

FERTILITY CONCERNS IN WOMEN WITH BREAST CANCER

Welcome to the **Fertility Concerns Section** of the **Women's Health Survivorship Care Plan (SCP)** for young breast cancer survivors.

This section includes:

1. **Fertility Concerns SCP:**

Review this short version of the Fertility Concerns SCP for take-home points and action steps. The **Fertility Concerns SCP** can be read online or printed as a 3-page pdf document.

2. **What does the evidence show?**

Find a summary of clinical research studies on fertility concerns in breast cancer survivors.

3. **What do clinical guidelines say?**

See a summary of professional healthcare society guidelines on fertility issues in breast cancer survivors.

4. **Resources**

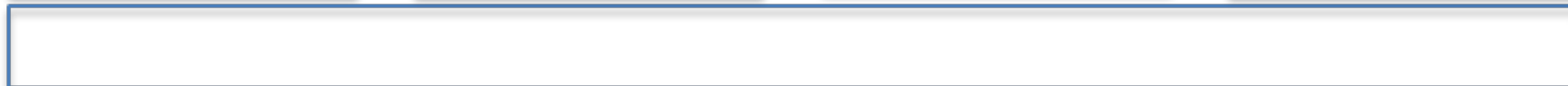
Take a look at this curated list of helpful online resources on fertility concerns in breast cancer survivors.

Fertility
Concerns SCP

What does the
evidence show?

What do clinical
guidelines say?

Resources



Fertility Concerns After Breast Cancer Treatment

Is it safe to become pregnant?

- Research studies suggest that pregnancy after breast cancer does not raise the risk of cancer recurrence or affect survival, regardless of estrogen receptor status.
- There is no specific recommendation on how long breast cancer survivors should wait after cancer treatment until they try to become pregnant. That is why women should discuss the timing of pregnancy and their personal health concerns with their healthcare providers.
- Along with life situation, ideal timing depends on completion of cancer treatment, risk of relapse, age, and fertility potential.

What are family building options after finishing breast cancer treatment?

- Using eggs and embryos obtained from fertility preservation **before** cancer treatment to become pregnant.
- **Fertility preservation after cancer treatment** (such as freezing eggs or embryos) is possible for some women. Women should discuss this with their oncology provider and a fertility specialist.
 - The cost of fertility preservation varies widely, but is usually between \$3,000 and \$15,000, and is often not covered by health insurance.
 - A fertility consultation may be covered. Ask your insurance company.
- **Other options** include getting donor eggs or embryos, using a surrogate mother to carry a pregnancy, adoption, and childfree living.

How can a breast cancer survivor tell if she is fertile (able to have children)?

1) Attempt pregnancy

- The best way to predict fertility after breast cancer is to try to become pregnant.

2) Monitor menstrual bleeding (periods)

- Having monthly periods is a sign that the ovaries are working, but does not always mean fertility.
- Common types of chemotherapy can damage eggs. This interrupts ovulation and results in temporary or permanent loss of periods.
 - Many women who stop getting their periods will see them return within 6 months of finishing chemotherapy, but it can take longer.
 - Those women who do not stop getting periods or who get them back after chemotherapy still may have damage to their eggs. This could result in infertility (and menopause) at a younger age than expected.
 - Women over the age of 40 have a higher chance that chemotherapy will lead to permanent loss of periods (menopause).
- Medicines called gonadotropin releasing hormone agonists (GnRHa, such as Lupron and Zoladex) can suppress ovulation and temporarily stop periods. Many women will get their periods back within 6 months of stopping GnRHa, but it can take longer.
- Most women taking tamoxifen will continue to ovulate, even though many will have fewer and less regular periods.
- In women with no cancer treatment, menopause happens between age 40 and 60 (average age 51) after there are no periods for 12 months.

3) A fertility specialist can monitor the number and quality of eggs in the ovaries, called ovarian reserve testing.

- Ovarian reserve is the number and quality of eggs that remain in a woman's ovaries.
- Ovarian reserve testing can help measure a woman's fertility potential.
- Common tests include blood tests of follicle stimulating hormone (FSH) and anti-mullerian hormone (AMH), as well as ultrasound tests of antral follicle count (AFC). FSH is best tested with estradiol between menstrual cycle days 3 and 5, while AMH and AFC can be tested at any time.
- As women age and fertility potential declines, FSH levels increase, while AMH levels and AFC decrease to reflect decreasing ovarian reserve.
- Chemotherapy can lower the number and quality of eggs in the ovaries, resulting in lower AMH and AFC and higher FSH. But these levels can fluctuate after treatment.
- Test results provide clues, but cannot accurately predict fertility after breast cancer because there hasn't been enough research on this topic.

Will fertility be affected by using tamoxifen?

- **It is possible to become pregnant while on tamoxifen.** Because tamoxifen can cause fetal harm if given to a pregnant woman, **women should wait at least 2 months after stopping tamoxifen to try and become pregnant.**
- Tamoxifen does not have a permanent effect on fertility or reduce the number or quality of eggs that remain in the ovaries. But fertility will decline with natural aging during the time that women are taking tamoxifen.

Will fertility be affected in women who have a BRCA1 or BRCA2 gene mutation?

- Women who have BRCA1 or BRCA2 gene mutations may start menopause at a slightly earlier age, but most studies show no difference in total number of births, fertility problems, or use of fertility treatment for BRCA carriers compared to non-carriers.
- Because young women who carry BRCA1 or BRCA2 gene mutations have higher risks of developing breast and ovarian cancers, risk-reducing salpingo-oophorectomy (removal of the fallopian tubes and ovaries) to prevent ovarian cancer is typically recommended by age 40 years or when childbearing is complete.
- Embryos from assisted reproduction may be checked for BRCA1 or BRCA 2 mutations through genetic testing before they are implanted.

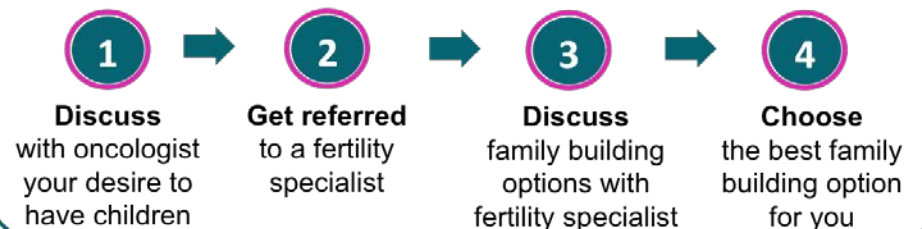
Will fertility be affected by using a GnRH agonist (for example, Lupron) during chemotherapy?

- It is possible that ovarian suppression (shutting down the ovaries) during chemotherapy using GnRH agonists such as leuprolide (Lupron), goserelin (Zoladex), triptorelin (Trelstar), and buserelin (Suprefact), increases the chance of fertility after cancer, but there is not enough research to know for sure.
- Because these medicines block ovulation, women on continuous GnRH agonists do not have menstrual bleeding and cannot become pregnant.

Key Online Resources

- Society for Assisted Reproductive Technology (ART information and fertility specialists search): www.sart.org
- Livestrong fertility (fertility risks from treatment): www.livestrong.org/we-can-help/fertility-services
- Oncofertility Consortium (fertility preservation information): <http://www.myoncofertility.org>

Next steps if you want to have children in the future:



Glossary

- AFC: Antral follicle count is the number of ovarian follicles from both ovaries measured by vaginal ultrasound. AFC helps to gauge how many eggs remain in the ovaries.
- AMH: Anti-mullerian hormone is produced by nurse cells surrounding eggs in the ovaries. Blood tests for AMH help gauge how many eggs remain in the ovaries.
- BRCA: BRCA1 and BRCA2 are human genes. Genetic mutations, or alterations of these genes, are linked to an increased risk of breast and ovarian cancer.
- Estradiol: A human sex hormone that plays an important role in the female reproductive cycle.
- FSH: Follicle stimulating hormone is produced by the pituitary gland. FSH helps control the menstrual cycle and production of eggs in the ovaries. FSH helps to gauge how many eggs remain in the ovaries.
- Ovarian follicle: Structures in the ovary that enclose human eggs.
- Ovarian reserve: Number and quality of eggs that remain in the ovaries.
- Ovarian suppression: Preventing the ovaries from making estrogen and ovulation. Also sometimes called shutting down the ovaries or putting the ovaries to sleep.
- Progesterone: A hormone produced by the ovaries during release of a mature egg from an ovary (ovulation).
- Salpingo-oophorectomy: Removal of fallopian tubes and ovaries.

Fertility Concerns Resources

Geared toward survivors

What type of information is here?	What organization provides this resource?
Information on fertility options before and after treatment	American Cancer Society
Fertility preservation information for patients, parents, and partners	Oncofertility Consortium
Locate U.S. fertility specialists and view individual clinic IVF success rates	Society of Assisted Reproductive Technology
Navigation for cancer survivors on finding a reproductive endocrinologist and potential discounts on fertility services and medications, fertility risk calculator	LIVESTRONG Fertility
Forum for young breast cancer survivors to discuss fertility after cancer	Young Survival Coalition
Overview of adoption policies and link to finding an adoption attorney	American Academy of Adoption Attorneys
Audio recording discussing fertility, sexuality, and intimacy for young adult cancer survivors	CancerCare

Geared toward healthcare providers

What type of information is here?	What organization provides this resource?
Information on fertility issues aimed at healthcare providers	National Cancer Institute
Locate U.S. fertility specialists and view individual clinic IVF success rates	Society of Assisted Reproductive Technology
Online training to help healthcare providers offer better fertility care to cancer patients	LIVESTRONG Fertility
Survivorship and Breast Cancer Clinical Practice Guidelines	National Comprehensive Cancer Network (1, 2)
Committee Opinion on fertility preservation in patients facing gonadotoxic therapies	American Society of Reproductive Medicine
Practice Bulletin on gynecologic issues in women with breast cancer	American Congress of Obstetrics and Gynecology
Guidelines on long term follow up of reproductive health	Children's Oncology Group
Guidelines on fertility preservation before cancer treatment	American Society of Clinical Oncology