

## In a Nutshell

- Erectile dysfunction is a common condition
- It is often caused by smoking, obesity, stress and sedentary lifestyle
- It can usually be treated with oral or topical medications
- New treatment approaches include low-intensity shockwave therapy to the penis and daily dose regime of PDE-5 inhibitors
- Other options include vacuum devices and surgically inserting prosthetic implants

# Treating Erectile Dysfunction

Changing 'down time' to 'go time'

by Dr Gerald Tan

## ERECTILE DYSFUNCTION IS

a common condition where men may experience persistent difficulty obtaining and/or maintaining an erect penis during sexual intercourse.

During sexual arousal, stimulation of the penile shaft causes release of nitric oxide (NO), a neurotransmitter which relaxes the smooth muscle (corpora cavernosa) of the penis. Blood flow increases into the chambers of the penis, causing the penis to become erect and hard. Blood is prevented from draining out of the penis by valves which remain closed until ejaculation occurs, at which point the valves open and blood drains out of the chambers, returning the penis to its flaccid state.

## Root of the Problem

Common causes for erectile dysfunction include:

- Chronic smoking, which narrows the blood vessels supplying the penis
- Coronary artery disease, hypertension and diabetes
- Obesity and sedentary lifestyle
- Drugs e.g. anti-depressants
- Stroke, multiple sclerosis and Parkinson's disease
- Pelvic trauma and spinal cord injury
- Kidney failure
- Surgery or radiation treatment for prostate cancer, which damages the cavernosal nerves
- Anxiety, depression, work stress and/or psychological issues
- Low testosterone level

## Diagnosing and Dosing

When you consult your doctor, he will usually ask you to complete a questionnaire such as the International Index of Erectile Function (IIEF)

to assess the severity of erectile dysfunction. In most cases, your doctor will suggest you try a trial of medications to see if there is symptomatic improvement. In more severe cases that fail to respond to medications, you may be referred to a urologist for further evaluation of your hormone profile and state of penile blood flow.

## Multitude of Medications

Erectile dysfunction can be successfully cured with medications. First-line treatment of erectile dysfunction would be oral medications known as phosphodiesterase-5 (PDE-5) inhibitors, which improve blood flow to the penis. These include drugs such as Viagra®, Cialis® and Levitra®. These medications are usually taken an hour

# Sexual dysfunction

before planned sexual activity, and are effective for anything from four to 36 hours.

Common side effects include:

- Headaches
- Facial flushing
- Stomach upset
- Stuffy or runny nose
- Nausea
- Back pain
- Occasionally, changes in colour vision

Very rarely, patients may experience priapism, a painful condition where the erect penis fails to return to its flaccid state after four hours. This is a medical emergency, and patients should urgently consult a doctor (usually at the Emergency Department) before the penile erectile tissues become permanently damaged.

More recently, Cialis® has developed a low-dose tablet taken on a daily basis. This allows the medication to remain in the bloodstream at consistently therapeutic levels, without the side effects encountered due to the high doses with conventional “on-demand” medications. An added benefit of this daily dosing regime is improvement in urinary flow as well, which is a common co-existing problem for older men with prostate enlargement. As such, daily-dose Cialis® is quickly becoming very popular with existing users of the first-generation PDE-5 inhibitors.

Other medications include:

- Topical Alprostadil®, which is inserted into the penile urethra
- Papeverine, phentolamine, and/or prostaglandin E1, which are injected into the cavernosal tissue within the penis. These medications are used when patients do not respond well to oral PDE-5 inhibitors.

## Explore your Options

If patients with erectile dysfunction do not respond to oral or topical medications, the next step would be to consider trying a vacuum pump device



Figure 1. Vacuum pump device for erectile dysfunction



Figure 2. Prosthetic penile implant, comprising inflatable chambers and a reservoir

(Figure 1), which draws blood into the penis by creating a negative pressure around the penile shaft. Once the penis becomes erect, a compression ring is applied at the base of the penis to prevent blood from draining out, and must be removed after sexual intercourse is completed.

As a last resort, patients may consider surgery to insert a prosthetic penile implant (Figure 2). This procedure involves insertion of an inflatable implant device in the penile shaft, which creates an erection by fluid flowing into the device from a concealed reservoir placed beneath the skin. Advantages of such penile implants include the consistency of good erections achieved and control of the duration of erection.

## Emerging Treatments

In recent clinical trials, low-intensity shockwave therapy (LIST) to the penis has been found to be an effective treatment for patients with erectile dysfunction that are not responsive to oral medications. In this treatment, focused shockwaves of low intensity are targeted at the smooth muscle in the penis, causing mechanical shear stress and microtrauma. This causes the body to produce chemicals to improve blood flow and stimulate new vessel formation (angiogenesis) to the cavernosal tissue in the penile shaft. Current treatment protocols comprise six sessions lasting 15 – 20 minutes each, over a three-week period, where

shockwaves are administered to the penis.

Whilst several patients report an improvement in erectile function, the response may wane over time and repeat treatment may be required. Shockwave therapy for erectile dysfunction is now available in Singapore, and our early experience with this novel treatment has been very encouraging. eh

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