High-intensity focused ultrasound (HIFU)

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This fact sheet is for anyone who is thinking about having high-intensity focused ultrasound (HIFU) to treat their prostate cancer. Your partner, family or friends might also find this information helpful. We describe how HIFU treats prostate cancer, and the possible side effects.

HIFU isn’t available in all hospitals, and each hospital that offers it will do things slightly differently. Use this fact sheet as a general guide and ask your doctor or nurse for more information. You can also speak to our Specialist Nurses, in confidence, on 0800 074 8383, or chat to them online.

What is HIFU?
High-intensity focused ultrasound (HIFU) uses high-frequency ultrasound energy to heat and destroy cancer cells in the prostate. A beam of ultrasound energy travels into the prostate from a probe put into the back passage (rectum).

There are two types of HIFU:
- focal HIFU, which treats areas of cancer in the prostate and a small area around them
- whole-prostate HIFU, which treats the whole prostate.
You can read more about these on pages 4 and 5. Ask your doctor or nurse which treatment might be suitable for you.

**Who can have HIFU?**

HIFU might be suitable for you if your cancer hasn’t spread outside your prostate (localised prostate cancer).

HIFU is sometimes an option if your cancer has started to break out of the prostate, has spread to the area just outside the prostate (locally advanced prostate cancer) or has a high risk of spreading. But your cancer may be more likely to come back after treatment than in men with localised cancer.

HIFU isn’t an option if your cancer has spread outside your prostate to other parts of your body (advanced prostate cancer).

HIFU can also be used to treat prostate cancer that has come back after previous HIFU or radiotherapy (recurrent prostate cancer). This is called salvage HIFU.

HIFU may not be suitable if you have a large prostate. Focal HIFU may still be an option if the areas of cancer are close enough to the probe for the ultrasound to treat. Your scan and biopsy results will show whether this is the case. Whole-prostate HIFU may still be an option if you have another treatment, such as a transurethral resection of the prostate (TURP), laser treatment or hormone therapy, to shrink the prostate first.

In the UK, HIFU is only available in specialist centres or as part of a clinical trial. This is because it is newer than some other treatments, so we don’t know how well it works in the long term. Read more about clinical trials on our website, visit prostatecanceruk.org/clinical-trials

Speak to your doctor about whether HIFU is a suitable option for you and whether it’s available in your area. If it’s a good option for you, your doctor may refer you to a specialist HIFU centre.

**Other treatment options**

If you have localised prostate cancer, other treatment options may include:

- active surveillance (a way of closely monitoring localised prostate cancer)
- watchful waiting (a different way of monitoring prostate cancer)
- surgery to remove the prostate (radical prostatectomy)
- external beam radiotherapy (which uses X-ray beams to destroy the cancer cells)
- brachytherapy (a type of internal radiotherapy).

You may also be offered cryotherapy, which uses extreme cold to freeze and destroy cancer cells. Like HIFU, cryotherapy is only available in specialist centres or as part of a clinical trial.

Read more about these treatments in our fact sheet, Localised prostate cancer.

If you have locally advanced prostate cancer, your other treatment options may include:

- external beam radiotherapy with hormone therapy (and sometimes with brachytherapy)
- hormone therapy alone
- surgery (radical prostatectomy), often followed by hormone therapy and radiotherapy
- watchful waiting.

Read more in our fact sheet, Locally advanced prostate cancer.

If your cancer has returned after radiotherapy, other treatment options may include hormone therapy, brachytherapy, cryotherapy and, for some men, surgery (radical prostatectomy). Read more in our booklet, If your prostate cancer comes back: A guide to treatment and support.
Unsure about your diagnosis and treatment options?
If you have any questions about your diagnosis at any time, ask your doctor or nurse. They will explain your test results and talk you through your treatment options. Make sure you have all the information you need. We have information about diagnosis and treatments in our other fact sheets and booklets and on our website. And you can speak to our Specialist Nurses.

What are the advantages and disadvantages?
What may be important for one person might not be important for someone else. If you’re thinking about having HIFU, speak to your doctor or nurse before deciding whether to have it. They can help you choose the right treatment for you.

Take time to think about whether you want to have HIFU. There’s a list of questions on page 11 that may help. You can also ask about any other treatments that might be available.

Advantages
• HIFU doesn’t involve any cuts to the skin or needles, apart from a needle in your hand to give you a general anaesthetic.

• Focal HIFU can treat small areas of cancer while causing little damage to nearby tissue, nerves and muscles.

• You only need a short hospital stay – you can usually go home on the same day as your treatment.

• Recovery is usually quick and most men return to their normal activities within two weeks.

• HIFU is less likely than surgery to cause erection or urinary problems.

• You may be able to have HIFU if your cancer has come back after radiotherapy.

• You may be able to have HIFU again if your cancer comes back after your first HIFU treatment. This isn’t the case with all treatments.

• You may also be able to have other treatments after HIFU if your cancer comes back, such as surgery or radiotherapy.

Disadvantages
• You might get side effects such as erection and urinary problems (see pages 7 and 8). However, focal HIFU may cause fewer side effects than whole-prostate HIFU.

• Compared with other treatments, we don’t know as much about how well HIFU works in the long term (after 10 years).

• HIFU may not be suitable if you have a large prostate. But it may still be an option if you have another treatment to shrink your prostate first (see page 2).

• HIFU isn’t widely available in the UK and you may need to travel a long way to your nearest treatment centre.

I discussed HIFU with my doctor and it seemed like a good option for me.
A personal experience
What does HIFU involve?
Each hospital will do things slightly differently. We’ve included some general information about what might happen before, during and after HIFU. Your doctor or nurse will give you more information about your treatment.

Before your treatment
If you’re thinking of having focal HIFU, you’ll usually go to a screening appointment to see if it’s suitable for you. You’ll have a scan to show where the areas of cancer are in the prostate, if you haven’t already had one. This will be a multi-parametric magnetic resonance imaging (mpMRI) scan, which produces detailed images of the prostate.

You may also have another prostate biopsy, if your doctor needs more information about where the cancer is and how likely it is to grow and spread outside the prostate. These tests will confirm whether HIFU is suitable for you and will help your surgeon target the area of the prostate that needs to be treated.

During your treatment
On the morning of your HIFU treatment, you’ll be given an enema to empty your bowels. This makes it easier for the doctor to see clear images of your prostate. An enema is a liquid medicine that is put inside your back passage (rectum). You’ll also be asked not to eat or drink for around six hours before the HIFU treatment.

You will usually have a general anaesthetic, so that you’re asleep during the treatment.

During your treatment, you will need to lie on your back with your legs apart. You may have a catheter put in at the start of the treatment to drain urine (wee) out of your bladder. A catheter is a thin tube that is passed into your bladder, either up your penis or through the wall of your lower abdomen (stomach area).

Your surgeon will place a probe inside your back passage (rectum). The probe gives out a beam of high-intensity ultrasound energy, which travels through the wall of the back passage into the prostate. The beam treats one small area of the prostate at a time – the size of a grain of rice.

Your surgeon will plan your treatment so the HIFU machine moves the beam around, heating and destroying the cancer cells in the area being treated.

The probe also uses ultrasound to create images of the prostate after each area is treated. This helps the surgeon target the cancer and avoid healthy tissue like the urethra, which is the tube you urinate through.

The probe is surrounded by a cooling balloon so that the heat doesn’t damage your back passage.

If you have a large prostate, you may be offered a transurethral resection of the prostate (TURP) or laser treatment. These treatments remove prostate tissue to improve your flow of urine, reducing the risk of some urinary problems afterwards. You may have this straight after your HIFU treatment, under the same anaesthetic.

Read more in our booklet, Enlarged prostate: A guide to diagnosis and treatment.

Focal HIFU
You may also hear focal HIFU called focal therapy or partial ablation with HIFU. It treats areas of cancer in the prostate and takes one to two hours. It may be suitable for men who have small cancers that need treating in only some of their prostate.

Your surgeon will treat the areas of cancer that need treating and a small area around them. Less of the healthy tissue is damaged during focal HIFU compared to whole-prostate HIFU.
Some men who have focal HIFU only have one area of cancer in their prostate (see diagram below). Other men have more than one area of cancer in their prostate, but some areas are not treated on purpose (see diagram below). The cancer that is not treated is less likely to spread (low-risk cancer) and it may never cause any problems. These men will have regular tests to keep an eye on the cancer that is not treated.

With focal HIFU, there’s a small risk that some areas of cancer that do need treating may be missed if they weren’t picked up by the scan and biopsy. If this happens, there are further treatments that you can have (see page 6).

"I had some cancer in my prostate that I wanted to do something about. I discussed HIFU with my doctor and it seemed like a good option for me."

A personal experience

**Whole-prostate HIFU**

Whole-prostate HIFU treats the whole of the prostate and takes three to four hours. It is less common than focal HIFU but may be suitable for men who have cancer that needs treating in more than one or two areas of their prostate.

**After your treatment**

You should be able to go home on the same day as your treatment. Your doctor or nurse will check that you’ve recovered from the anaesthetic and are fit to go home. You shouldn’t drive for 24 to 48 hours after the anaesthetic. Ask a family member or friend to take you home.
You may have pain in the area between your testicles and back passage, but you’ll be given pain-relieving medicine if you need it. You will also get antibiotics to prevent infection and may be given a medicine called a laxative to help you empty your bowels.

HIFU usually causes the prostate to swell to begin with, which can make it difficult to urinate. You’ll have a catheter to drain urine from your bladder until the swelling has gone, usually for up to a week after treatment.

Before you go home your doctor or nurse will show you how to look after your catheter. They’ll also give you an appointment to have your catheter removed.

### What happens afterwards?

You will have check-ups with your doctor or nurse at the hospital at first, and then with your GP. This is often called follow-up.

The aim is to:

- check how your cancer has responded to treatment
- deal with any side effects of treatment
- give you a chance to raise any concerns or ask any questions.

You will have PSA tests every three to six months for the first few years to check how well the HIFU has worked. The PSA test is a blood test that measures the amount of a protein called PSA in your blood. Your PSA is likely to reach its lowest level a few months after HIFU.

You may also have a prostate biopsy after treatment to check your cancer has been treated successfully. You may also have an MRI scan to check that your treatment has worked as intended.

If you have focal HIFU, you might have low-risk cancer in another area of the prostate that is not treated on purpose (see page 5). You will have regular tests to monitor the cancer that isn’t treated. These will include PSA tests, MRI scans and prostate biopsies.

After HIFU, your PSA level should fall and then stay low. A continuous rise in your PSA level could be a sign that your cancer has come back. If this happens, your doctor may suggest you have further tests, such as an MRI scan and a biopsy. Sometimes they might also suggest other types of scan, to see if the cancer has spread to other parts of your body. If you need other scans, your doctor or nurse will tell you more about these.

If your cancer has come back, your doctor will talk to you about further treatment options. You may be offered more HIFU, external beam radiotherapy, cryotherapy, surgery (radical prostatectomy) or hormone therapy. Or your doctor may suggest monitoring your cancer, rather than treating it straight away.

Read more in our booklet, *If your prostate cancer comes back: A guide to treatment and support*, or call our Specialist Nurses.

### I still have surgery as an option, should I need it in the future.

A personal experience

### What are the side effects?

Like all treatments, HIFU can cause side effects. These will affect each man differently, and you might not get all of them.

The most common side effects are urinary problems and difficulty getting or keeping an erection (erectile dysfunction).

Having HIFU more than once may increase your risk of urinary problems, but it doesn’t appear to increase your risk of other side effects.
Less of the healthy tissue is damaged during focal HIFU than with whole-prostate HIFU, so there’s a lower risk of side effects such as urinary and erection problems.

Remember, if you have hormone therapy, a TURP or laser treatment as well as HIFU, these can also cause side effects.

Read more about these side effects in our fact sheet, Hormone therapy, and in our booklet, Enlarged prostate: A guide to diagnosis and treatment.

Questions about side effects
Ask your doctor or nurse for more information about your risk of side effects. They may be able to show you results of treatments they’ve carried out and put you in touch with other men who’ve had HIFU.

I asked my surgeon about the risk of side effects with HIFU. It made me feel prepared and reassured.

A personal experience

Short-term side effects
These can develop soon after your treatment and may include:
• blood or tissue in your urine
• erection problems
• urine infections
• urinary problems
• testicle infections
• fatigue.

Blood or tissue in your urine
You might see some blood in your urine while the catheter is in place. You might also see some small pieces of prostate tissue in your urine for six to eight weeks after HIFU. This is normal.

If you are worried or see signs of an infection (see below), speak to your doctor or nurse straight away.

Erection problems
Some men have problems getting or keeping an erection (erectile dysfunction) after HIFU. This is because it can damage the blood vessels and nerves that control erections. For some men this will improve, but for others this will be a longer-term side effect of the treatment (see page 8). There are treatments that can help with erection problems.

Urine infections
Some men get a urine infection after HIFU. Signs of a possible urine infection include:
• a fever (high temperature)
• feeling shivery
• a burning feeling when you urinate
• dark or cloudy urine with a strong smell
• needing to urinate more often than usual.

Tell your doctor or nurse if you have any signs of a urine infection. They’ll usually give you antibiotics to treat the infection.

Urinary problems
Some men need to urinate more often than usual after HIFU. This is called urinary frequency and usually gets better over time.

Some men find it hard to empty their bladder properly after their catheter is removed – this is called urine retention. You may be given a type of drug called an alpha-blocker to help you pass urine (wee). After HIFU, the treated prostate tissue can block the urethra. If your flow of urine is weak or slow after your catheter is taken out, speak to your doctor or nurse.

If you can’t urinate at all, call your doctor or nurse straight away or go to your nearest accident and emergency (A&E) department. They may need to drain your bladder using a catheter.

They might also suggest using a temporary catheter (self-catheterisation). This is where you put a catheter in yourself when you want to
urinate and take it out afterwards. Some men find that urinary problems improve over a few weeks, but some men need further treatment to clear the blockage.

**Testicle infections**
Some men get an infection in the testicles or the tubes that carry sperm from the testicles. Signs of a possible infection include pain, swelling and tenderness in one or both testicles. Tell your doctor or nurse if you have any of these symptoms. They'll usually give you antibiotics to treat the infection.

**Fatigue**
Some men feel extreme tiredness (fatigue) after having HIFU. Fatigue can affect your everyday life. It can affect your energy levels, your motivation and your emotions – which can be hard to cope with. As HIFU is quite a new treatment, we don’t yet know how long fatigue may last for.

Read more about fatigue in our fact sheet, *Fatigue and prostate cancer*. You can also talk about fatigue with our Specialist Nurses.

**Longer-term side effects**
Most side effects will settle down after HIFU, but some men have longer-term side effects or problems that develop later, including:
- sexual problems
- urinary problems
- a hole between the back passage and the urethra (called a rectal fistula).

The risk of longer-term side effects is lower after focal HIFU than after whole-prostate HIFU.

**Sexual problems**
Some men find that their erection problems don’t improve over time. There are treatments that can help manage erection problems.

You should still be able to orgasm (climax), but you might release less semen (the fluid that carries sperm), or no semen at all. This means you may not be able to have children naturally after treatment. If you’re planning to have children, you might be able to store your sperm before HIFU to use in fertility treatment. If this is important to you, ask your doctor or nurse about it.

Talk to your doctor or nurse if you have problems with erections or other sexual problems. They can explain your treatment options and arrange free treatment on the NHS. They can also refer you to an erectile dysfunction (ED) clinic.

Read more in our booklet, *Prostate cancer and your sex life*.

**Urinary problems**
HIFU can cause longer-term urinary problems. You may have some of the following problems straight after treatment, or they might develop some time later.

- You may leak urine (urinary incontinence) after HIFU. This is more likely if you’ve already had external beam radiotherapy.
- You may leak urine when you cough, sneeze or exercise (stress incontinence).
- If your urethra or the opening of your bladder becomes narrow (a stricture), you may find it difficult to empty your bladder.
- You may have a sudden urge to urinate (urgency).

Talk to your doctor or nurse if you have any urinary problems. There are things that can help, including lifestyle changes, pelvic floor muscle exercises and treatments. Your doctor or nurse may also refer you to an NHS continence service, run by nurses and physiotherapists who specialise in urinary problems.
Read more about urinary problems and how to manage them in our fact sheets, *Urinary problems after prostate cancer treatment* and *Pelvic floor muscle exercises*.

A hole between the back passage and the urethra (rectal fistula)
Very rarely, HIFU can cause a hole between the back passage (rectum) and the urethra. This is called a rectal fistula. It affects about 1 in 500 men who have focal or whole-prostate HIFU (less than one per cent). It may be slightly more likely if you’ve already had radiotherapy.

Signs of a possible rectal fistula include:
- urine coming out of your back passage
- pain in your pelvis or back passage
- bowel contents in your urine
- air bubbles in your urine
- urine infections, although these can also be caused by other things.

Talk to your doctor or nurse straight away if you think you may have a rectal fistula. They may suggest waiting to see if the fistula heals by itself. You may have a catheter (a thin tube that drains urine out of your body) for about three months to give the fistula time to heal. Or you may need an operation to repair the hole.

**Dealing with prostate cancer**
Some men say being diagnosed with prostate cancer changes the way they think and feel about life. You might feel scared, worried, stressed, helpless or even angry.

At times, lots of men with prostate cancer get these kinds of thoughts and feelings. But there’s no ‘right’ way to feel and everyone reacts in their own way.

This section suggests some things you can do to help yourself and people who can help. Families can also find this a difficult time and they may need support and information too. They may want to read our booklet, *When you’re close to someone with prostate cancer: A guide for partners and family.*

**How can I help myself?**
Everyone has their own way of dealing with prostate cancer, but you may find some of the following suggestions helpful.

**Look into your treatment options**
Find out about the different treatments you could have. Bring a list of questions to your doctor or nurse. And ask about any side effects so you know what to expect and how to manage them. This will help you decide what’s right for you.

**Talk to someone**
Share what you’re thinking – find someone you can talk to. It could be someone close or someone trained to listen, like a counsellor or your doctor or nurse. People involved in your care should be able to help with any questions or concerns you might have.

**Set yourself some goals**
Set yourself goals and plan things to look forward to – even if they’re just for the next few weeks or months.

**Look after yourself**
Take time out to look after yourself. When you feel up to it, learn some techniques to manage stress and to relax – like breathing exercises or listening to music. If you’re having difficulty sleeping, talk to your doctor or nurse.

**Eat a healthy, balanced diet**
We don’t know for sure whether any specific foods have an effect on prostate cancer. But eating well can help you stay a healthy weight, which may be important for men with prostate cancer. It’s also good for your general health and can help you feel more in control. Certain changes to your diet may also help with some side effects of treatment. For more information, read our fact sheet, *Diet and physical activity for men with prostate cancer.*

**Be as active as you can**
Keeping active can improve your physical strength and fitness, and can lift your mood. We don’t know for sure if physical activity can help slow the growth of prostate cancer.
But it can help you stay a healthy weight, which may help to lower your risk of advanced prostate cancer. Physical activity can also help with some side effects of treatment. Even a small amount can help. Take things at your own pace. Read more in our fact sheet, **Diet and physical activity for men with prostate cancer.**

Get more tips on how to look after yourself from Macmillan Cancer Support, Maggie’s, Penny Brohn UK, or your nearest cancer support centre. You can also find more ideas in our booklet, **Living with and after prostate cancer: A guide to physical, emotional and practical issues.**

**Who else can help?**

**Your medical team**

It may be useful to speak to your nurse, doctor, GP or someone else in your medical team. They can explain your diagnosis, treatment and side effects, listen to your concerns, and put you in touch with other people who can help.

**Our Specialist Nurses**

Our Specialist Nurses can help with any questions and explain your diagnosis and treatment options. They have time to listen, in confidence, to any concerns you or those close to you have.

**Trained counsellors**

Counsellors are trained to listen and can help you find your own ways to deal with things. Many hospitals have counsellors or psychologists who specialise in helping people with cancer – ask your doctor or nurse if this is available. You can also refer yourself for counselling on the NHS, or you could see a private counsellor. To find out more, visit www.nhs.uk/counselling or contact the British Association for Counselling & Psychotherapy.

**Our one-to-one support service**

This is a chance to speak to someone who’s been there and understands what you’re going through. They can share their experiences and listen to yours. You can discuss whatever’s important to you. We’ll try to match you with someone with similar experiences.

**Our online community**

Our online community is a place to talk about whatever’s on your mind – your questions, your ups and your downs. Anyone can ask a question or share an experience.

**Support groups**

At support groups, men get together to share their experiences of living with prostate cancer. Some support groups also hold meetings online. You can ask questions, share worries and know that someone understands what you’re going through. Some groups have been set up by local health professionals, others by men themselves. Many also welcome partners, friends and relatives.

**Our sexual support service**

This is a chance for you, or your partner, to talk to one of our Specialist Nurses with an interest in helping with sexual problems after treatment for prostate cancer. They can talk to you about the impact of treatment on your sex life and relationships, and discuss possible treatments or ways to deal with these changes.

**Our fatigue support**

Fatigue is a common symptom of prostate cancer, and a side effect of some treatments. Our Specialist Nurses can talk to you in depth about your experience of fatigue, and the impact it’s having on your day-to-day life. They can also discuss ways to help you better manage your fatigue, such as behaviour and lifestyle changes.

To find out more about any of the above, visit prostatecanceruk.org/get-support or call our Specialist Nurses on 0800 074 8383.
Questions to ask your doctor or nurse

You may find it helpful to keep a note of any questions you have to take to your next appointment.

What are the advantages and disadvantages of HIFU?

Where is this treatment available?

Can I see the results of HIFU treatments you’ve carried out?

What are my other treatment options?

Will I have focal HIFU or whole-prostate HIFU?

What are the side effects of HIFU? How likely am I to get them?

How can I manage any side effects I get?

How will I know if the treatment has worked?

How likely is it that I’ll need more treatment after HIFU?

What treatments are available after HIFU?
More information

Bladder and Bowel UK
www.bbuk.org.uk
Telephone: 0161 607 8219
Information and advice about bladder and bowel problems.

British Association for Counselling & Psychotherapy
www.bacp.co.uk
Telephone: 01455 883 300
Information about counselling and details of therapists in your area.

Cancer Research UK
www.cancerresearchuk.org
Telephone: 0808 800 4040
Information about prostate cancer and clinical trials.

Macmillan Cancer Support
www.macmillan.org.uk
Telephone: 0808 808 0000
Practical, financial and emotional support for people with cancer, their family and friends.

Maggie's
www.maggies.org
Telephone: 0300 123 1801
Drop-in centres for cancer information and support, and an online support group.

Penny Brohn UK
www.pennybrohn.org.uk
Telephone: 0303 3000 118
Courses and physical, emotional and spiritual support for people with cancer and their loved ones.

About us

Prostate Cancer UK has a simple ambition: to stop men dying from prostate cancer – by driving improvements in prevention, diagnosis, treatment and support.

Download and order our fact sheets and booklets from our website at prostatecanceruk.org/publications or call us on 0800 074 8383.

At Prostate Cancer UK, we take great care to provide up-to-date, unbiased and accurate facts about prostate cancer. We hope these will add to the medical advice you have had and help you to make decisions. Our services are not intended to replace advice from your doctor.

References to sources of information used to produce this fact sheet are available at prostatecanceruk.org

It was reviewed by:
• Our Health Information team
• Our Specialist Nurses.

Tell us what you think
If you have any comments about our publications, you can email: yourfeedback@prostatecanceruk.org
Donate today – help others like you
Did you find this information useful? Would you like to help others in your situation access the facts they need? Every year, over 52,000 men face a prostate cancer diagnosis. Thanks to our generous supporters, we offer information free to all who need it. If you would like to help us continue this service, please consider making a donation. Your gift could fund the following services:

- £10 could buy a Tool Kit – a set of fact sheets, tailored to the needs of each man with vital information on diagnosis, treatment and lifestyle.
- £25 could give a man diagnosed with a prostate problem unlimited time to talk over treatment options with one of our Specialist Nurses.

To make a donation of any amount, please call us on **0800 082 1616**, visit prostatecanceruk.org/donate or text PROSTATE to 70004†. There are many other ways to support us. For more details please visit prostatecanceruk.org/get-involved

† You can donate up to £10 via SMS and we will receive 100% of your donation. Texts are charged at your standard rate. For full terms and conditions and more information, please visit prostatecanceruk.org/terms