

Fertility Preservation: Ovarian Tissue Freezing for Young Females With Cancer

This information explains ovarian tissue freezing, a fertility preservation option for some young females who are starting cancer treatment.

For the rest of this resource, the words “you” and “your” refers to you or your child.

What is ovarian tissue freezing?

Ovarian tissue freezing is an experimental procedure for preserving fertility. This is available through Weill Cornell’s Center for Reproductive Medicine. During the procedure, one of your ovaries is removed and brought to a special laboratory at Cornell. The tissue that contains your eggs is separated from the rest of the ovary, frozen, and stored for possible use in the future. If you’re no longer fertile after cancer treatment, using this tissue may help you have a biologic child.

Who is a candidate for ovarian tissue freezing?

To be eligible for ovarian tissue freezing, you must meet the following criteria:

- You aren’t able to have your eggs or embryos frozen before treatment. Although egg or embryo freezing is generally the best option to preserve fertility, not everyone is able to have this done. Reasons for not being able to freeze eggs or embryos include:
 - Being too young. Before puberty, females don’t have mature eggs to be removed for freezing.

- Not being able to delay your cancer treatment for the 2 weeks it takes to have your eggs or embryos frozen.
- Having received recent chemotherapy.
- You will be getting a cancer treatment that will cause a significant loss of eggs and put you at a high risk of infertility (can't have biological children) after treatment.
- You have enough eggs to have this option work for you if you need to use your ovarian tissue in the future. If you are older than 40 years of age, or if you have already lost most of your eggs from past cancer treatment, you won't have enough eggs to have ovarian tissue freezing work for you.

How is ovarian tissue removed and frozen?

For ovarian tissue freezing, you will first need to have a minor surgical procedure to remove an ovary.

If you're having another procedure done with anesthesia (medication to make you sleep during surgery) at Memorial Sloan Kettering (MSK), or if you're younger than 13 years of age, your ovary will be removed at MSK. If not, your surgery will be scheduled at Cornell.

The tissue will be brought to a special laboratory at Cornell. The outer layer of the ovary, which holds the eggs, will be removed, cut into small pieces, and frozen. A small amount of tissue will be used for research.

Cornell is studying to find the best way to transplant ovarian tissue back into the body so that eggs in the tissue will grow and mature. The eggs developed from this research won't be fertilized or used for any other purpose. The rest of the ovarian tissue will be stored for you to use in the future.

What happens when I'm ready to use the tissue to try to have children in the future?

When you're ready to use your ovarian tissue, the tissue will be thawed and placed

into your body. You will have a minor surgical procedure to place the tissue back into your pelvis, either onto your remaining ovary or near where your ovary was removed from. It can take several months for the tissue to begin working. The hope is that eggs in this tissue will mature, allowing you to have a biologic child.

Some females will get pregnant naturally and some will need in vitro fertilization (IVF). With IVF, mature eggs are removed from the tissue in your body and fertilized with sperm in a laboratory to make embryos. The embryos are then placed in your uterus to attempt pregnancy.

Doctors are also studying how to mature eggs in the laboratory (called in vitro maturation), without having to place tissue back in the body. They're hoping this will be possible in the future.

What has been the success of using ovarian tissue?

Ovarian tissue freezing is currently considered to be an experimental procedure, but as of early 2019:

- Over 130 babies have been born after reimplantation of ovarian tissue in the pelvis. Half of the females got pregnant naturally, and half got pregnant after IVF. Based on recent research studies, about 1/3 of females who try to get pregnant after re-implantation of ovarian tissue are successful.
- Most females who have had babies after re-implanting ovarian tissue had their tissue removed after puberty. Only 1 woman so far has had a baby using tissue that was removed when she was a child. Most females who had tissue removed before they had reached puberty haven't tried to use it yet.
- No babies have been born yet using in vitro maturation.
- Most females who have their ovarian tissue re-implanted have their ovary start working again. The tissue starts producing estrogen, delaying the start of menopause (when your period stops). On average, this tissue functions for up to 5 years after being placed back in your body.

There is no way to know if ovarian tissue freezing will work for you, but doctors continue to study ways to improve the success rates.

What else should I know about ovarian tissue freezing?

With some types of cancer there is a risk that cancer cells may be hidden in your ovary. Research studies have helped us figure out which cancers have the greatest risk and which have the least risk. Only patients who have a very low risk of having cancer cells in the ovary will be offered ovarian tissue freezing. Talk with your doctor about your risk based on the type of cancer you have and the treatment you have already received.

Ovarian tissue freezing isn't covered by insurance. You would be responsible for all costs involved in removing, freezing, and storing the tissue.

This procedure is done through Weill Cornell's Center for Reproductive Medicine. You will need to see one of the reproductive endocrinologists (fertility specialist) there for a consultation to confirm that you're eligible for the procedure. They will explain what is involved, discuss the costs, and give you consent forms (form that says you agree to the procedure and understand the risks) to sign if you want to proceed.

For more information, ask your doctor to put you in contact with a fertility nurse specialist at MSK. They will answer your questions about the procedure and arrange for you to be scheduled for an appointment at Cornell to learn more.

If you have any questions, contact a member of your healthcare team directly. If you're a patient at MSK and you need to reach a provider after 5:00 PM, during the weekend, or on a holiday, call 212-639-2000.

For more resources, visit www.mskcc.org/pe to search our virtual library.

Fertility Preservation: Ovarian Tissue Freezing for Young Females With Cancer - Last updated on April 19, 2019

All rights owned and reserved by Memorial Sloan Kettering Cancer Center