

Breast Cancer: Risk factors

Breast cancer is the most commonly occurring female cancer in developed countries but earlier diagnosis and improvements in treatment are resulting in the majority of women surviving the disease. In the United Kingdom, whilst 44,000 women are diagnosed every year, 12,000 die from their breast cancer and this number is likely to fall even further.

At present, knowledge of all the factors that result in the development and growth of breast cancer is incomplete. Factors that have been associated with an increased breast cancer risk include:

- Age
- Family history
- Benign breast disease
- Endogenous sex hormone exposure (i.e. exposure to sex hormone produced within the body)
- Exogenous hormone exposure (i.e. exposure to hormones taken in the form of medication)
- Smoking
- Alcohol
- Diet
- Reproductive History

It is important to realise that although these factors have been identified, their occurrence does not indicate that a woman will definitely develop breast cancer. There are almost certainly other factors that are necessary to interact for breast cancers to develop and grow but knowledge of these is incomplete.

Age

This is the most important risk factor for breast cancer as most cases are diagnosed in women aged over 50 years. A commonly quoted statistic is that breast cancer affects 1 in every 12 women. However, it is important to understand that this figure represents risk over a woman's whole lifetime. In women aged less than 30 years, breast cancer occurs in approximately 1 in 625 women. This increases to 1 in 13 for women by the age of 75 years.

Family History

This refers to the risk of inheriting a gene mutation that can result in the development of breast cancer. Inherited breast cancers are more likely to be diagnosed at a younger age (i.e. less than 40 years), affect both breasts and affect more than one relative within a family. In some families there is clustering of breast with ovarian, endometrial and bowel cancers. If a woman has a single first degree relative (i.e. mother or sister) diagnosed with breast cancer over the age of 50 years it is very unlikely that this places her at an increased risk of breast cancer. For any woman who has a family history of cancer, discussion with her GP should determine whether this is likely to be significant and therefore whether specialist referral to a breast unit for counselling is necessary.

Benign Breast Disease

This encompasses a diverse range of conditions of the breast, most of which are not associated with an increased risk of breast cancer. Breast cysts are not associated with any significant risk.

Endogenous hormones

Endogenous hormones are produced naturally within the body. Breast cancer is a disease that predominantly affects women, being 200 times more common than in men. Female sex hormones, in particular those produced by the ovary (e.g. oestrogen, progesterone) play an important role in the development of most breast cancers. The evidence for this has largely been drawn from population studies that have revealed an increased risk of breast cancer in women who commence their menstrual periods at a younger age or who develop the menopause at an older age. The earlier a woman has her menopause, the lower her risk of developing breast cancer.

In women who have undergone the menopause, oestrogen and progesterone hormones are no longer produced by the ovary. Instead small amounts of oestrogen are produced in fat cells by the action of an enzyme called aromatase.



Postmenopausal women who are overweight are at an increased risk of breast cancer and this has been attributed to the fact that there is more fat tissue in which this synthesis of oestrogen can take place.

Exogenous hormones

Exogenous hormones are those which originate outside the body. These include: the oral contraceptive pill (OCP), also known as birth control. There does appear to be a very small increase in the risk of developing breast cancer with the use of the OCP. Review of clinical studies suggests that this risk is probably restricted to younger women (i.e. aged less than 35 years) who have used the OCP for longer than 5 years. This risk is very small. It has been estimated that for every 10,000 women aged between 25 to 29 years who take the OCP for 5 years an extra 5 cases of breast cancer are diagnosed.

Hormone replacement therapy (HRT)

Recent information from clinical trials has shown that combined HRT (i.e. oestrogen plus progestogen hormone) is associated with a very small increase in the risk of developing breast cancer but only if taken long-term (i.e. for more than 5 years after the age of 50). Two years use of HRT probably results in 1 extra breast cancer per 1000 women who use it. The small increase in risk associated with combined HRT falls after it is stopped and there is no evidence that the risk of dying from breast cancer is increased in women with a history of using it. The risk of breast cancer with combined HRT is less than that associated with being overweight, over the age of 50 years or that associated with drinking 2 or more units of alcohol per day. – See our related factsheet on HRT: What you should know about the risks and benefits.

Smoking

A 2004 study found that smoking does in fact increase ones risk of breast cancer. Woman who began smoking before the age of 20 and those who started at least five years before their first pregnancy seem to be most at risk. Heavy smoking or smoking over a long period of time also increases the risk. There is no evidence that passive smoking increases ones risk. Also, on a positive note, researchers found no evidence of a significantly higher risk in former smokers.

Alcohol

One study showed that for women with a close blood relative with the disease, daily alcohol consumption appeared to more than double the risk of breast cancer. A more recent study found that 60 percent of breast cancer cases in women worldwide were attributable to alcohol consumption. But the mechanism(s) of alcohol-induced breast cancer are poorly understood.

Diet

Research shows that 10%-70% of cases may be prevented by changing diet. Although it is difficult to determine what foods put you at risk for breast cancer a diet high in fat has been implicated in increasing risk but more research needs to be done. The best course of action is to eat plenty of fruits and vegetable and stay away from foods high in fat or cholesterol, sugar and processed foods. On the bright side, healthy eating is beneficial no matter what.

Reproductive History:

Age at Menarche

Early age of menarche (onset of period) is associated with an increased risk of breast cancer. Nutrition in early life will strongly influence of the age of menarche.

Birth and breast feeding

Part of the reason that women in developing countries have a higher risk of breast cancer than women in developed countries may be because women in developed countries have fewer children and a limited duration of breast feeding. The younger a woman is when she first gives birth the lower her risk of breast cancer. Also, women who do not breast feed are at greater risk for breast cancer and the longer a woman breast feeds the greater the protection.

Parity

Parity or having more than one child, is also recognized as reducing the risk of breast cancer. The higher the higher the number of full-term pregnancies the greater the protection a woman has against breast cancer.

Age at Menopause

The later a woman goes through menopause the higher her risk. Postmenopausal women have a lower risk of breast cancer than premenopausal women of the same age. This holds true for both natural menopause and surgically induced menopause.

Bodyweight and Physical Activity

About 8% of breast cancer in the UK may be because of obesity or being overweight. Being overweight and obesity are measured using the BMI (body mass index). A high BMI may even increase the risk of postmenopausal breast cancer. Similarly, physical activity has a preventative effect on breast cancer. This may indirectly affect risk by lowering a women's BMI or it may have a direct effect on hormonal and growth factor levels. Either way, physical activity is a good way of lowering your risk of breast cancer.

This factsheet has been produced by Women's Health Concern and reviewed by members of our Medical Advisory Panel.

It is for your information and advice and should be used in consultation with your own medical practitioner. **Updated: November 2007.**

Risk Factor	Increase in breast cancer risk
Age at onset of periods less than 11 years	1.50 x increase
Age at natural menopause greater than 55 years	2.00 x increase
Postmenopausal obesity	1.60 x increase
Alcohol (more than 2-3 units per day)	1.50 x increase
HRT for more than 5 years	1.26 x increase

Treatment of Breast Cancer

If you go to a breast screening and are diagnosed with breast cancer there are five main treatments of cancer: surgery, radiotherapy, hormone therapy, chemotherapy and biological treatment. One or a combination of these therapies may be used. There are no set treatments for a specific type of breast cancer, all treatments are chosen on an individual basis and it is important to speak to your doctor about all treatments types and come to an agreement. Some of the factors that are considered when deciding on a treatment are:

- Whether you have had your menopause
- The type of breast cancer you have
- The size of your breast tumour
- The stage of your breast cancer
- The grade of your cancer cell
- The results of test on your cancer cells
- Your general health

If there is a specific treatment you are interested in and your doctor does not mention it, make sure to speak up. Similarly, if your doctor suggests a treatment that you are not comfortable with, make your concern known. Your physician probably has good reasons for choosing the treatment s/he did and should be able to explain it to you.

For information on breast screening and self examination look at the factsheet 'Breast Care and Self-examination'.

Useful contacts

Breakthrough Breast Cancer

Weston House, 3rd Floor, 246 High Holborn, London WC1V 7EX

Tel: 020 7025 2400

Fax: 020 7025 2401

Email: info@breakthrough.org.uk

Website: www.breakthrough.org.uk

Breast Cancer Care

Tel: 020 7384 2984

Helpline: 0808 800 6000 Mon-Fri 9am-5pm, or Sat 9am-2pm

Email: info@breastcancercare.org.uk

Website: www.breastcancercare.org.uk

Cancer Backup

3 Bath Place, Rivington Street, London EC2A 3JR

Helpline: 0808 800 1234 Mon-Fri 9am-8pm

Website: www.cancerbackup.org.uk

Sources

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<http://uk.reuters.com/article/healthNews/idUKCOL06725120070430>

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