

# Cancer Association of South Africa (CANSA)



## CANSA Fact Sheet on Breast Cancer in Men

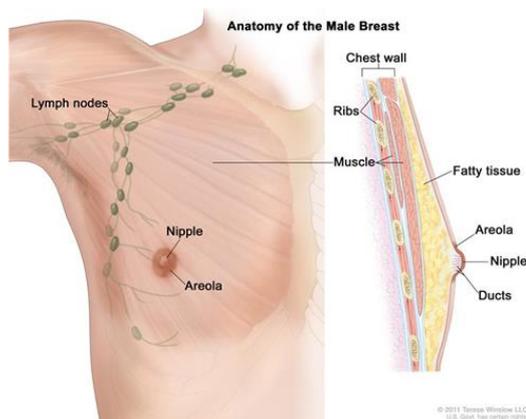
### Introduction

The exterior of both male and female chests are basically the same, however, the size, shape, and function of breasts vary significantly between the sexes.

[Picture Credit: Male Breast]

The male breast also has a nipple and an areola (the darker pigmented circle around the nipple), but men lack the mammary glands and ducts necessary to produce milk.

Unlike women, a typical male does not have extensive fat deposits on his chest - in a woman, these protect the mammary glands. Instead, the shape of a man's chest is determined by the muscles underneath the skin. Although atypical, men can develop large mammary glands that result in breast enlargement. This condition is known as gynaecomastia. It is more common in adolescent boys but typically disappears after puberty.



**Kwok, H.T., Van, M., Fan, K.S. & Chan, J. 2022.**

**Background:** Male breast cancer is a considerably rare condition and only accounts for 1% of all breast cancer cases. Due to limited public awareness, the condition is likely to present late, leading to late diagnosis and treatment worsening morbidity and mortality. This article aims to identify the focus and most influential research on male breast cancer. Objective Identify the most influential papers in male breast cancer.

**Methods:** Search on Web of Science using the search terms 'Male', 'Breast Cancer' and "Male breast cancer" to identify all full manuscripts in English language and were ranked by the total number of citations. The top 100 articles were then further analysed according to subject, author, journal, year and country of publications.

**Results:** The mean number of citations per paper was 96. Most cited paper was by Thorlacius, S et al. evaluating the relationship between BRCA2 and female breast cancer, prostate cancer, pancreatic cancer and ovarian cancer. Cancer is the journal with the most published papers and received most citations in the male breast cancer research field. The

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Researched and Authored by Prof Michael C Herbst

[D Litt et Phil (Health Studies); D N Ed; M Art et Scien; B A Cur; Dip Occupational Health; Dip Genetic Counselling; Dip Audiometry and Noise Measurement; Diagnostic Radiographer; Medical Ethicist]

Approved by Ms Elize Joubert, Chief Executive Officer [BA Social Work (cum laude); MA Social Work]

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USA contributed 49 of the manuscripts in the top 100. The most studied topic was risk factors for male breast cancer, with 20 articles.

**Conclusions:** The most cited papers identified in this study described the advance in the knowledge of genetics and epidemiology in male breast cancer and has led to improvements in the 4 management of the disease. Most of the highly cited articles in this field were published in high impact journals and had accumulated at least 100 citations to date, reflecting their quality and impact. By collating the most influential publications in this field, this analysis can serve to identify knowledge gaps in male breast cancer research as well as to help identify what makes a paper impactful and citable.

**Ali, A., Xie, Z., Stanko, L., De Leo, E., Hong, Y.R., Bian, J. & Daily, K.C. 2022.**

**Purpose:** Breast cancer in men (BC-M) is almost exclusively hormone receptor positive. We conducted a large review of the SEER-Medicare linked database to compare endocrine therapy adherence, discontinuation, and survival outcomes of male versus female patients with breast cancer.

**Methods:** Study data were obtained through the SEER-Medicare linked database. The study included patients age  $\geq 65$  years-old diagnosed with breast cancer between 2007 and 2015. The primary endpoints were rates of adherence and discontinuation of endocrine therapy (ET). Adherence was defined as a gap of less than 90 days in-between consecutive Medicare prescriptions. Discontinuation was defined as a gap of greater than 12 months in-between Medicare prescriptions. Secondary endpoint was the association of use of ET with overall survival (OS).

**Results:** Of the 363 male patients on ET, 214 patients (59.0%) were adherent to the therapy, and 149 patients (41.0%) were nonadherent. Of the 20,722 females on ET, 10,752 (51.9%) were adherent to the therapy, and 9970 (48.1%) were nonadherent. 39 male patients (10.7%) discontinued therapy, while 324 (89.3%) did not discontinue therapy. 1849 female patients (8.9%) discontinued therapy, while 18,873 (91.1%) patients did not. Men were significantly more adherent than women ( $p = 0.008$ ), but there was no significant difference in discontinuation among men and women ( $p = 0.228$ ). Survival was significantly improved in both men (HR 0.77, 95% CI 0.60-0.99,  $p = 0.039$ ) and women (HR 0.84, 95% CI 0.81-0.87,  $p < 0.001$ ) on ET.

**Conclusion:** Identification of contributing factors impacting adherence and discontinuation is needed to allow physicians to address barriers to long term use of ET.

### **Tumour Grade and Tumour Stage**

Tumour grade and stage are terms used to describe the severity of a tumour, while tumour grade describes the appearance of cancerous cells in the tissue by examining them under a microscope.

Tumour stage encompasses:

- The location of the tumour.
- The size and/or extent of the original tumour.
- Whether cancer cells have spread to lymph nodes or anywhere else in the body.
- The number of tumours present.

Doctors use tumour grade, cancer stage, and a patient's age and general health to decide the course of treatment for the patient and determine prognosis. Prognosis describes all factors including the disease course, cure rate, chances of survival, and risk of recurrence of cancer.

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### What are the cancer stages?

Different systems of cancer staging are used to describe the types of cancer. Below is a common method in which stages are ranged from 0 to IV.

- Stage 0: The tumour is confined to its place of origin (in situ) and has not spread to nearby tissue.
- Stage I: The tumour is located only in the original organ, is small, and has not spread.
- Stage II: The size of the tumour is large but has not spread.
- Stage III: The tumour has become larger and may have spread to surrounding tissues and/or lymph nodes.
- Stage IV: The tumour has spread to other distant organs of the body, which is known as the metastasis stage.

### TNM staging

Another common staging method used for cancer is the TNM system, which stands for tumour, node (which means spread of the tumour to lymph nodes), and metastasis. When a patient's cancer is staged using the TNM system, a number will be present along with the letter. This number signifies the extent of the disease in each category - tumour, node, and metastases.

Another system of cancer staging divides cancer into five stages, which include:

- In situ: Abnormal cells are present but have not spread to nearby tissue.
- Localized: Cancer is located only in the original organ and shows no sign of its spread.
- Regional: Cancer has spread to nearby lymph nodes, tissues, or organs.
- Distant: Cancer has spread to distant parts of the body.
- Unknown: The stage cannot be figured out due to a lack of enough information.

### What are the cancer grades?

Cancer grades are based on examination of the suspected tissue sample under a microscope. This involves surgically removing a piece of the suspected cancerous tissue and sending it to the lab for analysis. The entire procedure is known as a biopsy.

A doctor who specializes in diagnostic tests (pathologist) examines the cells of the tissue and determines whether they are harmless (benign or noncancerous) or harmful (malignant or cancerous). They describe the microscopic appearance of the cells and assign a numerical "grade" to most cancers.

Generally, a lower grade indicates slow-growing cancer and a higher grade indicates fast-growing cancer.

The most commonly used grading system is as follows:

- Grade I: Cancer cells that look like normal cells but are not growing rapidly.
- Grade II: Cancer cells that don't look like normal cells with their growth being faster than normal cells.
- Grade III: Cancer cells that look abnormal and have the potential to grow rapidly or spread more aggressively.

Sometimes, the following system can be used:

- GX: Grade cannot be assessed (undetermined grade)

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- G1: Well-differentiated (low grade)
- G2: Moderately differentiated (intermediate grade)
- G3: Poorly differentiated (high grade)
- G4: Undifferentiated (high grade)

### Incidence of Breast Cancer in Men in South Africa

According to the outdated National Cancer Registry (2019), known for under reporting, the following cases of Breast Cancer in Men was histologically diagnosed in 2019. Histologically diagnosed means that a sample of tissue (biopsy) was forwarded to an approved laboratory where a specially trained pathologist confirmed a diagnosis of cancer:

Group 2019	Actual Number of Cases	Estimated Lifetime Risk	Percentage of All Cancers
All males	184	1:932	0,44%
Asian males	0	-	-
Black males	101	1:1 038	0,70%
Coloured males	24	1:753	0,51%
White males	59	1:629	0,25%

**Khattab, A., Kashyap, S. & Monga, D.K.** 2022. Male breast cancer. *In*: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan. 2022 Jun 27.

“Although breast cancer is typically synonymous as a disease that commonly occurs in women, it does occur in men as well. This is because although minimal in quantity, men do have breast tissue that has the potential to become malignant similarly to women, albeit much less commonly. While male breast cancer (MBC) is rare, only occurring in 1% of all breast cancers, it does occur, and it is important to be cognizant of its reality and potential. In the U.S., there are about 2,800 cases of male breast cancer annually. Unfortunately, men with breast cancer are often diagnosed late and have high mortality. However, stage for stage, the survival between males and females is similar.”

### Frequency of Histologically Diagnosed Cases of Breast Cancer in Men

According to the National Cancer Registry (2019), the frequency of histologically diagnosed cases of Breast Cancer in Men in South Africa is as follows:

Group 2019	0 to 19 Years	20 to 29 Years	30 to 39 Years	40 to 49 Years	50 to 59 Years	60 to 69 Years	70 to 79 Years	80 + Years
All males	1	2	7	13	47	53	42	19
Asian males	0	0	0	0	0	0	0	0
Black males	1	2	4	11	21	27	23	12
Coloured males	0	0	3	1	6	10	2	2
White males	0	0	0	1	20	16	17	5

According to the Breast Health Foundation (South Africa) it is estimated that South Africa has one of the highest incidences of male breast cancer in the world with 1-3% of breast cancer cases

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diagnosed in South Africa occurring in men. It is estimated that up to 400 cases of male breast cancer cases were diagnosed in South Africa during 2018.

### **Risk Factors for Breast Cancer in Men**

Men diagnosed with male breast cancer at an early stage have a good chance for a cure. However, many men delay seeing a doctor when they notice unusual signs or symptoms, such as a breast lump. For this reason, many male breast cancers are diagnosed when the disease is more advanced.

Factors that increase the risk of male breast cancer include:

- Older age. Breast cancer is most common in men ages 40 to 80. About 1 in 5 men with breast cancer (20%) have a close relative who has also had breast cancer.
- The genes store the biological information inherited from parents. The genes most commonly linked to an increased risk of breast cancer in families are BRCA1 and BRCA2. Men in families with the BRCA2 gene are more likely to develop breast cancer than men in BRCA1 families. It is thought that the BRCA2 gene may cause up to 1 in 10 of breast cancers in men (10%).
- Exposure to oestrogen. If one takes oestrogen-related drugs, such as those used as part of sex reassignment surgery, the risk of breast cancer is increased. Oestrogen drugs may also be used in hormone therapy for prostate cancer. Although all men have oestrogen in their bodies, obesity, cirrhosis (liver disease) and Klinefelter's syndrome (a genetic disorder) increase oestrogen levels.
- Family history of breast cancer. If one has a close family member with breast cancer, there is a greater chance of developing the disease. If a first-degree relative—their mother, father, brother, sister, children—has breast cancer, men are also at slightly higher risk to develop the disease themselves. Men who have a BRCA mutation (a mutation or change in a gene that predisposes them to breast cancer) are at a greater risk. Although their chance of developing breast cancer is still low (only about 5% to 6%), men with a mutation in BRCA2 have a 100-fold greater risk of developing breast cancer than men in the general population.

There may be a breast cancer gene in a family if:

- a man in the family has breast cancer
- there are three close relatives on the same side of the family who developed breast cancer at any age
- there are two close relatives on the same side of the family who developed breast cancer under the age of 50
- there is one close relative who developed breast cancer under the age of 40
- there is a close relative with breast cancer in both breasts
- there is a close relative with breast cancer and another relative on the same side of the family with ovarian cancer

Close relatives, sometimes called one's first degree relatives, are parents, children, sisters and brothers.

- Klinefelter's syndrome. This genetic syndrome occurs when a boy is born with more than one copy of the X chromosome. Klinefelter's syndrome causes abnormal development of the testicles. As a result, men with this syndrome produce lower levels of certain male hormones (androgens) and more female hormones (oestrogens).

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[D Litt et Phil (Health Studies); D N Ed; M Art et Scien; B A Cur; Dip Occupational Health; Dip Genetic Counselling; Dip Audiometry and Noise Measurement; Diagnostic Radiographer; Medical Ethicist]

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- being a heavy user of alcohol, which can limit the liver's ability to regulate blood oestrogen levels.
- Liver disease. If one has liver disease, such as cirrhosis of the liver, the male hormones may be reduced and female hormones may be increased. This can increase the risk of breast cancer.
- Obesity. Obesity may be a risk factor for breast cancer in men because it increases the number of fat cells in the body. Fat cells convert androgens into oestrogen, which may increase the amount of oestrogen in the body and, therefore, the increased risk of breast cancer.
- Radiation exposure. If one has received radiation treatments to the chest, such as those used to treat cancers in the chest, one is more likely to develop breast cancer later in life.

### **Caution Expressed Around Consumption of Foods High in Phytoestrogens by Individuals Diagnosed with a Hormone-Sensitive Cancer**

The Cancer Association of South Africa (CANSA) has noted:

- A statement by Memorial Sloan Kettering Cancer Center saying that "... because compounds isolated from rooibos leaves demonstrated estrogenic activity, patients with hormone-sensitive cancers should use caution before taking rooibos." (Memorial Sloan Kettering Cancer Center).
- That phytoestrogens were successfully isolated from rooibos leaves by scientists from the School of Pharmaceutical Sciences, University of Shizuoka, Japan (Shimamura, *et al.*, 2006).
- That according to Deng, *et al.*, (2010), "... there are important safety concerns associated with dietary supplements and foods rich in phytoestrogens, especially for breast cancer patients with hormone-sensitive disease. Based on current evidence, we propose recommendations for advising breast cancer patients, ..."
- That, according to Nelles, Hu & Prins (2011), "Early work on the hormonal basis of prostate cancer focused on the role of androgens, but more recently estrogens have been implicated as potential agents in the development and progression of prostate cancer."
- That, according to Reger, *et al.*, (2016), "Experimental studies suggest that phytoestrogen intake alters cancer and cardiovascular risk. Some urinary phytoestrogens were associated with cardiovascular and all-cause mortality in a representative sample of 5 179 participants. This is one of the first studies that used urinary phytoestrogens as biomarkers of their dietary intake to evaluate the effect of these bioactive compounds on the risk of death from cancer and cardiovascular disease."

CANSA, therefore, wishes to advise individuals diagnosed with the following hormone-sensitive cancers, namely: Breast Cancer, Ovarian Cancer, Endometrial Cancer, and Prostate Cancer, to:

- use caution before taking Rooibos tea and to discuss the issue around Rooibos tea consumption with their treating Oncologist prior to consuming Rooibos tea

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Researched and Authored by Prof Michael C Herbst

[D Litt et Phil (Health Studies); D N Ed; M Art et Scien; B A Cur; Dip Occupational Health; Dip Genetic Counselling; Dip Audiometry and Noise Measurement; Diagnostic Radiographer; Medical Ethicist]

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- also use caution before taking the following high phytoestrogen-containing foods: all soy foods (including soybeans, tofu, miso, and tempeh); legumes (especially lentils, peanuts and chickpeas) and flaxseed-containing foods. Patients are advised to discuss consumption of the listed high phytoestrogen-containing foods with their treating Oncologist prior to consuming them.

### Research on Foods High in Phytoestrogens and Breast Cancer

**Deng, G., Davatgarzadeh, A., Yeung, S. & Cassileth, B.** 2010. Phytoestrogens: science, evidence, and advice for breast cancer patients. *Soc Integr Oncol.* 2010 Winter;8(1):20-30.

“There are important safety concerns associated with dietary supplements and foods rich in phytoestrogens, especially for breast cancer patients with hormone-sensitive disease. However, no consensus has been reached concerning specific dietary items that should be avoided, and safe levels of potentially problematic foods have yet to be determined. Excellent qualitative reviews of phytoestrogens and breast cancer have been published. These list agents that contain phytoestrogens and offer general cautions. Quantitative reviews, however, are needed but not yet available. Here we review quantitative data on phytoestrogens, their interaction with estrogen receptors, their bioavailability and pharmacokinetics, and their effects on breast cancer cells and animal models. We also note foods and botanicals with substances that interact with estrogen receptors and discuss the phytoestrogens they contain. Based on current evidence, we propose recommendations for advising breast cancer patients, which may also serve as a basis for the development of clinical practice guidelines.”

**Shimamura, N., Miyase, T., Umehara, K., Warashina, T. & Fuji, S.** 2006. Phytoestrogens from *Aspalathus linearis*. *Biol Pharm Bull.* 2006 Jun;29(6):1271-4.

“From the leaves of *Aspalathus linearis*, 24 known compounds and a new one, aspalalinin (25), were isolated. The structures of the compounds were determined mainly based on spectral evidence. The absolute configuration of aspalalinin was presented on the basis of X-ray analysis. Each isolate was assessed for its estrogenic activity by an estrogen ELISA assay. Compounds 12, 15, and 24 showed the estrogenic activity.”

**Patisaul, H. & Jefferson, W.** 2010. The pros and cons of phytoestrogens. *Front Neuroendocrinol.* Author manuscript; available in PMC 2011 Apr 12.

Phytoestrogens are plant derived compounds found in a wide variety of foods, most notably soy. A litany of health benefits including a lowered risk of osteoporosis, heart disease, breast cancer, and menopausal symptoms, are frequently attributed to phytoestrogens but many are also considered endocrine disruptors, indicating that they have the potential to cause adverse health effects as well. Consequently, the question of whether or not phytoestrogens are beneficial or harmful to human health remains unresolved. The answer is likely complex and may depend on age, health status, and even the presence or absence of specific gut microflora. Clarity on this issue is needed because global consumption is rapidly increasing. Phytoestrogens are present in numerous dietary supplements and widely marketed as a natural alternative to estrogen replacement therapy. Soy infant formula now constitutes up to a third of the US market, and soy protein is now added to many processed foods. As weak estrogen agonists/antagonists with molecular and cellular properties similar to synthetic endocrine disruptors such as Bisphenol A (BPA), the phytoestrogens provide a useful model to comprehensively investigate the biological impact of endocrine disruptors in general. This review weighs the evidence for and against the purported health benefits and adverse effects of phytoestrogens.

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[D Litt et Phil (Health Studies); D N Ed; M Art et Scien; B A Cur; Dip Occupational Health; Dip Genetic Counselling; Dip Audiometry and Noise Measurement; Diagnostic Radiographer; Medical Ethicist]

Approved by Ms Elize Joubert, Chief Executive Officer [BA Social Work (cum laude); MA Social Work]

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**Rodriguez-Garcia, C., Sánchez-Quesada, C., Toledo, E., Delgado-Rodriguez, M. & Gaforio, J.J. 2019.** “Dietary guidelines universally advise adherence to plant-based diets. Plant-based foods confer considerable health benefits, partly attributable to their abundant micronutrient (e.g., polyphenol) content. Interest in polyphenols is largely focused on the contribution of their antioxidant activity to the prevention of various disorders, including cardiovascular disease and cancer. Polyphenols are classified into groups, such as stilbenes, flavonoids, phenolic acids, lignans and others. Lignans, which possess a steroid-like chemical structure and are defined as phytoestrogens, are of particular interest to researchers. Traditionally, health benefits attributed to lignans have included a lowered risk of heart disease, menopausal symptoms, osteoporosis and breast cancer. However, the intake of naturally lignan-rich foods varies with the type of diet. Consequently, based on the latest humans' findings and gathered information on lignan-rich foods collected from Phenol Explorer database this review focuses on the potential health benefits attributable to the consumption of different diets containing naturally lignan-rich foods. Current evidence highlight the bioactive properties of lignans as human health-promoting molecules. Thus, dietary intake of lignan-rich foods could be a useful way to bolster the prevention of chronic illness, such as certain types of cancers and cardiovascular disease.”

### **Symptoms and Signs of Breast Cancer in Men**

Symptoms of breast cancer in men are similar to those seen in women. Most male breast cancers are diagnosed when a man discovers a lump in his breast. But unlike women, men tend to delay going to the doctor until they have more severe symptoms, like bleeding from the nipple. At that point the cancer may have already spread.

The most common sign of breast cancer in men is a firm, non-painful mass located just below the nipple. There may not be other associated symptoms.

The cancer may cause skin changes in the area of the nipple. These changes can include:

- ulceration of the skin
- puckering or dimpling
- redness or scaling of the nipple
- retraction (turning inward) of the nipple
- bloody or opaque discharge from the nipple may also occur

Less than 1% of cases are bilateral (occurring on both sides).

Breast cancer that has spread (metastasised) to the bones may also produce bone pain at the sites of metastases. Advanced breast cancer can also produce symptoms typical of many cancers, including malaise, weakness, and weight loss. Breast cancer in men can spread to many other organs and cause other symptoms as well.



## SIGNS OF MALE BREAST CANCER

- A lump or thickening in breast tissue
- The lump increasing in size and turning painful
- Skin covering the breast turning orange
- Occurrence of dimpling, puckering, redness or scaling on the breast
- Nipples turning inwards or discharge from them

## DANGERS

Breast cancer in men is often diagnosed later than breast cancer in women, making it tough to treat. This may be because men are less likely to be suspicious of something strange in that area. Also, their small amount of breast tissue is harder to feel, making it harder to catch these cancers early.

## DIAGNOSIS & TREATMENT

The same techniques that are used to diagnose breast cancer in women are used in men: physical exams, mammography, and biopsies (examining small samples of tissue under a microscope).

The same treatments that are used in treating breast cancer in women – surgery, radiation, chemotherapy, biological therapy, and hormone therapy – are also used to treat breast cancer in men.

[Picture Credit: Male Breast Cancer]

### Diagnosis of Breast Cancer in Men

The same techniques that are used to diagnose breast cancer in women are used in men:

- Physical examination
- Mammography
- biopsies (examining small samples of tissue under a microscope)

[Picture Credit: Male Mammography]



### Genetic Counselling is a Must for Men

All men with breast cancer should be referred for genetic counselling.

This is different from women who are not automatically referred to a genetic counsellor for genetic testing, such as for mutations in BRCA-1 or 2. These “tumour suppressor genes” allow breast and other types of cancer to develop when they fail to function normally. Only women with a significant family history or certain other characteristics, such as being young or having triple-negative breast

Researched and Authored by Prof Michael C Herbst

[D Litt et Phil (Health Studies); D N Ed; M Art et Scien; B A Cur; Dip Occupational Health; Dip Genetic Counselling; Dip Audiometry and Noise Measurement; Diagnostic Radiographer; Medical Ethicist]

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cancer (which lacks oestrogen, progesterone, and HER2 receptors), are recommended to have genetic testing.

Men should tell their health care provider if any man in their family has had breast cancer. Even if one's grandfather is deceased, if he had breast cancer, that is important. Because male breast cancer is so rare, seeing even one man in a family lineage raises concerns about hereditary breast cancer.

### **Types of Breast Cancer in Men**

The most common type of male breast cancer is infiltrating ductal carcinoma, which is also a common type of breast cancer in women. Ductal carcinoma refers to cancers with origins in the ducts (tubular structures) of the breast, and the term infiltrating means that the cancer cells have spread beyond the ducts into the surrounding tissue. On the other hand, lobular cancers (cancers of the milk glands), common in women, are extremely rare in men since male breast tissue does not normally contain lobules.

Other uncommon types of cancers of the breast that have been reported in men include ductal carcinoma *in situ* (cancer in the ducts that has not spread beyond the ducts themselves), cystosarcoma phyllodes (a type of cancer of the connective tissue surrounding the ducts), and Paget's Disease of the breast (a cancer involving the skin of the nipple). Some other types of breast cancer that occur in men are named for their growth patterns and microscopic appearance of the cancer cells, including papillary carcinoma, inflammatory carcinoma, and medullary carcinoma.

About 85% of breast cancers in men have oestrogen receptors on their cell membranes. Oestrogen receptors on the cell membranes allow oestrogen molecules to bind to the cancer cells. Oestrogen binding to the cancer cells can stimulate cell growth and multiplication.

### **Special Tests**

The following tests and investigations may be ordered:

Breast ultrasound - ultrasound, also known as *sonography*, uses high-frequency sound waves to outline a part of the body.

Magnetic resonance imaging (MRI) of the breast - MRI scans use radio waves and strong magnets instead of X-rays. The energy from the radio waves is absorbed and then released in a pattern formed by the type of body tissue and by certain diseases. A computer translates the pattern into a very detailed image of parts of the body.

Nipple discharge examination - fluid leaking from the nipple is called *nipple discharge*. If a patient has a nipple discharge, he should have it checked by his doctor. If there is blood in this fluid, the patient might need more tests. One test collects some of the fluid to look at under a microscope to see if cancer cells are present.

Biopsy - a biopsy removes a body tissue sample to be looked at under a microscope. A biopsy is the only way to tell if a breast abnormality is cancerous. Unless the doctor is sure the lump is not cancer,

this should always be done. There are several types of biopsies. One's doctor will choose the type of biopsy based on the situation.

- Fine needle aspiration biopsy: Fine needle aspiration (FNA) biopsy is the easiest and quickest biopsy technique. The doctor uses a very thin, hollow needle attached to a syringe to withdraw (aspirate) a small amount of tissue from a suspicious area.
- Core needle biopsy: For a core biopsy, the doctor removes a small cylinder of tissue from a breast abnormality to be looked at under a microscope. The needle used in this technique is larger than that used for FNA. The biopsy is done with local anaesthesia and can be done in a clinic or doctor's office.

### Treatment Options for Breast Cancer in Men

The same treatments that are used in treating breast cancer in women are also used to treat breast cancer in men, and may include:

[Picture Credit: Mastectomy]



Surgery - Surgery is usually the first treatment if the breast abnormality is found to be a cancer. Surgery helps get complete information about the cancer and it is a critical step in treatment. The most common surgery in men is called a modified radical mastectomy. This means that the nipple, areola (dark, round area around the nipple), and all of the breast tissue are removed. The muscles on the chest are left alone. Lymph nodes are also removed.

Radiation therapy - Radiation therapy is a highly targeted, highly effective way to destroy cancer cells that may linger after surgery. This reduces the risk of recurrence (the cancer coming back).

Chemotherapy - Chemotherapy refers to special medicines that work to kill cancer cells. The doctor may recommend chemotherapy if a patient is at risk of having the cancer spreading beyond the breast or if it already has spread. Chemotherapy is not used for cancers with a low risk of spreading to other parts of the body.

Targeted therapy - Medications that specifically target an abnormality within the cancer cells may be able to offer extra benefits and few side effects.

Hormone therapy - Medicines that target hormone receptors in breast cancer cells are called hormonal therapies. This form of treatment can be very effective against hormone-receptor-positive breast cancer - having either oestrogen or progesterone receptors present in the cancer. Most breast cancers in men are hormone-receptor-positive.

**Pensabene, M., Von Arx, C. 7, De Laurentiis, M. 2022.**

“MBC is a rare disease accounting for almost 1% of all cancers in men and less than 1% of breast cancer. Emerging data on the genetic drivers of predisposition for MBC are available and different risk factors have been associated with its pathogenesis. Genetic alterations, such as pathogenetic

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variants in BRCA1/2 and other moderate-/low-penetrance genes, along with non-genetic risk factors, have been recognized as pathogenic factors for MBC. Preventive and therapeutic implications could be related to the detection of alterations in predisposing genes, especially BRCA1/2, and to the identification of oncogenic drivers different from FBC. However, approved treatments for MBC remain the same as FBC. Cancer genetic counseling has to be considered in the diagnostic work-up of MBC with or without positive oncological family history. Here, we review the literature, reporting recent data about this malignancy with a specific focus on epidemiology, and genetic and non-genetic risk factors. We introduce the perspective of cancer genetic counseling for MBC patients and their healthy at-risk family members, with a focus on different hereditary cancer syndromes.”

### **Follow-up Care and Treatment for Breast Cancer in Men**

After treatment for breast cancer ends, the patient should talk to his treating physician about developing a follow-up care plan. This plan may include regular physical examinations and/or medical tests to monitor recovery for the coming months and years. This could also include regular physical examinations to help keep track of the breast cancer treatment received and develop a survivorship care plan once treatment is completed. In some instances, patients may be seen at survivorship clinics that specialise in the post-treatment needs of people with cancer.

**Deldar, R., Sayyed, A.A., Towfighi, P., Aminpour, N., Sogunro, O., Son, J.D., Fan, K.L. & Song, D.H. 2022.**

**Introduction:** Less than 1% of all breast cancers are diagnosed in males. In females, postmastectomy breast reconstruction is associated with increased patient satisfaction. However, there is a paucity of literature describing reconstructive options for postmastectomy deformity in the male chest. The purpose of this systematic review was to evaluate postmastectomy reconstruction outcomes in males with breast cancer.

**Methods:** A systematic review was performed in accordance with PRISMA guidelines. Ovid MEDLINE, Embase, Cochrane, and Web of Science were queried for records pertaining to the study question using medical subject heading (MeSH) terms such as "male breast cancer," "mastectomy," and "reconstruction." No limitations were placed on the year of publication, country of origin, or study size. Study characteristics and patient demographics were collected. Primary outcomes of interest included postoperative complications, recurrence rate, and mortality rate.

**Results:** A total of 11 articles examining 29 male patients with breast cancer who underwent postmastectomy reconstruction were included for analysis. Literature was most commonly available in the form of case reports. The average age was 59.6 +/-11.4 years. Reconstruction methods included fat grafting ( $n = 1$ , 3.4%), silicone implants ( $n = 1$ , 3.4%), and autologous chest wall reconstruction with local flaps ( $n = 26$ , 89.7%). Postoperative complications occurred in two patients (6.8%), including partial nipple necrosis ( $n = 1$ ) and hypertrophic scarring ( $n = 1$ ). Of the studies reporting patient satisfaction, all patients were pleased with the aesthetic appearance of their chest.

**Conclusion:** This systematic review revealed the limited availability of research regarding postmastectomy chest reconstruction in males with breast cancer. Nevertheless, the evidence available suggests that reconstruction can restore a patient's body image and, thus, should be regularly considered and discussed with male patients. Larger studies are warranted to further shed light on this population.

**Makdissi, F.B.A., Santos, S.S., Bitencourt, A. & Campos, F.A.B. 2022.**

“Breast cancer (BC) is mainly considered a disease in women, but male BC (MaBC) accounts for approximately 1.0% of BC diagnoses and 0.5% of malignant neoplasms in the western population.

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Researched and Authored by Prof Michael C Herbst

[D Litt et Phil (Health Studies); D N Ed; M Art et Scien; B A Cur; Dip Occupational Health; Dip Genetic Counselling; Dip Audiometry and Noise Measurement; Diagnostic Radiographer; Medical Ethicist]

Approved by Ms Elize Joubert, Chief Executive Officer [BA Social Work (cum laude); MA Social Work]

July 2022

The stigmatization of MaBC, the fact that men are less likely to undergo regular health screenings, and the limited knowledge of health professionals about MaBC contribute to men being diagnosed at more advanced stages. The aim of this article is to increase the visibility of MaBC among urologists, who have more contact with male patients. This review highlights key points about the disease, the risk factors associated with MaBC, and the options for treatment. Obesity and increased population longevity are among the important risk factors for MaBC, but published studies have identified family history as extremely relevant in these patients and associated with a high penetrance at any age. There is currently no screening for MaBC in the general population, but the possibility of screening in men at high risk for developing BC can be considered. The treatment of MaBC is multidisciplinary, and, because of its rarity, there are no robust clinical studies evaluating the role of systemic therapies in the management of both localized and metastatic disease. Therefore, in current clinical practice, treatment strategies for men with breast cancer are extrapolated from information arising from studies in female patients.”

### **About Clinical Trials**

Clinical trials are research studies that involve people. They are conducted under controlled conditions. Only about 10% of all drugs started in human clinical trials become an approved drug.

Clinical trials include:

- Trials to test effectiveness of new treatments
- Trials to test new ways of using current treatments
- Tests new interventions that may lower the risk of developing certain types of cancers
- Tests to find new ways of screening for cancer

The [South African National Clinical Trials Register](https://pactr.samrc.ac.za/) provides the public with updated information on clinical trials on human participants being conducted in South Africa. The Register provides information on the purpose of the clinical trial; who can participate, where the trial is located, and contact details.

For additional information, please visit: <https://pactr.samrc.ac.za/>

### **Medical Disclaimer**

This Fact Sheet is intended to provide general information only and, as such, should not be considered as a substitute for advice, medically or otherwise, covering any specific condition or situation. Readers of this document should seek appropriate medical advice prior to taking or refraining from taking any action resulting from the contents of this Fact Sheet. As far as permissible by South African law, the Cancer Association of South Africa (CASNA) accepts no responsibility or liability to any person (or his/her dependants/estate/heirs) as a result of using any information contained in this Fact Sheet.

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Researched and Authored by Prof Michael C Herbst

[D Litt et Phil (Health Studies); D N Ed; M Art et Scien; B A Cur; Dip Occupational Health; Dip Genetic Counselling; Dip Audiometry and Noise Measurement; Diagnostic Radiographer; Medical Ethicist]

Approved by Ms Elize Joubert, Chief Executive Officer [BA Social Work (cum laude); MA Social Work]

July 2022

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Researched and Authored by Prof Michael C Herbst

[D Litt et Phil (Health Studies); D N Ed; M Art et Scien; B A Cur; Dip Occupational Health; Dip Genetic Counselling; Dip Audiometry and Noise Measurement; Diagnostic Radiographer; Medical Ethicist]

Approved by Ms Elize Joubert, Chief Executive Officer [BA Social Work (cum laude); MA Social Work]

July 2022

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<https://www.thesun.co.uk/living/2796328/men-breast-cancer-symptoms/>

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Researched and Authored by Prof Michael C Herbst

[D Litt et Phil (Health Studies); D N Ed; M Art et Scien; B A Cur; Dip Occupational Health; Dip Genetic Counselling; Dip Audiometry and Noise Measurement; Diagnostic Radiographer; Medical Ethicist]

Approved by Ms Elize Joubert, Chief Executive Officer [BA Social Work (cum laude); MA Social Work]

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[http://www.medicinenet.com/male\\_breast\\_cancer/page3.htm#what\\_are\\_the\\_different\\_types\\_of\\_male\\_breast\\_cancer](http://www.medicinenet.com/male_breast_cancer/page3.htm#what_are_the_different_types_of_male_breast_cancer)

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#### **Tumour Grade and Tumour Stage**

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#### **US Food and Drug Administration**

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Researched and Authored by Prof Michael C Herbst

[D Litt et Phil (Health Studies); D N Ed; M Art et Scien; B A Cur; Dip Occupational Health; Dip Genetic Counselling; Dip Audiometry and Noise Measurement; Diagnostic Radiographer; Medical Ethicist]

Approved by Ms Elize Joubert, Chief Executive Officer [BA Social Work (cum laude); MA Social Work]

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