

MONTHLY MEMO:

BREAST CANCER AWARENESS

OVERVIEW

Breast cancer is a multi-step biological process that can span over years. It involves changes within a molecular, cellular, and genetic level, which transforms normal breast cells into malignant cancer cells.



Each Stage in Detail

Initiation

Epithelial cells acquire DNA damage due to inherited mutations in genes, environmental exposures like radiation, alcohol, smoking and hormones, and spontaneous replication errors.

Promotion

Mutated cells begin to proliferate abnormally. Hormones such as estrogen and progesterone stimulate growth of abnormal cells. The cells form hyperplasia within the breast ducts or lobules.

Progression

Cells evolve into ductal carcinoma in situ or lobular carcinoma in situ. Still confined to the ducts or lobules and is non invasive, forms irregular shapes, uncontrolled division, and altered adhesion.

Invasion

Cancer cells breach the basement membrane of ducts/lobules and acquire abilities such as angiogenesis (the secretion of VEGF and other signals to grow new blood vessels), evasion of apoptosis (resisting programmed cell death), and altered adhesion molecules

Metastasis

Cells enter through lymphatic vessels or blood circulation. They begin to travel to other organs like the lymph nodes, bones, lungs, liver, and brain. Once cells begin to metastasize, they survive immune attacks, adapt to new microenvironments, and form secondary tumors.

Know the 5 Stages!

1. Initiation
2. Promotion
3. Progression
4. Invasion
5. Metastasis



Early Detection Methods

- One of the most common signs and symptoms would include lumps in the breast. During a self-exam, you should also check for nipple tenderness, a change in skin texture and appearance, and nipple discharge.
- It should also be made aware that many women with breast cancer do not have any signs or symptoms, and for that reason, it is important to have regular breast cancer screenings and mammograms.
- It is recommended by the National Comprehensive Cancer Network for women in their 20s and 30s to do monthly self-exams and clinical breast exams every 1-3 years.



Understanding and Reducing Risk Factors

Genetic risk factors

- These are passed down to offspring from descendants and cannot be changed within the DNA.
- If your relative has been diagnosed, you are more likely to be diagnosed.
- If you have been diagnosed with cancer in one breast, there is an increased likeliness to be diagnosed in the other.

Environmental Risk Factors

- Sedentary lifestyles increase the likelihood of cancer, even just 20 minutes of movement a day decreases your chance of breast cancer.
- A diet that is high in saturated fats – including 3–5 cups of fruits and vegetables a day decreases the chances.
- Overconsumption of alcohol increases chances.
- Combined hormone replacement therapy – commonly used for menopause, both increases the chance of cancer, but also the likelihood of being detected at a later stage.

Treatments for Survivors

Breast Cancer Supportive Therapy

Refers to symptom control: such as management of pain and menopausal symptoms, emotional concerns, such as sadness and distress, other health conditions that might complicate cancer treatment, such as heart disease, therapy to aid recovery after treatment, such as physical therapy for arm swelling or shoulder stiffness after surgery, radiation therapy, or both.

Survivorship Services

Refers to: follow-up appointments with your healthcare professional, discussion of the symptoms that might indicate a cancer recurrence or complications from treatment, continuing treatment for physical or emotional concerns that continue after treatment ends, and give recommendations for lifestyle changes, such as exercise and weight loss, to help your recovery and reduce your risk of cancer recurrence

Local Options to Receive Help

[Oklahoma Proton Center – 4054229727](https://www.okprotoncenter.com)

[Norman Regional Breast Cancer Center – 4053072290](https://www.normanregionalbreastcancercenter.com)

[Mercy Urgent Care of Norman – 4056520581](https://www.mercyhealth.com)

[University of Oklahoma Breast Health \(Location Options\)](https://www.uohealthcare.com)

Keep up with us!

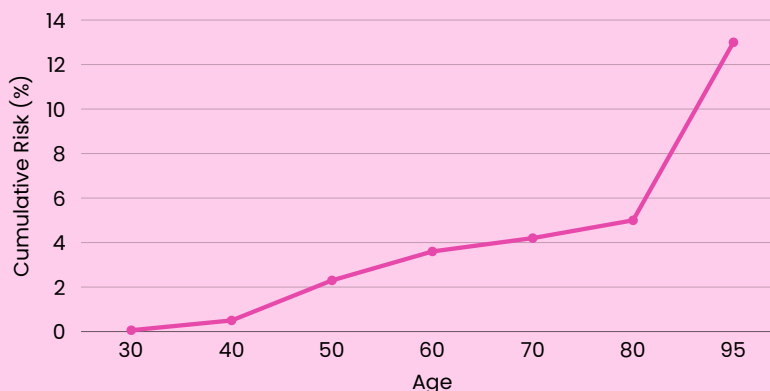


Email us if you need us:
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Risk of Breast Cancer Development vs. Age



SOURCES:

Cleveland Clinic

<https://my.clevelandclinic.org/health/articles/10132-menstrual-cycle>
<https://my.clevelandclinic.org/health/body/22353-estrogen>

Office on Women's Health

<https://womenshealth.gov/menstrual-cycle>

National Library of Medicine

<https://www.ncbi.nlm.nih.gov/books/NBK500020/>
<https://www.ncbi.nlm.nih.gov/books/NBK279054/>

UCSF Health

<https://www.ucsfhealth.org/education/the-menstrual-cycle>

National Cancer Institute

[https://www.cancer.gov/types/breast/risk-fact-sheet?
utm_source=chatgpt.com](https://www.cancer.gov/types/breast/risk-fact-sheet?utm_source=chatgpt.com)

American Cancer Society

<https://www.cancer.org/>
<https://www.cancer.org/cancer/types/breast-cancer/screening-tests-and-early-detection/american-cancer-society-recommendations-for-the-early-detection-of-breast-cancer.html>

Cancer Research Institute

[https://www.cancerresearch.org/blog/early-detection-saves-lives-the-essential-cancer-screenings-you-cant-afford-to-skip?
gad_source=1&gad_campaignid=21534803250&gbraid=0AAAAAD6BailLNU_NjzdmFdWR85oxwXmQN&gclid=CjwKCAjw_-3GBhAYEiwAjh9fUB4tcOMlc8cCMY9QEp7FuZaFFFKq4hf3rllzvt9qJh9pOC8YJ6YpGRoCYCIQAvD_BwE](https://www.cancerresearch.org/blog/early-detection-saves-lives-the-essential-cancer-screenings-you-cant-afford-to-skip?gad_source=1&gad_campaignid=21534803250&gbraid=0AAAAAD6BailLNU_NjzdmFdWR85oxwXmQN&gclid=CjwKCAjw_-3GBhAYEiwAjh9fUB4tcOMlc8cCMY9QEp7FuZaFFFKq4hf3rllzvt9qJh9pOC8YJ6YpGRoCYCIQAvD_BwE)

Mayo Clinic

<https://www.mayoclinic.org/tests-procedures/breast-cancer-supportive-therapy/about/pac-20385258>

CDC

<https://www.cdc.gov/breast-cancer/risk-factors/index.html>

National Breast Cancer Organization

<https://www.nationalbreastcancer.org/breast-cancer-risk-factors/>
<https://www.nationalbreastcancer.org/breast-cancer-symptoms-and-signs/>