

DOCUMENT TITLE: Breast Cancer – Causes and Risk Factors
SOURCE: National Cancer Institute (NCI)
DOMAIN: Oncology – Breast Cancer
LANGUAGE: English
DOCUMENT TYPE: Etiology and Risk Assessment
CLINICAL CONTEXT: Risk stratification, prevention, and screening decision support

DEFINITION OF RISK FACTORS

Breast cancer is caused by changes in how breast cells grow and divide. A risk factor is any factor that increases the likelihood of developing breast cancer.

Risk factors do not directly cause cancer but increase the probability of DNA damage.

Having one or more risk factors does not mean that breast cancer will occur.

Increasing age is the most important risk factor after female biological sex.

PERSONAL MEDICAL HISTORY AND BREAST CONDITIONS

Personal health factors associated with increased breast cancer risk include:

- Previous breast cancer
- Previous ductal carcinoma in situ (DCIS)
- High-dose radiation exposure, especially at a young age
- Certain precancerous breast changes
- Dense breast tissue
- Excess body weight, particularly after menopause
- Use of combined estrogen-progestin hormone replacement therapy
- Exposure to diethylstilbestrol (DES)

REPRODUCTIVE AND HORMONAL FACTORS

Reproductive factors that increase lifetime exposure to estrogen include:

- Early onset of menstruation (early menarche)
- Late menopause
- Older age at first childbirth
- Never having carried a pregnancy to term
- Never breastfeeding

GENETIC AND FAMILY HISTORY FACTORS

Genetic mutations associated with a high risk of breast cancer include:

- BRCA1
- BRCA2
- PALB2
- CHEK2
- TP53
- CDH1
- PTEN
- STK11
- ATM

Family history of breast cancer, especially in first-degree relatives, increases risk.

BEHAVIORAL AND LIFESTYLE FACTORS

Behavioral factors associated with increased breast cancer risk include:

- Alcohol consumption (risk increases with amount)
- Physical inactivity, particularly after menopause

DEMOGRAPHIC FACTORS

Breast cancer incidence and mortality vary by race.

In the United States:

- White women have the highest incidence
- Black women have the highest mortality rate

POTENTIAL RISK FACTORS UNDER INVESTIGATION

Potential risk factors requiring further study include:

- Hormonal oral contraceptive use
- Environmental chemical exposures

Current evidence is inconclusive.

UNDERSTANDING INDIVIDUAL RISK

All individuals with breast tissue have some risk of breast cancer.

On average, women have a 1 in 8 lifetime risk.

Some factors confer very high risk ($\geq 60\%$), including:

- Harmful mutations in BRCA1, BRCA2, PALB2, or PTEN
- Strong family history with multiple affected relatives
- Chest radiation exposure before age 30

Risk calculators can estimate risk but remain approximate.

DOCUMENT SCOPE

This document provides evidence-based information on breast cancer risk factors.

It does not provide individualized medical advice or replace clinical decision-making.