blooming eve

Fertility 101

We created this manual to help you better understand your fertility and decide whether fertility preservation makes sense for you. Every fertility journey is unique and depends on the goals and individual circumstances (ex. overall health, family fertility history, financial state, family plans & relationships status). Whatever journey you pick, it's important to be informed about the options you have.

What is egg freezing and why does it exist?

Women more often choose to delay having kids for later for many different reasons. If you are reading this, you probably already know that chances of getting pregnant are decreasing with age. The statistics are scary, showing that after 35 years old >40% of women are unable to get pregnant. Thus, savvy women all over the world are opting into increasing their chances of getting pregnant when they are ready by freezing their eggs.

Egg freezing or an official name, **oocyte cryopreservation,** is a process of freezing of retrieved eggs that allows to preserve the cells intact and save the reproductive ability of frozen eggs at the age when they were frozen. While the number of eggs in the female body declines with age your uterus still is able to grow an embryo at a later age and this way

you can use your eggs frozen at a younger age later when you are ready to have a baby.

There are several caveats to that as we'll see, as pregnancy is dependent not only on your eggs but also donor or partner sperm, your overall medical condition and family history. It's not a guarantee but it gives you insurance and options, the same way as your education is not a guarantee that you would have a great job but it may increase your chances.

Egg freezing process

Here are the stages of the process that we will describe in detail one by one.

1. Fertility assessment
2. Preparation (+medication info)
3. Stimulation
4. Egg retrieval
5. After procedure considerations/Recovery
6. Financing + Success rates

Overall length of the procedure is anything from 2,5 weeks to a few months, depending how many cycles are needed.

Step 1: Fertility assessment

Usually includes:

- bloodwork (testing of certain hormone levels: AMH, FSH, estradiol; infections)
- ultrasound to check your ovaries for the number of follicles (sacks with liquid in your ovaries that may result in a development of an egg), presence of any cysts or other abnormalities (ultrasound test).

There are online at-home kits that test your AMH hormone, but we recommend getting your full fertility assessment done with the reproductive embryology certified doctor who was specifically trained to analyze and treat reproductive system conditions. Blooming Eve curates and helps you to find the best doctors and clinics in your area.

In footnotes we are sharing some details on the test result and hormones being tested to get a full picture of your fertility. If you are having troubles understanding your test results and the information from your doctor is hard to digest, send me an email, so that we can go over this together.

Step 2: Preparing your body for egg freezing

There is no recipe for what lifestyle you should follow to increase your chances. Below are few recommendations that you can follow to prepare your body:

- decreasing stress
- regular exercise (30 mins 4 times a week) - but generally do what feels comfortable
- healthy food (high fiber food, fruits and vegetables, no processed food and limited sugar)
- maintain your BMI in the "normal" range 19-24, decrease or eliminate alcohol
- vitamins (some examples are folic acid, melatonin, vitamin B, omega 3, - consult your physician)
- stop smoking
- avoid exposure to toxins and plastic

When you are ready, you go to the clinic before your next cycle to perform final testing, get ultrasound screening, sign consent, and **order prescribed medication**. Depending on your insurance and benefits plan, your medication may or may not be covered by your insurance. You can ask both your clinic coordinator and your insurance manager to figure it out for you. If you have to pay in cash, there are some options where you can order and send medication to your doorstep. If you are lost in the process, or want to see if there is an opportunity to get a discount for your hormones (which most of the time is possible) - contact me and we will be happy to help!

Step 3: Stimulation

Stimulation is the hormonal injections into the bloodstream which help grow more eggs during your menstrual cycle. Egg freezing medication imitates your natural menstrual cycle but just in larger quantities. The difference is that in your normal cycle only one egg develops from a follicle and all other follicles are lost, and after a successful stimulation you will have more eggs.

Stimulation is a two weeks process with daily injections (2-3 times) and 2-5 office appointments (transvaginal ultrasound and bloodwork). Sometimes the visits are sporadic so it’s good to have access to your fertility clinic or testing location to decrease stress and make it more convenient.

Sometimes stimulation starts with birth control to help normalize the follicles' growth, so that all follicles grow of equal size and with the same speed. It is important to collect more eggs of similar size during the egg freezing cycle, as if one egg is dominating it will suppress other follicle development and the cycle may be canceled or modified. We want all our eggs to be comfy :)

The medication part of the egg freezing process is the same for in-vitro fertilization (IVF) and egg freezing, the only difference is that eggs are not fertilized but frozen instead. Usually the side effects are minimal, but some women experience fatigue and bloating. The exercise may be decreased or avoided during that phase in the process.

At the end of the cycle blood test is done to define the right moment for egg retrieval.

Step 4: Egg retrieval

Your doctor can give you an approximate date of the procedure (actual date is very individual) and the exact time is determined 2 days before the retrieval. So when the eggs reach the required size, you would get a “trigger shot” and the procedure will be scheduled in 36 hours after that. It’s recommended not to drink or eat after 12 am the day before egg retrieval.

On the day of the procedure, come early (>=2 hours before) as the retrieval is timed. The procedure itself is super fast (a few minutes) and is performed under anesthesia. The ultrasound probe is used to identify follicles and lead the needle through vagina into ovaries. The needle gently sucks the eggs from the follicles together with the fluid that is in them. Then the collected liquid is analyzed under a microscope in the embryology lab where eggs are studied and mature ones selected for vitrification (rapid freezing). After freezing, eggs are kept in a cryo tank at -200 C. The number of years does not affect the eggs quality, and they could be stored for at least 10 years.

It’s better if you have someone to pick you up after and stay with you till the rest of the day. It’s also recommended to rest the remaining part of the day. Most people feel good after the procedure and severe symptoms are very rare. But if you feel bad, connect your clinic. Usually by the next day, you will know how many eggs were collected and how many of them are mature and could be frozen and fertilized.

Step 5: After the procedure/recovery

The recovery usually takes about a week. You may have cramps, abdominal pain and heavy discharge from your vagina. That's normal. Also you may stay bloated for 7-10 days after retrieval, so don't panic.

To make the recovery easy it's recommended to take some painkillers recommended by your doctor. Constipation after the procedure is a common symptom. It's recommended to stay hydrated, drink protein shakes and electrolyte enhanced liquids (ex Gatorade) to decrease after procedure bloating.

For 1 week it's suggested to avoid using tampons, putting anything in your vagina, hot tub, high intensity exercising and sex. Some bleeding is normal but if it's too heavy or if you have other symptoms - high temperature or significant pain - contact your doctor. Also contact your provider if you experience nausea, dizziness, shortness of breath, decreased urination, intense pain or significantly gained weight.

The first period starting in 7-10 days may be heavier than usual and more crampy. Painkillers may also help here.

Additional: Financing

The out-of-pocket cost of the procedure depends significantly from your or your partner's insurance, health benefits and the clinic you choose. I founded Blooming Eve to help you optimize the cost of your procedure and get financing if needed.

Here is the breakdown of potential costs that can occur during the process (some of them may be included in your insurance and it's always worth asking).

Type of expenses	**Cost range**
Bloodwork & Ultrasound	$3,500
Medication (birth control and hormonal medication)	$3,500 - $8,000
Egg retrieval	$2,000 - $3,000
Anesthesia	$350 - $750
Embryo lab fees (identification, vitrification & culture/sperm/hatching for embryos)	$2,000 - $4,000
Oocyte storage 1 year	$600 - $1,000
Total cost of egg freezing cycle	$10,000 - $20,000

Chances of success with frozen eggs

As it was mentioned in the beginning of this manual, egg freezing is not a 100% guarantee of having a baby, there are lots of factors that can have an impact on your results. That's why when you are deciding it's important to start with an understanding that the procedure can increase your chances but doesn't give you a 100% guarantee of success. To help you understand the odds, below we show the stats of the likelihood of having 1 baby at a given age and a number of mature oocytes retrieved published by Human reproduction journal in 2017.

Age	**10 eggs**	**20 eggs**
<=35	69%	90%
36-37	50-60%	75-84%
38-39	39-45%	63-69%
40	30%	51%
41-42	20-25%	37-44%
43-44	8-14%	15-25%

Footnotes

COMMON FERTILITY-RELATED TERMS:

AMH: Anti-Mullerian Hormone

Hormone produced by women's ovaries that is often used to check a woman's ability to produce eggs that can be fertilized during pregnancy.

FSH: Follicle-Stimulating Hormone

The hormone that helps to increase the number of eggs developed in the cycle. It's given at a higher dose that it's produced by your brain naturally during the cycle.

Luteinizing hormone (LH)

It can be added to the medication to increase follicle growth.

Antagonist medication

Helps to prevent early release of the eggs (stops the increase of LH)

Leuprolide Acetate (Lupron)

It can be antagonist but also can be used as a trigger shot. It varies depending on where in the cycle it is.

Trigger shot The most common medication to trigger ovulation when the follicles are grown to the appropriate size is human chorionic gonadotropin (hCG). Lupron also can be used as a trigger or used after the procedure to decrease bloating.

Medication protocols vary significantly for each person and even for different cycles, as well as it depends on the doctor. Most of the people tolerate injections pretty well, you can use the numbing patch or ice the area.

The most common side effects - fatigue, bloating and headache. Some people experience changes in the mood (emotional changes). Any increase in weight usually goes away by the next cycle.

Ovarian hyperstimulation syndrome (OHSS) It's a rare side effect with extensive bloating. It happens more often with a high level of AMH and at a younger age. It can be prevented by using Lupron at the end of the cycle or lower dose medication.

Avoid unprotected sex to eliminate the accidental pregnancy during stimulation.

Quality of eggs - probability of genetic abnormalities in embryos

ICSI (intracytoplasmic sperm injection) - method of fertilization of mature eggs when sperm is injected directly into a mature egg under laboratory conditions.

FET (frozen embryo transfer) - embryo transfer procedure where previously frozen embryos are thawed and implanted into the uterus.

PGT (preimplantation genetic testing) - test of embryos before transfer into uterus to screen for different genetic mutations (abnormal chromosomes).

IVF (in-vitro fertilization) - artificial reproductive technology (ART) used to fight infertility where instead of natural fertilization the egg is fertilized with sperm in the embryology lab and then the cultured embryo is transferred into the uterus.

UNDERSTANDING YOUR TEST RESULTS

AMH: Anti-Mullerian Hormone

More simplistic measure of the number of your eggs that is considered by some as a more objective measure than transvaginal ultrasound. Here are the abnormal values for AMH: low AMH (<1.0), high AMH (5.0). Higher AMH may mean that you would need lower dosage of hormones during fertility treatment and better harvesting of eggs with the procedure.

Age	Expected/Average
20s	3.0-4.0 ng/mL
30-34	2.0-3.0 ng/mL
35-39	1.0-2.0 ng/mL
40	1.0 ng/mL
41+	<1.0 ng/mL

FSH: Follicle-Stimulating Hormone

The hormone that helps stimulate the growth of the eggs in ovaries and is produced by a pea-sized body attached to your brain - pituitary gland. FSH levels vary throughout your cycle and are highest in the beginning (that's when it's usually checked but it also depends on your doctor preference). This hormone can determine how well your body would react to the hormonal stimulation. Usually it's checked together with estradiol.

FSH	Estradiol	Interpretation
< 10 miU/mL	<80 pg/mL	Reassuring results
10-20 miU/mL	<80 pg/mL	Diminished ovarian reserve
>20 mIU/mL	<80 pg/mL	Significant diminished ovarian reserve;

		less likely to respond favorably to ovarian stimulation

To measure your ovarian reserve (your egg producing capacity) you need a combination of FSH, AMH and AFC (antral follicle count) through ultrasound. AFC is the ultrasound test that measures the number of visible follicles (antrum follicles) that could be translated into the number of eggs left. It doesn't give you the precise number of follicles but it gives you data to act on if it's too low.

Measures	Good	Bad
FSH	<10 mIU/mL	>10 miU/mL
AMH	> 1-2 ng/mL	<1 ng/mL
AFC	>10-12	<10-12

Abnormal results (FSH>15 and/or AMH<0.5) may mean that you need to test again or you may anticipate lower eggs than your peers. Test is not a perfect predictor, it gives you a certain idea if you have issues or whether you are a good candidate for egg freezing and even if you are there are still other options that may help you to have a baby (using donor eggs).

It's important to know your numbers so that you can make informed decisions about your health. If your ovarian reserve (number of follicles left) is low or you are approaching the age where the change in quality of eggs may become significant (35 y.o.), you are not ready to have kids just yet, and/or you have other medical conditions that may affect your fertility (cancer, PCOS), you may consider egg freezing. Generally most doctors agree that sooner is better and before 35 years old is considered to be a good time for the procedure.

You can learn other terms on https://www.reproductivefacts.org/