

Benign Breast Diseases

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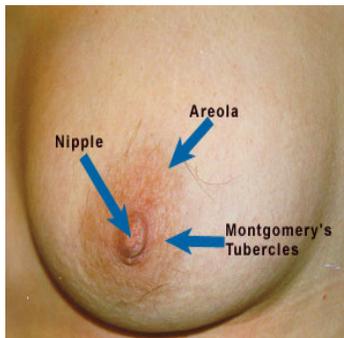
Review of Breast Anatomy



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External Anatomy of the Breast

- Areola
- Nipple
- Montgomery's/Morganii's tubercles



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External Anatomy of the Breast

- Nipple
 - Pigmented, cylindrical
 - 4th inter-costal space at age 18
- Areola
 - Pigmented area surrounding nipple



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External Anatomy of the Breast

- Montgomery's Tubercles
 - Sebaceous glands within the areola
 - Lubricate nipple during lactation



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Montgomery's Tubercles



Milk-white discharge and palpable mass associated with Montgomery gland blockage.



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Tissue Types

- Glandular tissue
 - Milk producing
- Fibrous/connective tissue
- Fatty tissue



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Tissue Types

- **Glandular tissue**
 - Milk producing
- Fibrous/connective tissue
- Fatty tissue



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Glandular Tissue

- Lobules
 - Alveoli cells or acini
 - Milk producing cells
- Lactiferous ducts
 - Drain milk into nipples



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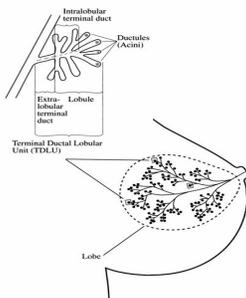
Glandular Tissue

- 15-20 lobes
 - Radiate around nipple and under areola
- Lobe
 - Consists of 20-40 lobules



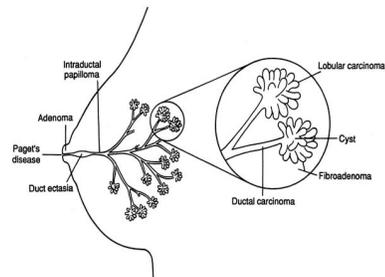
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Terminal Lobular Unit and Branching System of Ducts



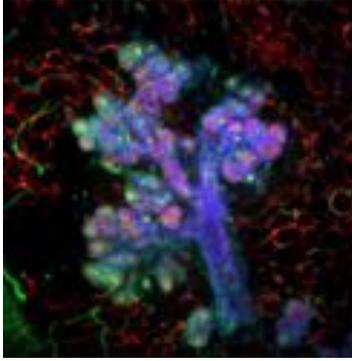
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Terminal Lobular Unit and Branching System of Ducts

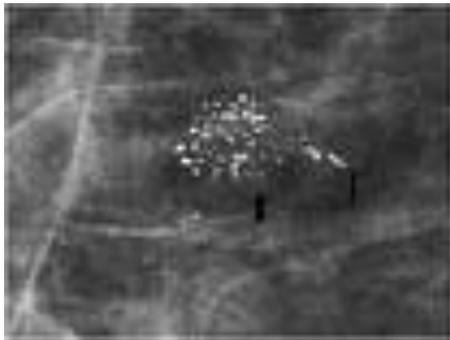
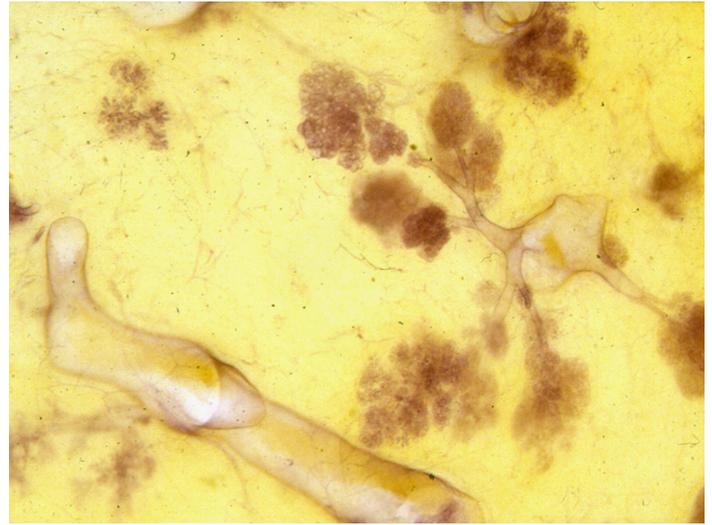


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Terminal Ductal Lobular Unit



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Tissue Types

- Glandular tissue
 - Milk producing
- **Fibrous/connective tissue**
- Fatty tissue



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Fibrous Tissue

- Cooper's Ligaments
 - Benign or malignant lesions may affect these ligaments
 - Results in skin retraction or dimpling



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Fibrous Tissue

- Cooper's Ligaments
 - Suspensory ligaments
 - Extend through the breast to underlying muscle fascia



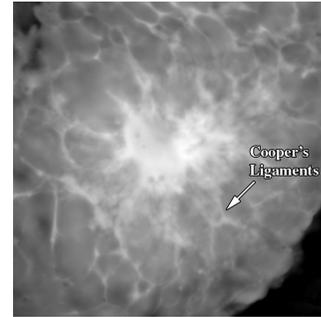
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Fibrous/connective tissue Cooper's ligament



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Tomosynthesis image of a mastectomy specimen showing individual linear Cooper ligaments and glandular elements below the nipple and areolar complex.



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Tissue Types

- Glandular tissue
 - Milk producing
- Fibrous/connective tissue
- **Fatty tissue**



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Fatty Tissue

- Subcutaneous and retro-mammary fat
- Makes up the majority of the breast
- No fat beneath areola and nipple



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Tissue Composition

- The percentage of fat volume in the total breast volume varied from 7 to 56% and the percentage of fat weight in the total breast weight varied from 3.6 to 37.6%.



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Tissue Composition

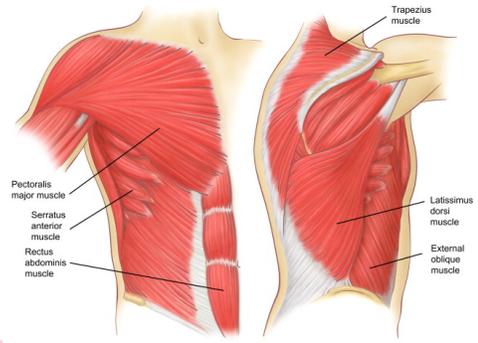
- This great variability in the respective proportions of fat and glands in the evaluated specimens was not significantly correlated to age and body mass index.



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Musculature of the Chest

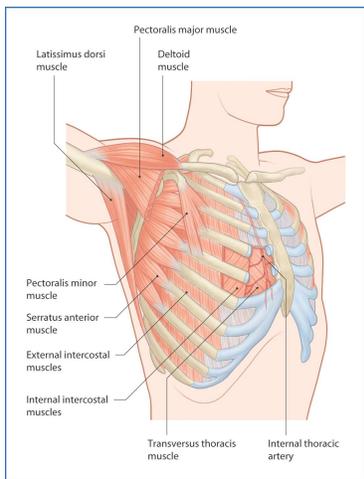
- Pectoralis major and minor
- Serratus anterior
- Latissimus Dorsi
- External Oblique
- Rectus Abdominus



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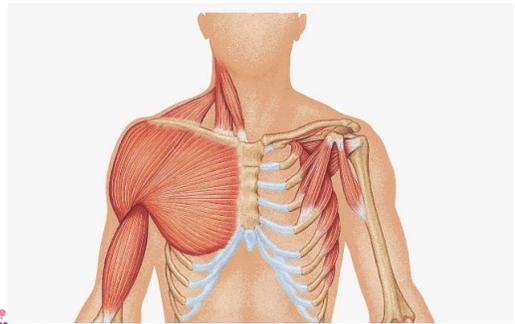


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Pectoralis Major and Minor



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Pecoralis Major and Minor



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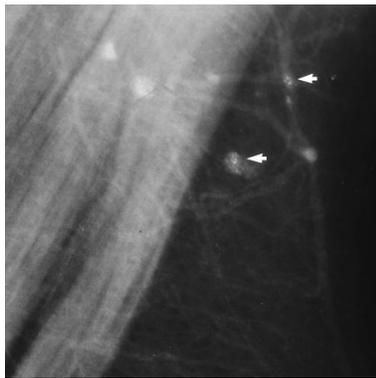
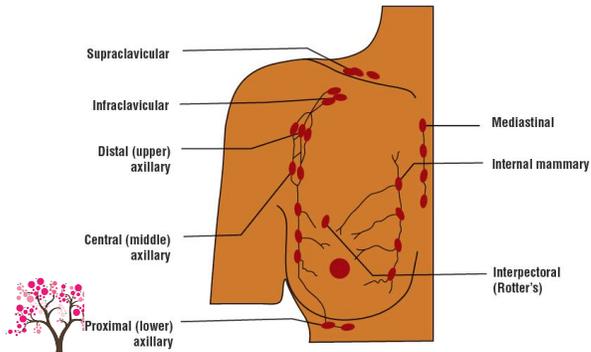
Lymph Nodes

- Most drain towards axilla
- Superficial lymphatic nodes drain skin
- Deep nodes drain mammary tissue

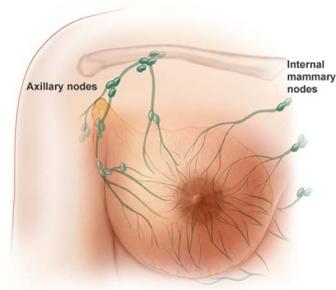


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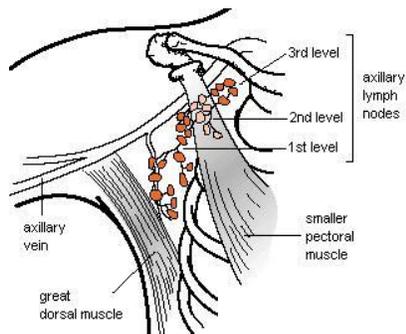
Lymph Nodes



Lymph Drainage of the Breast



Levels of Axillary Nodes



Lymph Nodes

- Palpate ALL nodes from distal arm to under arm with deep palpation
- Axillary
- Supraclavicular
- Infra-clavicular
- Nodes deep in the chest or abdomen
- Inframammary ridge



Normal Variations of the Breast

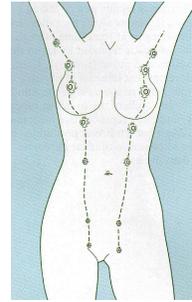
- Accessory breast tissue
- Supernumerary nipples
- Hair
- Chronic asymmetry



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Milk Lines

Sites of Accessory Nipples and Breasts



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Accessory Breast Tissue

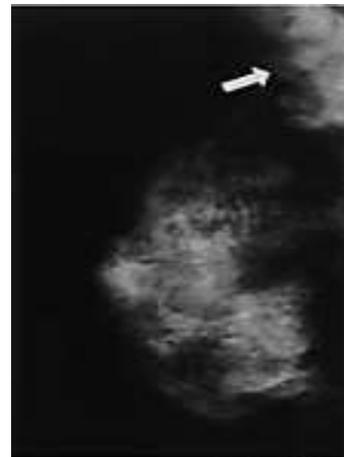


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Accessory Breast Tissue



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Axillary Fat Pad vs. Ancillary Breast?



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Accessory/Ancillary Nipples

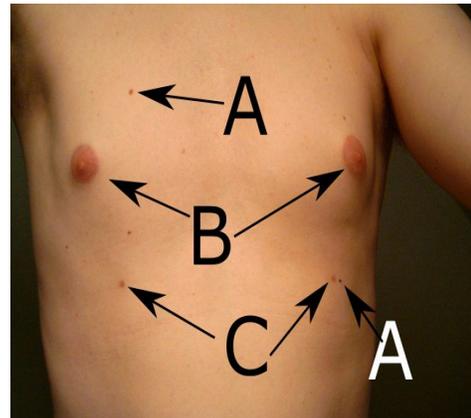


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Often mistaken for moles, supernumerary nipples are diagnosed at a rate of 1 in 18 males and 1 in approximately 50 female humans



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Polythelia refers to the presence of an additional nipple alone while *polymastia* denotes the much rarer presence of additional mammary glands.

Although usually presenting on the milk line, pseudomamma can appear as far away as the foot.



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Pseudomamma – Pseudomammae

- A kind of supernumerary/accessory nipple(s) with areola and fat tissue.

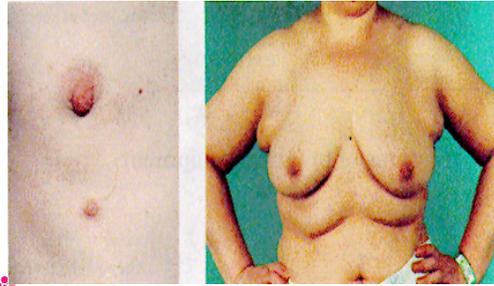


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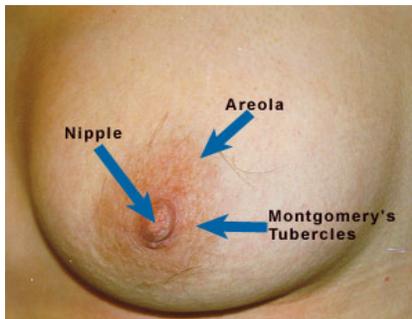
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Accessory Nipple and Bilateral Accessory Breasts



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Breast Hair



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Chronic Asymmetry



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Common Benign Breast Disorders

- Fibrocystic changes
- Intraductal papilloma
- Nipple discharge
- Mammary duct ectasia
- Mastitis
- Male gynecomastia



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Common Benign Breast Disorders

- **Fibrocystic changes**
- Intraductal papilloma
- Nipple discharge
- Mammary duct ectasia
- Mastitis
- Fat necrosis
- Phyllodes tumor
- Male gynecomastia



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Fibrocystic Changes

- Lumpy, bumpy breasts
- 50-80% of all menstruating women
- Ages 30-50 and 10% in women > 21
- Caused by hormonal changes prior to menses
- Relationship to breast cancer highly unlikely



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Common Benign Breast Disorders

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Intraductal Papilloma

- Slow growing
- Overgrowth of ductal epithelial tissue
- Usually not palpable
- Cauliflower-like lesion
- Length of involved duct
- Most common of bloody nipple discharge
- 40-50 years of age



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Treatment for Intraductal Papilloma

- Test for occult blood
- Ductogram
- Biopsy
- Excision of involved duct



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Common Benign Breast Disorders

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Signs and Symptoms

- Watery, serous, serosanguinous or bloody discharge
- Spontaneous discharge
- Usually unilateral



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Signs and Symptoms

- Multi-colored discharge
 - Thick, pasty (like toothpaste)
 - White, green, greenish-brown or serosanguinous
- Intermittent, no pattern



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Signs and Symptoms

- Often from single duct – pressure elicits discharge from single duct
- 50% no mass palpated



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Bloody Nipple Discharge



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Common Benign Breast Disorders

- Fibrocystic changes
- Intraductal papilloma
- Nipple discharge
- ***Mammary duct ectasia***
- Mastitis
- Male gynecomastia



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Mammary Duct Ectasia

- Inflammation and dilation of subareolar ducts behind nipples
- May result in palpable mass because of ductal rupture
- Greatest incidence after menopause
- Pathogenesis may be a reaction to stagnant colostrum.



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Colostrum

- The first secretion from the mammary glands after giving birth, which is rich in antibodies.



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Mammary Duct Ectasia vs Breast Cancer



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Signs and Symptoms

- Bilateral from multiple ducts
- Nipple itching
- Drawing or pulling (burning) sensation



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Treatment

- Antibiotics: 10- to 14-day course of antibiotics to treat any infection caused by mammary duct ectasia. A mild pain reliever, such as acetaminophen (Tylenol, etc.) or ibuprofen (Advil, Motrin, etc.), as needed for breast discomfort.



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Common Benign Breast Disorders

- Fibrocystic changes
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- Mammary duct ectasia
- **Mastitis**
- Male gynecomastia



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Mastitis

- An infection in the tissue of the breast.
- Usually caused by a common bacteria (*Staphylococcus aureus*) found on normal skin. Bacteria can enter through a break or crack in the skin, usually on the nipple.



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Mastitis

- Infection takes place in the fatty tissue of the breast and causes swelling. This swelling pushes on the milk ducts. The result is pain and lumps in the infected breast.
- Usually occur in women who are breastfeeding.



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Symptoms



- Breast tenderness or warmth to the touch
- General malaise or feeling ill
- Swelling of the breast
- Pain or a burning sensation continuously or while breast-feeding



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Symptoms

- Skin redness, often in a wedge-shaped pattern
- Fever of 101 F (38.3 C) or greater
- Although mastitis usually occurs in the first several weeks of breast-feeding, it can happen anytime during breast-feeding.
- Lactation mastitis tends to affect only one breast, not both breasts.



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Treatment

Mastitis usually improves without treatment. However, if symptoms are bothersome treatment options may include:

- Antibiotics
- Self care/home remedies
- Surgery



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Treatment

- Antibiotics: 10- to 14-day course of antibiotics.
- Self-care remedies: Resting, continuing breast-feeding and drinking extra fluids. Empty the milk from affected breast frequently.



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Treatment

- Surgery: If antibiotics and self-care methods don't work, the affected milk duct may be surgically removed. However, surgery rarely is needed for mammary duct ectasia



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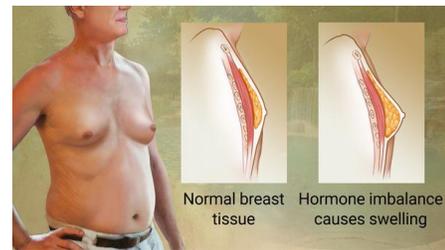
Common Benign Breast Disorders

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Male Gynecomastia



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Male Gynecomastia

- Male breast tissue swells due to reduced male hormones (testosterone) or increased female hormones (estrogen). Causes include puberty, aging, medications, and health conditions that affect hormones, increased body fat, which can increase estrogen levels



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Male Gynecomastia

- Symptoms are breast tissue swelling and tenderness.
- Treatment focuses on managing the underlying condition. A number of factors can cause enlarged breast tissue in men, however, sometimes no cause is found:



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Male Gynecomastia

- Gynecomastia can affect one or both breasts, sometimes unevenly.
- Newborns, boys going through puberty and older men may develop gynecomastia as a result of normal changes in hormone levels, though other causes also exist.



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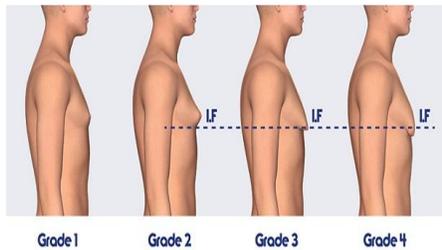
Male Gynecomastia

- Generally, gynecomastia isn't a serious problem, but it can be tough to cope with the condition. Men and boys with gynecomastia sometimes have pain in their breasts and may feel embarrassed.
- Gynecomastia may go away on its own. If it persists, medication or surgery may help.



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Grades of Gynecomastia



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Unilateral Gynecomastia



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Causes of Gynecomastia

- Some medicines for heart and blood vessel disease
- Some medicines for psychiatric conditions, such as anxiety, depression, and psychotic disorders
- Alcoholic beverages (drinking too much)



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Causes of Gynecomastia

- Illegal drugs: amphetamines, anabolic steroids and androgens (used by some bodybuilders or athletes to improve performance), heroin, and marijuana



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Causes of Gynecomastia

- Some over-the-counter drugs, herbal supplements with phytoestrogens (plant substances that are like estrogen), and lotions, such as those containing lavender or tea tree oil



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Drugs that cause gynecomastia

- Medicines and other substances:
 - Medicines that prevent the production or block the action of testosterone, such as treatment for prostate cancer.
 - Certain antibiotics
 - Anti-ulcer drugs
 - Some cancer treatments (chemotherapy)



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Drugs that cause gynecomastia

- Antipsychotics - typical or first generation
 - Chlorpromazine (Thorazine)
 - Fluphenazine (Prolixin)
 - Haloperidol (Haldol)
 - Perphenazine (Trilafon)
 - Thioridazine (Mellaril)



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Drugs that Cause Gynecomastia

- Aldosterone Antagonists
 - Eplerenone (Inspra) [up to 1%]
 - Spironolactone (Aldactone)



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Drugs That Cause Gynecomastia

- Digoxin (Lanoxin) [$<1\%$]
- Efavirenz (Sustiva)
- Estrogen use
- Ethanol (Alcohol)



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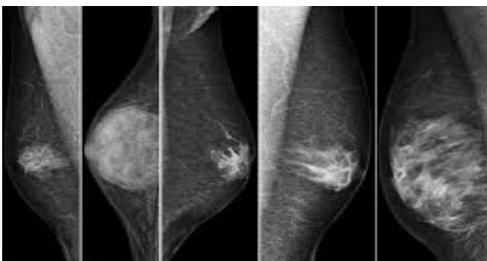
Drugs That Cause Gynecomastia

- Ketoconazole (Nizoral) [$<1\%$]
- Methadone
- Saw Palmetto (*Serenoa repens*)



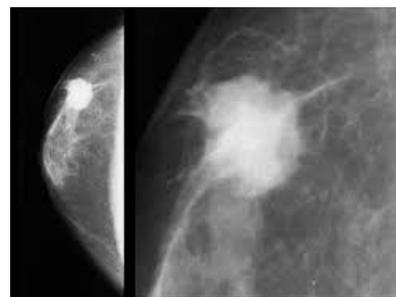
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Gynecomastia on Mammogram

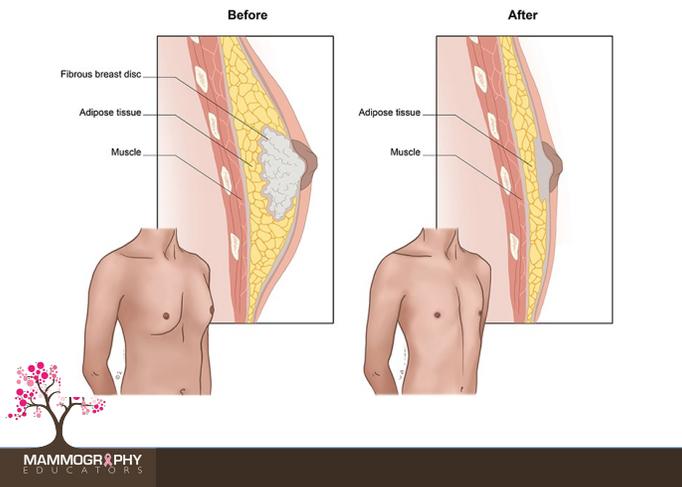


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Breast Cancer on Mammogram



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Surgery for Gynecomastia – Male Breast Reduction



Male Breast Reduction



Myths of Mammography

- What is benign and what is malignant
 - What “causes” breast cancer and what doesn’t
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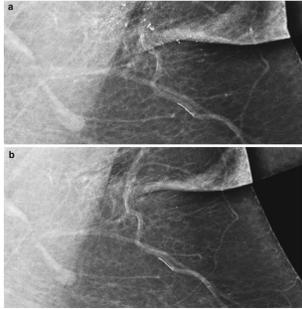
Myths of Mammography - Deoderant

- Does not cause breast cancer
 - Can be seen on mammograms if the deoderant contains aluminum chlorhydrate which blocks the patient’s pores
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Myths of Mammography - Deoderant

- There is no evidence of a connection between underarm antiperspirant and breast cancer, but the safety of antiperspirants is still being studied
 - Some studies have found that women who use aluminum product under their arms may have higher concentrates of aluminum in their breasts
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Myths of Mammography - Deodorant



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Myths of Mammography – Tattoo Pigment in Axilla Lymph Nodes



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Myths of Mammography – Underwire Bras

- From time to time, media coverage and the internet have fueled myths that wearing a bra can increase breast cancer risk.
- The theory was that wearing a bra — especially an underwire style — could restrict the flow of lymph fluid out of the breast, causing toxic substances to build up in the tissue.



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Myths of Mammography – Underwire Bras

- However, there is no evidence to support this claim. A [2014 study](#) of roughly 1,500 women with breast cancer found no link between bra-wearing and breast cancer.



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Myths of Mammography – Cellphones

- There is no evidence of a connection between cellphones and breast cancer, but the safety of cell phones is still being studied.



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Myths of Mammography – Mammograms Cause Breast Cancer

- There is no evidence of a connection between patient's who have received annual mammograms and an increased rate or mortality from breast cancer.



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Myths of Mammography – Mammograms Cause Breast Cancer

- Mammograms are the highly scrutinized of all medical imaging exams and are deemed to be very safe when practiced within MQSA standards.
- Dose equivalents are acceptable when compared to other ordinary life experiences.



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Myths of Mammography – Injury or Trauma to the Breast Cause Breast Cancer

- There is no evidence that an injury to the breast facilitates or causes breast cancer.
- Many times a patient who has an injury to her breast will hasten the detection of an abnormal clinical finding.



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Conclusion

- Benign conditions of the breast may initially cause patient's great concern and anxiety
- Be sensitive to their feelings
- Although most changes in the breast are normal (90%) all changes should be reported to the patient's healthcare provider



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Conclusion

- There are many "benign" findings/conditions related to the breast that are not related to the risk and/or onset of breast cancer.



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