

Tiphaine Boulin, Kerri Palmer-Quinn, Hannah Moody

Peer reviewed by two members of Breast Cancer UK independent [Science Panel](#)

1. Summary

Diet plays an important role in shaping breast cancer risk. Dietary factors may be protective or increase the risk and have long-term effects. There is no ideal diet that will prevent breast cancer; however, evidence suggests that eating plenty of fruit and vegetables (especially non-starchy vegetables and foods rich in carotenoids), whole grains, and fibre may lower risk. Whilst eating a high level of processed meat, ultra-processed foods, and saturated or trans fats may increase risk. Dairy foods rich in calcium, higher soy consumption, and adequate micronutrient status may also have modest protective effects. Overall, healthy dietary patterns such as the Mediterranean or plant-based diet are linked with a slightly lower risk of breast cancer.

2. Introduction

Breast cancer is the second most common cancer worldwide, with 11.6% of all cancers diagnosed being female breast cancer in 2022 [1]. In the UK, around 56,000 women and 400 men receive a new diagnosis each year [2]. Many factors can influence a person's risk of developing breast cancer, including age, genetics, hormones, diet, lifestyle [2], as well as exposure to certain chemicals and environmental factors [3]. Breast Cancer UK estimates that at least 30% of all breast cancers are attributable to preventable causes [4].

Among lifestyle factors, diet plays a key role. Certain foods and nutrients may help protect against breast cancer, while others may increase risk. Diet also contributes to energy balance, which influences body composition and body weight. A high body weight or body

Glossary box:

Agonist: A compound that binds to a receptor and produces a response.

Antioxidant: A substance that protects cells from damage caused by free radicals (unstable molecules generated by oxidation during normal metabolism).

Carbohydrates: Sugar molecules which can be small and simple (e.g. glucose) or large and complex (e.g. polysaccharides such as starch).

Carcinogenesis: The process of healthy cells turning into cancerous cells.

Glycaemic index (GI): Numeric value (0 to 100) assigned to foods based on how quickly they raise blood glucose levels.

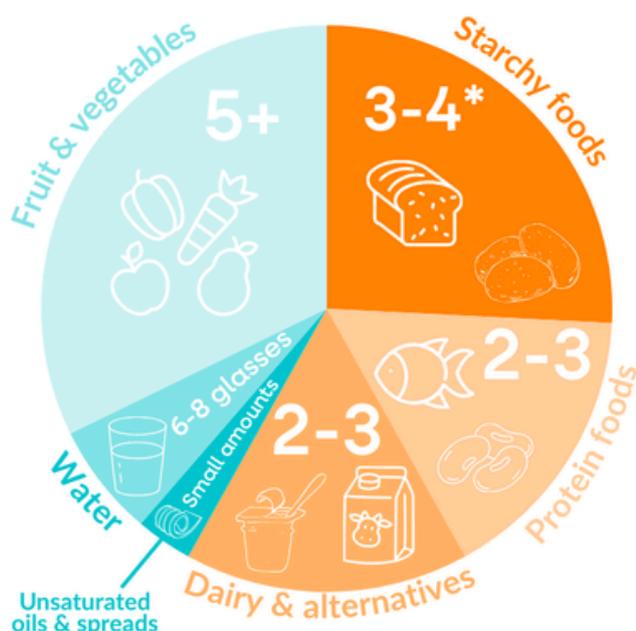
Glycaemic load (GL): Numeric value for a portion of food calculated as the quantity of carbohydrates (in grams) multiplied by the GI, then divided by 100.

How to cite: Boulin T., Palmer-Quinn K., Moody H. Diet and breast cancer. Breast Cancer UK. 2026. <https://doi.org/10.71450/25138863>

mass index (BMI) is a well-established risk factor for breast cancer for postmenopausal women, and men [5].

Paying attention to portion sizes and eating a balanced diet is also important, not only for cancer prevention, but for overall health as it provides the body with the energy it needs to carry out its daily functions. The Eatwell Guide (Figure 1) is the healthy eating model in the UK which provides information on how much of our diet should come from each food group for most individuals over the age of two [6]. Although beneficial with regards to portions, Breast Cancer UK feels the Eatwell Guide should be updated to also include and better reflect contemporary influences on UK diets. You can read more about this in our [manifesto](#).

The British Nutrition Foundation also has a helpful guide on using different parts of your hand to measure and control portion sizes for both adults and children [7]. Consuming a variety of foods within each food group further contributes to an overall healthy diet.



Glossary box (cont.):

Meta-analysis: Statistical analysis of multiple published scientific studies.

Mutagen: A physical, chemical or biological agent that can permanently damages cell DNA and increases the number of genetic mutations.

Phytoestrogen: Oestrogen-like compound found in some plants.

Polyphenols: Antioxidant compounds that are found in plants, including fruits and vegetables that can help protect cells from damage and reduce the risk of some diseases.

Saturated fat: Type of fat, mostly found in animal food and some plant oils (e.g. palm and coconut oil), that is usually solid at room temperature.

Trans fat: Type of fat, naturally found at low levels in some meat and dairy foods, but is generally produced artificially using heat and pressure (hydrogenation) and used in commercially prepared and processed foods.

Unsaturated fat: Type of fat considered beneficial, mostly found in plant foods, vegetable oils and fish, that is usually liquid at room temperature. The two types are mono- and poly-unsaturated fat.

Figure 1: Recommended number of portions of each food group that should be consumed per day.

*Number of portions are similar overall for children, with the main difference being that children should consume five portions of starchy foods per day. More information on portion sizing for both adults and children can be found on the British Nutrition Foundation website: <https://www.nutrition.org.uk/creating-a-healthy-diet/portion-sizes/>

This review summarises the latest scientific evidence on the relationship between diet and breast cancer, covering individual foods and nutrients alongside overall dietary patterns, and outlining the mechanisms through which dietary factors may influence breast cancer risk (Figure 2). Although not mentioned here, alcohol intake is a significant breast cancer risk factor. Our Alcohol and Breast Cancer Risk Review can be found in the [Resources](#) section of our website.

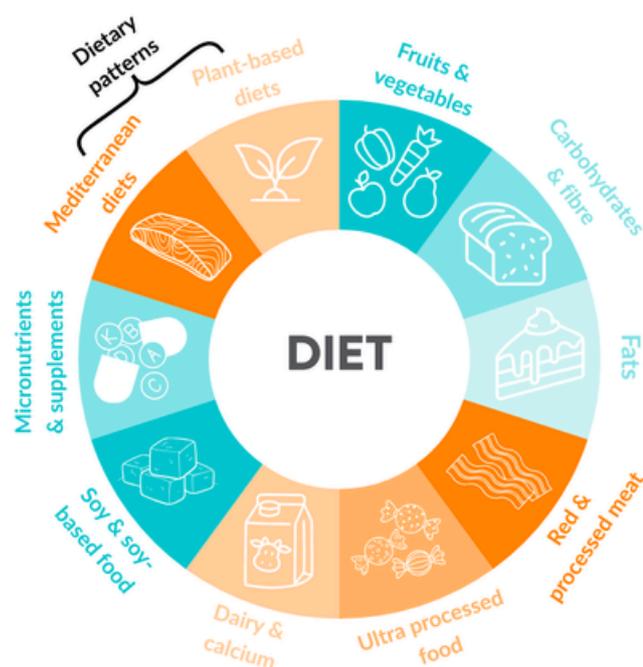


Figure 2: Summary diagram of the different food groups discussed in this review that may affect breast cancer risk.

3. Foods, nutrients and breast cancer risk

3.1 Fruits and Vegetables



Evidence from large prospective cohort studies, meta-analyses, and pooled analyses suggests the most consistent associations are for non-starchy

vegetables and foods rich in carotenoids, which are natural pigments found in yellow, orange, and red vegetables (examples in Figure 3) [8–11]. A large-scale cohort analysis found that consuming more than 5.5 portions of fruits and vegetables per day was associated with a lower risk of breast cancer compared with consuming 2.5 portions or less, with particularly strong associations for cruciferous (e.g., broccoli/cauliflower/kale) and carotenoid-rich vegetables [9]. The World Cancer Research Fund (WCRF) Continuous Update Project concluded that there is limited, but suggestive evidence that non-starchy vegetables decrease the risk of oestrogen receptor-negative (ER-) breast cancer, and that foods containing carotenoids are associated with reduced breast cancer risk overall [10]. Evidence for fruit intake is weaker and limited [10], though some studies suggest protective associations for citrus fruit [12].

Proposed mechanisms include the effects of dietary fibre, carotenoids, and polyphenols, which may reduce oxidative stress, influence oestrogen metabolism, and support DNA repair [11,13]. These bioactive compounds are present in complex mixtures in whole plant foods, where they may act additively or synergistically, offering broader benefits than isolated supplements [13].

Overall, evidence suggests a potential protective effect of higher fruit and vegetable intake on breast cancer risk, particularly for non-starchy and carotenoid-rich vegetables.

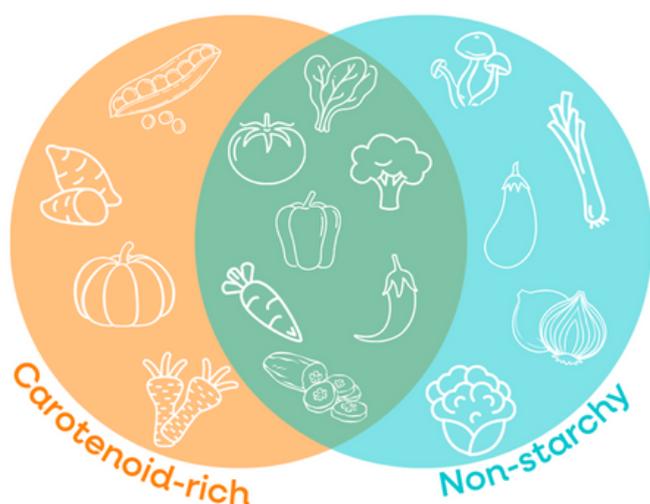


Figure 3: Examples of carotenoid-rich and non-starchy fruit and vegetables. Sweet potatoes, peas, pasnips and pumpkin are all caretonoid-rich vegetables, while mushrooms, leeks, aubergines, onions and cauliflower are non-starchy. Spinach, tomatoes, broccoli, peppers, chillis, carrots and cucumbers are vegetables/fruit that are both carotenoid-rich and non-starchy.

3.2 Carbohydrates and Fibre



Carbohydrate-rich foods are divided into several categories: starches, sugars and fibre. All carbohydrates are broken down into glucose in the body to be used as energy. How fast this occurs depends on the type of carbohydrate and is measured by the glycemic index (GI).

Some cohort studies and a 2025 meta-analysis have reported that high GI or glycaemic load (GL) diets, which cause rapid increases in blood glucose, may be associated with a higher risk of postmenopausal or hormone receptor-negative breast cancer [14–16], while other studies report no association [17–19]. Analyses of sugar and sugar-sweetened food intake similarly show

mixed findings [10,14,18,20].

High intakes of added sugar may also contribute indirectly to risk by promoting weight gain, and being overweight or obese is an established risk factor for postmenopausal breast cancer [10]. Possible mechanisms linking diets high in rapidly absorbable carbohydrates to breast cancer include chronically elevated levels of glucose, insulin, and insulin-like growth factor 1 (IGF-1). IGF-1 can promote cell proliferation and survival by preventing apoptosis (programmed cell death) in DNA-damaged cells, and increasing systemic inflammation [15,20].

In contrast, growing evidence from recent meta-analyses shows that higher dietary fibre intake is linked to lower breast cancer risk [14,21]. Additional studies suggest that the protective association of fibre may be stronger in post-menopausal women [22], with some evidence of variation by fibre source, particularly vegetable and cereal fibre [23]. Fibre may reduce risk by binding oestrogen in the gut and increasing excretion, lowering circulating oestrogen levels, and improving insulin sensitivity [24]. To read our Science review on the relationship between fibre and breast cancer, click [here](#).

Overall, current evidence does not support a clear link between total carbohydrate or sugar intake and breast cancer risk, while findings for high-GI/GL diets and added sugars remain mixed. However, higher fibre intake shows a potential protective effect against breast cancer risk.



3.3 Fats

There are several different types of fats (Table 1), many of which have been investigated with regards to how they affect breast cancer risk. The relationship between total fat (encompassing all types shown in figure) intake and breast cancer risk remains inconsistent across prospective studies and meta-analyses [10,25–28]. Some evidence links higher intakes of saturated fats, trans fats, or dietary cholesterol with increased breast cancer risk [29–32], while other analyses do not report an association [10,33].

Notably, higher serum concentrations of trans-fats have been associated with a greater risk in post-menopausal women [33].

Table 1: Types of fat and examples of food that contain them and their potential link with breast cancer risk. *The relationship between different types of fat and breast cancer remains mixed and inconclusive, however the relationships proposed in this table have been observed in at least some scientific studies.

Types of fats		State at room temperature	Found in	Possible relationship with breast cancer*
Unsaturated fats (MUFAs and PUFAs differ in their chemical structure)	Monounsaturated fats (MUFAs)	Liquid	Olive oil, rapeseed oil, avocados, almonds, Brazil nuts, peanuts	Reduced risk
	Polyunsaturated fats (PUFAs)	Liquid	Chia seeds, oily fish (e.g. salmon, mackerel), sunflower oil, walnuts, almonds, pumpkin seeds	Reduced risk
Saturated fats		Solid	Butter, cakes, biscuits, bacon, coconut oil	Increased risk
(Artificial) Trans fats		Solid	Margarine, cakes, cookies, crisps	Increased risk

Trans-fats can promote systemic inflammation, which may contribute to breast carcinogenesis [34]. Experimental data suggest that cholesterol metabolites can bind to oestrogen receptors in breast tissue and promote tumour growth [35], but evidence in humans remains conflicting [36,37]. Despite the World Health Organisation identifying a global increase in the use of trans fats [38], in the UK, many supermarkets have removed or reduced the amounts of trans fats within their own-brand products [39].

By contrast, higher intakes of polyunsaturated fatty acids (PUFAs), particularly long-chain omega-3 fats found in oily fish, have been linked in some studies to reduced risk [40,41] and to biological mechanisms, including anti-inflammatory, anti-angiogenic, and anti-metastatic activity [42,43]. Evidence for n-6 PUFA such as linoleic acid is mixed: a meta-analysis suggested a weak, non-

significant inverse association with breast cancer risk [44]. Evidence for monounsaturated fats, such as those in olive oil, also remains mixed [10,45]. Nonetheless, as fats are energy-dense, diets high in total fat can promote weight gain, which is an established risk factor for post-menopausal breast cancer [10].

Overall, evidence varies for total fat and individual fat types in relation to breast cancer risk. Limiting saturated and trans fats and moderating dietary cholesterol, while favouring foods rich in unsaturated fats, especially sources of omega-3 PUFAs, is advisable for general health and may also support breast cancer risk reduction.



3.4 Red and Processed meat

Most studies investigating the effect of red meat consumption report no clear association with overall breast cancer risk [30,46,47]. However, some studies suggest a possible increased risk at high intakes (100 g/day) [48] or in pre-menopausal women [49]. Further studies are needed to establish whether red meat consumption increases breast cancer risk.

Higher consumption of processed meat has been associated with a modestly increased risk of breast cancer in several large prospective cohort studies and meta-analyses [30,46,47,50]. In the UK Biobank cohort study and meta-analysis, a higher intake of processed meat was associated with an increased risk, with

some evidence of stronger associations in post-menopausal women [46]. One review estimated that each 50 g/day of processed meat (approx. 1.5 rashers of bacon) was associated with an increase in risk of 9% [48].

Potential mechanisms include the formation of heterocyclic amines (HCAs) and polycyclic aromatic hydrocarbons (PAHs) when red meat is cooked at high temperatures, which are mutagenic compounds and recognised carcinogens [51]. Haem iron, found in red and processed meat, can promote oxidative stress, lipid peroxidation and tumour development [52]. It may also contribute to the formation of N-nitroso compounds, which have carcinogenic potential [47,53].

Overall, these findings show that higher consumption of processed meat is linked to increased breast cancer risk, whereas evidence for red meat remains limited. Current World Cancer Research Fund (WCRF) guidance recommends limiting red meat intake to about 350–500 g (cooked weight) per week and keeping processed-meat consumption very low or avoiding it altogether [10].



3.5 Ultra Processed Foods (UPFs)

High consumption of ultra-processed foods (UPFs) has been associated with several adverse health outcomes, including obesity, cardiovascular disease, and cancer [54,55]. These foods are typically industrial formulations made mostly from refined ingredients and

additives, with little or no intact whole food, and correspond to the highest category in the Novafood classification system (see Table 2) [55].

Evidence suggests that greater UPF consumption may be linked to an increased risk of breast cancer. In one population-based cohort study, a 10% higher proportion of UPFs in the diet was associated with an 11% higher overall cancer risk and a significant increase in breast cancer incidence [56]. A systematic review and dose-response meta-analysis found that each 10% increment in UPF consumption was associated with approximately a 5% higher breast cancer risk [57], while another meta-analysis reported a modestly increased risk in the highest versus lowest consumers, but no significant dose-response association [58]. Findings from the UK Biobank further support this, showing higher risks of breast cancer incidence and

mortality among individuals with the highest UPF intakes [59].

Several mechanisms may explain these associations. Diets high in UPFs are generally of lower nutritional quality (higher in energy density, added sugars, and saturated fats, and lower in fibre and micronutrients), which can promote excess calorie intake and weight gain, a known risk factor for breast cancer in men and post-menopausal women [54,56]. In addition, food additives, neo-formed contaminants, and endocrine-disrupting chemicals (EDCs) from packaging may influence hormonal and inflammatory pathways involved in breast cancer development [54,56].

Overall, current evidence suggests that diets high in UPFs may contribute to an increased risk of breast cancer, although causality remains uncertain and further research is required to clarify the relationship.

Table 2: Classification of foods based on how much they are processed (based on the Nova classification) [55]

Category	Definition	Examples
Unprocessed or minimally processed	Not altered from their natural state	Grains, wheat flour, fresh/frozen fruit & vegetables, unprocessed meat & poultry, fish, unflavoured yoghurt, legumes, nuts & seeds
Processed culinary ingredient	Unprocessed foods that have undergone processes such as grinding, crushing, and refining	Salt, sugar, honey, vegetable oils, butter, lard, molasses & honey
Processed foods	Manufactured by adding salt, sugar, and oil. May contain preservatives, antioxidants, and stabilisers	Tinned/jarred vegetables, fruits in syrup, tinned fish & meats, cheeses, salted or candied nuts
Ultra-processed foods (UPFs)	Ready-to-eat/drink made with multiple industrial ingredients extracted from foods or manufactured in laboratories	Carbonated/fruit flavoured drinks, sausages, biscuits, packaged snacks, sweets, ready meals, instant soups/noodles

3.6 Dairy and Calcium



A dose-response meta-analysis found that each additional 350 mg/day of dietary calcium intake was associated with a significantly lower risk of breast cancer [60]. Another study reported that higher dietary calcium intake may slightly reduce breast cancer risk, and higher intakes of yoghurt and cottage/ricotta cheese were associated with reduced risk of ER-negative breast cancer [61].

Calcium may help regulate cell proliferation, differentiation and apoptosis, key processes involved in carcinogenesis[10]. Fermented dairy foods such as yoghurt and kefir contain live bacterial cultures (probiotics), which may influence gut microbiota and have potential anti-inflammatory or anti-tumour effects, although evidence in humans remains limited [62,63].

So far, studies suggest that dairy consumption and adequate calcium intake may be beneficial for slightly reducing breast cancer risk. More research is needed to clarify the mechanisms and to understand whether benefits vary by tumour subtype or type of dairy product.

3.7 Soy and Soy-Based Foods



The link between soy intake and breast cancer remains debated. Soy contains isoflavones, naturally occurring phytoestrogens with a structure similar to human oestrogen. These compounds can bind to both oestrogen receptors (ER α and ER β) but show a higher affinity for ER β , which may lead to weak oestrogenic or anti-oestrogenic effects (Figure 4) [64,65]. Although early animal studies raised concerns that isoflavones might stimulate hormone-sensitive breast tumour growth [64]. Evidence from several meta-analyses reports that higher soy or isoflavone intakes are associated with a slightly lower breast cancer risk [66–70], and that intake of these compounds beginning in childhood or adolescence may offer stronger protection later in life [71,72].

Exactly how soy may influence breast cancer risk is not fully understood, but several biological pathways have been proposed. Isoflavones preferentially bind to ER- β rather than ER- α , which may exert anti-proliferative rather than growth-promoting effects [64,65]. They may also influence oestrogen metabolism and the activity of enzymes involved in DNA repair and cell-cycle regulation [64,65]. They may exert non-hormonal effects, including inhibiting cancer cell proliferation, inducing apoptosis, reducing oxidative stress, and modulating inflammatory and immune responses [70,71].

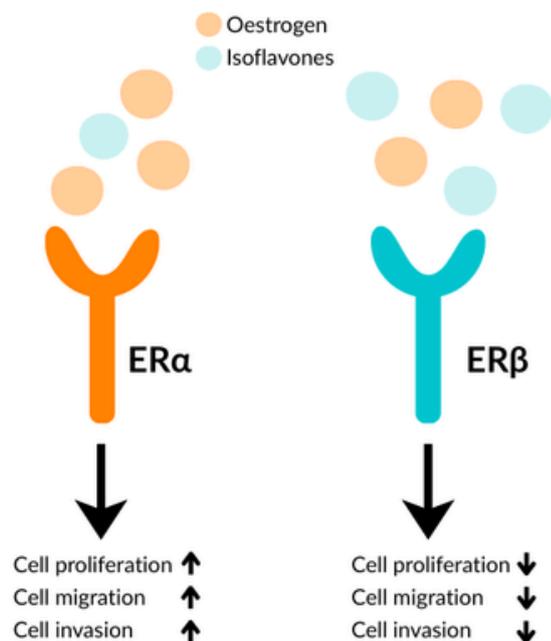


Figure 4: The effects seen upon oestrogen/isoflavone binding to the two main oestrogen receptors (ERs) in the breast. Oestrogen receptor alpha (ER α) promotes increased cell proliferation, migration and invasion upon oestrogen (or other agonist) binding. Isoflavones preferentially bind to oestrogen receptor beta (ER β) which promotes the opposite effect, potentially reducing the risk of breast cancer development and progression.

Overall, higher soy-food intake may offer some protective benefit against breast cancer. Further research is needed to clarify potential differences by timing of exposure, tumour subtype, and type of soy product consumed.

3.8 Micronutrients and Supplements



Several micronutrients have been investigated for their potential role in breast cancer prevention, though evidence remains limited and further research is needed. Studies suggest that adequate intakes of certain nutrients,

such as vitamin D, folate (vitamin B9), and vitamin B6, may be associated with a modestly lower risk [73–76]. However, research generally does not support a protective effect via supplement intake, and advises meeting nutrient needs through a balanced, varied diet [10,76].

Vitamin D, which humans mainly get from sunlight, has been the most extensively studied micronutrient in relation to breast cancer. Most observational studies have found that low blood levels of 25-hydroxy vitamin D (25(OH)D), the main circulating form of vitamin D, are associated with an increased risk of breast cancer [73,74,77]. Deficiency appears to be common among women diagnosed with breast cancer [78], but whether this reflects a causal relationship or reverse causation remains unclear. However, findings are not consistent across all studies; a large, pooled analysis reported no significant association between low, sufficient and high pre-diagnostic circulating 25(OH)D levels and breast cancer risk [79]. Supplementation trials have similarly not shown a significant reduction in breast cancer incidence [80,81]. Mechanistically, vitamin D may influence cancer development by regulating cell proliferation and differentiation, promoting apoptosis, reducing angiogenesis, and modulating inflammation [82,83].

Folate and vitamin B6, both involved in DNA synthesis and methylation, have received the most attention among the B vitamins in relation to breast cancer risk. Some studies suggest that adequate intakes may help maintain genomic stability and reduce risk, though findings

are inconsistent [75,76,84]. Meta-analyses indicate a modest inverse association between higher folate intake and breast cancer risk, but no clear benefit from supplementation, and evidence for vitamin B6 remains limited and inconclusive [75,84]. However, it has been identified that over-supplementation of B-vitamins could enhance cancer cell metabolism, DNA repair, and genomic instability, potentially accelerating tumour progression [84].

Other nutrients with antioxidant or anti-inflammatory properties, such as vitamins C and E, selenium, and zinc, have shown inconsistent associations with breast cancer risk [76].

Overall, maintaining adequate micronutrient status supports general health and may modestly influence breast cancer risk, but current evidence does not support the use of supplements for breast cancer prevention.

4. Dietary Patterns and Breast Cancer Risk

4.1 Mediterranean diet

The Mediterranean diet is characterised by high intakes of vegetables, fruits, whole grains, legumes, nuts, fish, and olive oil, with limited red and processed meat and moderate dairy consumption [88]. Adherence to this dietary pattern has been associated with a modest

reduction in breast cancer risk [89]. A recent umbrella review also reported that higher adherence to the Mediterranean diet was linked to a lower risk of breast cancer, particularly among postmenopausal women [90]. More recent evidence indicates that following a Mediterranean dietary pattern may lower breast cancer risk by around 24%, with reductions up to 35% observed in certain subgroups, such as Asian women [87]. These protective effects are thought to relate to the Mediterranean diet's high content of antioxidants, fibre, and unsaturated fats, which may help reduce inflammation, improve metabolic health, and support weight management [90,91].

4.2 Plant-based diets

Plant-based diets emphasise foods derived from plants, such as vegetables, fruits, whole grains, legumes, nuts, and seeds, while limiting or excluding animal products [92]. These dietary patterns are generally rich in fibre, phytonutrients, and unsaturated fats, and low in saturated fat and energy density [87]. However, some plant-based processed foods may also promote unhealthy patterns through high consumption of sugar and/or UPFs. High levels of these foods are likely to negate or reduce the overall positive and protective effects associated with plant-based diets (or any healthy dietary pattern).

Evidence suggests that greater adherence to plant-rich or healthy dietary patterns is associated with a modestly lower risk of breast cancer [69,86]. Recent findings also indicate



that diets rich in healthy plant foods are linked to reduced risks of breast cancer [87,93], particularly oestrogen receptor-negative subtypes in postmenopausal women [87], with adiposity potentially mediating this association [93]. These benefits are thought to arise from favourable effects on weight management, inflammation, insulin sensitivity, and oestrogen metabolism [87].

Overall, diets rich in whole and minimally processed plant foods, such as the Mediterranean and plant-based dietary patterns, are associated with a modestly lower risk of breast cancer. Their protective effects are likely due to combined positive influences on weight management, inflammation, and metabolic health [87,93].

Individuals who consume a plant-based diet, are also more likely to have higher levels of physical activity, lower alcohol consumption and may be non-smokers, which are all healthy lifestyle factors that also reduce breast cancer risk in their own right [94]. These are therefore important aspects to consider when undertaking such studies to ensure the reduction in risk observed is a true reflection of the healthy dietary pattern and not other confounding factors [95].

4. Conclusion

There is no single diet, food, or nutrient that can prevent breast cancer. However, a balanced diet rich in whole plant foods and healthy fats, and limited in processed and energy-dense foods, may help reduce risk. Maintaining a healthy body weight and focusing on

overall dietary quality and paying attention to portion sizes remain key for general health and cancer prevention. However, evidence for some dietary factors is still inconsistent or limited. Further research that is carefully designed is needed to clarify causal relationships and underlying mechanisms for these factors. Additional work that considers diet within a healthy lifestyle would also be beneficial to understand its overall contribution to the reduction in breast cancer risk.

References

- [1] Bray F, Laversanne M, Sung H, Ferlay J, Siegel RL, Soerjomataram I, et al. Global cancer statistics 2022: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin* 2024;74:229–63. <https://doi.org/10.3322/CAAC.21834>.
- [2] Cancer Research UK (CRUK). Breast cancer statistics - Breast cancer incidence (invasive) 2021. <https://www.cancerresearchuk.org/health-professional/cancer-statistics/statistics-by-cancer-type/breast-cancer#heading-Zero> (accessed September 4, 2024).
- [3] Wan MLY, Co VA, El-Nezami H. Endocrine disrupting chemicals and breast cancer: a systematic review of epidemiological studies. *Crit Rev Food Sci Nutr* 2022;62:6549–76. <https://doi.org/10.1080/10408398.2021.1903382>.
- [4] Breast Cancer UK. Can I prevent breast cancer? n.d. <https://www.breastcanceruk.org.uk/about-breast-cancer-uk/why-do-we-say-at-least-30/> (accessed January 23, 2026).
- [5] Cancer Research UK (CRUK). How does obesity cause cancer? 2023. <https://www.cancerresearchuk.org/about-cancer/causes-of-cancer/obesity-weight-and-cancer/how-does-obesity-cause-cancer> (accessed September 22, 2025).
- [6] NHS. The Eatwell Guide 2022. <https://www.nhs.uk/live-well/eat-well/food-guidelines-and-food-labels/the-eatwell-guide/> (accessed December 8, 2025).
- [7] British Nutrition Foundation. Portion Sizes. Creating a Healthy Diet n.d. <https://www.nutrition.org.uk/creating-a-healthy-diet/portion-sizes/> (accessed December 8, 2025).
- [8] Farvid MS, Barnett JB, Spence ND. Fruit and vegetable consumption and incident breast cancer: a systematic review and meta-analysis of prospective studies. *Br J Cancer* 2021;125:284. <https://doi.org/10.1038/S41416-021-01373-2>.
- [9] Farvid MS, Chen WY, Rosner BA, Tamimi RM, Willett WC, Eliassen AH. Fruit and vegetable consumption and breast cancer incidence: Repeated measures over 30 years of follow-up. *Int J Cancer* 2018;144:1496. <https://doi.org/10.1002/IJC.31653>.
- [10] World Cancer Research Fund, American Institute for Cancer Research. Diet, nutrition, physical activity and breast cancer. Continuous Update Project Expert Report 2018. <https://www.wcrf.org/wp-content/uploads/2024/10/Breast-cancer-report.pdf> (accessed September 25, 2025).
- [11] Dehnavi MK, Ebrahimpour-Koujan S, Lotfi K, Azadbakht L. The Association between Circulating Carotenoids and Risk of Breast Cancer: A Systematic Review and Dose–Response Meta-Analysis of Prospective Studies. *Advances in Nutrition* 2024;15:100135. <https://doi.org/10.1016/J.ADVNUT.2023.10.007>.
- [12] Li Y, Li S, Meng X, Gan RY, Zhang JJ, Li H Bin. Dietary Natural Products for Prevention and Treatment of Breast Cancer. *Nutrients* 2017;9:728. <https://doi.org/10.3390/NU9070728>.
- [13] Kapinova A, Stefanicka P, Kubatka P, Zubor P, Uramova S, Kello M, et al. Are plant-based functional foods better choice against cancer than single phytochemicals? A critical review of current breast cancer research. *Biomedicine & Pharmacotherapy* 2017;96:1465–77. <https://doi.org/10.1016/J.BIOPHA.2017.11.134>.
- [14] Pomares-Millan H, Saxby SM, Al-Mashadi Dahl S, Karagas MR, Passarelli MN. Dietary Glycemic Index, Glycemic Load, Sugar, and Fiber Intake in Association With Breast Cancer Risk: An Updated Meta-analysis. *Nutr Rev* 2025;83:1171–82. <https://doi.org/10.1093/NUTRIT/NUAF038>.
- [15] Schlesinger S, Chan DSM, Vingeliene S, Vieira AR, Abar L, Polemiti E, et al. Carbohydrates, glycemic index, glycemic load, and breast cancer risk: a systematic review and dose-response meta-analysis of prospective studies. *Nutr Rev* 2017;75:420–41. <https://doi.org/10.1093/NUTRIT/NUX010>.
- [16] Godinho-Mota J, Gonçalves LV, Soares LR, Lopes WD, Martins KA, Bronzi L, et al. Association between glycemic index and glycemic load of the diet, insulin, and breast cancer: A case-control study. *Journal of Clinical Oncology* 2025;43. https://doi.org/10.1200/JCO.2025.43.16_suppl.e12515.

- [17] Ubago-Guisado E, Rodríguez-Barranco M, Ching-López A, Petrova D, Molina-Montes E, Amiano P, et al. Evidence update on the relationship between diet and the most common cancers from the european prospective investigation into cancer and nutrition (Epic) study: A systematic review. *Nutrients* 2021;13:3582. <https://doi.org/10.3390/NU13103582>.
- [18] Debras C, Chazelas E, Srouf B, Kesse-Guyot E, Julia C, Zelek L, et al. Total and added sugar intakes, sugar types, and cancer risk: results from the prospective NutriNet-Santé cohort. *Am J Clin Nutr* 2020;112:1267–79. <https://doi.org/10.1093/AJCN/NQAA246>.
- [19] Rigi S, Salari-Moghaddam A, Benisi-Kohansal S, Azadbakht L, Esmailzadeh A. Dietary glycaemic index and glycaemic load in relation to risk of breast cancer. *Public Health Nutr* 2022;25:1658–66. <https://doi.org/10.1017/S1368980021004018>.
- [20] Makarem N, Bandera E V., Nicholson JM, Parekh N. Consumption of Sugars, Sugary Foods, and Sugary Beverages in Relation to Cancer Risk: A Systematic Review of Longitudinal Studies. *Annu Rev Nutr* 2018;38:17–39. <https://doi.org/10.1146/ANNUREV-NUTR-082117-051805>.
- [21] Farvid MS, Spence ND, Holmes MD, Barnett JB. Fiber consumption and breast cancer incidence: A systematic review and meta-analysis of prospective studies. *Cancer* 2020;126:3061–75. <https://doi.org/10.1002/CNCR.32816>.
- [22] Chen S, Chen Y, Ma S, Zheng R, Zhao P, Zhang L, et al. Dietary fibre intake and risk of breast cancer: A systematic review and meta-analysis of epidemiological studies. *Oncotarget* 2016;7:80980–9. <https://doi.org/10.18632/ONCOTARGET.13140>.
- [23] Zademohammadi F, Sasanfar B, Toorang F, Mozafarinia M, Salehi-Abargouei A, Zندهدل K. Dietary soluble, insoluble, and total fiber intake and their dietary sources in association with breast cancer. *BMC Public Health* 2024;24:1–14. <https://doi.org/10.1186/S12889-024-19861-4>.
- [24] Kotepui M. Diet and risk of breast cancer. *Contemp Oncol* 2016;20:13. <https://doi.org/10.5114/WO.2014.40560>.
- [25] Xia H, Ma S, Wang S, Sun G. Meta-Analysis of Saturated Fatty Acid Intake and Breast Cancer Risk. *Medicine* 2015;94:e2391. <https://doi.org/10.1097/MD.0000000000002391>.
- [26] Cao Y, Hou L, Wang W. Dietary total fat and fatty acids intake, serum fatty acids and risk of breast cancer: A meta-analysis of prospective cohort studies. *Int J Cancer* 2016;138:1894–904. <https://doi.org/10.1002/IJC.29938>.
- [27] Uhomoibhi TO, Okobi TJ, Okobi OE, Koko JO, Uhomoibhi O, Igbinosun OE, et al. High-Fat Diet as a Risk Factor for Breast Cancer: A Meta-Analysis. *Cureus* 2022;14:e32309. <https://doi.org/10.7759/CUREUS.32309>.
- [28] Gopinath A, Cheema AH, Chaludiya K, Khalid M, Nwosu M, Agyeman WY, et al. The Impact of Dietary Fat on Breast Cancer Incidence and Survival: A Systematic Review. *Cureus* 2022;14:e30003. <https://doi.org/10.7759/CUREUS.30003>.
- [29] Mei J, Qian M, Hou Y, Liang M, Chen Y, Wang C, et al. Association of saturated fatty acids with cancer risk: a systematic review and meta-analysis. *Lipids Health Dis* 2024;23:32. <https://doi.org/10.1186/S12944-024-02025-Z>.
- [30] Buja A, Pierbon M, Lago L, Grotto G, Baldo V. Breast Cancer Primary Prevention and Diet: An Umbrella Review. *International Journal of Environmental Research and Public Health* 2020, Vol 17, Page 4731 2020;17:4731. <https://doi.org/10.3390/IJERPH17134731>.
- [31] Li C, Yang L, Zhang D, Jiang W. Systematic review and meta-analysis suggest that dietary cholesterol intake increases risk of breast cancer. *Nutrition Research* 2016;36:627–35. <https://doi.org/10.1016/j.nutres.2016.04.009>.
- [32] Touvier M, Fassier P, His M, Norat T, Chan DSM, Blacher J, et al. Cholesterol and breast cancer risk: a systematic review and meta-analysis of prospective studies. *Br J Nutr* 2015;114:347–57. <https://doi.org/10.1017/S000711451500183X>.
- [33] Anjom-Shoae J, Sadeghi O, Larijani B, Esmailzadeh A. Dietary intake and serum levels of trans fatty acids and risk of breast cancer: A systematic review and dose-response meta-analysis of prospective studies. *Clinical Nutrition* 2020;39:755–64. <https://doi.org/10.1016/j.clnu.2019.03.024>.
- [34] Lopez-Garcia E, Schulze MB, Meigs JB, Manson JE, Rifai N, Stampfer MJ, et al. Consumption of Trans Fatty Acids Is Related to Plasma Biomarkers of Inflammation and Endothelial Dysfunction. *J Nutr* 2005;135:562–6. <https://doi.org/10.1093/JN/135.3.562>.

- [35] Nelson ER, Chang C yi, McDonnell DP. Cholesterol and Breast Cancer Pathophysiology. *Trends Endocrinol Metab* 2014;25:649. <https://doi.org/10.1016/J.TEM.2014.10.001>.
- [36] Cedó L, Reddy ST, Mato E, Blanco-Vaca F, Escolà-Gil JC. HDL and LDL: Potential New Players in Breast Cancer Development. *J Clin Med* 2019;8:853. <https://doi.org/10.3390/JCM8060853>.
- [37] Garcia-Estevez L, Moreno-Bueno G. Updating the role of obesity and cholesterol in breast cancer. *Breast Cancer Res* 2019;21:35. <https://doi.org/10.1186/S13058-019-1124-1>.
- [38] World Health Organisation. Trans fat 2024. <https://www.who.int/news-room/fact-sheets/detail/trans-fat> (accessed December 8, 2025)
- [39] NHS. Fat: the facts 2023. <https://www.nhs.uk/live-well/eat-well/food-types/different-fats-nutrition/> (accessed December 8, 2025).
- [40] Hanson S, Thorpe G, Winstanley L, Abdelhamid AS, Hooper L, Abdelhamid A, et al. Omega-3, omega-6 and total dietary polyunsaturated fat on cancer incidence: systematic review and meta-analysis of randomised trials. *Br J Cancer* 2020;122:1260–70. <https://doi.org/10.1038/S41416-020-0761-6>.
- [41] Lee KH, Seong HJ, Kim G, Jeong GH, Kim JY, Park H, et al. Consumption of Fish and ω -3 Fatty Acids and Cancer Risk: An Umbrella Review of Meta-Analyses of Observational Studies. *Advances in Nutrition* 2020;11:1134. <https://doi.org/10.1093/ADVANCES/NMAA055>.
- [42] Zanoaga O, Jurj A, Raduly L, Cojocneanu-Petric R, Fuentes-Mattei E, Wu O, et al. Implications of dietary ω -3 and ω -6 polyunsaturated fatty acids in breast cancer. *Exp Ther Med* 2018;15:1167. <https://doi.org/10.3892/ETM.2017.5515>.
- [43] Fabian CJ, Kimler BF, Hursting SD. Omega-3 fatty acids for breast cancer prevention and survivorship. *Breast Cancer Res* 2015;17:62. <https://doi.org/10.1186/S13058-015-0571-6>.
- [44] Zhou Y, Wang T, Zhai S, Li W, Meng Q. Linoleic acid and breast cancer risk: a meta-analysis. *Public Health Nutr* 2015;19:1457. <https://doi.org/10.1017/S136898001500289X>.
- [45] Foscolou A, Critselis E, Panagiotakos D. Olive oil consumption and human health: A narrative review. *Maturitas* 2018;118:60–6. <https://doi.org/10.1016/j.maturitas.2018.10.013>.
- [46] Anderson JJ, Darwis NDM, Mackay DF, Celis-Morales CA, Lyall DM, Sattar N, et al. Red and processed meat consumption and breast cancer: UK Biobank cohort study and meta-analysis. *Eur J Cancer* 2018;90:73–82. <https://doi.org/10.1016/j.ejca.2017.11.022>.
- [47] Farvid MS, Stern MC, Norat T, Sasazuki S, Vineis P, Weijenberg MP, et al. Consumption of red and processed meat and breast cancer incidence: A systematic review and meta-analysis of prospective studies. *Int J Cancer* 2018;143:2787. <https://doi.org/10.1002/IJC.31848>.
- [48] Wolk A. Potential health hazards of eating red meat. *J Intern Med* 2017;281:106–22. <https://doi.org/10.1111/JOIM.12543>.
- [49] Rezaianzadeh A, Ghorbani M, Rezaeian S, Kassani A. Red Meat Consumption and Breast Cancer Risk in Premenopausal Women: A Systematic Review and Meta-Analysis. *Middle East J Cancer* 2018;9:5–12. <https://doi.org/10.30476/MEJC.2018.42096>.
- [50] Huang Y, Cao D, Chen Z, Chen B, Li J, Guo J, et al. Red and processed meat consumption and cancer outcomes: Umbrella review. *Food Chem* 2021;356:129697. <https://doi.org/10.1016/J.FOODCHEM.2021.129697>.
- [51] Reng Q, Zhu LL, Feng L, Li YJ, Zhu YX, Wang TT, et al. Dietary meat mutagens intake and cancer risk: A systematic review and meta-analysis. *Front Nutr* 2022;9:962688. <https://doi.org/10.3389/FNUT.2022.962688>.
- [52] Zeidan RS, Yoon HS, Yang JJ, Sobh A, Braithwaite D, Mankowski R, et al. Iron and cancer: overview of the evidence from population-based studies. *Front Oncol* 2024;14:1393195. <https://doi.org/10.3389/FONC.2024.1393195>.
- [53] Badran O, Cohen I, Bar-Sela G. The Impact of Iron on Cancer-Related Immune Functions in Oncology: Molecular Mechanisms and Clinical Evidence. *Cancers (Basel)* 2024;16:4156. <https://doi.org/10.3390/CANCERS16244156>.
- [54] Lane MM, Gamage E, Du S, Ashtree DN, McGuinness AJ, Gauci S, et al. Ultra-processed food exposure and adverse health outcomes: umbrella review of epidemiological meta-analyses. *BMJ* 2024;384. <https://doi.org/10.1136/BMJ-2023-077310>.

- [55] Monteiro CA, Cannon G, Lawrence M, Laura Da Costa Louzada M, Machado PP. Ultra-processed foods, diet quality, and health using the NOVA classification system Prepared by. Food and Agriculture Organisation of the United Nations 2019. <https://openknowledge.fao.org/server/api/core/bitstreams/5277b379-0acb-4d97-a6a3-602774104629/content> (accessed October 20, 2025).
- [56] Fiolet T, Srour B, Sellem L, Kesse-Guyot E, Allès B, Méjean C, et al. Consumption of ultra-processed foods and cancer risk: results from NutriNet-Santé prospective cohort. *BMJ* 2018;360:322. <https://doi.org/10.1136/BMJ.K322>.
- [57] Shu L, Zhang X, Zhu Q, Lv X, Si C. Association between ultra-processed food consumption and risk of breast cancer: a systematic review and dose-response meta-analysis of observational studies. *Front Nutr* 2023;10:1250361. <https://doi.org/10.3389/FNUT.2023.1250361>.
- [58] Lian Y, Wang GP, Chen GQ, Chen HN, Zhang GY. Association between ultra-processed foods and risk of cancer: a systematic review and meta-analysis. *Front Nutr* 2023;10:1175994. <https://doi.org/10.3389/FNUT.2023.1175994>.
- [59] Chang K, Gunter MJ, Rauber F, Levy RB, Huybrechts I, Kliemann N, et al. Ultra-processed food consumption, cancer risk and cancer mortality: a large-scale prospective analysis within the UK Biobank. *EClinicalMedicine* 2023;56:101840. <https://doi.org/10.1016/J.ECLINM.2023.101840>.
- [60] Ghoreishy SM, Bagheri A, Nejad MM, Larijani B, Esmailzadeh A. Association between calcium intake and risk of breast cancer: An updated systematic review and dose-response meta-analysis of cohort studies. *Clin Nutr ESPEN* 2023;55:251–9. <https://doi.org/10.1016/j.clnesp.2023.03.026>.
- [61] Wu Y, Huang R, Wang M, Bernstein L, Bethea TN, Chen C, et al. Dairy foods, calcium, and risk of breast cancer overall and for subtypes defined by estrogen receptor status: a pooled analysis of 21 cohort studies. *Am J Clin Nutr* 2021;114:450. <https://doi.org/10.1093/AJCN/NQAB097>.
- [62] Savaiano DA, Hutkins RW. Yogurt, cultured fermented milk, and health: a systematic review. *Nutr Rev* 2021;79:599–614. <https://doi.org/10.1093/NUTRIT/NUAA013>.
- [63] Mendoza L. Potential effect of probiotics in the treatment of breast cancer. *Oncol Rev* 2019;13:422. <https://doi.org/10.4081/ONCOL.2019.422>.
- [64] Hilakivi-Clarke L, Andrade JE, Helferich W. Is Soy Consumption Good or Bad for the Breast? *J Nutr* 2010;140:2326S. <https://doi.org/10.3945/JN.110.124230>.
- [65] Hüser S, Guth S, Joost HG, Soukup ST, Köhrle J, Kreienbrock L, et al. Effects of isoflavones on breast tissue and the thyroid hormone system in humans: a comprehensive safety evaluation. *Arch Toxicol* 2018;92:2703. <https://doi.org/10.1007/S00204-018-2279-8>.
- [66] Boutas I, Kontogeorgi A, Dimitrakakis C, Kalantaridou SN. Soy Isoflavones and Breast Cancer Risk: A Meta-analysis. *In Vivo (Brooklyn)* 2022;36:556–62. <https://doi.org/10.21873/INVIVO.12737>.
- [67] Yang J, Shen H, Mi M, Qin Y. Isoflavone Consumption and Risk of Breast Cancer: An Updated Systematic Review with Meta-Analysis of Observational Studies. *Nutrients* 2023;15:2402. <https://doi.org/10.3390/NU15102402>.
- [68] Wei Y, Lv J, Guo Y, Bian Z, Gao M, Du H, et al. Soy intake and breast cancer risk: a prospective study of 300,000 Chinese women and a dose-response meta-analysis. *Eur J Epidemiol* 2020;35:567–78. <https://doi.org/10.1007/S10654-019-00585-4>.
- [69] Kazemi A, Barati-Boldaji R, Soltani S, Mohammadipoor N, Esmaeilinezhad Z, Clark CCT, et al. Intake of Various Food Groups and Risk of Breast Cancer: A Systematic Review and Dose-Response Meta-Analysis of Prospective Studies. *Advances in Nutrition* 2021;12:809–49. <https://doi.org/10.1093/ADVANCES/NMAA147>.
- [70] Wang C, Ding K, Xie X, Zhou J, Liu P, Wang S, et al. Soy Product Consumption and the Risk of Cancer: A Systematic Review and Meta-Analysis of Observational Studies. *Nutrients* 2024;16:986. <https://doi.org/10.3390/NU16070986>.
- [71] Ziaei S, Halaby R. Dietary Isoflavones and Breast Cancer Risk. *Medicines* 2017;4:18. <https://doi.org/10.3390/MEDICINES4020018>.
- [72] Lee SA, Shu XO, Li H, Yang G, Cai H, Wen W, et al. Adolescent and adult soy food intake and breast cancer risk: results from the Shanghai Women's Health Study1. *Am J Clin Nutr* 2009;89:1920. <https://doi.org/10.3945/AJCN.2008.27361>.

- [73] Mokbel K, Mokbel K. Chemoprevention of Breast Cancer With Vitamins and Micronutrients: A Concise Review. *In Vivo (Brooklyn)* 2019;33:983. <https://doi.org/10.21873/INVIVO.11568>.
- [74] Hossain S, Beydoun MA, Beydoun HA, Chen X, Zonderman AB, Wood RJ. Vitamin D and breast cancer: A systematic review and meta-analysis of observational studies. *Clin Nutr ESPEN* 2019;30:170. <https://doi.org/10.1016/J.CLNESP.2018.12.085>.
- [75] Ren X, Xu P, Zhang D, Liu K, Song D, Zheng Y, et al. Association of folate intake and plasma folate level with the risk of breast cancer: a dose-response meta-analysis of observational studies. *Aging (Albany NY)* 2020;12:21355. <https://doi.org/10.18632/AGING.103881>.
- [76] Forma A, Grunwald A, Zembala P, Januszewski J, Brachet A, Zembala R, et al. Micronutrient Status and Breast Cancer: A Narrative Review. *International Journal of Molecular Sciences* 2024, Vol 25, Page 4968 2024;25:4968. <https://doi.org/10.3390/IJMS25094968>.
- [77] Seraphin G, Rieger S, Hewison M, Capobianco E, Lisse TS. The impact of vitamin D on cancer: A mini review. *J Steroid Biochem Mol Biol* 2023;231:106308. <https://doi.org/10.1016/J.JSBMB.2023.106308>.
- [78] Zemlin C, Altmayer L, Stuhlert C, Schleicher JT, Wörmann C, Lang M, et al. Prevalence and Relevance of Vitamin D Deficiency in Newly Diagnosed Breast Cancer Patients: A Pilot Study. *Nutrients* 2023, Vol 15, Page 1450 2023;15:1450. <https://doi.org/10.3390/NU15061450>.
- [79] Visvanathan K, Mondul AM, Zeleniuch-Jacquotte A, Wang M, Gail MH, Yaun SS, et al. Circulating vitamin D and breast cancer risk: an international pooling project of 17 cohorts. *Eur J Epidemiol* 2023;38:11–29. <https://doi.org/10.1007/S10654-022-00921-1>.
- [80] Manson JE, Cook NR, Lee I-M, Christen W, Bassuk SS, Mora S, et al. Vitamin D Supplements and Prevention of Cancer and Cardiovascular Disease. *New England Journal of Medicine* 2019;380:33–44. <https://doi.org/10.1056/NEJMOA1809944>.
- [81] Li Z, Wu L, Zhang J, Huang X, Thabane L, Li G. Effect of Vitamin D Supplementation on Risk of Breast Cancer: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. *Front Nutr* 2021;8:655727. <https://doi.org/10.3389/FNUT.2021.655727>.
- [82] de La Puente-Yagüe M, Cuadrado-Cenzual MA, Ciudad-Cabañas MJ, Hernández-Cabria M, Collado-Yurrita L. Vitamin D: And its role in breast cancer. *Kaohsiung J Med Sci* 2018;34:423–7. <https://doi.org/10.1016/J.KJMS.2018.03.004>.
- [83] Linowiecka K, Wolnicka-Głubisz A, Brożyna AA. Vitamin D endocrine system in breast cancer. *Acta Biochim Pol* 2021;68:489–97. https://doi.org/10.18388/ABP.2020_5961.
- [84] Frost Z, Bakhit S, Amaefuna CN, Powers R V., Ramana K V. Recent Advances on the Role of B Vitamins in Cancer Prevention and Progression. *Int J Mol Sci* 2025;26:1967. <https://doi.org/10.3390/IJMS26051967>.
- [85] Shin S, Fu J, Shin WK, Huang D, Min S, Kang D. Association of food groups and dietary pattern with breast cancer risk: A systematic review and meta-analysis. *Clinical Nutrition* 2023;42:282–97. <https://doi.org/10.1016/j.clnu.2023.01.003>.
- [86] Xiao Y, Xia J, Li L, Ke Y, Cheng J, Xie Y, et al. Associations between dietary patterns and the risk of breast cancer: A systematic review and meta-analysis of observational studies. *Breast Cancer Research* 2019;21:1–22. <https://doi.org/10.1186/S13058-019-1096-1>.
- [87] Chapela S, Locatelli J, Saettone F, Forte CA, Memoli P, Cucalon G, et al. The role of nutrition in cancer prevention: the effect of dietary patterns, bioactive compounds, and metabolic pathways on cancer development. *Food Agric Immunol* 2025;36. <https://doi.org/10.1080/09540105.2025.2490003>.
- [88] Trichopoulou A, Martínez-González MA, Tong TYN, Forouhi NG, Khandelwal S, Prabhakaran D, et al. Definitions and potential health benefits of the Mediterranean diet: views from experts around the world. *BMC Med* 2014;12:112. <https://doi.org/10.1186/1741-7015-12-112>.
- [89] Schwingshackl L, Schwedhelm C, Galbete C, Hoffmann G. Adherence to Mediterranean Diet and Risk of Cancer: An Updated Systematic Review and Meta-Analysis. *Nutrients* 2017;9:1063. <https://doi.org/10.3390/NU9101063>.
- [90] González-Palacios Torres C, Barrios-Rodríguez R, Muñoz-Bravo C, Toledo E, Dierssen T, Jiménez-Moleón JJ. Mediterranean diet and risk of breast cancer: An umbrella review. *Clinical Nutrition* 2023;42:600–8. <https://doi.org/10.1016/J.CLNU.2023.02.012>.

- [91] Schwingshackl L, Morze J, Hoffmann G. Mediterranean diet and health status: Active ingredients and pharmacological mechanisms. *Br J Pharmacol* 2019;177:1241–57. <https://doi.org/10.1111/BPH.14778>.
- [92] Hargreaves SM, Rosenfeld DL, Moreira AVB, Zandonadi RP. Plant-based and vegetarian diets: an overview and definition of these dietary patterns. *Eur J Nutr* 2023;62:1109–21. <https://doi.org/10.1007/S00394-023-03086-Z>.
- [93] Shah S, Laouali N, Mahamat-Saleh Y, Biessy C, Nicolas G, Rinaldi S, et al. Plant-based dietary patterns and breast cancer risk in the European prospective investigation into cancer and nutrition (EPIC) study. *Eur J Epidemiol* 2025;40:947–58. <https://doi.org/10.1007/S10654-025-01277-Y>.
- [94] British Nutrition Foundation. Vegetarian and vegan diets n.d. <https://www.nutrition.org.uk/creating-a-healthy-diet/vegetarians-and-vegans/> (accessed December 8, 2025).
- [95] Bali A, Naik R. The Impact of a Vegan Diet on Many Aspects of Health: The Overlooked Side of Veganism. *Cureus* 2023. <https://doi.org/10.7759/cureus.35148>.

About Breast Cancer UK

Who we are?

Breast Cancer UK aims to prevent breast cancer through scientific research, collaboration, education and policy change. We educate and raise awareness of the risk factors for breast cancer and provide practical information to help people reduce these risks. We campaign to ensure government policies support the prevention of breast cancer. And we fund scientific research that helps to better understand which risk factors contribute to breast cancer, and how to address them. For further information on breast cancer risk factors please visit our website www.breastcanceruk.org.uk

To view this information in a more accessible format or to provide feedback, please contact us.

This review is for information purposes only and does not cover all breast cancer risks. Nor does it constitute medical advice and should not be used as an alternative to professional care. If you have been diagnosed with breast cancer, before changing any aspect of your diet, please consult a medical professional.

Breast Cancer UK is a breast cancer prevention charity and is unable to offer specific advice about the diagnosis or treatment of breast cancer. If you are worried about any symptoms, please consult your doctor.

Breast Cancer UK has made every effort to ensure the content of this review is correct at the time of publishing but no warranty is given to that effect nor any liability accepted for any loss or damage arising from its use.

Diet and Breast Cancer (Version 2)

Date: 02/02/2026

Next update: 02/02/2029

We welcome your feedback, if you have any comments or suggestions about this review please contact us at info@breastcanceruk.org.uk or on 0208 1327088.

www.breastcanceruk.org.uk

 @BreastCancer_UK
 @breastcanceruk
 @breastcanceruk
 @Breast Cancer UK

