



Fact Sheet

From ReproductiveFacts.org



The Patient Education Website of the American Society for Reproductive Medicine

Female cancer, cryopreservation, and fertility

Are there options for preserving fertility in women who have been newly diagnosed with cancer?

Yes! New technology lets your doctor remove and freeze eggs, fertilized eggs (embryos), or ovarian tissue before treating your cancer. This way, you may be able to have children after your treatment. This process is called cryopreservation or freezing. The kind of cancer you have determines what your options are.

The most common cancers in girls and young women are Hodgkin or non-Hodgkin lymphoma, leukemia, thyroid cancer, breast cancer, melanoma, or gynecologic cancers (cervix, uterus, or ovary). Most of these cancers can be treated with chemotherapy, radiation, or a combination of both. Several factors determine if you are infertile after treatment. These factors include how old you are, the dose and the location of the radiation, and what kind of chemotherapy drugs they give you. Chemotherapy is effective in treating many cancers, but it can cause infertility by harming or decreasing the number of eggs.

Embryo cryopreservation

Embryo cryopreservation is the most common way of preserving your ability to get pregnant in the future. You must undergo a procedure called in vitro fertilization (IVF). In IVF, you will be given hormones to stimulate the ovaries to produce a number of eggs. Once they are developed, the eggs will be removed by gentle suction. Embryos are created in the laboratory by joining together the sperm and the egg. The fertilized eggs or embryos are then frozen. You may even choose to perform genetic testing on the embryos prior to freezing them (called PGD or preimplantation genetic diagnosis). PGD may be used to test for a specific genetic disorder (for instance, to check for BRCA gene in a woman with breast cancer). If you decide you want to have children after your cancer treatment is complete, one or two embryos can be placed in your uterus (womb) with or without the help of medications.

Not everyone can have this procedure. You'll have to take medications that make you produce more eggs than usual. In total, the process may take 2 to 3 weeks to complete. Unfortunately, if you need chemotherapy or radiation treatment for your cancer, you may not be able to wait that long. The medications that make your body produce more eggs may also make your body produce more hormones, such as estrogen. Estrogen can make some cancers worse.

Embryo cryopreservation offers the best chance of pregnancy. The odds of an embryo surviving the freezing and thawing process and implanting in your uterus are still higher than the odds of creating a pregnancy from embryos using frozen eggs or frozen ovarian tissue.

If you decide to use embryo cryopreservation, you will need to have a man's sperm to fertilize your egg before it is frozen. If you do not have a partner, donor sperm can be used. If neither of these sperm sources is possible or available to you, then egg freezing is a good option.

Egg (oocyte) cryopreservation

Women may choose this option over embryo cryopreservation, if they have no current male partner or for personal/religious reasons. Procedures for freezing eggs have improved greatly over the past 10 years, making this a good option for many women. Despite the success of egg freezing, pregnancy rates are still higher per embryo frozen than per egg frozen. This is because by the time an embryo is frozen it has already been fertilized and grown for several days, showing its reproductive potential. This process still involves IVF and usually requires 2 to 3 weeks. You will take medications that will help you grow many eggs. However, after eggs are removed from your body, they are frozen immediately. Unlike embryo cryopreservation, the eggs are not fertilized before they are frozen. After your cancer treatment, eggs that survive the freeze-thaw process will then be fertilized in the laboratory with your partner's or donor sperm. Embryos that develop will be placed in your uterus.

It is not clear if more mature (developed) eggs freeze better than less developed (immature) eggs. Also, the gentle suction of immature eggs without using stimulation medications has also been performed, and some pregnancies have been reported. However, this procedure is still considered experimental.

Ovarian tissue cryopreservation

Doctors have been experimenting with a procedure to freeze the tissue that contains resting eggs from a woman's ovary. In this procedure, doctors cut the tissue from one of your ovaries into thin slices. These slices are then frozen.

After your cancer treatment, the doctors can place a slice of thawed ovarian tissue back into your body. You may need to be treated with fertility hormones for this tissue to produce an egg. There are some disadvantages to this procedure. You will have to have surgery several times. It also is dangerous if you have cancer of the ovary. If the tissue has cancer and is placed back in your body, the cancer could spread. It is important for you to know that ovarian tissue cryopreservation is still an experimental procedure. It has not always been successful at all fertility centers, and the success rate is very low.

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