



What causes breast cancer?

And how can I lower my chances of developing it?

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What causes breast cancer?

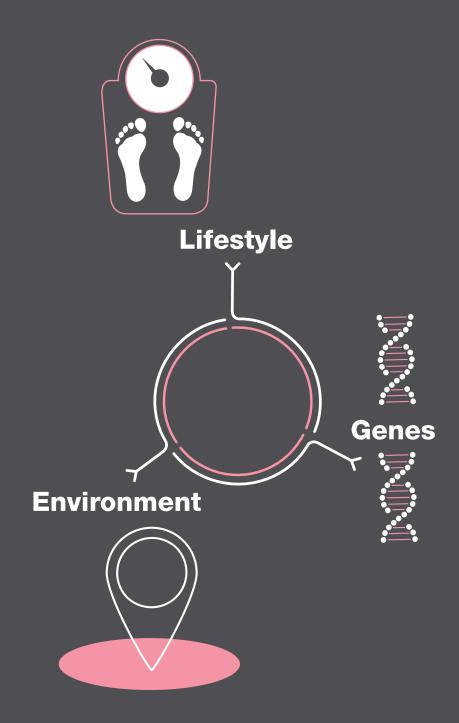
What causes breast cancer?

What causes breast cancer?

There are many different factors that can affect your chances of getting breast cancer. Unfortunately, we can't predict who will get breast cancer, and for women who have been diagnosed with the disease, we can't confidently say what might have caused their breast cancer.

This is because there's no single reason – it results from a combination of the way we live our lives, our genes and our surrounding environment.

But you can take steps to lower your chances. In this booklet, you'll find some risks that you unfortunately can't change, but others that you can do something about.



What can I change?

Many things affect our chance of developing breast cancer. Some of these things we can't change, but our lifestyles can play a part too.

By making small healthy changes and living well now, you can lower your chances of getting breast cancer. We can't guarantee that you won't develop breast cancer, but leading a healthy lifestyle does give you a better chance.

Be drink aware

You can reduce your chance of developing breast cancer by limiting the amount of alcohol you drink.

Drinking alcohol regularly increases your risk of breast cancer, and the more you drink, the greater your risk. National health guidelines across the UK recommend that women drink no more than 14 units a week. That's the equivalent of seven 175ml glasses of wine or seven pints of lower-strength beer per week.

'If you drink over the recommended amount, cutting down can have many positive health effects'

If you drink over the recommended amount, cutting down can have many positive health effects. Regularly drinking any amount of alcohol increases your risk of breast cancer, but the guidelines are a useful limit to stick to when beginning to cut down. You should also spread your drinks over a few days and aim to have days off drinking each week.

We're not entirely sure how alcohol increases your risk, but it might alter the levels of hormones in your body, which could increase the growth of some breast cancers. Some early research also suggests that alcohol causes direct damage to our cells, although

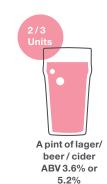
more work is needed to confirm this.

Find out more about alcohol and breast cancer. including ways to help you cut down at

Below:

How many units are in your favourite tipple?

breastcancernow.org/alcohol











'Eat a balanced and varied diet rich in fruit. vegtables. pulses and whole grains'

Keep to a healthy weight

Keeping to a healthy weight can lower your chances of getting breast cancer.

After the menopause, your risk of breast cancer increases if you're overweight or obese, and the more weight you gain in your life, the higher your risk.

By making small changes now, you can lower your chances of developing breast cancer in the future. You can keep to a healthy weight by:

- Eating a balanced and varied diet rich in fruit, vegetables, pulses and whole grains. You should also limit red and processed meat, fatty and sugary foods, salt and alcohol. Eating healthily also lowers your risk of stroke, heart disease and other conditions.
- Being active on a regular basis. Find out more on page 7.

Being overweight increases your risk of breast cancer because fatty tissue produces hormones such as oestrogen which normally drop after you go through the menopause. Having higher levels of this hormone and others remaining in your body after the menopause might encourage the growth of some breast cancers.

Find out more about weight and breast cancer, including ways to keep your weight healthy, at

breastcancernow.org/weight











Staying active

You can reduce your chances of developing breast cancer by being physically active on a regular basis.

You can benefit from any activity that makes you breathe harder and get warmer, while still letting you carry on a conversation. You should aim for around 20 minutes a day, but you can divide this up however you like, so that could be 30 minutes five days a week or 50 minutes three times a week.

Choosing exercise such as swimming, cycling or playing sports is one way to stay active, but a lot of everyday activities still count - such as taking the stairs, mowing the lawn or vacuuming - as long as it makes you breathe harder and get warmer.

Being active on a regular basis can help you maintain a healthy weight, which can reduce your risk of breast cancer. Being active also reduces your risk in other ways, although we don't fully understand how. It may work by changing the levels of hormones in your body and boosting your immune system.

Being active can also reduce your risk of other conditions like heart disease, diabetes and stroke, as well as improving your mood and reducing symptoms of depression.

Find out more about physical activity and breast cancer, including ways to stay active, at

breastcancernow.org/stayactive







'You should aim for around 20 minutes a day, but you can divide this up however you like'



Not smoking

'...the younger you start smoking, the greater your risk of breast cancer, particularly if you start smoking before you have children'

If you smoke, quitting could help to lower your risk of breast cancer.

There is growing evidence from several recent studies that smoking slightly increases your chance of developing breast cancer. However, more research is needed to be sure.

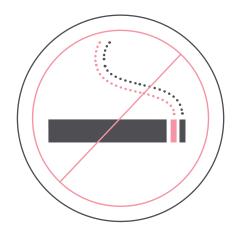
There's also some evidence that the younger you start smoking, the greater your risk of breast cancer, particularly if you start smoking before you have children. Your risk may also be higher the more you smoke.

It's not yet clear whether being exposed to other people's smoke (passive smoking) increases your chances of getting breast cancer as studies that have looked at this don't all agree.

You can talk to your doctor or pharmacist for advice on quitting. You can also find resources to help you guit smoking at

nhs.uk/live-well/quit-smoking

Smoking slightly increases your chance of developing breast cancer



What can't I change?

Unfortunately, there are some things that you can't do anything about. But there are plenty of ways you can lower your chance of getting breast cancer (see pages 4-8 for more information).

The earlier breast cancer is diagnosed, the better the chance of getting successful treatment. So it's also important to be checking your breasts regularly and to attend your breast screening appointments when invited. Find out more on pages 14-15.



'The density of your

gradually as you get older, but this doesn't

vour risk of breast

cancer decreases'

necessarily mean that

breasts does fall

How old you are

As you get older, your chance of getting breast cancer increases.

Breast cancer is more common in women over the age of 50, which is when at least four out of five of all breast cancer cases in the UK occur. The older you get, the more likely it is that changes and damage occur in your cells, which in some cases can lead to cancer forming.

Your breast density

If you have dense breasts, your chance of getting breast cancer is increased.

Breast density is the amount of breast tissue compared to fat tissue in your breasts. It varies naturally between women and can only be measured on a mammogram. If you have a high amount of breast tissue compared to fat, you have a 'high breast density', which increases your risk of breast cancer.

The density of your breasts does fall gradually as you get older, but this doesn't necessarily mean that your risk of breast cancer decreases as your breasts change. This is because as you get older, your risk increases. You can find out more about age and breast cancer above.

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When you started your period

Your chance of developing breast cancer is slightly increased if you started your period at an early age.

The earlier you began your periods, the higher your chance, but this increase is small.

This may be because you are exposed to the naturally occurring female hormone oestrogen for longer.

Although oestrogen is needed for our growth and development, in some cases it can encourage the growth of some breast cancers.

'Although oestrogen is needed for our growth and development, in some cases it can encourage the growth of some breast cancers'

Your ethnicity

Your ethnic background can affect your chances of developing breast cancer.

If you're a white woman, you're more likely to develop breast cancer than if you are a non-white woman or from an ethnic minority.

If you're a black woman, research shows you may be more likely to get breast cancer under 50, although you are still less likely to develop breast cancer overall. You may also be more likely to develop triple negative breast cancer.

We're not quite sure why different ethnic groups have different chances of developing breast cancer. These differences may be linked to genetics or lifestyle choices – for example, how many children you have or how much alcohol you drink. We need more research before we fully understand the reasons behind this.

We also know that certain ethnic groups, for example, Ashkenazi Jewish women, have a higher chance of developing breast cancer because they are more likely to carry certain faults in their genes such as in BRCA1 and BRCA2. You can find more information on this on pages 16-17.

Triple negative breast cancer is an uncommon type of breast cancer that is more common in black women.

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When you go through the menopause

If you go through a late menopause, your chance of getting breast cancer is slightly increased.

The later you go through the menopause, the higher your risk, but this increase in risk is small.

This increase in breast cancer risk may be because you are exposed to the naturally occurring female hormone oestrogen for longer. Although oestrogen is needed for our growth and development, in some cases it can encourage the growth of some breast cancers.

Some women undergoing the menopause choose to take hormone replacement therapy (HRT) to treat their symptoms. HRT also slightly increases your chance of getting breast cancer while you take it, but it's important to consider the risks and benefits to make the right decision for you. You can find out more about HRT and breast cancer on page 19.

How tall you are

The taller you are, the higher your chance of getting breast cancer, although this is only a slight increase in risk.

We still don't know exactly how your height is linked to your risk of breast cancer, but we do know that how tall you are as an adult depends on your genes, your levels of nutrition when you were growing up and the hormones you were exposed to.

It's probably these factors that affect your chance of breast cancer - your height is more like a 'marker' of these combined influences.

Having a benign breast condition

Your chance of getting breast cancer may be higher if you have a benign (non-cancerous) breast condition.

Most benign breast conditions (for example, cysts and simple fibroadenomas) do not increase your chance of aetting breast cancer.

But your risk of breast cancer is increased if you have a benign breast condition where the breast cells are growing quickly, described as 'proliferative'. How high your risk is depends on the exact type of proliferative benign breast disease you have. These types of breast conditions are generally uncommon.

If you have had a diagnosis of a benign breast condition and are unsure or worried about your chance of developing breast cancer, speak to your doctor. They will be able to give you more information and advice.

A non-cancerous breast condition is normally described as 'benign'.

Your size at birth

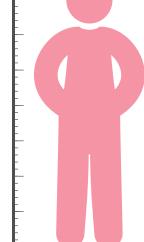
The bigger you were when you were born, the slightly higher your chances of developing breast cancer, especially before the menopause although we still don't know this for sure, and need more evidence to confirm this.

We're not exactly sure why this might increase your risk, but like height, your size when you were born may be more of a 'marker' of combined influences.

It might be the different levels of hormones you were exposed to in the womb, or that being bigger at birth means you are more likely to be taller or go through puberty earlier, both of which are linked to a slight increase in breast cancer risk.



The later you go through the menopause, the higher your risk, but this increase in risk is small



Early detection



You can take steps to lower the chances of getting breast cancer (pages 4-8), but there are some things you can't do anything about (pages 9-13).

That's why it's important to regularly check your breasts for unusual changes. You can also attend your breast screening appointments when you get invited every three years from the age of 50.

Breast screening doesn't have to be scary. It's surprisingly quick and simple. In fact, it only takes 10 minutes.

NHS breast screening

Breast screening is estimated to prevent around 1,300 deaths from breast cancer every year in the UK.

If you're aged 50 or over, you're entitled to free breast screening (a mammogram) every three years. You should get your first appointment between your 50th and 53rd birthdays, and will get invites until you reach 70. You can still attend screening after this time, but will need to make your own appointments with your local breast screening clinic. You can ask your GP about how to arrange this.

Find out more at

breastcancernow.org/breastscreening

What are the signs and symptoms of breast cancer?

Most cases of breast cancer are found by women noticing unusual changes, taking the initiative and visiting their doctor. The earlier breast cancer is found, the better the chance of beating it – so you can see how important it is to make regular checks.

What to look out for...



Skin texture e.g. dimpling/puckering



Lump, may not be seen, but might be felt



Appearance or direction of nipple



Nipple discharge



Rash or crusting



or shape

Be breast aware It's as simple as TLC...

Touch

your breasts. Can you feel anything unusual?

Look

for changes. Is there any change in shape or texture?

Check

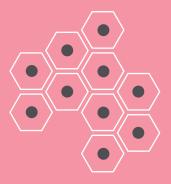
anything unusual with your doctor.



Find out more and download our free Breast Check Now app for Android or iPhone at

breastcancernow.org/signs-symptoms

A family history of breast cancer



Of all women with breast cancer, around 1 in 10 will have a family history If you have a family history of breast cancer, this means you have a higher than average chance of developing the disease. Of all women with breast cancer, around 1 in 10 will have a family history.

You might have a family history of breast cancer if:

- A number of blood relatives in your immediate family (parents, children or siblings) or extended family (grandparents, aunts, uncles, nieces, nephews or half-siblings) on either side have been affected by breast cancer or ovarian cancer
- Any immediate relatives have been diagnosed under the age of 40, or any men in your family have been diagnosed with breast cancer
- You have blood relatives who have had breast cancer and are of a Jewish background, as some people who have Jewish ancestry are more likely to carry faulty genes.

The cells in our bodies each contain thousands of genes, which we inherit from our parents. These provide instructions to tell our cells how to function. Sometimes, faults occur in these genes which mean they don't function in the way they should. If you inherit a faulty gene that is linked to breast cancer, you have a higher chance of developing the disease.

For half of these cases, there is a fault in a gene that we know is linked to breast cancer. The most well-known breast cancer genes are BRCA1 and BRCA2, but there are also other genes that we know can affect your risk.

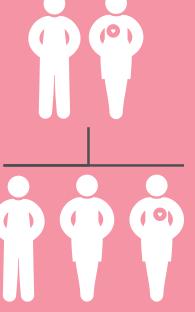
For the other half, we're not yet sure exactly which genes may be involved, and in some cases we may not always be able to pinpoint the exact genetic cause for a family history.

If you are worried about your family history you should see your doctor. They will ask you about any cancers in your family to work out whether your family history suggests you have an increased risk of breast cancer. If your doctor feels you may have a family history, they may refer you to a genetics clinic or family history clinic for specialist care. If you do have a significant family history, you'll be offered information and advice about options you can take to lower your chances of developing the disease.

If you want to know more about a family history of breast cancer and managing your risk, we have more information on our website at

breastcancernow.org/familyhistory

If your doctor feels you may have a family history, they may refer you to a genetics clinic or family history clinic for specialist care



What else should I consider?

There are many lifestyle factors that can affect your chances of getting breast cancer. But for some factors, it's important to make an informed choice as there can be both benefits and risks.

If you're worried about anything in this section, talk to your doctor about your concerns. They will be able to give you more information and advice, and help you to make the best choice for you.

Hormone replacement therapy (HRT)

HRT increases your chances of getting breast cancer while you're taking it, but within a year or two after you've stopped, this increased risk largely disappears.

Hormone replacement therapy, or HRT, is a treatment used to relieve the symptoms of the menopause by increasing your oestrogen levels. The longer you use it, the greater your risk. Your risk is also higher with combined HRT than with oestrogen-only HRT.

However, once you stop taking HRT, this risk will begin to fall. Within a year or two, it will be about the same as if you had never taken it.

We don't know for sure why HRT increases risk, but it might be that the higher levels of hormones cause some breast cancers to grow.

Although HRT affects your chance of getting breast cancer, it's used by many women to help relieve their menopausal symptoms. It's important that you consider the risks and benefits to make the right decision for you.

If you're worried about HRT and breast cancer, talk to your doctor. They will be able to give you more information and advice.

If you've inherited the faulty breast cancer gene BRCA1 or 2, we recommend you speak to your family history or genetics specialist if you wish to use HRT, as the balance of benefits and risks will be different for you. Find out more about a family history and breast cancer on page 16-17 or at

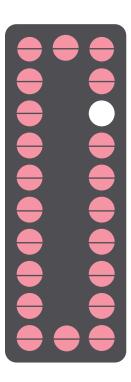
breastcancernow.org/familyhistory

Find out more about HRT and breast cancer risk at

breastcancernow.org/hrt



'It's important that you consider the risks and benefits to make the right decision for you'



'If you're worried about breast cancer and the pill, talk to your doctor or family planning clinic'

The pill

Taking the pill slightly increases your chances of developing breast cancer, but within a few years of stopping, this risk disappears.

The combined contraceptive pill – usually just called 'the pill' – is a contraceptive that stops you from becoming pregnant by changing the levels of hormones in your body.

We're not entirely sure why the pill slightly increases your chance of getting breast cancer, but it might be that the hormones involved cause the growth of some breast cancers.

Most women who use the pill are in their late teens, twenties and early thirties. If you're under 40, breast cancer is rare, so it's important to consider this when you're deciding whether to take the pill.

If you're worried about breast cancer and the pill, talk to your doctor or family planning clinic, who can give you more information and advice.

If you've inherited faults in the genes BRCA1 or 2, talk to your family history or genetic specialist if you're considering using the pill, as the balance of benefits and risks will be different for you. Find out more about family history and breast cancer on page 16-17.

You can find out more about the pill and breast cancer risk at

breastcancernow.org/thepill

Pregnancy

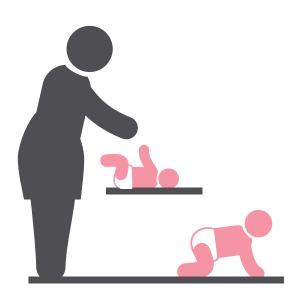
Being pregnant can have a complex effect on your chances of developing breast cancer.

Overall, having children means your risk of breast cancer is lowered in the long term. Your risk becomes lower the more children you have and the earlier you begin your family.

Your chance might be lowered because hormone changes that occur during pregnancy leave lasting changes to your breast cells. Having children could also be linked to lifestyle choices you might make when you're pregnant that lead to a decrease in risk, such as reducing your alcohol intake or changing your diet.

Research also suggests that temporarily, your risk of breast cancer slightly increases after you give birth, regardless of your age. We're not sure why this is but it might be due to hormone changes in your body after you give birth.

It's important to remember that this is only a small increase in risk that goes away after a number of years.



'Your risk becomes lower the more children you have and the earlier you begin your family'



Breastfeeding

If you breastfeed your children, you can slightly lower your chances of breast cancer.

The longer you breastfeed, the more your risk is lowered – for example, breastfeeding one of your children for a year would lower your chance of getting breast cancer as much as breastfeeding two of your children for six months each.

We still don't know exactly why this happens, but breastfeeding might alter the balance of hormones in your body so you are less exposed to hormones that increase your risk of breast cancer. It could also change the cells in your breast by making them less prone to changes that could lead to cancer.

There are lots of other benefits of breastfeeding for both you and your child. Breastfeeding can lower your baby's risk of infections, childhood leukaemia, type 2 diabetes and obesity. As well as breast cancer, breastfeeding can also lower your risk of ovarian cancer, osteoporosis (weak bones), cardiovascular disease and obesity.

But it's important that you make the right decision for you. Whether or not you choose to breastfeed is a personal decision. Some women choose not to, and others find it difficult or are unable to for a number of reasons.

Make sure you're still aware of any unusual changes to your breasts when you're breastfeeding. It's normal to find lumps in your breasts at this time as this is sometimes caused by a milk gland in your breast becoming blocked. But if you notice any unusual changes, make sure you get them checked out by your doctor.

Find out more on page 15 or at

breastcancernow.org/signs-symptoms

X-rays

Having x-rays to the chest area can increase your chances of getting breast cancer, but the risks associated with most x-rays are very small.

The small health risks associated with this low level of radiation exposure are greatly outweighed by the benefits when x-rays are properly used.

If you have concerns about undergoing an x-ray, talk this through with your doctor.



Aspirin and ibuprofen

Taking aspirin or ibuprofen might slightly reduce your chances of getting breast cancer. But we don't recommend taking them just for this reason.

Aspirin and ibuprofen are types of non-steroidal anti-inflammatory drugs (NSAIDs), which are usually taken to relieve pain and reduce inflammation. Taking these drugs might slightly lower your chance of getting breast cancer, but not all studies agree. We also don't know what dose of these drugs would be required, or for how long they would need to be taken to have an effect.

NSAIDs, including aspirin and ibuprofen, can have serious side effects when taken over a long period, including stomach ulcers, anaemia and, less commonly, heart problems. It's important that you talk to your doctor before taking these drugs regularly for any reason.



'But it's important that you make the right decision for you'



Radiotherapy

'The standard method of chest radiotherapy has changed and the risk of developing breast cancer later in life should be lower than with previous methods'

may have a higher chance of developing breast cancer later in life.

Radiotherapy to the chest area is used to treat Hodgkin lymphoma as well as some cancers and respiratory diseases. Your chances of getting breast cancer are particularly likely to be increased if you received this type of radiotherapy as a teenager.

In recent years, the standard method of chest radiotherapy has changed and the risk of developing breast cancer later in life should be lower than with previous methods. However, more research is needed before we can be sure of the long-term effects of these newer treatments.

If you've been treated with radiotherapy to your chest area, the lymphoma team or radiotherapy centre that treated you should have discussed your breast cancer risk with you, and you may be offered extra breast screening.

> Talk to your doctor if you're unsure about anything.

If you've had radiotherapy to your chest area, you

Shiftwork

If you regularly work in shifts, you may have a slightly increased chance of developing breast cancer.

However, evidence from recent studies shows shiftwork may not affect your chances as much as previously thought. But we need more studies to confirm this.

Generally, shift work involves working outside standard daytime hours, for example working during the night or for longer periods of time (such as 12 hours or more). There's more evidence for a possible link between night shiftwork than for other types of shiftwork.

We're not sure how shiftwork could increase your chances of getting breast cancer, but it might be that being exposed to light at night increases the levels of oestrogen in your body. Although oestrogen is needed for our growth and development, in some cases it can encourage the growth of some breast cancers. But the evidence for this has mostly come from studies in animals, and we need more research in humans to confirm this.

Shiftwork might also lead to a rise in other lifestyle behaviours, such as being less active and gaining weight, which could also raise your chances of getting breast cancer. So, it can be difficult to untangle the effect of shiftwork from other lifestyle factors.



'It can be difficult to untangle the effect of shiftwork from other lifestyle factors'

The evidence



The information in this booklet is based on the latest research evidence and was reviewed by experts in the field and by members of the public.

You may have heard about other things linked to breast cancer risk such as deodorants, certain foods or chemicals in the environment. There's no evidence that these things affect your chances of developing breast cancer. You may also come across stories in the media that claim other factors also alter your chances. It's important to be cautious about these stories as they may not be supported by strong evidence.

To find out more, and to find information on breast cancer, diagnosis and treatment, visit

breastcancernow.org

If you would like more information about the sources of evidence on which this publication is based, or you'd like to let us know what you think of this booklet please contact

supporterengagement@breastcancernow.org

or call

0333 20 70 300

Other useful contacts

Breast Cancer Care

Provides information and practical and emotional support for people affected by breast cancer.

Call their free helpline on 0808 800 6000 Mon-Fri, 9am-4pm, Sat, 9am-1pm breastcancercare.org.uk

Macmillan Cancer Support

Provides information and practical, emotional and financial support for people affected by all cancers.

Call their free support line on 0808 808 00 00 Mon-Fri, 9am-8pm macmillan.org.uk

Cancer Research UK

Provides information for people affected by all cancers and information on cancer prevention.

Call their free helpline on 0808 800 4040 Mon-Fri, 9am-5pm cancerresearchuk.org

World Cancer Research Fund (WRCF) International Provides information on cancer prevention. wcrf.org

NHS Choices

Provides online information on health conditions, treatments, local services and healthy living.

Call 111 for nonemergency medical advice nhs.uk

If you're worried about anything mentioned in this booklet, you can discuss your concerns with your doctor.

They will be able to provide you with more information and advice.



About Breast Cancer Now



31 more than 31 institutions across the UK and Ireland

380 nearly 380 of the world's brightest researchers

we believe that by 2050 everyone who develops breast cancer will live, and live well

We need to invest at least £300 million in research over the next 10 years

Breast Cancer Now

is the UK's largest breast cancer charity dedicated to funding research into this devastating disease.

Right now, we're funding around £25 million worth of ground-breaking research projects, supporting nearly 380 of the world's brightest researchers at more than 31 institutions across the UK and Ireland. Together, they're working to discover how to prevent breast cancer, how to detect it earlier and how to treat it effectively at every stage so we can stop the disease taking lives.

Everything we do is rooted in the realities of women affected by breast cancer. We connect the laboratory bench with the hospital bedside, the GP's office, the MP's surgery and the policies that govern our health service. And it's only by working together that we'll truly make an impact on this devastating disease.

If we all act now, we believe that by 2050 everyone who develops breast cancer will live, and live well. We need to invest at least £300 million in research over the next 10 years if we're to achieve this ambitious goal.

Please join us and help support vital research into breast cancer now.



Breast Cancer Now

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222 Leith Walk Edinburgh EH6 5EQ

0333 20 70 300

Mon-Thurs, 9am-5pm, Fri, 9am-4pm

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breastcancernow.org

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Edition 6
Reviewed and updated: November 2018.
Next review due: November 2021

