

# Treating erectile dysfunction after surgery for pelvic cancers

A quick guide for health professionals:  
supporting men with erectile dysfunction

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The recommendations in this guide are based on a UK-wide consensus published in the International Journal of Clinical Practice in 2014. The consensus was reached by reviewing the literature on erectile dysfunction (ED), and a survey of UK specialists in the management of treatment-induced ED. This information is for all health professionals involved in the management of patients with ED after surgery for pelvic cancers.

## Introduction

Damage to the penile tissue after surgery can lead to erectile dysfunction, an under-diagnosed and under-treated condition which can significantly affect the quality of life of men and their partners.

- Surgery for prostate, bladder or colorectal cancers can injure the nerves and arteries that supply oxygen to the penis, causing erectile dysfunction.
- ED affects up to 80% of men after pelvic cancer surgery.
- ED can impact on a man's sense of masculinity, self-esteem and his quality of life.
- Following surgery, loss of daily and nocturnal erections results in persistent failure of cavernous oxygenation and secondary erectile tissue damage. This can cause reductions in penile length and girth within the first few months after surgery. Treatments for ED can reduce or prevent this secondary damage.
- Unfortunately, even with nerve-sparing surgery techniques, ED continues to be a long-term problem for many men.
- Men with ED after surgery may have difficulty in maintaining sexual and intimate relationships with their partners. Clinicians sometimes overlook the impact of ED on men and their partners.
- Early ED rehabilitation can improve blood flow to the penis and reduce cavernous tissue damage, thereby preventing penile atrophy. This may help improve long term erectile function and an earlier return of assisted or unassisted erections sufficient for intercourse.
- Currently there are no other UK-wide guidelines covering the management of ED after pelvic cancer surgery.

## Guidance at a glance

- Involve the man and his partner in discussions about ED rehabilitation before and after surgery.
- Assess the man and his partner's sexual function – the partner may also require support.
- Assess other health problems/current medications which may affect sexual function.
- Start the ED management programme early.
- Offer first-line treatment with combination therapy, usually PDE5-I tablets and vacuum erection device (VED).
- Consider including daily low dose PDE5-I tablets in ED rehabilitation programme.
- Consider providing standard dose PDE5-I tablets, as needed, early on in the programme to prevent penile atrophy.
- If initial treatment fails, offer alprostadil pellets, injections or topical alprostadil, followed by implants.
- Pellets and injections are more useful than tablets in men who have had non-nerve-sparing surgery.
- Re-assess erectile function regularly after starting a rehabilitation programme.
- Enable access to psychosexual therapy before and after surgery.
- Duration of treatment depends on response – avoid strict time limits.

## Key recommendations for an erectile dysfunction (ED) rehabilitation programme

### Preoperative recommendations

- Discuss the impact of surgery and proposed ED rehabilitation programme with the patient and, if they wish, their partner.
- Assess the patient and partner's current sexual function.
- Assess the couple's readiness to engage in an ED rehabilitation programme.
- Assess comorbidities, concurrent medications and lifestyle habits that could affect sexual function.
- Assess biomedical components, including the disease, treatment, current medications, current medical history, previous medical and surgical history, and ED medication history.
- Assess psychological factors (sexual self-esteem/confidence), relationship issues and any social factors that could impact on sexuality or that are affected by sexual dysfunction.

### Postoperative recommendations

- Discuss the implementation of an ED rehabilitation programme with the man and his partner.
- Re-assess baseline sexual function at catheter removal or up to 10 days post surgery.

### Treatment pathway

- See Figure 1 (on page 5) for recommended treatment pathways for nerve-sparing and non-nerve-sparing surgery.
- Offer first-line treatment with combination therapy (PDE5-Is and VED).
- Combination therapy is usually the most cost-effective therapy.

- Consider low dose daily PDE5-I therapy in patients with nerve-sparing surgery, especially during initial (early) management.
- Early on demand standard dose PDE5-Is may preserve the smooth muscle content within the corpora cavernosa.
- Offer topical alprostadil, intraurethral alprostadil or intracavernosal injections (ICI) followed by discussion of a penile implant if initial treatment strategies fail.
- For non-nerve-sparing surgery, VED is generally the treatment of choice, alone or in combination with ICI or intraurethral alprostadil.
- VED is useful alongside medication and facilitates early sexual activity where drugs alone are not effective.

### **Treatment initiation**

- Initiate treatment preferably as soon as catheter is removed, and definitely within the first three months of surgery.
- In some cases, PDE5-Is can be initiated before surgery – if pre-existing problems are identified at presurgical assessment – or at catheter removal to improve outcomes.

### **Psychosexual therapy and psychological counselling**

- Enable access to psychosexual therapy or psychological counselling for the patient and his partner pre and postoperatively, particularly where biomedical strategies are ineffective and/or there is patient or couple distress.
- Encourage partner support for the rehabilitation programme through ongoing psychosexual therapy and couples counselling.
- Include partners in all decision-making processes if possible.

### **Re-assessment**

- Once ED management is initiated, re-assess at regular intervals for example at eight weeks, three months and six months – the re-assessment schedule can coincide with the cancer review schedule.

### **Treatment duration**

- Try each strategy on at least eight occasions before switching to another strategy, unless the patient experiences adverse events warranting an early switch.
- Individualise duration of treatment for each man, as strict limits are inappropriate in clinical practice.
- The duration of any treatment can range from three months until the man no longer needs treatment.

## Treatment pathway

Figure 1: Recommended treatment pathway for managing ED, after nerve-sparing and non-nerve-sparing surgery\*

	Nerve-sparing surgery	Non-nerve-sparing surgery
<b>Pre-surgery</b> Two weeks before surgery	PDE5-I (sildenafil 25mg/tadalafil 5mg) nightly <sup>¶</sup> <i>Sildenafil is the most cost effective initial choice of PDE5-I as it is now generic</i>	VED alone or VED + ICI/topical or transurethral alprostadil +/- psychosexual therapy and counselling <sup>†</sup>
<b>First line</b> <sup>§</sup>	<p><b>Early initiation of PDE5-I</b></p> <p><b>Combination therapy:</b></p> <ul style="list-style-type: none"> <li>• PDE5-Is on demand/daily use for 12 weeks or as long as needed</li> <li>• +/- VED 5-10 min on daily basis</li> <li>• +/- psychosexual therapy and counselling<sup>†</sup></li> </ul> <p><b>Tablets:</b></p> <ul style="list-style-type: none"> <li>• PDE5-I low dose daily +/- PDE5-I standard dose on demand or once a week <b>or</b> PDE5-I on demand only <b>or</b> PDE5-I daily or every three days</li> <li>• + at least six initial tablets for every on demand option</li> </ul>	PDE5-I not generally useful in this patient population
<b>Second line</b>	Add VED/ICI/topical alprostadil/transurethral alprostadil (preferred option versus ICI)  <i>Pelvic floor exercise advice also provided by health professionals</i>	
<b>Third line</b>	ICI/penile prosthesis (after trying ICI)	

\* Pathway is a collation of survey responses of individual clinical practice.

<sup>¶</sup> Tablets can be started before surgery if pre-existing sexual problems are identified during initial assessment or they can be started immediately after catheter removal.

<sup>§</sup> The most effective combination depends on patient and partner needs, but the commonest favoured combination is VED + PDE5-I. Daily and on demand PDE5-I used simultaneously is an off-label recommendation.

<sup>†</sup> Psychosexual therapy and counselling provided as an adjunct to ED treatment.

**Responsibility for prescribing specific treatments is determined at local service level.**

### Duration of treatment

The decision to stop treatment depends on each patient, as the recovery time differs from man to man. Ideally, a treatment should be given until it's no longer needed.

## Advantages and disadvantages for each post surgical ED management strategy

Post surgical ED management strategy	Advantages	Disadvantages
<b>Tablets (PDE5-Is)</b> (sildenafil, tadalafil, vardenafil and avanafil)	<ul style="list-style-type: none"> <li>• Easy to take.</li> <li>• Improves erections.</li> <li>• Work for up to eight hours, or 24-36 hours for tadalafil.</li> <li>• Early initiation (after catheter removal or within 14 days) promotes early recovery and preservation of erectile function.</li> <li>• Can be taken on demand (when needed) or daily.</li> <li>• Preserves length and girth of the penis.</li> <li>• Acceptable to most men and partners.</li> <li>• Good tolerance generally.</li> <li>• Does not interfere with foreplay.</li> </ul>	<ul style="list-style-type: none"> <li>• Response to the tablets depends on the man's age, baseline erectile function, presence or absence of comorbidities, time from surgery to starting treatment, level of nerve damage and dose of the tablet.</li> <li>• Risk of side effects.</li> <li>• Some men will need to take on at least 8-12 occasions to achieve a reliable response.</li> <li>• Need to be aware of drug interactions for men with comorbidities.</li> <li>• Requires good compliance.</li> <li>• Risk of treatment failure.</li> <li>• Possible cost issues.</li> <li>• Un-licensed for daily dosing in ED rehabilitation programme.</li> </ul>
<b>Vacuum erection device (VED)</b>	<ul style="list-style-type: none"> <li>• Early use (within one month after surgery) linked with better outcomes.</li> <li>• Can be initiated 4-8 weeks after surgery.</li> <li>• Avoids medication.</li> <li>• Non-invasive.</li> <li>• No systemic effects.</li> <li>• Simple to use.</li> <li>• Cost-effective.</li> </ul>	<ul style="list-style-type: none"> <li>• Uncomfortable, clumsy or mechanical.</li> <li>• Requires commitment to learn.</li> <li>• Skilled instructor needed.</li> <li>• Not always acceptable to partners.</li> <li>• Altered penile sensations from constriction ring if used for penetration.</li> <li>• Erection does not feel/look natural.</li> <li>• Can be painful.</li> </ul>
<b>Pellets (transurethral alprostadil)</b>	<ul style="list-style-type: none"> <li>• Effective, especially if given at least three months after surgery.</li> <li>• Early use (six weeks after surgery) improves erectile function.</li> <li>• Relatively easy to use.</li> <li>• Works quickly.</li> <li>• No needles.</li> <li>• Painless to insert.</li> <li>• No systemic effects.</li> <li>• Well tolerated.</li> </ul>	<ul style="list-style-type: none"> <li>• High discontinuation rate.</li> <li>• Can be difficult to insert.</li> <li>• Urethral stinging.</li> <li>• May not be effective for all men.</li> </ul>

Post surgical ED management strategy	Advantages	Disadvantages
<b>Penile injections (ICI)</b>	<ul style="list-style-type: none"> <li>• Regular use can result in recovery of spontaneous sexual activity and better response to PDE5-I tablets.</li> <li>• Should ideally be started after three months for optimal response and to ensure patient compliance.</li> <li>• More natural looking erections.</li> <li>• Quick administration and works quickly.</li> <li>• Usually effective – direct drug delivery.</li> </ul>	<ul style="list-style-type: none"> <li>• Uncomfortable or painful erections.</li> <li>• Requires good compliance.</li> <li>• Not acceptable to all men or their partners.</li> <li>• Good manual dexterity needed.</li> <li>• Skilled instructor needed.</li> <li>• Treatment may cause priapism (painful long-lasting erections), but risk is very low in this patient group.</li> <li>• Can cause pain and bruising.</li> <li>• Can cause fibrosis at infection site.</li> </ul>
<b>Topical cream (transdermal alprostadil)</b>	<ul style="list-style-type: none"> <li>• Works within 5-30 minutes and lasts for 1-2 hours.</li> <li>• Clinical trials show a positive outcome.</li> </ul>	<ul style="list-style-type: none"> <li>• Local irritation (stinging, pain and erythema).</li> <li>• Recently licensed so limited practical experience.</li> <li>• No trial evidence in this patient group.</li> </ul>
<b>Psychosexual therapy/ counselling</b>	<ul style="list-style-type: none"> <li>• Important in improving outcome of any sexual rehabilitation programme.</li> <li>• Improves acceptance of treatments and willingness to stay on treatments.</li> <li>• Can reduce feeling of lack of sexual spontaneity, dissatisfaction and fear of needles.</li> <li>• Offers support when other strategies are not successful.</li> <li>• Can help couples overcome distress and strengthen their relationship.</li> </ul>	<ul style="list-style-type: none"> <li>• Expensive and time-consuming.</li> <li>• Skilled counsellor needed.</li> <li>• Requires commitment.</li> <li>• Not always available on the NHS (HSC in Northern Ireland).</li> </ul>
<b>Combination strategy</b>	<ul style="list-style-type: none"> <li>• Early combination of PDE5-I tablets and VED (within days of surgery) improves outcomes.</li> <li>• Improves erectile function in patients who don't respond well to monotherapy.</li> <li>• Works on all aspects of postoperative ED.</li> </ul>	<ul style="list-style-type: none"> <li>• Need for multiple interventions.</li> <li>• Requires patient commitment.</li> <li>• Expensive and time-consuming.</li> <li>• Not always available on the NHS/HSC.</li> </ul>
<b>Pelvic floor muscle exercises</b>	<ul style="list-style-type: none"> <li>• No cost.</li> <li>• Non-invasive.</li> <li>• No systemic effects.</li> <li>• Can give a sense of control.</li> <li>• Can also help with incontinence.</li> </ul>	<ul style="list-style-type: none"> <li>• No published evidence of benefit when used alone as an ED management strategy.</li> </ul>

## Objectives of treating erectile dysfunction post surgery

The goal of an erectile function management strategy is the return of assisted and non-assisted erectile function, and prevention of changes to penile length and girth.

Treating erectile dysfunction includes:

- minimising extent and duration of ED
- improving blood flow and delivery of oxygen to the penis
- protecting penile tissue
- preventing or minimising any changes to the size and girth of the penis.

Erectile function rehabilitation programmes, especially if initiated early on after surgery, are effective in improving or restoring sexual function.

## Predictive factors for recovery

The recovery of erectile function depends on the following factors:

- Age of man and partner – younger patients are likely to have better results.
- PDE5-I induced erectile function – men with normal erectile capacity, who take PDE5-I tablets before surgery and continue to take them, have the potential to have better erectile function after surgery than those who don't.
- Presence of other health problems – comorbidities increase the risk of ED after surgery (e.g. diabetes, hypertension and cardiovascular disease).
- Surgical technique – nerve-sparing versus non-nerve-sparing surgery.
- Prostate-specific antigen (PSA) level – lower levels are associated with better results.
- Grade of the cancer – cancers of lower risk/grades are associated with better results.
- Ethnicity – Black men are likely to have better results.
- Weight – men of a healthy weight (lower body mass index) are likely to have better results.
- Testosterone levels – normal levels are important for recovery of erectile function.



## Assessment of erectile function

Recommendations for assessing erectile function before and after surgery include:

Assessing erectile function checklist	✓
Assess patient's sexual function pre- and post surgery, verbally or using validated sexual questionnaires.*	
Assess partner's sexual function pre- and post surgery, verbally or using validated sexual questionnaires.*	
Discuss ED with the patient during consultations before surgery, including the potential risks, and the treatments available.	
Discuss sexual rehabilitation programme with the patient and his partner, if possible.	
Assessment can start before surgery or at catheter removal, or up to three months after surgery.	
Once ED treatment is started, patients should be re-assessed regularly – at least every three months.	

\* Routinely available questionnaires include: the International Index of Erectile Function (IIEF); Sexual Health Inventory for Men (SHIM); Female Sexual Function Index (FSFI); Erection Hardness Score (EHS); Self-Esteem And Relationship (SEAR) questionnaire; Sexual Life Quality Questionnaire (mSLQ-QOL); Miller Social Intimacy Scale (MSIS).

## How this guidance was produced

This quick guide is based on the more comprehensive recommendations in: Kirby MG, et al. **Development of UK recommendations on treatment for post-surgical erectile dysfunction.** *Int J Clin Pract.* 2014 doi: 10.1111/ijcp.12338

The recommendations were developed from a review of the literature, along with a survey of 13 UK experts in the management of treatment induced ED. Details of the methods used, and references, can be found in the full recommendations.

The wording used in the recommendations in this quick guide ('offer' versus 'consider') denotes the certainty with which the recommendation can be made based on the evidence available.

A separate quick guide covers the treatment of ED after radical radiotherapy and androgen deprivation therapy for prostate cancer.

This guide was produced in October 2014. To be reviewed in October 2016.

## More information

The following organisations have more information about ED:

- Sexual Advice Association  
[www.sda.uk.net](http://www.sda.uk.net)
- British Society for Sexual Medicine  
[www.bssm.org.uk](http://www.bssm.org.uk)
- European Society for Sexual Medicine  
[www.essm.org](http://www.essm.org)
- International Society for Sexual Medicine  
[www.issm.info](http://www.issm.info)
- British Society for Sexual Health and HIV  
[www.bashh.org](http://www.bashh.org)

- European Association of Urology  
[www.uroweb.org](http://www.uroweb.org)
- British Association of Urological Nurses  
[www.baun.co.uk](http://www.baun.co.uk)
- British Association of Urological Surgeons  
[www.baus.org.uk](http://www.baus.org.uk)

The following organisations offer support and information about sexual and relationship difficulties:

- Relate  
[www.relate.org.uk](http://www.relate.org.uk)
- Relate Cymru  
[www.relatecymru.org.uk](http://www.relatecymru.org.uk)
- Relate Northern Ireland  
[www.relateni.org](http://www.relateni.org)
- Relationships Scotland  
[www.relationships-scotland.org.uk](http://www.relationships-scotland.org.uk)
- College of Sexual and Relationship Therapists  
[www.cosrt.org.uk](http://www.cosrt.org.uk)

## Professional support

Prostate Cancer UK offer face-to-face and online training for health professionals working with men with prostate cancer. We also offer access to educational bursaries for ongoing professional development – [prostatecanceruk.org/education](http://prostatecanceruk.org/education)

Health professionals can access free educational resources in Macmillan's Learnzone, including 'Sexual Relationships and Cancer', an online module on how to talk to patients about the issues surrounding sexuality and cancer – [learnzone.org.uk](http://learnzone.org.uk)

### Tell us what you think

If you have any comments about this publication, you can email:

[professionals@prostatecanceruk.org](mailto:professionals@prostatecanceruk.org)

## Patient information and support

Prostate Cancer UK and Macmillan Cancer Support have a range of booklets and fact sheets about cancer and the side-effects of treatment. All their publications are free and available to order or download online at [prostatecanceruk.org/publications](http://prostatecanceruk.org/publications) and [be.macmillan.org.uk](http://be.macmillan.org.uk)

Some relevant resources are listed below.

### Prostate Cancer UK

#### Surgery: radical prostatectomy

This fact sheet explains what surgery for prostate cancer involves, the possible side effects, and how to manage them. It also includes some questions to ask your medical team, and information about the support available.

#### Prostate cancer and your sex life

This booklet explains how prostate cancer and its treatment can impact on your sex life, how you feel about yourself and any relationships you have. It explains the sexual side effects of treatment, ways to manage the side effects, and support that is available. It includes a DVD featuring six men talking about how they dealt with changes to their sex life during and after treatment for prostate cancer.

Find out more about sex and prostate cancer at [prostatecanceruk.org/sex](http://prostatecanceruk.org/sex)

#### Living with and after prostate cancer: A guide to physical, emotional and practical issues

This booklet is for men living with prostate cancer, before, during and after treatment. It contains information about the physical and emotional effects of living with prostate cancer and its treatment, and looks at ways to manage them.

Call Prostate Cancer UK's Specialist Nurses on **0800 074 8383** (Monday to Friday 9am-6pm, Wednesday 10am-8pm).

### Macmillan Cancer Support

#### What to do after cancer treatment ends: 10 top tips

This leaflet helps people to get the support they need to lead as healthy and active a life as possible following cancer treatment.  
be.macmillan order code: MAC13615

#### Sexuality and cancer – information for men

This booklet explains the effects cancer and its treatments can have on sexuality and suggests ways of coping.  
be.macmillan order code: MAC14767

#### Cancer, you and your partner

This leaflet is about how cancer can affect a person's relationship with their partner, and was written in collaboration with Relate.  
be.macmillan order code: MAC12157

#### Cancer treatment and fertility - information for men

This leaflet discusses how cancer treatments can sometimes affect the fertility of men.  
be.macmillan order code: MAC12155

Information and support can also be found on the Macmillan website [macmillan.org.uk](http://macmillan.org.uk) including details of support groups and information centres in your area, and how people can join the Macmillan Online Community. Alternatively people can call the Macmillan Support Line on **0808 808 0000** to speak to a cancer specialist (Monday – Friday 9am-8pm).

To hear men's direct experiences of ED, see [healthtalkonline.org/peoples-experiences/cancer/prostate-cancer/impotence](http://healthtalkonline.org/peoples-experiences/cancer/prostate-cancer/impotence)

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We aim to improve the lives of everyone affected by cancer by working with health and social care professionals to deliver vital services and support.



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We provide all the resources you need to support your patients with prostate cancer and benign prostate disease.

## PROFESSIONAL SUPPORT

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