



# EGG FREEZING AS FERTILITY INSURANCE - RACE AGAINST TIME

For women in their 20s and 30s, the monthly ability to become pregnant is about 20-30%. In their 40s, that ability drops significantly—to a mere 5% chance per month. Fertility rates decline about 1-4% each year, before the age of 35. After age 35, fertility rates reduce about 15% per year, and after age 40, rates drop approximately 30% each year. Although there is a significant decline after age 35, many women wait until after 35 years to start their family.

## EGG FREEZING

Until recently, there was little to offer young women with cancer facing chemotherapy, radiotherapy or surgery and the probability of premature menopause and sterility. The first 'frozen egg' baby was born in 1986, but success rates were so low that egg freezing was neglected. Three technological developments in assisted reproduction treatment (intracytoplasmic sperm injection, dehydrocryoprotectants and vitrification) have transformed this picture and now young women with frozen eggs have the same probability of a live birth per embryo transfer, as women undergoing conventional IVF (Invitro Fertilization). Today it is well accepted, that for many women it is not cancer, but the passage of time that denies them a chance of motherhood. Social, educational and financial pressures often lead them to delay starting a family until their late thirties, by which time the chance of success is compromised by low fecundity rates and an increased risk of miscarriage if they become pregnant. Donor eggs are not an option for many because of acceptance issues, societal pressure, religious reasons, supply constraints and ethical concerns. Freezing a woman's eggs by the age of 30, literally 'freezes in time' her fertility potential and gives her the chance of a healthy pregnancy at the time of her choice.

Egg freezing is a clinical reproductive method that has been performed for decades, typically in patients undergoing medical interventions during chronic disease treatment such as chemotherapy and radiation, which can cause infertility. In 2014, the FDA approved social egg freezing, or elective oocyte preservation. Women are now able to plan their reproductive future, even without having severe medical conditions. This concept is called SOCIAL EGG FREEZING



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### What is egg freezing? What are its potential benefits?

Egg freezing has been used since the late 1990s, for fertility preservation among young women with cancer, who are at risk of sterility as a result of their illness or its treatment. Social egg freezing is typically offered to women under 38 years of age, who want to preserve the option of having healthy, genetically related children at a later date.

### Why is social egg freezing important?

Women have progressed over the past 40 years. They pursue higher education or qualify for higher professional advancements, and subsequently delay family planning to achieve those goals. Although human beings have advanced



and evolved, reproductive potential continues to be bound to age. Many women today wait until after age 35 to start their families for various reasons. With many individuals and couples becoming more aware of the financial burden and responsibilities associated with having children, they are delaying childbearing until they are more economically stable to support a child and better prepared mentally.

Further, women with a family predisposition of early menopause due to genetic factors can have reduced fertility potential and a narrow fertility window. This can be identified by measuring ovarian reserve through blood tests and ultrasound scan. Once detected, such women are advised to complete their family at the earliest.

However, if personal reasons preclude this, Social egg freezing is an ideal option for them.

### How does the treatment process work?

Every month a woman produces one mature egg (oocyte). With social egg freezing, hormone medications are administered, which trick the body into producing 15 to 20 eggs in one month. The eggs are extracted through the vagina, under ultrasound guidance, using a needle under short anaesthesia. The eggs are screened under a microscope to determine which are mature enough to be frozen. Only mature eggs can be fertilized with a sperm to create a pregnancy. "Flash freezing," also called "vitrification," is used, because studies have shown that it is more successful than other methods, as it causes less damage to the cell. The eggs are frozen within minutes and stored for later use in liquid nitrogen cans also called cryocans, until their use. The eggs can be stored for years. When the patient is ready for pregnancy, the eggs are taken out from the cryocans, thawed (warmed) and immediately fertilized with the partner's sperm to create embryos which are transferred to the womb to have a successful pregnancy.

### What are the medical risks associated with social egg freezing and IVF?

Perhaps the most important medical risk associated with egg freezing is the effect that results from ovarian stimulation, such as OHSS (ovarian hyperstimulation syndrome). Mild-to-moderate OHSS involves fatigue, nausea, headaches, abdominal pain, breast tenderness and irritability, but these adverse effects can usually be well controlled. However, 0.1%-2% of patients may experience severe OHSS, resulting in blood clots, shortness of breath, abdominal pain, dehydration and vomiting that necessitates admission to hospital. However, today, with the introduction of some of the latest protocols for stimulation and triggering oocyte maturation, the medical community has achieved the goal of OHSS free clinics.

Other risks include those associated with the baseline medical condition of the patient, such as complications during the egg retrieval procedure (or) anaesthesia and minor side effects like bleeding abdominal cramps, bloating, nausea, vomiting, headache etc.

### Risks to women

Women who become pregnant at an advanced age (i.e., expected delivery after age 35 years) are at an increased risk of gestational diabetes, preeclampsia, caesarean delivery and preterm delivery of a baby with low birth weight. However, these risks vary widely, depending on the woman's health status, and increase with advancing maternal age at delivery.

### Risks to offspring

There is risk of premature birth and low birth weight associated with advanced age of woman at conception. It is recommended for women to undergo all prenatal tests required regularly, to rule out all foetal abnormalities and ensure foetal well-being.

### What are the societal implications of social egg freezing?

Social egg freezing uses medical technology to respond to a non-medical problem — natural aging. Physicians should therefore move beyond a discussion of the potential benefits, risks and financial costs to address societal implications.

With social egg freezing being presented as a valuable reproductive option, some women may come to believe that freezing their eggs is one of the best ways (if not the only way) to secure the opportunity of having a healthy, genetically related child in the future. It may result in growing pressures on young women to freeze their eggs.

The portrayal of social egg freezing as a "back-up plan" or "fertility insurance" that allows young fertile women to take the time to find suitable long-term partners, complete their education, achieve financial stability or advance their career goals without having to worry about their future fertility, may strongly influence the way in which some women's reproductive choices are shaped. Hence, it is critical that additional pressure should not be placed



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on women, by portraying egg freezing as something that they should choose to avoid future regret. Always, the first option is for women to have natural pregnancy at the right age, and if that is not possible, only then should egg freezing be considered as an option.

Although individual women may benefit from egg freezing to satisfy their reproductive desires, people should not assume that having a genetically related child is equally important to all women who ask about social egg freezing.

So, options of oocyte donation (or) adoption as choices for women above 40 should also be discussed, thus helping them to take an informed decision.

### Conclusion

Couples should be encouraged to consider parenthood sooner rather than later, and society should work towards

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a social framework that is financially and structurally supportive of young families. Women should not consider their cryopreserved oocytes as an alternative to conventional reproduction, but rather as an ultimate back-up if relationships fail, or fail to materialize, and biological time runs out.

The process of oocyte cryopreservation (stimulation and retrieval) must not compromise the young woman's chances of spontaneous conception, throughout her natural reproductive lifespan. Other more invasive methods of oocyte cryopreservation, such as multiple punch-biopsies and cortical strip harvesting, are only appropriate in the case of oncology patients, wherein the prospects of salvageable spontaneous fertility are very low.

In light of the controversial nature of social egg freezing, with competing perspectives and information available from a variety of sources, reproductive medicine specialists have a unique opportunity to assist women in accessing accurate and balanced information about their reproductive health. We at Hegde Fertility have been assisting women to make these informed choices over the last few years but many are coming after 37 years when both the quantity and quality of eggs suffer and can compromise the final outcome. So it is our suggestion that Girls in their 20's come forward to have a discussion about their ideas of marriage, motherhood, family planning and family size as it best to freeze eggs around 30 years of age to have the maximum benefit of the procedure. Of course any time line is better than missing it out completely.

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