

Patient information from the BMJ Group

Cataracts

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Cataracts

If you have a cataract, it means the lens in your eye is cloudy. Things look blurry. You may feel as if you're looking through a dirty window or frosted glass. Cataracts are common, especially in older people.

New glasses or sunglasses to cut down on glare might help for a while. But an operation is the only way to get rid of your cataract. Most people see much better and enjoy life more afterwards.

We've brought together the best research about cataracts and weighed up the evidence about how to treat them. You can use our information to talk to your doctor and decide which treatments are best for you.

What are cataracts?

Normally, the lens of your eye is clear. But if you have a cataract, it means you have a cloudy spot in your lens.

As the cataract grows, your sight gets blurry or misty.^[1] You might feel as if you're looking through glasses that are dirty or scratched. It's just like a camera lens that's got scratched. The marks would show up on the pictures.

Cataracts are common. They can happen at any age, but most form as people get older.

If you have a cataract, you shouldn't worry. It might not bother you at first. And when it does, you can have an operation to take it out. You should be able to see much better afterwards.

Key points for people with cataracts

- One-third of people over the age of 65 have cataracts.
- Most cataracts are caused by ageing.
- Your chances of getting cataracts as you get older can be higher because of the way you live. For example, your chances are higher if you smoke or you go out in the sun a lot.

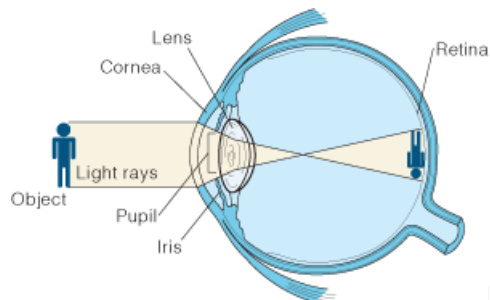
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- Cataracts can also be caused by other things. You can be born with them or get them because of health problems such as **diabetes** .
- Surgery is the only treatment for cataracts that we know works.
- You should be able to see much better and enjoy life more after having surgery. But there are risks, and your eyesight probably still won't be perfect.

How your eye works

The front of your eye has a thin film over it. This film is called the **cornea**. It helps to stop your eye getting damaged.

The hole in the centre of your eye is the **pupil**. It lets light in.



Your eyes convert light into pictures.

The part of your eye that focuses light is the **lens**. It helps you see things clearly.^[1] Normally, your lens is clear.

The lens sits behind the coloured part of your eye, called the **iris**. And it's held in place by tissue known as the **capsule**.

The back of your eye is called the **retina**. It has nerve cells that pick up light.

This is what happens when you look at something.

- Light enters your eye through the hole in the centre (your pupil).
- The light goes through your lens.
- The lens focuses the light onto the back of your eye (your retina), making a picture.
- The nerve cells in your retina pick up the picture and send signals to your brain.
- Your brain tells you what you are seeing.

Your lens must be clear for your retina to get a sharp picture.

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What goes wrong when you have cataracts

If you have a cataract, it means the lens in your eye has turned cloudy.^[1] This makes the picture on the back of your eye blurry. It's like looking through a dirty windscreen or frosted glass.

The cataract is the cloudy part of your lens. It isn't a layer of skin that grows over your eye and can be peeled off, as some people think.

Most cataracts are caused by ageing. Doctors sometimes call these **senile cataracts** or **age-related cataracts**.

As you get older, your lens can change in two ways:^[2]

- Your lens might get clumps in it. Your lens is made up mostly of water and protein. As you get older, the protein can clump up and cloud your lens. Then less light reaches the back of your eye. Your vision might get blurry.
- Your lens might change colour. When you are younger, your lens doesn't have any colour. But as you get older, it slowly turns yellow-brown. You might find it harder to see some colours, such as blues and purples. But this change doesn't make your vision blurry.

Types of cataracts

Different parts of your lens can get cloudy, so you can get different types of cataract. To decide which type of cataract you have, your doctor will check where in your lens your cataract has started. Your symptoms will depend on the type of cataract you have.^{[3] [4]}

- Some cataracts begin around the edges of your lens and grow in a pattern like the spokes of a wheel. Doctors call these **cortical cataracts**. These are the most common type of cataract. If you have cortical cataracts, when you look at bright lights, you get a lot of glare or see a ring around the light. Or you might have these symptoms when the sun is low in the sky. If you drive, you might find that headlights coming at you bother you more than before.
- Other cataracts happen when the middle of your lens turns yellow-brown and gets harder. Doctors call these **nuclear cataracts**. Nuclear cataracts are less common than cortical cataracts. If you have a nuclear cataract your vision might get blurry.
- Some cataracts happen when grainy cells get between the back of your lens and its capsule. This can cause bad glare from lights. Doctors call these **posterior subcapsular cataracts**. These cataracts aren't very common. But they can happen when you're younger.

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- You can also have a combination of any of these three kinds of cataracts. This is known as a **mixed cataract**. Almost one-third of cataracts that happen are of the mixed type. ^[3] ^[4]

You can get a cataract in just one eye, although most people get them in both eyes. But cataracts don't spread from one eye to the other. You don't catch them like an [infection](#).

Most cataracts are caused by ageing. But other things can also cause them. ^[2] To read more, see [Other causes of cataracts](#).

Cataracts: why me?

We don't know why some people get cataracts as they age and others don't. And we don't know why some people's cataracts get worse faster. There are probably many reasons.

We do know there are some things that make it more likely that you will get cataracts as you age. Doctors call these risk factors. Risk factors for cataracts include:

- Smoking a lot
- Having cataracts run in your family
- Getting very [dehydrated](#) at some point in your life (for example, if you have severe [diarrhoea](#) you can get dehydrated)
- Taking drugs called [steroids](#) for a long time
- Being in the sun a lot
- Having [high blood pressure](#) or [heart disease](#).

To learn more, see [Risk factors for cataracts](#).

What are the symptoms of cataracts?

Cataracts can affect your eyesight in different ways. And they may bother you a little or a lot.

We've listed the most common symptoms of cataracts here. ^[1] ^[2]

- Things look cloudy or blurry.
- You keep having to get new glasses.

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- Colours seem faded. You may find it hard to tell between some colours, especially shades of blue.
- You get a glare from lights. And headlights, lamps, or sunlight may seem too bright.
- You may see a ring around lights. Doctors call this halo effect.
- You may find it harder than usual to see at night.
- You may have double vision.

You can get cataracts in just one eye or in both eyes. Most people with cataracts end up having them in both eyes.

How do doctors diagnose cataracts?

You may find out you have cataracts when you go for a routine eye check-up.

Two kinds of health professionals are specially trained in eye care.

- Optometrists can give you an eye test, check for eye problems, and prescribe glasses and contact lenses.
- Ophthalmologists are medical doctors who specialise in eye problems and can do operations.

As you get older, you should get your eyes tested regularly. In the UK, eye tests are free for people aged 60 or older.

If your optometrist finds you have an eye problem, they should send you either to your GP or directly to an ophthalmologist.

Your optometrist or ophthalmologist can see if you have cataracts by doing a thorough eye examination. Here is what you can expect. ^[2]

- An eye test. Your doctor will ask you to read letters from different rows of a chart. This measures how well you see at certain distances. To read more, see [Eye tests](#).
- An examination to look inside your eye. In this test, drops are put in your eye to make the hole in the centre of your eye (called your pupil) wider. Doctors call this dilating your pupils. Your doctor will use a special magnifying lens to look inside your eye to see if you have a cataract and how bad it is.
- A tonometry test. In this test, your doctor uses an instrument to measure the pressure inside your eye. You may be given drops to numb your eye first. This test checks for other eye problems, such as [glaucoma](#).

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Doctors can't see cataracts without looking into your eye, unless you have very bad ones. If you have a very bad cataract, the centre of your eye (your pupil) will be grey or white. By this stage your eyesight will be severely affected.

Your doctor will ask you how much your cataracts bother you. They will also ask you about any other health problems and eye problems you have had or have. And you might have other tests to find out more about the health of your eyes.

How common are cataracts?

Cataracts are common, especially in older people.

Some research in Australia found that: ^[23]

- About 20 in 100 people between 65 and 74 had cataracts
- About 66 in 100 people over 85 had cataracts.

In the UK, about 33 in 100 people over 65 have cataracts in one or both eyes. ^[22]

If your background is South Asian or Indian, you have higher chances of getting cataracts. ^[14] And you might get cataracts at a younger age too.

In countries with good health care, such as the UK, cataracts are usually cured by surgery. But around the world, cataracts are the main cause of blindness. Worldwide, about 40 in 100 people who can't see are blind because of cataracts. The condition causes blindness in more than 15 million people. ^[24]

Blindness from cataracts happens mainly in countries with limited health care, such as countries in Asia and Africa. Most of the people in those countries wouldn't go blind if they were able to have surgery. ^[25] In the UK and the USA, fewer than 4 in 100 people who can't see are blind because of cataracts.

What treatments work for cataracts?

If you have a cataract, it means the lens in your eye is cloudy. You may have trouble seeing clearly. This can get in the way of doing things you enjoy. And you may worry that your eyesight will get worse. But treatment can help you see better and get on with your life.

New glasses, brighter lighting, special sunglasses, or magnifying lenses might help you early on. But these won't stop your cataract getting worse. An operation is the only way to get rid of it.

Key points about treating cataracts

- Not everyone with cataracts needs an operation, but surgery is the only way to get rid of them.

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- 9 in 10 people see better after their cataract operation. But your sight might not be perfect. If you wore glasses before surgery, you may still need them afterwards.
- An operation to take out your cloudy lens in small pieces (called **phacoemulsification**) works better than an operation to take it out in one piece (called **manual extracapsular extraction**).
- In the UK, most people have their cataracts taken out by phacoemulsification.
- The operation won't hurt. But there's a small chance that you will have problems during or after surgery.

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Treatments for cataracts

There are different operations for removing cataracts.

For help in deciding which treatment is best for you, see How to use research to support your treatment decisions.

Treatments that work

- [Phacoemulsification](#) : In this operation your doctor takes your cloudy lens out in little bits through a small cut. Then a soft plastic lens is put in its place. [More...](#)
- [Manual extracapsular extraction](#) : In this operation your doctor takes your cloudy lens out in one piece through a larger cut. Then a hard plastic lens is put in its place. This operation isn't used very much in the UK. [More...](#)

What will happen to me?

Cataracts usually come on slowly over years. Many people with cataracts get along fine with glasses and contact lenses. But if your cataracts bother you a lot, you may need an operation.

Cataracts get worse over time. Unfortunately, your doctor can't say how fast this will happen. There hasn't been much research on this.

Do I need an operation?

Not everyone with cataracts needs an operation to take them out. Some people get by with their cataracts for longer than others because their poorer sight doesn't bother them much. For example, a person whose hobby is listening to music might decide to have the surgery later than a person who loves bird-watching. And older people sometimes put off having an operation or decide not to have it at all.

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In the past, doctors told people that their cataracts had to be very bad before it was worth having an operation. This was for two reasons.

- Cataract surgery used to be a big operation, and it took a long time to get better.
- Good artificial lenses weren't available, so people had to wear very thick glasses after surgery.

Nowadays we have safer, quicker operations. So cataracts are generally taken out earlier, before they cause serious problems. Also, now we have good artificial lenses that are put in place of your own cloudy lenses. So you can see better without having to wear thick glasses.

Your eye test can help tell if now is a good time to have surgery. Doctors use a score to talk about the results of this test. The score tells how good or bad your vision is. Most people with a score of 6/18 or worse in both eyes because of cataracts will see better if they have surgery to get rid of them. ^[26] To read more, see [Eye tests](#) .

But your doctor will probably suggest having the operation when your cataracts get in the way of your daily life rather than when you have a certain score on your eye test. With some cataracts, you might be able to read well on the eye chart indoors, but you get a lot of glare from light outside. Having cataracts may mean you can't see well enough to read, work, play sport, drive, or go shopping. ^[1]

Your doctor might suggest taking out your cataracts even when you don't have trouble seeing. This could be because you have another eye problem that needs treating, and the cataracts are in the way. ^[27] For example, if you have **diabetes** , the other eye problem could be leaky blood vessels in the back of your eye. Doctors called this **diabetic retinopathy**. Or the centre of the back of your eye may be damaged. Doctors call this **macular degeneration**.

How can an operation help?

A cataract operation can:

- Help you see better
- Let you get on with the things you enjoy
- Give your eye doctor a chance to check for other eye problems.

If you drive, this operation could make you safer on the road. ^[28] Research has shown that older drivers who have had surgery to take out their cataracts are half as likely to be involved in a car crash.

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An operation also has risks that you should talk about with your doctor. Your eyesight probably won't be perfect afterwards. And you might need to wear glasses some of the time.

What if I am older?

Cataract surgery can help even very old people.^[29] One study looked at people over 85 who had their cataracts taken out. It showed that:

- Most of these people could see better afterwards
- More than half of those who couldn't read a newspaper before surgery were able to see well enough to read after the operation
- Two-thirds of the people were better able to watch television
- Most of the people needed less help to get on with their daily activities.

Another study looked at the benefits of having cataract surgery in women over 70. After one year, the women who'd had cataract surgery were:^[30]

- Less likely to have falls
- More likely to be active
- More confident than women who didn't have the operation.

What if I have another eye condition?

Almost one-third of people with cataracts have another eye problem at the same time.^[22]

For example, if you have cataracts, you might also have:

- **Macular degeneration** (this is when the centre part of the back of your eye is damaged)
- **Diabetic retinopathy** (this is when blood vessels in the back of your eye leak because of diabetes)
- **Glaucoma** (this is when pressure builds up in your eye).

If you have cataracts plus another eye condition, you probably won't see as well after cataract surgery as someone who has only cataracts. But about 8 in 10 people, including those with other eye problems, can see well enough to drive after a cataract operation.^[31]

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What if I don't have an operation?

If you choose not to have an operation, your cataract will not get better on its own. In fact, it will keep growing until your whole lens becomes cloudy. Your sight will slowly get worse until you can't see anymore.

Also, cataracts can cause other problems that can badly harm your sight. And leaving them to grow can make surgery harder. If you wait, it's more likely that something will go wrong during the operation.

One study found that people who waited several months for a cataract operation had more falls, compared with people who had the operation straight away.^[32] However, there is some evidence that the risk of falls may increase for a time after cataract surgery.^[33] The biggest risk is after the first eye has been operated on but before the second operation. If you need to have cataract surgery on both eyes it is usually best to avoid waiting too long before the second operation. It is also important to make sure that you get new glasses if you need them after each operation.

If you have any questions about the timing of your operations or the need for new glasses, you should talk to your doctor or optometrist.

Questions to ask your doctor

If you have cataracts, you can talk to your doctor to find out more.

Here are some questions you might want to ask.

- Why did I get cataracts?
- Do I have them in just one eye or in both eyes?
- How do they affect my sight now and how will they do so in the future?
- Should I watch for any symptoms?
- Should I change anything about the way I live?
- Is there anything I can do to stop my cataracts getting worse?
- What kinds of tests do I need?
- Can my cataracts be treated?
- Do I need surgery to take them out?
- What kind of operation can I have?
- How much better will I be able to see after surgery?

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- How long will it take me to get better?
- What are the risks of having an operation?
- What will happen to my eyesight if I don't have surgery?

Treatments:

Phacoemulsification

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[How good is the research on phacoemulsification?](#)

This information is for people who have cataracts. It tells you about phacoemulsification, a type of operation for cataracts. It is based on the best and most up-to-date research.

Does it work?

Yes. Most people with cataracts see much better after this operation. The cloudy lens in your eye is taken out and a clear artificial lens is put in its place.

Doctors call surgery to take out your lens in small bits **phacoemulsification**. You may also hear it called **phaco** for short.

Taking out your lens in small pieces works better than taking it out in one piece. You may see better afterwards if your lens is taken out in pieces.

To get the best results from cataract surgery, it's important to follow any instructions your eye surgeon gives you after your operation. You may need to put eye drops in the treated eye every day for several days or weeks. These make it less likely that you'll get an eye infection and will reduce any swelling. You should also avoid anything where there's a risk you could get knocked in the treated eye.

What is it?

If you have a cataract, it means the lens in your eye is cloudy. Phacoemulsification is a newer type of cataract operation. In this operation your eye surgeon takes out your cloudy lens and puts a clear artificial lens in its place. They use a special tool that gives off sound waves. The sound waves break your lens into small pieces. You need only a small cut in your eye for this operation. And you probably won't need stitches afterwards. ^[39]

Most cataract operations are done in this way in the UK. In another, older type of surgery, eye surgeons make a bigger cut in your eye and take your lens out in one piece. That surgery is called [manual extracapsular extraction](#) .

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Both operations aim to help you see better and stop poor sight getting in the way of your life.

Before you have phacoemulsification, your eye surgeon will give you drops, a gel, or an injection near your eye to numb it. This is called having a **local anaesthetic**. It means you will stay awake during the surgery, but you won't feel any pain.

Here's what happens in phaco surgery. ^[39]

- Your eye surgeon looks into your eye with a microscope.
- They make a tiny cut in the thin film (called the cornea) that covers your eye. The cut won't hurt and you won't be aware of it being made during the operation.
- Then your eye surgeon puts a tiny tool through the cut to reach your lens.
- The tool gives off sound waves that break your lens into small pieces.
- The pieces are sucked out through a needle on the tool.
- The tissue that holds your lens in place (called the capsule) is left behind.
- Then your eye surgeon puts in an artificial lens. It is made of soft plastic, so it bends. Your eye surgeon folds it and puts it inside your eye through the tiny cut. The lens unfolds once it's inside.
- The cut in your eye shouldn't need stitches. It should heal quickly on its own.

Artificial lenses come in different strengths, like the lenses in glasses. Before your operation, your doctor will have measured your eye to choose the right lens for you.

Doctors call the artificial lens **intraocular lens** (IOL for short). Apart from being clear rather than cloudy, it won't feel any different from your own natural lens. For more, see [Intraocular lenses](#).

You probably won't have to stay in hospital overnight after your operation. More than 9 in 10 people go home the same day. ^[40]

If you have cataracts in both eyes, your eye surgeon will probably operate on them one at a time. You'll have the operations at least one month to two months apart. This is because the eye that's operated on can be sore and needs time to heal.

We've prepared some extra information for people thinking of having this operation. To read more, see [Cataract surgery](#) in our section on operations and tests.

Not everyone with cataracts needs an operation. Your doctor will probably suggest it when your cataract gets in the way of your daily life rather than when your eyesight reaches a certain score on an eye test. (To read more, see [Eye tests](#).) Some people

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can manage with their cataracts much longer than others because their poorer sight doesn't bother them much.

How can it help?

After your operation, if you don't have other eye problems, you should be able to:

- See things clearly
- Look into bright light without as much glare
- Tell colours apart
- Get back to your usual activities, such as reading, working, watching television, playing sport, and driving.

You're also less likely to have an accident such as a fall. ^[30]

Taking your lens out in small bits (phacoemulsification) works better than taking it out in one piece (manual extracapsular extraction). ^[41]

- One year after surgery, with the help of glasses, more than 9 in 10 people who have their lens taken out in pieces can see much better. They have what is called 6/9 vision. But slightly fewer than 9 in 10 people who have their lens taken out in one piece see this well. ^[41]
- You're also more likely to see better without the help of glasses after having your lens taken out in pieces. Almost 4 in 10 people who have this operation can see well without glasses. But only 2 in 10 people who have their lens taken out in one piece can see just as well without glasses. ^[41]

Having your cataract removed and replacing the lens should make your vision much better. You still might need to wear glasses for reading or for seeing things in the distance. And if you have other eye diseases, this may also limit your vision.

How does it work?

If you have a cataract, the lens in your eye is cloudy. Things look blurry. You might feel like you're looking through a dirty or frosted window. Having surgery to take out your cloudy lens and put in a clear artificial lens should help you see much better. Phaco surgery works well because you need only a small cut to take out your lens and put a new one in.

Can it be harmful?

All operations have risks, but serious problems with cataract operations are rare.^[42] Most people don't get any problems. Talk to your doctor if you are concerned about the risks.

Here is what we know.

- Fewer than 1 in 10 people have problems during phaco surgery.^[43] Some of these problems might mean that you won't be able to see as well as you did before.
- But serious problems that can make your sight much worse happen in only 1 in 1,000 operations.^[31]

One study found that people who have their lens taken out in small pieces (phacoemulsification) are only one-third as likely to have problems as people who have their lens taken out in one piece (manual extracapsular extraction).^[42] In this study:

- About 7 in 100 people who had their lens was taken out in pieces had a problem.
- About 21 in 100 who had their lens taken out whole had problems.

Problems during your operation

Here are some problems that can happen during your operation.

- Bleeding. Bad bleeding inside the eye happens to fewer than 1 in 1,000 people.^[31] But it's serious and it can harm your sight. You're more likely to have mild bleeding.
- Damage to the capsule in your eye. The tissue that holds your lens in place is called the capsule. It can tear or break during the operation. This happens to about 4 in 100 people. If it does, your sight may be worse than it was before the operation.^[31]
- A piece of your lens is left behind. A bit of your old lens can get lost inside your eye. This happens to fewer than 1 in 100 people. You may need another operation to take it out.^[31]

Problems after your operation

About 25 in 100 people have a problem in the first few days after their operation. Most of these are mild and clear up on their own or are easily treated.^[31] ^[22]

- Swelling of your cornea. The clear film on the front of your eye is called the cornea. It swells up after surgery in about 10 in 100 people. This can hurt a lot, and you can lose some sight. Also, your cornea might turn cloudy. Usually, the swelling goes

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away by itself. Fewer than 1 in 100 people who have cataract surgery might need another operation to get a new cornea. ^[44]

- Increased pressure in your eye. This can hurt. It happens on the first day after surgery to about 8 in 100 people. ^[31] Your doctor can give you eye drops to relieve the pain.
- Inflammation of the front of your eye. **Inflammation** in this part of your eye is called **uveitis**. It happens to about 6 in 100 people. ^[42]
- An infection inside your eye. This **infection** is called **endophthalmitis**. It's very serious. You should be given **antibiotics** straight away. About 1 in 1,000 people get an infection after surgery. ^[31] About half of the people who get endophthalmitis lose some, or all, of the sight in that eye. ^[31]
- Bruising. Your eye or eyelid might turn black and blue. ^[22]
- Your new lens is in the wrong place. Your new lens can move out of place or may not be in the right place. This happens in about 1 in 100 people. ^[42]
- Swelling of your retina. The back of your eye is called the retina. Fluid can build up there between two weeks and 12 weeks after your surgery. This swelling makes things look blurry. Doctors call it **cystoid macular oedema**. It usually goes down by itself, but you can lose some sight. Fewer than 3 in 10 people get this after a phaco operation. ^[42]
- Injury to your iris. The coloured part of your eye is called the iris. Fewer than 1 in 100 people have an injury to their iris if they have their cataracts taken out by phaco. ^[42]
- One small study has suggested that about one in 25 people who have cataract surgery have confusion afterwards, and that some people might even be in a delirious state. Older people over 82 and those who had taken drugs called benzodiazepines to relax them before surgery were more likely to become confused. But this was only one study and more research is needed to confirm whether or not confusion really is a risk of cataract surgery. ^[45]

Problems later on

Some problems can happen months or even years after your operation.

- A cloudy capsule. Doctors call this posterior capsular opacification, or PCO for short. It happens when the capsule around your lens gets cloudy. The capsule has to be clear for you to see sharply. This problem can be treated with a **laser**. About 20 in 100 people get PCO. However, your risk may be lower with some types of lenses.

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Studies show that PCO is less likely with lenses that have sharp optic edges rather than rounded. ^[46]

- A detached retina. With this problem, your retina pulls away from the back of your eye or is torn. It happens to about 7 in 1,000 people after a cataract operation. ^[42] It's very serious and could make you blind in that eye. You will need another operation straight away to put your retina back in place with a laser.

If you take tamsulosin for an enlarged prostate

If you're a man and you take a drug called tamsulosin (brand name Flomax) for an enlarged prostate, this can make cataract surgery more difficult. During the operation, your iris may become floppy, making it harder for the surgeon to reach the other parts of your eye. This can increase the risk of problems after surgery, such as a lost lens or a detached retina. ^[47]

Tamsulosin is a type of drug called an alpha-blocker. Alpha-blockers are also used to treat high blood pressure, and occasionally people using other alpha-blockers have also had this problem, but most of the cases have involved tamsulosin used for prostate problems.

You shouldn't start taking alpha-blockers if you're due to have an operation for cataracts. ^[48] If you're already taking an alpha-blocker, stopping taking it a few weeks before surgery may reduce the problem, but we don't know for certain. Ask your doctor about this. You should also make sure you tell whoever will be doing your cataract operation that you've been taking an alpha-blocker.

How good is the research on phacoemulsification?

During a cataract operation called **phacoemulsification**, the lens in your eye is taken out in small pieces. There has been good research to show that this operation can improve your sight. ^[30] It may also mean you're less likely to have an accident, such as a fall.

Taking your lens out in small pieces works better than older operations that remove your lens in one piece. One summary of the research (a systematic review) looked at seven studies. ^[41] The studies included more than 1,000 people in all. The people had a lens in their eye removed either in small pieces (phacoemulsification) or in one piece (an operation called [manual extracapsular extraction](#)). People who had their lens taken out in small pieces: ^[41]

- Could see better a year after the operation
- Had fewer problems during and after surgery.

A second systematic review of this type of cataract surgery found that it works well. ^[49]

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The review looked at three studies including more than 700 people who had phacoemulsification surgery to remove cataracts. The studies compared the eyesight of people who had the operation within a few weeks of seeing a specialist, with people who were on a waiting list for surgery. Within six months of their operation, people who'd had surgery:

- Were more than seven times as likely to have better vision than those on the waiting list
- Were more likely to be able to see things from a distance.

Manual extracapsular extraction

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[How good is the research on manual extracapsular extraction?](#)

This information is for people who have cataracts. It tells you about manual extracapsular extraction, a type of operation for cataracts. It is based on the best and most up-to-date research.

Does it work?

Yes. You'll probably see better after this kind of operation than before. But another way of doing the operation will get better results in most people.

During manual extracapsular extraction, your lens is taken out in one piece. This doesn't work as well as an operation that takes your lens out in small pieces. You may see better, get good vision sooner, and have fewer problems afterwards if your lens is taken out in small pieces. The surgery to remove the lens in small pieces is now the most common form of surgery in the UK, and manual extracapsular extraction to take out cataracts isn't used often any more.

To get the best results from cataract surgery, it's important to follow any instructions your eye surgeon gives you after your operation. You may need to put eye drops in the treated eye every day for several days or weeks. These make it less likely that you'll get an eye infection and will reduce any swelling. You should also avoid anything where there's a risk you could get knocked in the treated eye.

What is it?

If you have a cataract, the natural lens in your eye is cloudy. Manual extracapsular extraction is an operation to take out your cloudy lens in one piece.

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Before this surgery, you'll probably get drops, a gel, or an injection near your eye to make it numb. This is called having a [local anaesthetic](#). It means you will be awake during the surgery, but you won't feel any pain. And you'll probably go home the same day.

Here's what happens during manual extracapsular extraction.

- Your eye surgeon makes a cut in your eye. The cut won't hurt and you won't be aware of it being made during the operation.
- They take out your lens in one piece, leaving behind the tissue that holds the lens in place (called the capsule).
- Then your eye surgeon puts in a clear artificial lens made of stiff plastic.
- The cut in your eye is closed with stitches. The stitches go away on their own and don't need to be taken out.

Artificial lenses come in different strengths, like the lenses in glasses. Before your operation, your eye surgeon will have measured your eye to choose a lens that's right for you.

Doctors call the artificial lens **intraocular lens** (IOL for short). Apart from being clear rather than cloudy, it won't feel any different from your own natural lens. For more, see [Intraocular lenses](#).

Manual extracapsular extraction was common in the UK during the 1980s. But fewer than 1 in 10 operations are done this way today. Most people have cataract surgery in which their lens is taken out in small pieces. This is called [phacoemulsification](#) (phaco for short). In this operation, your eye surgeon uses a special tool to break your lens into pieces that are taken out through a smaller cut.

You might have heard about an operation called **intracapsular surgery**. This is a lot like manual extracapsular extraction, but both your lens and your capsule are taken out. This operation is not done in the UK anymore. But it's common in countries that have limited health care.

If you have cataracts in both eyes, your eye surgeon will usually operate on them one eye at a time. You'll have the operations at least a few months apart. This is because the eye that's operated on can be sore and needs time to heal.

We've prepared some extra information for people thinking of having a cataract operation. To read more, see [Cataract surgery](#) in our section on operations and tests.

Not everyone with cataracts needs an operation. Your doctor will probably suggest the operation when your cataract gets in the way of your daily life rather than when your eyesight reaches a certain score on an eye test. (To read more, see [Eye tests](#).) Some people can manage with their cataracts much longer than others because their poorer sight doesn't bother them as much.

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How can it help?

After your operation, if you don't have other eye problems, you should be able to:

- See things clearly
- Look into bright light without as much glare
- Tell colours apart
- Get back to your usual activities, such as reading, working, watching television, playing sport, and driving.

Taking out your lens in one piece (manual extracapsular extraction) doesn't work as well as taking it out in small pieces (phacoemulsification).^[41]

- One year after surgery, with the help of glasses, almost 9 in 10 people who have their lens taken out in one piece can see much better. They have what doctors call 6/9 vision or better. But more than 9 in 10 people who have their lens taken out in pieces can see this well with glasses.
- And without glasses, only 2 in 10 people who have their lens taken out in one piece have 6/9 vision.

How does it work?

If you have a cataract, the lens in your eye is cloudy. Things look blurry. You might feel as though you're looking through a dirty or frosted window. Surgery to take out your cloudy lens and put in a clear artificial lens should help you see much better.

Can it be harmful?

Yes. This kind of cataract operation has risks. More than 20 in 100 people have problems during this surgery.^[41] You might also get eye problems afterwards. There's a risk you might not be able to see as well as before. But problems that can make your sight much worse are rare.^[22]

One study found that people who have their lens taken out in one piece (manual extracapsular extraction) are three times more likely to have problems than people who have their lens taken out in small pieces (phacoemulsification).^[50] In this study:

- About 7 in 100 people who had their lens was taken out in pieces had a problem.
- About 21 in 100 who had their lens taken out whole had problems.

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Problems during your operation

Here are some problems that can happen during your operation.

- Bleeding. Bad bleeding inside the eye happens to fewer than 1 in 1,000 people.^[31] But it is serious and can harm your sight. You are more likely to get mild bleeding.
- Damage to your capsule. The tissue that holds your lens in place is called the capsule. It can tear or break during your operation. This happens to about 4 in 100 people. If it happens, your sight may be worse than before the operation.^[31]
- A piece of your lens is left behind. A bit of your lens can get lost in your eye. This happens to fewer than 1 in 100 people. You may need another operation to take it out.^[31]

Problems after your operation

Here are some problems that can happen in the first few days after your operation.

- Swelling of your cornea. The thin film on the front of your eye is called the cornea. It swells up after surgery in about 10 in 100 people. This can hurt a lot, and you can lose some sight. Your cornea can also turn cloudy. Usually, the swelling goes away by itself, but you might need another operation to get a new cornea. This happens to fewer than 1 in 100 people who have cataract surgery.^[51]
- Increased pressure in your eye. This can hurt. It happens on the first day after surgery to about 8 in 100 people.^[31] Your doctor can give you eye drops to relieve the pain.
- An infection inside your eye. This infection is called endophthalmitis. It's very serious. You should be given antibiotics straight away. About 1 in 1,000 people get an infection after surgery.^[31] About half of the people who get endophthalmitis lose some, or all, of the sight in that eye.^[31]
- Inflammation of the front of your eye. Inflammation in this part of your eye is called **uveitis**. It happens to about 6 in 100 people.^[50]
- Bruising. Your eye or eyelid might turn black and blue.^[22]
- Your new lens is in the wrong place. Your new lens can move out of place or might not be in the right place. About 1 in 100 people get this problem.^[50]
- Swelling of your retina. The back of your eye is called the retina. Fluid can build up there between two weeks and 12 weeks after the surgery. This swelling makes

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things look blurry. Doctors call it **cystoid macular oedema**. It usually goes down by itself, but you can lose some sight. ^[50]

- Injury to your iris. The coloured part of your eye is called the iris. Fewer than 1 in 100 people have an injury to their iris if they have their lens taken out in pieces. But it's more common after having your lens taken out whole. ^[50]

Problems later on

Some problems can happen months or even years after your operation.

- A cloudy capsule. Doctors call this posterior capsular opacification or PCO for short. It happens when the capsule around your lens gets cloudy. The capsule has to be clear for you to see sharply. This problem can be treated with a **laser**. About 20 in 100 people get PCO. However, your risk may be lower with some types of lenses. Studies show that PCO is less likely with lenses that have sharp optic edges rather than rounded. ^[46]
- A detached retina. With this problem, your retina pulls away from the back of your eye or is torn. It happens to about 7 in 1,000 people after a cataract operation. ^[50] It's very serious and could make you blind in that eye. You'll need another operation straight away to put your retina back in place with a laser.

If you take tamsulosin for an enlarged prostate

If you're a man and you take a drug called tamsulosin (brand name Flomax) for an enlarged **prostate**, this can make cataract surgery more difficult. During the operation, your iris may become floppy, making it harder for the surgeon to reach the other parts of your eye. This can increase the risk of problems after surgery, such as a lost lens or a detached retina. ^[47]

Tamsulosin is a type of drug called an alpha-blocker. Alpha-blockers are also used to treat high blood pressure, and occasionally people using other alpha-blockers have also had this problem, but most of the cases have involved tamsulosin used for prostate problems.

You shouldn't start taking alpha-blockers if you're due to have an operation for cataracts. ^[48] If you're already taking an alpha-blocker, stopping taking it a few weeks before surgery may reduce the problem, but we don't know for certain. Ask your doctor about this. You should also make sure you tell whoever will be doing your cataract operation that you've been taking an alpha-blocker.

How good is the research on manual extracapsular extraction?

During manual extracapsular extraction, the lens in your eye is taken out in one piece. This is an older operation for cataracts. It doesn't work quite as well as a newer type of

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operation for cataracts called [phacoemulsification](#) . In the newer operation, your eye surgeon takes your lens out in small pieces.

We found one summary of the research (called a [systematic review](#)) that looked at seven studies for cataracts related to ageing. The studies included more than 1,000 people in all. The people had a lens in their eye removed either in one piece (an operation called manual extracapsular extraction) or in small pieces (phacoemulsification). ^[41]

People who had their lens taken out in one piece:

- Couldn't see quite as well a year after the operation
- Had more problems during and after surgery.

Further informations:

Other causes of cataracts

Most people get cataracts because of ageing. You may hear doctors call these **senile cataracts** or **age-related cataracts**.

But there are other causes of cataracts. Here are some examples.

Health problems

You can get cataracts because of health problems and the treatments for them. Doctors call these **secondary cataracts**. Some health problems and treatments that can cause secondary cataracts are given below.

- Having surgery for other eye problems. For example, you can get cataracts after surgery for [glaucoma](#) .
- Having diabetes. People who have [diabetes](#) often get cataracts at a younger age than people who don't have diabetes. To read more, see [Cataracts and diabetes](#) .
- Taking steroids. Some health problems are treated with drugs called [steroids](#) . Getting cataracts has been linked to taking these drugs for long periods.

Being born with them

Rarely, babies are born with cataracts or get them at a very young age. These are called **congenital cataracts**. Sometimes they happen if the baby's mother had an [infection](#) while she was pregnant. For example, she might have had [rubella](#) .

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Eye injury

You can get cataracts if you hurt your eye. But the cataracts might not show up until years later. These are sometimes called **traumatic cataracts**.

Radiation

Rarely, people get cataracts if they come into contact with certain types of radiation. For example, this could be the kind of radiation that comes from radiotherapy. Being near intense heat may also increase your chances of getting cataracts.

Cataracts and diabetes

If you have diabetes, the level of sugar in your blood is high. This can cause problems with your eyes, including cataracts.

Here are some things you should know about cataracts if you have diabetes.

- You are more likely to get cataracts related to ageing, but at a younger age than people who don't have diabetes. Under the age of 60, people who have diabetes are three to four times more likely to have cataracts than people who don't have diabetes. ^[5]
- Cataracts in people with diabetes are likely to get worse more quickly than in people who don't have diabetes.
- You're also more likely to get a type of cataract caused by an upset in the balance of fluids in your eye. This is called **diabetic cataract**. Diabetic cataracts look like white snowflakes under a microscope. ^[6]
- You may be more likely to get cataracts if you need to take a drug called insulin. This drug helps control how much sugar is in your blood. But if you keep good control of your sugar level, you can lower your chances of getting cataracts. ^{[7] [8]}
- An operation to take out your cataracts may be harder to do if you have certain conditions that can happen with diabetes. ^[9] One condition is leaky blood vessels in the back of your eye (doctors call this **diabetic retinopathy**). Another problem is swelling in the back of your eye (doctors call this **macular oedema**).

You are more likely to have problems after surgery to take out your cataracts and to need extra treatment. You also might recover more slowly than someone who doesn't have diabetes.

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You may not see as well after the surgery as someone who doesn't have diabetes. But the new ways of doing cataract operations are increasing your chances of seeing well after surgery even if you have diabetes. ^[9]

Risk factors for cataracts

We don't know for certain why some people get cataracts and others don't. But some things increase your chances of getting them. Doctors call these things risk factors.

If you have a risk factor, it doesn't mean that you'll get cataracts for sure. It just means you're more likely to get them than somebody who doesn't have that risk factor.

Here are some of the risk factors for cataracts.

- Smoking a lot. You're more than twice as likely to get cataracts in middle age if you smoke a lot or have done so in the past. The more cigarettes you smoke, the higher your chances. But if you stop smoking your chances go down slightly. You're more likely to get a type of cataract called a nuclear cataract if you smoke. ^[10] ^[11] In this type, your lens turns from clear to yellow-brown.
- Being out in the sun a lot. You may be three times more likely to get cortical cataracts (the kind that grows from the edge of your lens) if you get a lot of ultraviolet B rays from the sun. These rays can give you a sunburn, blisters, and skin cancer. To protect your eyes, you can wear a hat with a brim and sunglasses with lenses that stop these rays reaching your eyes. ^[12] ^[13]
- Having cataracts run in your family. You may be two to three times more likely to get cataracts if your brothers and sisters have them. But we don't know how much of this is because of sharing the same genes or living the same way. ^[14]
- Drinking a lot of alcohol. People who drink above recommended daily limits of 3-4 units a day for men and 2-3 units a day for women may be more likely to get cataracts. But an occasional alcoholic drink doesn't seem to increase your chances of getting cataracts as you age. ^[15]
- Not eating healthy foods. You may be less likely to get cataracts if what you eat has enough vitamins and minerals. Some research has shown that taking enough vitamin E (and probably vitamin A and vitamin C) might help stop you getting cataracts. These vitamins are known as **antioxidants**. But doctors don't recommend taking supplements of antioxidant vitamins because there is no evidence that taking higher doses of antioxidants than the recommended daily allowances helps to prevent or slow down the progression of age-related cataract. ^[16] In fact, there is some evidence

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that taking high-dose vitamin C and vitamin E supplements can increase your risk of getting cataracts. ^[17]

- Eating too little or too much. Some studies have shown that people who don't get enough to eat may be more likely to get cataracts. Other studies have shown you're more likely to get cataracts at the back of your lens if you are overweight. ^[18] These cataracts are called posterior subcapsular cataracts.
- Taking certain drugs. People who take drugs called **steroids** for a long time are more likely to get a cataract at the back of their lens (a posterior subcapsular cataract). One study showed that 4 in 10 people taking steroids for a condition called **rheumatoid arthritis** got this type of cataract. Steroids that you use as creams and as drops to treat eye problems and steroids that you breathe in to treat **asthma** have also been linked to this type of cataract. ^[19] Other drugs may increase the risk of cataracts caused by ageing. ^[20] But we need more research to know for sure. Taking aspirin may help stop you getting cataracts, but there hasn't been enough research to show this for sure, or not.
- Getting dehydrated. If your body is low on fluids, doctors say you are **dehydrated** . This could increase your chances of getting cataracts. Some studies have shown a link between getting cataracts and having had bad **diarrhoea** or an **infection** called **cholera**. These conditions dry your body out. ^[15] ^[6]
- Having diabetes. People with **diabetes** are more likely to get cataracts linked to ageing at a younger age. To read more, see [Cataracts and diabetes](#) .
- Having heart disease. Some research has shown that if you have **heart disease** or **high blood pressure** , you may be more likely to get cataracts. ^[21] But other research has found that people with heart disease aren't more likely to get cataracts. ^[21]
- Making less money or having less education. People who earn more money and have more education are less likely to get the type of cataract called nuclear cataracts. But we don't know why. ^[11]
- Being a woman. Slightly more women than men get cataracts. But again, we don't know why. ^[22]

Eye tests

Doctors and researchers often use a test called the **Snellen eye test** to measure how well people can see. In this test, you read a chart with rows of letters. The chart is put exactly 6 metres (about 20 feet) away from you.

This test helps your doctor know which are the smallest letters you can see clearly. Researchers use this test to measure how good people's eyesight is after a cataract operation and to compare it with normal vision.

The first row is usually just one letter. It's the size that a person with normal vision could read 60 metres (about 200 feet) away. Each row below this has smaller letters than the one before it. The size of the letters in each row matches what a person with normal vision could read at:

- 36 metres (second row)
- 18 metres (third row)
- 12 metres (fourth row)
- 9 metres (fifth row)
- 6 metres (sixth row)
- 5 metres (seventh row)
- 4 metres (eighth row).

Doctors use a score to say how well you can see on this test. The score has two numbers.

If you have normal vision, your score is 6/6. This means that when you stand 6 metres from the chart, you can read the letters that a normal person can read at 6 metres away. You may also hear normal vision called 20/20. This means the same as 6/6. It's just that the measurement is in feet instead of metres.

If you have weaker eyesight, the bottom number is higher. For example, if you stand 6 metres from the chart, you might be able to read only the letters in the fourth row. This score is 6/12, because someone with normal vision could read this row at 12 metres. You may also hear this called 20/40 vision. Again, it means the same as 6/12.

Ask your doctor what your score means. They can tell you whether you need glasses, whether it's safe for you to drive and whether an operation for cataracts could help you.

Intraocular lenses

During cataract surgery, your eye surgeon takes out your cloudy lens and puts a clear artificial lens in its place. The artificial lens is called an intraocular lens. You may hear it called IOL for short. It is designed to act like your own lens.

There are different types of intraocular lens. And better lenses are being developed all the time. Some of them are still being tested. Ask your eye surgeon about the type that will be right for you.

Multifocal lenses

Most intraocular lenses help you see close up or far away, but not both. These are called monofocal lenses. If you have a monofocal lens put in, you might need to wear glasses after surgery. Some newer lenses can help with both. They are called multifocal lenses.

^[34] But they are expensive, and you probably won't get this type of lens on the NHS.

Some people say they can see better with multifocal lenses and they don't need glasses. But these lenses don't suit everyone. And you can get problems from them.

The National Institute for Health and Care Excellence (NICE) is the government body that decides which treatments should be available on the NHS. NICE says there is enough evidence that implanting multifocal lenses in the eye to treat cataracts is safe enough and works well enough to use in the NHS. ^[35] A review of 10 studies found that just over two thirds (68%) of those who had a multifocal lens needed to wear glasses afterwards compared with 19 out of 20 (95%) who had a monofocal lens.

But the review also found some problems. Those who had multifocal lenses were more likely to develop halos and glare than those who had monofocal lenses. It also found that more than half of 72 people who had the operation needed to have surgery with a laser to put right a problem with the lens capsule.

NICE asks doctors offering the treatment to make sure people appreciate the risks of halos and glare, and that the lenses may be difficult to replace or remove.

Another review (16 studies and 1,600 participants) found that multifocal lenses are better than monofocal lenses at helping people see close up. But they work the same at helping people see far away. ^[36] The review also found that people who have multifocal lenses are twice as likely to develop halos or glare than people who have monofocal lenses.

Lenses that help astigmatism

Some people with cataracts also have a condition called **astigmatism**. In this condition, your eye is shaped like a rugby ball rather than a round ball. This means it can't focus well.

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You can get intraocular lenses that help with this condition.^[37] But the surgeon needs to be particularly careful to make sure these lenses fit properly.

Accommodating lenses

Older types of artificial lens couldn't change focus. So, people needed different glasses to see things nearby and to see things further away. But you can now get a newer type of artificial lens that's called an **accommodating lens**.

Accommodating lenses change focus as your eye muscles move, like your natural lenses. Having accommodating lenses should mean you're less likely to need different sets of glasses.

The National Institute for Health and Care Excellence (NICE) is the government body that decides which treatments should be available on the NHS. NICE says that there aren't any major safety problems with accommodating lenses. And some research has shown that accommodating lenses are better than the older type of lenses.^[38] Accommodating lenses can change focus and may give you clearer vision. But there have only been short-term studies so far. There hasn't been any research to say how well they work after more than a year or so.

If you're offered accommodating lenses on the NHS, your surgeon will explain the risks and benefits. You'll have check-ups after surgery to see how well the operation worked.

Glossary:

diabetes

Diabetes is a condition that causes too much sugar (glucose) to circulate in the blood. It happens when the body stops making a hormone called insulin (type 1 diabetes) or when insulin stops working (type 2 diabetes).

proteins

A lot of your body's tissues are made out of proteins. Proteins can be made in your cells. Proteins are also part of the food you eat, particularly meat and dairy products. Your body breaks down the protein you eat into amino acids. Your cells then use these amino acids to build new proteins, which make up muscles, joints, hair and other parts of your body.

infection

You get an infection when bacteria, a fungus, or a virus get into a part of your body where it shouldn't be. For example, an infection in your nose and airways causes the common cold. An infection in your skin can cause rashes such as athlete's foot. The organisms that cause infections are so tiny that you can't see them without a microscope.

glaucoma

Glaucoma is a condition that affects the eyes. If you have glaucoma, your vision slowly gets worse. It happens when certain nerves in your head get damaged. These nerves carry images of what you see to your brain. Glaucoma is often caused by high pressure inside your eye.

steroids

Steroids are a type of chemical. Your body naturally produces steroids, which play a part in many of its processes. For example, steroids are involved in how your immune system, reproductive system and metabolism work. Steroids can also be given as medicines and are used for a number of different conditions: including asthma, rheumatoid arthritis and eczema. Corticosteroids are not the same as the steroids used by some body builders and athletes. Those steroids are called 'anabolic steroids'.

rubella

Rubella is a childhood infection caused by a virus. It usually starts with mild cold symptoms, a sore throat and swollen glands. After that, you get a pink rash that spreads from your head to the rest of your body. Some people call it German Measles. The measles, mumps and rubella (MMR) vaccine protects children from getting rubella.

radiotherapy

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This is also called radiation therapy. It is a treatment that uses high-energy X-rays to kill cancer cells. It's most often used for tumours that are hard to treat with surgery alone. You won't feel any pain during this treatment, but you may get some side effects afterwards.

insulin

Insulin is a hormone that helps your body use glucose. Glucose is a type of sugar that gives you energy. Insulin keeps the levels of glucose in your body steady. Insulin also helps glucose to be carried in your blood, so that the glucose can get into your cells. People who have diabetes do not have enough insulin or do not react to insulin strongly enough. This means they can get too much glucose in their blood.

dehydrated

When you're dehydrated, you don't have enough fluid in your blood. This could be because you're not drinking enough or because you're losing water by sweating or having diarrhoea.

diarrhoea

Diarrhoea is when you have loose, watery stools and you need to go to the toilet far more often than usual. Doctors say you have diarrhoea if you need to go to the toilet more than three times a day.

high blood pressure

Your blood pressure is considered to be high when it is above the accepted normal range. The usual limit for normal blood pressure is 140/90. If either the first (systolic) number is above 140 or the lower (diastolic) number is above 90, a person is considered to have high blood pressure. Doctors sometimes call high blood pressure 'hypertension'.

heart disease

You get heart disease when your heart isn't able to pump blood as well as it should. This can happen for a variety of reasons.

genes

Your genes are the parts of your cells that contain instructions for how your body works. Genes are found on chromosomes, structures that sit in the nucleus at the middle of each of your cells. You have 23 pairs of chromosomes in your normal cells, each of which has thousands of genes. You get one set of chromosomes, and all of the genes that are on them, from each of your parents.

rheumatoid arthritis

If you have rheumatoid arthritis, your joints get painful, swollen, and stiff. Rheumatoid arthritis is caused by inflammation inside your joints. It happens when your immune system attacks the lining of your joints.

asthma

Asthma is a disease of the lungs. It makes you wheeze, cough and feel short of breath. Asthma attacks are caused by inflammation and narrowing of your airways, which makes it hard for air to pass in and out of your lungs.

local anaesthetic

A local anaesthetic is a painkiller that's used to numb one part of your body. You usually get local anaesthetics as injections.

inflammation

Inflammation is when your skin or some other part of your body becomes red, swollen, hot, and sore. Inflammation happens because your body is trying to protect you from germs, from something that's in your body and could harm you (like a splinter) or from things that cause allergies (these things are called allergens). Inflammation is one of the ways in which your body heals an infection or an injury.

antibiotics

These medicines are used to help your immune system fight infection. There are a number of different types of antibiotics that work in different ways to get rid of bacteria, parasites, and other infectious agents. Antibiotics do not work against viruses.

laser

A laser focuses light in a way that makes it able to cut through things. Surgeons sometimes use lasers when they need to do delicate operations.

prostate

The prostate is a small, solid gland that's about the size of a walnut. Only men have a prostate. The prostate makes the milky fluid that comes out of a man's penis when he has an orgasm. The fluid from the prostate helps keep sperm healthy and also helps them swim freely.

systematic reviews

A systematic review is a thorough look through published research on a particular topic. Only studies that have been carried out to a high standard are included. A systematic review may or may not include a meta-analysis, which is when the results from individual studies are put together.

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