

Hormone therapy

This fact sheet is for men who are about to start, or are already receiving, hormone therapy to control their prostate cancer. This fact sheet may also be useful for the partners or family of men with prostate cancer who want to know more about hormone therapy. It describes the different types of hormone therapy, how they are used and their possible side effects. We hope it will help you make decisions with your specialist team about your treatment. Each treatment centre will do things slightly differently so use this fact sheet as a general guide to what to expect and ask your specialist team for more details about the treatment you will have.

In this fact sheet:

- How does hormone therapy treat prostate cancer?
- Who can have hormone therapy?
- What types of hormone therapy are available?
- What does treatment involve?
- What are the advantages and disadvantages?
- What are the side effects of hormone therapy?
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How does hormone therapy treat prostate cancer?

Hormone therapy for prostate cancer works by stopping testosterone reaching the prostate cancer cells. If there are cancer cells in the prostate gland, or if the prostate cancer cells have spread to other parts of the body, testosterone can make them grow faster. In other words, testosterone feeds the prostate cancer. If testosterone is taken away, it is usually possible to shrink the cancer wherever the cancer cells are in the body.

Most of the testosterone in your body (90-95 per cent) is produced by the testicles and a small amount comes from the adrenal

glands, which are above your kidneys. To stop testosterone reaching the cancer cells, you may be offered:

- Surgery to remove the testicles or just the parts of the testicles that make testosterone (orchidectomy)
- Injections or implants to stop the production of testosterone
- Tablets to block the effect of testosterone

Hormone therapy will not cure prostate cancer but it can keep the cancer under control for many months or years. Some men may have hormone therapy for a short time in combination with other treatments such as radiotherapy, to help make them more effective. Some men may have hormone therapy as a long-term treatment for prostate cancer.

Who can have hormone therapy?

Hormone therapy is a treatment option for men with prostate cancer, but it is used in different ways depending on the stage of your cancer. Read our **Treatment fact sheets** for information on other treatments mentioned here.

Localised prostate cancer

Cancer that has not spread outside the prostate gland is called localised prostate cancer. If you are diagnosed with localised

prostate cancer your specialist team may offer you hormone therapy alongside your main treatment in the following situations:

- You may be offered hormone therapy for several months before starting radiotherapy. Radiotherapy uses high energy x-ray beams to target the prostate cancer. Hormone therapy can make it easier for the radiotherapy to destroy the cancer cells. The hormone therapy shrinks the prostate. This means that the radiotherapy then only needs to target a small area.
- You may continue to have hormone therapy at the same time as radiotherapy. If there is a risk of the cancer spreading, you may have hormone therapy for between six months and three years after radiotherapy.
- Some treatment centres may offer hormone therapy for a few months before starting brachytherapy to shrink the prostate. Brachytherapy uses radioactive seeds implanted in the prostate gland.

Hormone therapy does not benefit men with localised disease who are having surgery (radical prostatectomy).

Locally advanced prostate cancer

Prostate cancer that has spread to the area just outside the gland, but has not spread to other parts of the body is called locally advanced. Hormone therapy treats prostate cancer wherever it is in the body and is the standard treatment for locally advanced prostate cancer. Some men may benefit from radiotherapy alongside the standard hormone treatment, depending on the stage of their cancer. Speak to your specialist team about your individual treatment options.

Advanced prostate cancer

Prostate cancer that has spread (metastasised) to other parts of the body, such as the bone, is called advanced or metastatic disease. Hormone therapy treats prostate cancer wherever it is in the body. It cannot cure the cancer but it can keep it under control for many months or years. It works by shrinking the cancer, delaying its growth and reducing symptoms. For many men hormone therapy will be a life-long treatment.

What types of hormone therapy are there?

LHRH agonists

Some hormone therapy drugs work by stopping the brain from telling your body to make testosterone. Without testosterone the prostate cancer cells are not able to grow. This family of drugs are called LHRH agonists and are given by an injection into your arm, abdomen (tummy) or buttock (bottom). Some of these drugs are available as a small implant inserted under the skin. You may have the injections at your GP surgery or local hospital once a month or once every three months, depending on the dose you are having. There are several different LHRH agonist drugs made by different drug companies. Some of the common ones are listed below.

- Goserelin (brand names: Zoladex, NovGos)
- Leuprorelin acetate (brand name: Prostag)
- Buserelin acetate (brand name: Suprefact)
- Triptorelin (brand names: Decapeptyl, Gonapeptyl Depot)

Read our **Hormone drug fact sheets** for more information on each of these drugs.

Before you have your first injection, you will be given a short course of anti-androgen tablets (see next page). This is to prevent the body's normal response to the first injection, which is to produce more testosterone. This rise in testosterone, known as flare, could cause the cancer to grow more quickly for a short time. The anti-androgen tablets help to prevent this flare from happening. You will start taking the tablets a week or so before the first injection and continue taking them for a week or two afterwards.

One type of LHRH agonist is available as an implant. The histrelin implant (brand name Vantas) uses a drug called histrelin acetate and is an effective way of controlling advanced prostate cancer. It works by releasing some of the drug into your body every day, over 12 months. The implant is a small plastic cylinder that your specialist team will insert under the skin of your upper arm. They will numb your skin and make a small cut to insert the implant. Your specialist team will give you advice about how to care for the implant and

you will see them for routine checks to make sure that it is in place and working. After 12 months, the implant will be taken out and a new one may be put in. The histrelin implant is not as widely available as some of the other LHRH agonists.

Anti-androgens

Anti-androgens are drugs that work by stopping testosterone from reaching the cancer cells. Without testosterone the prostate cancer cells are not able to grow. This type of hormone therapy is taken as a tablet at least once a day. Anti-androgens can be used on their own, before having injections or together with an orchidectomy (surgery to remove the testicles) or LHRH agonists. You can ask your specialist team how long you will need to take the tablets. There are a number of different anti-androgens, made by different drug companies, including:

- Bicalutamide (one brand name is Casodex)
- Cyproterone acetate (one brand name is Cyprostat)
- Flutamide

Read our **Hormone drug fact sheets** for more information on each of these drugs.

GnRH antagonists

Another type of hormone therapy drug, called a gonadotrophin-releasing hormone (GnRH) antagonist or blocker is also available in some hospitals. At the moment, there is only one kind of GnRH blocker called degarelix (brand name Firmagon) and this is not available everywhere. Degarelix is given by injection into the abdomen (tummy). Degarelix works by blocking the message from the brain that tells the testicles to produce testosterone. Degarelix does not cause a flare so you will not need to take anti-androgen tablets. You will have an injection of degarelix once a month. When you first start this treatment you will have two injections given on the same day. See the hormone drug fact sheet **Degarelix** for more information.

Surgery to remove the testicles (orchidectomy)

This type of hormone therapy involves an operation, called an orchidectomy, to remove the testicles, or just the parts of the testicles that make testosterone. This stops the body from producing testosterone. Without testosterone the prostate cancer cells are not able to grow.

Some men may find the idea of having their testicles removed alarming but the operation is just as effective at stopping testosterone production as injections. You can have the operation under local or general anaesthetic and you should be able to go home the same day. Short term side effects include swelling and bruising of the scrotum, which is the sack containing the testicles. For details of longer term side effects of orchidectomy and other hormone treatments see page 5. If you are worried about how your testicles will look after the operation you could ask your surgeon about having a prosthesis. A synthetic silicone testicle can be inserted into the scrotum while you are having the operation.

Oestrogens

If you have advanced prostate cancer you may be able to take tablets called diethylstilbestrol (previously called stilboestrol). Diethylstilbestrol is a manufactured drug similar to the hormone oestrogen. Oestrogen is found in both men and women, but women usually produce more. It is normally taken together with other hormone therapy drugs. Diethylstilbestrol may treat prostate cancer by:

- Stopping the brain from telling the testicles to release testosterone
- Acting directly on cancer cells, slowing their growth and causing some cancer cells to die

Taking diethylstilbestrol tablets can increase your risk of circulation problems. You may not be able to take diethylstilbestrol if you have a history of high blood pressure, heart disease or strokes. Your doctor will advise you about this and can explain the potential risks and benefits. You will usually be given aspirin at the same time to reduce the risk of circulation problems.

What does the treatment involve?

To begin with you will usually be offered either an LHRH agonist or surgery to remove the testicles (orchidectomy). Depending on the stage of your cancer, the other treatments you are having and your own personal circumstances you may also be offered anti-androgens, a GnRH antagonist or oestrogens. You may also take these drugs in combination.

Depending on which type of hormone therapy you have, you may visit the hospital or your GP surgery for treatment. You will have regular

prostate specific antigen (PSA) tests which will help to check how well your treatment is working. PSA is a protein produced by some of the cells in your prostate gland. The PSA test is a simple blood test that can measure the amount of PSA in your blood. You may like to ask your specialist how often you will have your PSA level checked.

Your specialist team may suggest different ways of using hormone therapy, such as 'intermittent hormone therapy' and 'maximal androgen blockade.'

What are the advantages and disadvantages?

Type of hormone therapy	Advantages	Disadvantages
LHRH agonists	<ul style="list-style-type: none"> • They are equally effective at controlling prostate cancer as orchidectomy. • As you will be visiting the GP or hospital every month or three months for treatment you will have a regular chance to talk about the treatment and side effects. 	<ul style="list-style-type: none"> • There is a risk of flare when treatment first starts but this can be controlled (see page 2). • Visiting the GP or hospital every month or every three months for injections may be inconvenient for some men, for example if you have far to travel.
Anti-androgens	<ul style="list-style-type: none"> • Because testosterone is still being produced, it may be possible to have erections. 	<ul style="list-style-type: none"> • You need to remember to take tablets every day. • They are less effective than LHRH agonists at treating cancer that has spread to other parts of the body.
GnRH antagonist	<ul style="list-style-type: none"> • Does not cause flare so you do not need to take anti-androgen tablets. • As you will be visiting the GP or hospital every month or three months for treatment you will have a regular chance to talk about the treatment and side effects. 	<ul style="list-style-type: none"> • It is a new drug so we do not have as much information on its long term effectiveness and side effects. • Visiting the GP or hospital every month for treatment may be inconvenient for some men, for example if you have far to travel.
Orchidectomy	<ul style="list-style-type: none"> • It is a one-off treatment. • It is equally effective at controlling prostate cancer as LHRH agonists. 	<ul style="list-style-type: none"> • The operation is not reversible • Needs a local or general anaesthetic.
Oestrogens	<ul style="list-style-type: none"> • They are suitable for treating advanced prostate cancer if other hormone drugs are no longer effective. 	<ul style="list-style-type: none"> • You need to remember to take tablets every day. • Can increase your risk of circulation problems.

Intermittent hormone therapy

Intermittent hormone therapy involves stopping treatment when your PSA level is low and steady, and starting treatment again when your PSA starts to rise. This process is repeated for as long as it continues to work. Your specialist team will advise you on when you will stop and start treatment.

The advantage of intermittent hormone therapy is that you may be able to avoid side effects during the times that you are not having treatment. However it can take six to nine months or sometimes longer for the side effects to wear off. Intermittent hormone therapy may be just as effective at treating prostate cancer as continuous treatment. We need some more research before we know whether intermittent hormone therapy is effective for long-term treatment of prostate cancer.

Maximal androgen blockade

In some cases your specialist may suggest a way of using hormone therapy called 'maximal androgen blockade', also known as 'combined androgen blockade'. This uses both an LHRH agonist and an anti-androgen to treat the cancer. Some specialists think that maximal androgen blockade slightly improves survival in men whose cancer has spread to other parts of the body (advanced prostate cancer).

Sometimes when an LHRH agonist on its own becomes less effective at controlling your prostate cancer, you may start to take an anti-androgen at the same time. However, because maximal androgen blockade can increase the risk of side effects it is not a commonly used as a first treatment for prostate cancer.

What are the side effects of hormone therapy?

Like all drugs and treatments, hormone therapy has a risk of side effects and it is important to discuss these with your specialist team before you start any treatment. If you know what side effects to expect it can make it easier to cope with them.

Hormone therapy affects different men in different ways. There is no way of knowing in advance which side effects you will get and

how bad they will be. The risk of getting each side effect depends on which treatment you are having and how long you take it for. Read our **Hormone drug fact sheets** for information on individual drugs.

The side effects of hormone therapy, caused by lowered testosterone levels, can be upsetting for some men. You may stop your treatment for a while if you are trying intermittent hormone therapy. You might also change to another treatment. If you stop or change your treatment, your testosterone levels will rise again and some of the side effects may reduce slowly over time. Orchiectomy cannot be reversed but there are treatments that can help to reduce some of the side effects.

Some men who are having hormone therapy may have few side effects or may not have any side effects at all. This does not mean that the treatment is any less effective.

If you have any concerns about your side effects or if you get any new symptoms while you are having treatment, speak to your specialist team or call our confidential Helpline on 0800 074 8383 to speak to a specialist nurse.

The most common side effects of hormone therapy are described here. For more detailed information about all these side effects and ways to help manage or reduce them, read our booklet **Living with hormone therapy: A guide for men with prostate cancer**.

Loss of sex drive (libido) and erectile dysfunction

Hormone therapy has a big impact on sexual function. It can affect your sex life in two different ways: your desire for sex (libido) and your ability to keep an erection (erectile dysfunction). Anti-androgens are less likely to cause erectile dysfunction than other types of hormone therapy.

There are many ways that erectile dysfunction can be treated. Treatment options include: tablets, injections, pellets, vacuum pumps and implants. For more information read our Tool Kit fact sheet **Sex and prostate cancer**.

Hot flushes

Hot flushes are a common side effect of hormone therapy. Between five and eight out of every ten men (50 to 80 per cent) who have hormone therapy will get hot flushes. Hot flushes give you a sudden feeling of warmth in the upper body and can be similar to those experienced by women going through the menopause. Hot flushes can vary from a few seconds of feeling overheated to a few hours of sweating that can stop you from sleeping or cause discomfort.

There are a number of different options that may help you manage hot flushes, including lifestyle changes, drug treatments and complementary therapies.

Bone thinning

LHRH agonists and orchidectomy can cause the bones to gradually lose their bulk. Long term treatment can cause thinning of the bones that, if severe, can lead to the condition known as osteoporosis. This can result in an increased risk of bone fractures. Anti-androgens and oestrogens do not have this effect.

There are a number of lifestyle changes such as exercise and changes to your diet that may help to reduce your risk of osteoporosis.

Breast swelling and tenderness

Treatments for prostate cancer with anti-androgens or oestrogens may cause swelling (gynaecomastia) and tenderness in the breast area. This can affect one or both breasts and can range from mild sensitivity to ongoing pain. The swelling can also vary from a small amount to a more noticeable enlarged breast area.

There are a number of options available that can help reduce your risk of breast swelling and tenderness or help to treat the problem. They include treating the breast area with a single dose of radiotherapy, tablets or surgery.

Tiredness (fatigue)

Hormone therapy for prostate cancer can cause extreme tiredness. While some men may not feel tired at all, other men may experience tiredness that affects their everyday life. You may find that your tiredness improves over time and many men find that regular resistance

exercise gives them more energy and helps them to cope with treatment.

Weight gain

You may notice that you start to put on weight, particularly around the waist. Some men find this physical change difficult to cope with particularly if they have never had any problems with their weight in the past.

Exercise and a healthy diet can help you stay a healthy weight. You can read more about healthy eating in our Tool Kit fact sheet **Diet and prostate cancer**.

Strength and muscle loss

Hormone therapy reduces testosterone in the body and can cause a decrease in muscle tissue and an increase in the amount of body fat. This can change the way your body looks and how physically strong you feel. Regular resistance exercise such as gentle weight lifting, fast walking or swimming may help to reduce muscle loss and keep your muscles strong.

Forgetfulness and problems with concentration

Some men on hormone therapy find that they become more forgetful and have problems concentrating. We do not know for sure if this is caused by hormone therapy or whether other factors, such as hot flushes and fatigue, may play a part.

Risk of heart disease and diabetes

Some studies have shown that men receiving hormone therapy may have an increase risk of heart disease and diabetes. You may be able to help reduce your risk by avoiding smoking, taking regular exercise and eating a healthy diet.

You can find out more about healthy eating in our Tool Kit fact sheet **Diet and prostate cancer**.

Changes to your mood

Hormone therapy may affect your mood. You may find that you feel more emotional than usual or experience low moods or depression. This can be a direct result of hormone therapy, a response to the shock of diagnosis or the impact that treatment can have on your life. Talking to someone about this may help. If you are depressed try and get help early on.

Anti-depressants are often successfully used to treat hormone therapy-related depression.

What will happen if I decide to stop my treatment?

It can be difficult to cope with the side effects of hormone therapy and some men may feel that they want to stop their treatment. If you

are thinking about stopping hormone therapy, talk to your doctor. They will explain how this will affect your cancer and any possible alternatives. You can also talk to your doctor about other options such as intermittent hormone therapy (see page 5), but this may not be suitable for all men.

Questions to ask your specialist team

- What is the aim of this treatment?

- What type of hormone treatment are you recommending for me and why?

- How long would it be before we know that the hormone treatment is working?

- What side effects should I expect?

- How often will you monitor my condition throughout this treatment?

- What other treatments are available if the cancer starts to grow again?

More information

This fact sheet is part of the Tool Kit. Call our Helpline on 0800 074 8383 or visit our website at www.prostate-cancer.org.uk for more Tool kit factsheets, including an A to Z of medical words which explains some of the words and phrases used in this sheet.

Cancer Research UK

www.cancerhelp.org.uk
 P.O. Box 123, Lincoln's Inn Fields
 London WC2A 3PX
 Free helpline 0808 800 4040
 (9am - 5pm Monday to Friday)
 Further information about coping with cancer.
 Includes CancerHelp UK clinical trials database

Macmillan Cancer Support

www.macmillan.org.uk
 89 Albert Embankment, London SE1 7UQ
 Free helpline 0808 808 00 00
 (9am-8pm Monday to Friday)
 Practical, financial and emotional support for people with cancer, their family and friends.

UK Prostate Link

www.prostate-link.org.uk
 This website guides you to reliable sources of prostate cancer information.

The Prostate Cancer Charity makes every effort to make sure that its services provide up-to-date, unbiased and accurate facts about prostate cancer. We hope that these will add to the medical advice you have had and will help you to make any decisions you may face. Please contact your doctor if you are worried about any medical issues.

The Prostate Cancer Charity funds research into the causes of, and treatments for, prostate cancer. We also provide support and information to anyone concerned about prostate cancer. We rely on charitable donations to continue this work. If you would like to make a donation, please call us on 020 8222 7666.

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Website: www.prostate-cancer.org.uk

	<p>Free and confidential Helpline 0800 074 8383* Mon - Fri 10am - 4pm, Wed 7pm - 9pm</p>
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Email: helpline@prostate-cancer.org.uk

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* Calls are free of charge from UK landlines. Mobile phone charges may vary. Calls may be monitored for training purposes. Confidentiality is maintained between callers and The Prostate Cancer Charity.

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References to sources of information used in the production of this fact sheet are available on our website.

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