

## Our top 5 tips to help reduce your risk of breast cancer

One in 8 women living in the UK will be diagnosed with breast cancer at some point in their lifetime and 1 in 5 of those will be under the age of 50 (1). In 2014, there were more than 55,000 new diagnoses of breast cancer in the UK (2). It's estimated that between a quarter and two thirds of breast cancer cases may be preventable (3, 4). Here are our top tips to help women and men reduce their risk of breast cancer and at the same time improve their general health.

### 1. Reduce the amount of alcohol you drink

The most well established dietary risk factor for breast cancer is alcohol. Scientific evidence suggests a strong relationship between alcohol and breast cancer (5, 6), especially oestrogen receptor positive breast cancer (7). There is evidence that even very low alcohol intake (less than one glass per day) can increase your risk of breast cancer (8).

Drinking alcohol increases levels of serum oestrogens, which are associated with increased breast cancer risk (see box opposite) (9). Alcohol metabolism (breakdown in the body) produces harmful metabolic products - acetaldehyde and "reactive oxygen species" - which can damage cells. They are carcinogenic (cancer causing) and can accumulate within breast tissue (10).



More exercise will help to reduce your risk

### 2. Get more exercise

The effect exercise has on reducing your risk of breast cancer is considerable, especially for post-menopausal women. The more exercise, the greater the benefit; although research suggests increasing physical activity of any kind is beneficial (11). Moderate exercise (150 minutes per week) is estimated to reduce breast cancer risk in post-menopausal women by 20-30% (12).

Exercise helps to reduce body fat. This will reduce levels of oestrogen and other hormones which fat cells release into the bloodstream (these hormones can increase breast cancer risk; 13).

### How does oestrogen increase breast cancer risk?

Oestrogens increase the risk of developing breast cancer mainly because of their ability to increase rates of breast cell division and promote growth of oestrogen responsive tumours. The more a cell divides, the more likely mutations will occur and accumulate. The accumulation of particular mutations in breast cells can lead to breast cancer (27).

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Exercise also reduces inflammation, enhances the immune system, reduces insulin resistance and decreases oxidative stress, which may also help reduce cancer risk (14).

**Tip: Walking is the easiest activity to get you into the habit of exercising. Find ways you can use your car less, for example walk or cycle to work, walk your children to school, get off the bus or tube one or two stops before your destination, and always use the stairs (not the lifts or escalators). You'll be surprised how easy it is to reach that 150 minutes target.**

### 3. Improve your diet

There is strong evidence that excess weight is a risk factor for post-menopausal breast cancer (15) and that high vegetable and fruit intake lowers risk (16). Fat cells are the main source of oestrogen for post-menopausal women, and high levels of circulating oestrogen are known to increase breast cancer risk (see box on page 1). A "Mediterranean style diet" is one example of a healthy diet that has been shown to reduce the risk of breast cancer in postmenopausal women (17, 18). It is mainly based on vegetables, fruits, nuts, beans, cereal grains, olive oil and fish.



### 4. Reduce your exposure to chemicals that may be harmful

We are exposed to numerous synthetic, potentially harmful chemicals on a daily basis, from the household cleaners we use to the food we eat. Increasing exposure to chemicals that have the ability to interfere with our hormones (known as endocrine disrupting chemicals or EDCs) may be contributing to the increase in breast cancer. Although more research is needed to determine whether EDCs increase breast cancer risk, Breast Cancer UK advocate a precautionary approach which means avoiding chemicals that are suspected of being harmful.

There are around 143,000 registered substances on the market in the EU (19). The majority of these have not been tested for their hormone disrupting properties (20). There are over 1300 known or suspected EDCs (21). Some (e.g. polychlorinated biphenyls and the insecticide DDT - now banned) are known to increase breast cancer risk; others (e.g. bisphenol A, parabens and phthalates) are suspected of doing so (22). Measurements show that nearly all of us have various harmful chemicals within our human body fluids and tissues (23). Avoiding exposure to certain sources can help to reduce levels in the body (24).

**Tip: You may wish to consider whether the chemicals you have in the house are all necessary and whether you could change or reduce the number you use – look at those you currently have to see if they contain any chemicals that may be of concern. Our Reduce Your Risk section can help you identify them.**

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### 5. Reduce use of HRT & consider alternatives to oral contraception

Use of combined hormone replacement therapy (HRT) (synthetic oestrogen and synthetic progesterone) increases the risk of breast cancer (25), and the risk increases with time of use. Fortunately, risk is immediately reduced when HRT is stopped and decreases over time, until after 5 years an increased risk is no longer evident. Most studies have found HRT containing oestrogen only slightly elevates risk.

Use of combined oral contraceptives (synthetic oestrogen and synthetic progesterone) also slightly increases breast cancer risk; but once stopped, the risk reduces and after 10 years is no longer evident (26).

HRT and the pill are examples of oestrogen mimics. These increase breast cancer risk for the same reasons natural oestrogens do. Therefore you may want to consider alternatives before taking a course of HRT or the pill and discuss possible adverse side effects with your doctor.

**Tip: If you have concerns about HRT or the pill, it is important to consult your doctor before taking any decisions about coming off any prescribed medicines. Diet and exercise may help to relieve many of the symptoms of the menopause and there may be some natural remedies that help to relieve symptoms such as hot flushes, vaginal dryness and sleepless nights. Similarly, if you have any concerns about the pill, consider alternatives to hormonal contraceptives, especially if you've been a long-term user of combined oral contraceptives containing**

**synthetic oestrogen and synthetic progesterone. Pre-existing medical conditions can affect the alternatives your doctor advises.**

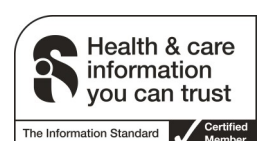
We can't totally eliminate the possibility of getting breast cancer, but there is a lot we can do to reduce our risk – and in doing so, we'll reduce our risk of many other health conditions too!

For more information on other known risk factors associated with breast cancer please see our website [www.breastcanceruk.org.uk](http://www.breastcanceruk.org.uk)

This information has been written for members of the public to help them understand more about the risk factors for breast cancer so that they can make informed choices about their environments and lifestyles. It in no way claims to be a comprehensive treatment of the subject of all the risk factors associated with breast cancers and should not be used for the diagnosis or treatment of medical conditions. If you are worried about breast cancer or have any symptoms please consult your doctor.

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We welcome your feedback, if you have any comments or suggestions about this leaflet please contact us at [info@breastcanceruk.org.uk](mailto:info@breastcanceruk.org.uk) or on 0845 680 1322



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## References

1. Cancer Research UK. Breast Cancer Statistics <http://www.cancerresearchuk.org/health-professional/cancer-statistics/statistics-by-cancer-type/breast-cancer> (Accessed October 17, 2017).
2. Cancer Research UK. *ibid*
3. Parkin, D. M. et al. (2011). The fraction of Cancer Attributable to lifestyle and environmental factors in the UK in 2010. *British Journal of Cancer* 105 S77-S81. <https://www.ncbi.nlm.nih.gov/pubmed/22158327>
4. Colditz, G. A. and Bohlke, K. (2014). Priorities for the primary prevention of breast cancer. *CA a Cancer Journal for Clinicians* 64(3): 186-194. <https://www.ncbi.nlm.nih.gov/pubmed/24647877>
5. Shield, K. D. et al. (2016). Alcohol use and Breast Cancer: A critical review. *Alcoholism. Clinical and Experimental Research* 40(6): 1166-1181. <https://www.ncbi.nlm.nih.gov/pubmed/27130687>
6. Committee on Carcinogenicity of Chemicals in Food, Consumer Products and the Environment (COC) Statement 2015/S2 Statement on consumption of alcoholic beverages and risk of cancer. [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/490584/COC\\_2015\\_S2\\_Alcohol\\_and\\_Cancer\\_statement\\_Final\\_version.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/490584/COC_2015_S2_Alcohol_and_Cancer_statement_Final_version.pdf) (Accessed August 8, 2017)
7. Baglia, M. L. et al. (2017). Alcohol Intake and Risk of Breast Cancer by Histologic Subtype and Estrogen Receptor Status Among Women Aged 55 to 74 Years. *Hormones and Cancer* 8(4):211-218. <https://www.ncbi.nlm.nih.gov/pubmed/28567703>
8. Choi, Y.-J. et al. (2017). Light Alcohol Drinking and Risk of Cancer: A Meta-analysis of Cohort Studies. *Cancer Research and Treatment* May 22 2017. doi: 10.4143/crt.2017.094. Epub ahead of print. <https://www.ncbi.nlm.nih.gov/pubmed/28546524>
9. Travis, R. C. and Key, T. J. (2003). Oestrogen exposure and breast cancer risk. *Breast Cancer Research* 5: 239-247. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC314432/>
10. Shield, K. D. et al. (2016). *op. cit.*
11. Wu, Y. et al. (2013). Physical activity and risk of breast cancer: a meta-analysis of prospective studies. *Breast Cancer Research and Treatment*, 137: 869-882. <https://www.ncbi.nlm.nih.gov/pubmed/23274845>
12. Theriault, C. F. et al (2016). Voluntary physical activity abolishes the proliferative tumor growth microenvironment created by adipose tissue in animals fed a high fat diet. *Journal of Applied Physiology* 121: 139-153. <http://www.ncbi.nlm.nih.gov/pubmed/27150834>
13. Schmidt, S. et al. (2015). The integrative role of leptin, oestrogen and the insulin family in obesity-associated breast cancer: potential effects of exercise. *Obesity reviews* 16: 473-487. <http://www.ncbi.nlm.nih.gov/pubmed/25875578>
14. Warburton, D. E. R. and Bredin, S. S. D. (2016). Reflections on Physical Activity and Health: What Should We Recommend? *Canadian Journal of Cardiology* 32(4): 407-409. <http://www.ncbi.nlm.nih.gov/pubmed/26995692>
15. Matthews, S. B. and Thompson, H. J. (2016). The Obesity-Breast Cancer Conundrum: An Analysis of the Issues. *International Journal of Molecular Sciences* 17: 989. <https://www.ncbi.nlm.nih.gov/pubmed/27338371>
16. Aune, D. et al. (2012). Vegetables and breast cancer risk: a systematic review and meta-analysis of prospective studies. *Breast Cancer Research and Treatment* 134(2): 479-93. <https://www.ncbi.nlm.nih.gov/pubmed/22706630/>
17. Schwingshackl, L. and Hoffman, G. (2016). Does a Mediterranean-Type Diet Reduce Cancer Risk? *Current Nutrition Reports* 5: 9-17. [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4778149/pdf/13668\\_2015\\_Article\\_141.pdf](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4778149/pdf/13668_2015_Article_141.pdf)
18. Castelló, A. et al. (2017). Adherence to the Western, Prudent and Mediterranean dietary patterns and breast cancer risk: MCC-Spain study. *Maturitas* 103: 8-15. <https://www.ncbi.nlm.nih.gov/pubmed/28778338>
19. Hahnkamper-Vandenbulcke, N. (2017). Fact Sheets on the European Union: chemicals [http://www.europarl.europa.eu/atyourservice/en/displayFtu.html?ftuld=FTU\\_5.4.8.html](http://www.europarl.europa.eu/atyourservice/en/displayFtu.html?ftuld=FTU_5.4.8.html) (Accessed August 8, 2017)
20. Schug, T. T. et al. (2016). Minireview: Endocrine Disruptors: Past Lessons and Future Directions. *Molecular Endocrinology* 30(8): 833-84. <http://press.endocrine.org/doi/pdf/10.1210/me.2016-1096>
21. The Endocrine Disruptor Exchange (2017). <https://endocrinedisruption.org/> (Accessed August 8, 2017)
22. Macon, M. B. and Fenton, S. E. (2013). Endocrine Disruptors and the Breast: Early Life Effects and Later Life Disease. *Journal of Mammary Gland Biology and Neoplasia* 18: 43-61. <http://www.ncbi.nlm.nih.gov/pubmed/23417729>
23. UNEP/WHO (2013). State of the science of endocrine disrupting chemicals 2012: full report. <http://www.who.int/ceh/publications/endocrine/en/> (accessed August 7, 2017)
24. Harley, K. G. et al. (2016). Reducing Phthalate, Paraben, and Phenol Exposure from Personal Care Products in Adolescent Girls: Findings from the HERMOSA Intervention Study. *Environmental Health Perspectives* 124(10): 1600-1607. <https://ehp.niehs.nih.gov/15-10514/>
25. Jones, M. E. et al. (2016). Menopausal hormone therapy and breast cancer: what is the true size of the increased risk? *British Journal of Cancer* (2016) 115: 607-615. <http://www.ncbi.nlm.nih.gov/pubmed/27467055/>
26. Chlebowski, R. T. et al. (2015). Breast Cancer after use of Estrogen Plus Progestin and Estrogen Alone Analyses of Data From 2 Women's Health Initiative Randomized Clinical Trials. *JAMA Oncology* 1(3): 296-305. <http://oncology.jamanetwork.com/article.aspx?articleid=2250347>
27. Travis, R. C. and Key, T. J. (2003). *op. cit.*

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**Breast Cancer UK works to tackle the environmental and chemical causes of breast cancer. For more information visit [www.breastcanceruk.org.uk](http://www.breastcanceruk.org.uk)**