

Egg Freezing and Storage

What You Need to Know



Egg Freezing and Storage

Oocyte cryopreservation (egg freezing) is no longer considered to be a developing technique for fertility preservation in women. Sufficient data is now available to classify egg freezing as an established medical treatment. However, the procedure should not be considered as a guarantee for successfully deferring reproductive ageing.

Who would benefit from egg freezing?

Five main groups of women seek this reproductive service:

- Single women who have not yet met their life partner and wish to have children at a later date. These women are aware that fertility declines with age and are choosing to undergo IVF treatment sooner, storing their eggs for the future.
- Women with cancer, as chemotherapy and radiation treatment can often have a harmful effect on fertility, rendering many of these women menopausal.
- Women who are at risk of early menopause or who have a genetic disorder that could limit fertility (e.g. Turner syndrome).
- Couples who, for religious or ethical reasons, are opposed to freezing embryos that result from IVF treatments and are more comfortable with storing unfertilised eggs instead.
- Couples who have no sperm retrievable on the day of their egg collection.

Other instances where egg freezing may be beneficial are:

- Donor cryo-banking - some women may wish to become "Clinic-recruited donors" and donate their eggs for use by other couples undergoing IVF treatment.
- To allow synchronisation of donor and recipient cycle, although the most common practice in this case is to freeze embryos.

In South Australia you must be assessed to be medically infertile by your fertility specialist to access treatment.

How would my eggs be retrieved?

In egg freezing, a woman's mature eggs are developed and removed using standard IVF techniques. This typically involves three stages of treatment: pituitary suppression, ovarian stimulation and egg retrieval.

Each of these treatments will be discussed in detail with your clinician. The egg retrieval itself is performed by an ultrasound-guided needle passed through the top of the vagina. The needle is passed into each follicle in the ovary and the fluid is withdrawn into a test tube. The fluid from each follicle is examined under a microscope and the eggs are collected for cryopreservation. The procedure will take only 20-30 minutes and is performed under sedation or anaesthetic. You will therefore be required to rest in the recovery room for about an hour afterwards.

As with all medications and medical procedures, side effects and potential risks are involved with all of the medications that may be received, and with egg-retrieval procedures.

You will also require monitoring with serial blood sampling and transvaginal ultrasonography during your cycle. It is common to experience some cramping and discomfort after egg retrieval as well as some vaginal spotting or bleeding. A heat pack, hot-water bottle or analgesic should be sufficient to manage the discomfort, but should the pain become severe or the bleeding heavy, please contact the clinic. You will need about two days off work.

How many eggs can I expect to get?

The number of eggs retrieved in a single stimulation cycle is a very individual outcome. It depends greatly on your health, your age and

how well you respond to the drug treatment. In addition, with human oocytes it is a case of "more is not necessarily better" with regards to egg numbers and quality.

With these factors in mind, your fertility specialist will tailor your drug/treatment cycle according to your specific requirements and/or previous responses.

How does cryopreservation work?

Our ability to freeze any cell depends on many factors, but most significantly on how much water the cell contains. Because water expands in volume as it turns to ice, cells must be dehydrated before freezing to prevent them from rupturing. The addition of a cryoprotectant, which does not expand upon freezing, can greatly reduce the risk of cell rupture.

Traditional cryopreservation protocols impose "slow" cooling rates of about -1C to -2C a minute in specifically designed, temperature-controlled chambers, whereas a more recent technique is called "vitrification". Under this process, cooling rates are so rapid (more than 20,000C a minute) that ice does not have a chance to form, and the mixture of cryoprotectant and egg forms a glass-like gel. At City Fertility Centre we routinely use vitrification as the preferred method of egg freezing.

What are the limitations?

The oocyte is the largest human cell and contains a high percentage of water. It is also sensitive and intolerant of the chemical and physical stresses created during freezing and thawing. When an oocyte is ovulated, or retrieved from the ovary during an IVF cycle, ideally it is ready to be fertilised by a single sperm.

In anticipation of fertilisation, the oocyte prepares to discard half of its DNA in a process named meiosis.

Any changes in the physical or chemical environment around the oocyte can disrupt meiosis, leading to an oocyte with too much or too little DNA. Hence, even after we overcome the hurdles of sensitivity and cell water content, these

other obstacles to the successful freezing and thawing of oocytes remain.

While the overall aim of freezing is to help the egg survive upon thawing, certain damage or consequences of the procedure may not kill the cell but render it “less viable”. A major issue is that eggs do not fertilise well after thawing. This is due to the partial disruption of the membrane, which causes a block to the conventional fusion and penetration of sperm with the egg surface. So, artificial forms of assisted insemination have to be used to achieve acceptable fertilisation outcomes with thawed eggs. This procedure is referred to as Intracytoplasmic Sperm Injection (ICSI) and is common in fertility centres worldwide. It involves the direct injection of a single sperm into an egg, thereby avoiding most of the usual barriers to fertilisation.

What are the success rates using vitrified (cryopreserved) eggs?

Wider application and success with oocyte freezing depends on continued improvements in the technology and careful selection of oocytes. While many researchers are continuing to improve the freezing process, much of the success so far has been with the use of good-quality or young oocytes.

Studies (Rienzi et al, 2010; Cobo et al, 2011) have documented the following success rates using vitrified eggs:

- 96.1% of vitrified eggs survived the warming procedure (666/693 oocytes).
- 73.1% of warmed eggs were fertilised (487/666).
- 63.2% biochemical pregnancy rate per transfer (74/117 embryos transferred).
- 38.5% implantation rate per embryo transferred (45/117).
- 24% live-birth rate per embryo transferred (28 healthy babies born out of 117 embryos transferred).

A review of obstetric and perinatal outcomes in 900 infants conceived following egg vitrification cycles found no increase in miscarriage, chromosomal abnormalities or birth defects when frozen eggs were used (Noyes et al, 2009).

How long can I continue to cryopreserve my eggs?

City Fertility Centre follows egg storage guidelines recommended by the National Health and Medical Research Council (NHMRC 2004). The maximum storage time at City Fertility Centre is 10 years. After that time, if the eggs have not been used, donated to another couple or made available for research, and no alternative arrangements have been made by their owner (and the owner remains untraceable), disposal will be arranged.

In Victoria, state legislation requires women wishing to extend the storage period of their eggs beyond 10 years to apply to the Patient Review Panel (PRP). The application to the PRP must occur before the 10-year limit is reached. Please contact your clinic for advice on the process.

If your cryopreserved eggs are approaching the 10-year storage limit and you would like an extension, an application must be made, in writing, to the scientific director of City Fertility Centre. If you decide to dispose of your cryopreserved eggs at City Fertility Centre, please contact the fertility coordinator to discuss the options. Signed consent forms are required before disposal.

We ask all patients with cryopreserved eggs to keep City Fertility Centre informed of any change to their contact details. There is a six-monthly storage fee.

Storage fees will cease if you decide to dispose of your eggs.

What options are available if I choose not to keep my eggs cryopreserved?

The following options are available if you decide to no longer keep your eggs cryopreserved:

- Removal from cryopreservation (thawed and discarded).
- Donation to another couple.
- Donation for research/scientific training.

Whatever option you decide on, signed consent forms are required. Please contact the fertility coordinators to discuss these options.

What happens to stored eggs in the event of a couple's separation or divorce?

In the unfortunate event that a couple decides to separate or divorce and frozen eggs are in storage, the female partner is advised to contact the centre where the eggs are kept. The eggs will remain in storage until the female partner makes a decision about them.

What happens to stored eggs in the event of death?

If both partners die while eggs are in storage, the eggs will be discarded. If the female partner dies, her prior legal consent would be fulfilled. For remaining eggs to be used by the surviving male partner, City Fertility Centre would require a court order before starting any further treatment. We recommend you obtain legal advice about egg ownership and disposal.

Alternatives to egg freezing

- Creating and storing embryos with partner or donor sperm.
- Storing of ovarian tissue is undertaken in select circumstances; as recommended by your treating specialist.

Counselling

We appreciate that for some patients the decision to have their eggs cryopreserved or to release cryopreserved eggs from storage may be a difficult one to make. The counselling staff at City Fertility Centre are available at any time to help couples make a decision about their treatment.

Costs

We recommend that you see a City Fertility Centre specialist to discuss your treatment options. Your fertility specialist will determine whether the current Medicare legislation will classify you as medically or socially infertile. Medicare will only provide rebates for fertility treatment if you are deemed by your specialist doctor to be medically infertile. This will alter the out-of-pocket expenses of your treatment.

Where to Now?

I want more information

- Contact our Fertility Advice Team or
- Book a 15 minute nurse chat

I'm ready to take the next step

- Book an appointment with us
- Get a referral to City Fertility Centre from your GP

Contact Us

Call 1300 354 354

Email contactus@cityfertility.com.au

Visit cityfertility.com.au

MFS36 0615 0915

