted from the brain to nerves in the penis.

The most important organic causes of erectile dysfunction are cardiovascular disease and diabetes, neurological problems (for example, trauma from prostatectomy surgery), hormonal insufficiencies (hypogonadism) and drug side effects.

[Picture Credit: Erectile Dysfunction]

Psychological impotence is where erection or penetration fails due to thoughts or feelings (psychological reasons) rather than physical impossibility; this is somewhat less frequent but can often be helped. Erectile dysfunction can have severe psychological consequences as it can be tied to relationship difficulties and masculine self-image generally.

Treatment for certain cancers can affect one's sexuality, causing a range of signs and symptoms that can make sex with one's partner more difficult. But that does not mean one cannot have a healthy sex life after cancer treatment. Knowing more about one's cancer treatment and how it may affect sexual function can help one find a solution if problems develop.
(Wikipedia; Mayo Clinic).



Incidence of Cancer in South Africa

According to the National Cancer Registry (2012) the following number of cancer cases was histologically diagnosed in South Africa during 2012:

Group - Males 2012	Actual No of Cases	Estimated Lifetime Risk
All males	36 900	1:7
Asian males	843	1:7
Black males	11 666	1:10
Coloured males	4 336	1:4
White males	20 055	1:4

Erectile Dysfunction (ED)

Erectile dysfunction (ED) is the frequent or consistent inability to get or sustain an erection of the penis sufficient to engage in sexual activity or intercourse. While most men occasionally fail to get an erection, or lose an erection prematurely during sexual activity, men with ED suffer from this problem regularly.

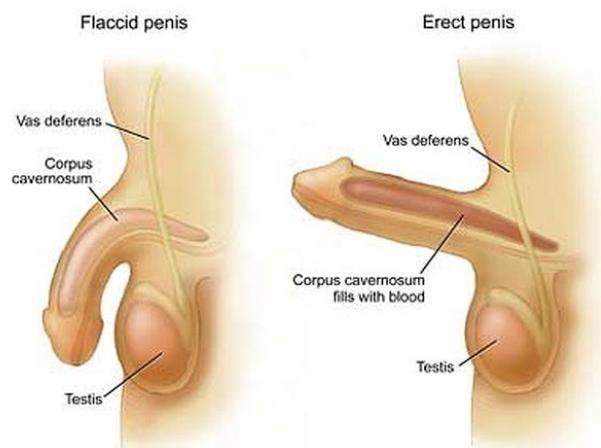
(Body and Health, Canada).

How Erections Work

An understanding of the basic physiology of erection (that is, how an erection works) will allow men to understand not only the causes of erectile dysfunction (ED) but will also lay the foundation for the understanding of ED treatments.

[Picture Credit: Erectile Dysfunction 2]

The penis is an organ with two paired erection chambers (corpora cavernosa), which are filled with spongy erectile tissue (referred to as corporal sinusoids) composed predominantly of muscle. Erection and loss of erection are related primarily to blood flow events regulated by the relaxation and contraction, respectively, of the smooth muscle in the penile arteries and the erectile bodies themselves. Erection is a hydraulic event, regulated by hormones and nerves, which allow increased blood flow into and storage of blood within the erectile bodies leading to an increase in pressure and the development of rigidity (hardness). Penile erection is triggered by one of two main mechanisms: direct stimulation of the genitalia or through stimuli coming from the brain (fantasy, smell, etc).



Upon stimulation, chemicals are released in the brain that cause signals to pass down the spinal cord and outward through special nerves (*nervi erigentes*) into the penis. These nerves release another chemical (*Nitric Oxide*) that causes the aforementioned smooth muscle to relax and blood rushes into the erectile bodies, causing erection.

Anxiety or fear can prevent the brain signals from reaching the level required to induce erection. Medical conditions can block the erection arteries or cause scarring of the spongy erection tissue and prevent proper blood flow or trapping of blood and, therefore, limit the erection. Thus, the erection mechanism is much like a tire; a firm tire is dependent upon a hose that can deliver air in adequate amounts in a speedy fashion and a valve mechanism that holds the air in place. In the penis the hose is represented by the erection arteries, which rapidly carry blood into the erectile bodies and the valve mechanism, while

complicated in its structure, ensures that the blood is trapped inside the erectile bodies until ejaculation occurs or the sexual stimulus has passed.
(Weill Cornell Medical College).

Erectile Dysfunction: Most Common Sexual Side Effect of Cancer Treatment in Men

A number of sexual side effects can occur as a result of cancer treatment in men, including:

- Inability to achieve or maintain an erection (erectile dysfunction)
- Difficulty climaxing
- Orgasm without discharge of semen (dry orgasm)
- Weaker, less satisfying orgasms
- Loss of interest in sex
- Pain during sex
- Less energy for sexual activity
- Feeling less attractive

[Picture Credit: Erectile Dysfunction 3]



Not every man with cancer will experience sexual side effects.

One's treating doctor can discuss the level of risk one may encounter for a specific type of cancer and treatment.

Cancer can cause sexual side effects if the cancer involves sexual organs. Cancers that do not affect the sexual organs can also affect one's sexuality by changing one's body image, making one feel less attractive, or causing fatigue or depression and decreasing interest in sex.

Sexual difficulties can also result from side effects of cancer and its treatment, such as fatigue, pain or anxiety about the cancer treatment. In addition, depressed feelings about having cancer could cause a loss of libido.

Sometimes emotional factors may have sexual side effects in addition to the physical changes one may be undergoing during treatment.
(Mayo Clinic).

Erectile Dysfunction in Younger Men

With younger men, psychological problems are the likeliest reason for erectile dysfunction. Tension and anxiety may arise from poor communication with the sexual partner or a difference in sexual preferences. The sexual difficulties may also be linked to the following factors:

- Depression
- Fatigue
- Stress
- Feelings of inadequacy
- Personal sexual fears
- Rejection by parents or peers
- Sexual abuse in childhood

(WebMD).

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April 2017

Causes of Erectile Dysfunction or Impotence in Men Undergoing Cancer Treatment

Sexuality is a complex, multidimensional phenomenon that incorporates biologic, psychologic, interpersonal, and behavioural dimensions. It is important to recognise that a wide range of normal sexual functioning exists. Ultimately, sexuality is defined by each cancer survivor and his partner within a context of factors such as gender, age, personal attitudes, and religious and cultural values.

There are many possible causes of erectile dysfunction or impotence, including:

- Age - many men, with increased age, will develop an inability to achieve or sustain an erection
- Vascular (blood vessel) problems - because an erection is due to blood flow to the penis, men who have problems with blood flow (blood circulation), or their vascular system, may experience impotence
- Other health conditions - Men with diabetes may experience a decreased sensation
- Smoking and alcohol use - in general, may lead to impotence in all populations, regardless of whether or not one is receiving chemotherapy
- Protective barriers - some people who use condoms, or other protective barriers, may experience a decreased sensation during sexual activity
- Medications - such as antidepressants, heart medications, and narcotics may decrease one's ability to have an erection.

Impotence - Chemotherapy and Cancer Related Issues:

- Prostate cancer, or prostate surgery - whether in the early stages, or advanced, men may experience erectile dysfunction due to nerve damage from the tumour, or surgery to remove the tumour.
- Testicular cancer - hormonal therapy that may be used to treat the cancer, or following surgery, the man may have difficulty with his sexual organs
- Radiation therapy - Radiation to the pelvic region may cause damage to the nerves
- Anxiety and depression - it is normal to experience anxiety or depression, due to situational factors. Since a large component of sexual health is mental, anxiety and depression may negatively affect one's self-esteem, and prevent one from being able to attain an erection
- Chemotherapy will often slow down the amount of testosterone produced. Many chemotherapy and cancer treatment options include androgen or testosterone deprivation therapy
- Some medications used to control nausea may affect a man's hormone balance. Hypogonadism is a term used to describe what men are experiencing if they are deficient in certain male hormones, especially testosterone
- The physical side effects of chemotherapy are usually temporary and resolve within one to two weeks after stopping the chemotherapy. However, chemotherapy agents, such as Cisplatin or Vincristine, may interfere with the nerves that control erection leading to possible impotence. Make sure to discuss potential side effects of cancer chemotherapy with the treating doctor or healthcare provider.

(Chemocare; National Cancer Institute).

Diagnosing Erectile Dysfunction

Because there are a variety of causes of erectile dysfunction, there are several different tests a doctor may use to diagnose the condition and determine its cause. Only after the cause of ED is determined can it be effectively treated.

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Before ordering any tests, the doctor will review the man's medical history and perform a thorough physical exam. The doctor will also "interview" the person about his personal and sexual history. Some of these questions will be very personal and may feel intrusive. However, it is important that these questions be answered honestly. The questions asked may include:

- What medications or drugs are you currently using? This includes prescription drugs, over-the-counter drugs, herbal supplements, dietary supplements, and illegal drugs or alcohol.
- Do you smoke?
- Do you snore at night or have other symptoms of sleep apnoea?
- Have you had any psychological problems such as stress, anxiety, and depression?
- When did you first notice symptoms of ED?
- What are the frequency, quality, and duration of any erections you have had?
- What are the specifics of the circumstances under which ED first occurred?
- Do/did you experience erections at night or during the morning?
- What sexual techniques do you use?
- Are there problems in your current relationship?
- Do you have more than one sexual partner?
- If you have more than one partner, do you experience ED with one or all sexual partners?

The doctor may also wish to interview the man's sexual partner since the partner may be able to offer insight about the underlying cause(s).

After the examination and interview, which will include the measuring of blood pressure, the doctor may then order any of the following tests:

- Complete blood count (CBC): This is a set of blood tests that, among other things, can detect the presence of anaemia. Anaemia is caused by a low red blood cell count and can cause fatigue, which in turn can cause ED.
- Blood glucose (sugar): This test will help the doctor determine whether the person might have diabetes, which can contribute to ED.
- Liver and kidney function tests: These blood tests may indicate whether ED may be due to the liver or kidneys functioning improperly.
- Lipid profile: This blood test measures the level of lipids (fats), like cholesterol. High levels may indicate atherosclerosis (hardening of the arteries), which can affect blood circulation in the penis.
- Thyroid function test: An overactive thyroid (hyperthyroidism) may contribute to ED by producing an excess of thyroid hormones. Thyroid hormones help regulate the levels of sex hormones, and a deficiency in these hormones may contribute to or cause ED.
- Blood hormone studies: Testosterone levels in the blood may be measured to see if an abnormality is present. If the testosterone level is low, the doctor may recommend testing levels of prolactin, follicle-stimulating hormone, and luteinising hormone.
- Urinalysis: Analysis of urine can provide a wealth of information, including information on protein, sugar, and testosterone levels. Abnormal measurements of these substances can indicate diabetes, kidney disease, or a testosterone deficiency, all of which can contribute to ED.
- Duplex ultrasound: An ultrasound uses high-frequency sound waves to take 'pictures' of the body's tissues. For people with ED, an ultrasound may be used to evaluate blood flow and check for signs of a venous leak, atherosclerosis, or tissue scarring.

This test is performed both while the penis is erect (usually induced by an injection of a drug that stimulates erection) and also while it is soft (flaccid).

- Nocturnal penile tumescence (NPT): This test measures a man's erectile function while he is sleeping. Normally, a man will have five or six erections while asleep. A lack of these erections may indicate that there is a problem with nerve function or circulation to the penis. The test can be performed using several different methods, including the snap gauge method and the strain gauge method. The snap gauge method is performed by wrapping three plastic bands of varying strength around the penis. Erectile function is then measured based on which of the three bands breaks. The strain gauge method works by placing elastic bands around the tip and base of the penis. If the penis becomes erect during the night, the bands stretch, measuring the changes in penile circumference. Another method uses a RigiScan electronic device, where loops are placed around the tip and base of the penis, providing continuous monitoring of erectile events.
- Penile biothesiometry: This test involves the use of electromagnetic vibration to determine sensitivity and nerve function. A decreased sensitivity to these vibrations may indicate nerve damage.
- Vasoactive injection: During this test, an erection is produced by injecting special solutions that cause the blood vessels to dilate (enlarge), allowing blood to enter the penis.
- Bulbocavernosus reflex: This test evaluates nerve sensation in the penis. During the test, the doctor will squeeze the head of the penis, which should immediately cause the rectum to contract. If nerve function is abnormal, there will be a delay in response time or absence of rectal contraction.
- Prostate Specific Antigen (PSA): This test may be abnormal due to prostate cancer, enlargement, or infection. These conditions and their treatments may complicate ED.

(WebMD).

Living With, Coping With, and Managing Erectile Dysfunction (ED)

Coping with ED – ED takes more than a physical toll. The emotional impact the condition can have on a man and his partner can be just as difficult. It is common for men with ED to feel anger, frustration, sadness, or lack confidence. However, the condition can be treated. The first step in addressing concerns about ED is to be honest with oneself, one's partner, and one's doctor. Once ED has been brought out into the open, coping with it as one goes through treatment will be easier and less stressful. Communication is essential to a successful diagnosis and treatment, as well as, helping one's partner understand one's feelings.

While being treated for ED, it is important to be patient with progress and keep in mind that everybody is different and that a treatment that might work for one person may not work or be appropriate. It is also important to know that the chosen treatment may not work the first time or may not work every time.

For some couples, sex therapy may be necessary to help the man and his partner cope. It may also help to hear from some men who have ED and learn about their experiences.

Erectile Dysfunction during Sex – It is good to get men talking about their sexuality. But being sexual is different than having an erection.

This focus on performance, robs men and their partners of the opportunity to deepen their relationships - and their sexuality. The sexual needs of adolescents are different than those of adults. Yet by making erections the be-all and end-all of sex, grown men are retreating to adolescent sexual values.

"Having an erection does not mean one is being sexual. Being sexual comes from inside one's sense of oneself. One can be sexual, one can feel sexual, and one can behave sexually without an erection. A penis is not the only part of a man's body that can be used sexually.

There is a distinction between genital behaviour and sexual behaviour. Mistaking one for the other leads to dishonesty and dissatisfaction. One can behave genitally whether feeling sexual or not. Women *and* men can fake it. Lots of men get an erection, penetrate, and lose the erection and pretend they have had an orgasm because they want to be perfect. They do not say, 'Hey, I didn't have an orgasm but maybe next time. Being near you is enough'.

Research has found that physical problems do not lie at the heart of most men's sexual problems. It is psychological distress associated with not measuring up rather than physiological problems that causes most sexual dissatisfaction. For many, many men - maybe most - problems with sex are due to ignorance, anxiety, and inability to communicate with their partners. Sexual dysfunction is often the inevitable result of the effort to attain perfection.

Erectile Dysfunction: Maintaining Intimacy - Dealing with ED can be difficult on a relationship, but, sexual intercourse is not the only way to be intimate with a partner. There are sexual and non-sexual ways to remain close. Here are some tips.

Talk about feelings: Sharing the way one feels about each other can make a couple to be closer. Open dialogue with a partner about each other's needs and concerns helps to overcome barriers to a healthy relationship.

Participate in common interests: Hobbies, sporting activities, or volunteer activities can bring couples closer together when they share interests.

Make time to be alone together: Try taking a bath together, sharing a candlelight dinner, taking a walk, or just holding each other in bed.

Experiment with alternative sexual techniques: Learn new sexual techniques that can bring pleasure without intercourse. Many bookstores carry books on alternative sexual practices.

Talk to a sex counsellor: If ED is straining a relationship, consider seeking care from a professional therapist.

And finally, have fun trying new and different techniques, positions, accessories, etc. There is hope for ED, and one can have a fulfilling and satisfactory sex life. Enjoy!

Depression and Erectile Dysfunction (ED) - It is not uncommon for men with (ED) to feel angry, frustrated, sad, or even unsure of themselves. Such feelings, if not dealt with, may eventually lead to depression

Depression that accompanies ED is treatable. The first step in overcoming depression is to be honest with oneself, one's partner, and one's doctor. After depression has been brought out into the open, coping with it will be easier and less stressful.

Depression is an illness marked by persistent sadness, feelings of hopelessness, and a pessimistic outlook. The most common symptoms of depression include:

- Low self-esteem
- Loss of interest in formerly pleasurable activities
- Fatigue
- Changes in appetite
- Sleep disturbances
- Apathy



[Picture Credit: Erectile Dysfunction 4]

Depression affects the way one feels about oneself and the way one thinks about life. People who are depressed cannot simply "pull themselves together" and get better. Without treatment, symptoms of depression can last indefinitely. Appropriate treatment, however, can help most people who suffer from depression get back on track.

If one has ED and thinks he may be depressed, he should not suffer in silence. Depression is not a sign of personal weakness. There is no single test that can diagnose depression; however, there are certain patterns that doctors look for in order to make the diagnosis. As a result, the doctor will ask several questions. Be honest with answers so that proper care can be provided.

Treatment for depression may include medication, psychotherapy (talk therapy), or a combination of both.

Antidepressants: Many different drugs, including Prozac, Zoloft, Elavil and Welbutrin, are used to treat depression. Some antidepressants can worsen ED, so be honest with the doctor about depression so that he or she can prescribe an appropriate treatment.

Talk therapy: During therapy, a licensed and trained care professional helps individuals identify and work through issues related to ED and depression. Types of talk therapy include couples therapy, individual therapy, and group therapy. (WebMD).

Non-Surgical Treatment of Erectile Dysfunction (ED)

The first line of therapy for uncomplicated ED is use of oral medications known as phosphodiesterase-5 inhibitors (PDE-5):

- sildenafil citrate (Viagra®),
- vardenafil HCl (Levitra®),
- tadalafil (Cialis®)

Men with ED take these pills before beginning sexual activity and the drugs boost the natural signals that are generated during sex, thereby improving and prolonging the erection itself. The medication works by relaxing the muscle cells in the penis allowing for better blood flow

and production of a rigid erection. These medications are often effective, and nearly 80% of men show improvement once they begin use. The drugs are effective regardless of race and age. Although studies have shown these medications can be used by heart patients, men taking nitrates should speak with their physician before use to understand the possible drug interactions or effects on their other health conditions.

The side effects of PDE-5 inhibitors are mild and usually transient, decreasing in intensity with continued use. The most common side effects are headache, stuffy nose, flushing and muscle aches. In rare cases, sildenafil can cause temporary blue-green shading of vision. There is no long-term risk and decreases as the amount of the drug in the body decreases. It is important to follow the medication's instructions in order to get the best results. Tests have shown 40 percent of men who do not respond to sildenafil will respond when they receive proper instruction on the medications use.

[Picture Credit: Erectile Dysfunction 5]

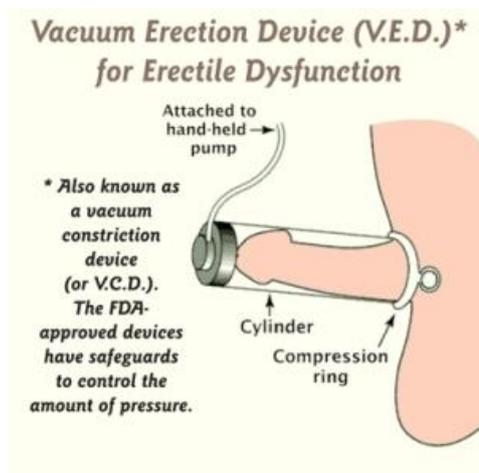


For men who do not respond to oral medications another drug, alprostadil, is approved for use in men with ED. This drug comes in two forms: injections that the patient places directly into the side of the penis and an intraurethral suppository.

Success rates in achieving a firm erection useful for sexual intercourse with self-injection can reach 85 percent. Modifying alprostadil to allow intraurethral delivery avoids the need for a shot, but reduces the likelihood of successful treatment. The most common adverse effects of alprostadil use are a burning sensation in the penis and a prolonged erection lasting over four hours, sometimes requiring medical intervention to reverse the erection.

For men who cannot, or do not wish to use drug therapy, an external vacuum device may be acceptable. This device combines a plastic cylinder or tube that slips over the penis, making a seal with the skin of the body. A pump on the opposite end of the cylinder creates a low-pressure vacuum around the erectile tissue, which results in an erection. To keep the erection once the plastic cylinder is removed a rubber constriction band goes around the base of the penis, which maintains the erection. With proper instruction, 75 percent of men can achieve a functional erection using a vacuum erection device.

[Picture Credit: Vacuum Erection Device]



Some men who have severe penis tissue degeneration do not respond to any of the treatments listed above. While this is a small number of men, they usually have the most severe forms of ED. Patients most likely to fall into this group are men with advanced diabetes, men who suffered from ED before undergoing surgical or radiation treatment for prostate or bladder cancer and men with deformities of the penis called Peyronie's disease. For these patients reconstructive prosthetic surgery (placement of a penile prosthesis or 'implant') will create an erection, with patient satisfaction rates approaching 90 percent. Surgical prosthetic placement normally can be performed in

an outpatient setting or with one night of hospital observation. Possible adverse effects include infection of the prosthesis or mechanical failure of the device. (Urology Care Foundation).

In Summary

Chemotherapy does not often cause erectile dysfunction, though it may affect desire for sexual activity. One's desire may fluctuate over the course of treatment. Hormone therapy, a common treatment for prostate cancer, can lead to a loss of desire for sex, erectile dysfunction and difficulty achieving orgasm, which tends to develop slowly over the first few months of hormone therapy.

Since this is a common concern after cancer treatment, remember that one's healthcare provider has most probably seen many patients with similar problems. One should not hesitate to discuss these concerns with one's healthcare provider. There are treatments to help individuals restore and maintain erections. One's healthcare provider can determine if the treatment is appropriate, and the likelihood whether one will benefit from a specific treatment.

These treatments may include the following:

- **Vacuum Constrictive Devices (VCDs):** This is a pump that one places over the penis. As air is pumped out of the cylinder, blood is drawn into the penis to produce an erection. A ring slides over the base of the penis to keep the blood in the tissues to maintain an erection for up to half an hour.
- **Oral Medications:** A number of oral medications are now available to help men attain and maintain an erection. These medications include Viagra®, Cialis®, and Levitra®.
- **Penile Injections:** Medications may be injected into the side of the penis, which promote blood flow. The most common drug used for injection is Prostaglandin E1 (Caverject®). The medication typically needs to be adjusted to the correct dose based on how long the erection is maintained.
- **Muse System:** This system also utilises Prostaglandin E1. Instead of an injection, a small suppository is placed into the urethra (opening in the penis where urine & semen exit) using a specialised applicator.
- **Penile Prosthesis (Implants):** There are various types of penile prostheses, which a man can consider. Some are malleable rods that are placed in the penis. Most men now utilise a type of inflatable prostheses, which can be inflated and deflated as needed.
- **Sex Therapy:** This is recommended for patients with anxiety based erection problems. Typically the patient and his partner are both involved in the therapy sessions.
- **Lifestyle interventions:** such as weight loss, exercise, and smoking cessation, may also help.

Each type of treatment has its own advantages, disadvantages and side effects. If one is experiencing erectile dysfunction, one should discuss the pros and cons of each treatment

option with one's healthcare provider. If one is experiencing ED, one may want to see an urologist (a doctor trained in the care of 'male' genitals), who can offer treatments for erectile dysfunction and other sexual concerns.
(Oncolink).

Medical Disclaimer

This Fact Sheet is intended to provide general information only and, as such, should not be considered as a substitute for advice, medically or otherwise, covering any specific situation. Users should seek appropriate advice before taking or refraining from taking any action in reliance on any information contained in this Fact Sheet. So far as permissible by law, the Cancer Association of South Africa (CANSAs) does not accept any liability to any person (or his/her dependants/estate/heirs) relating to the use of any information contained in this Fact Sheet.

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