

Fertility
Preservation

Embryo Freezing (Vitrification) and Storage

What You Need to Know



CITY FERTILITY CENTRE

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Vitrification (Freezing)

Thawing frozen embryos for transfer in an effort to achieve pregnancy has been carried out successfully since 1984. However, the method used to freeze cells and embryos has, not surprisingly, changed as scientific techniques have improved.

For many years, the preferred option for preserving embryos was "slow freezing". Slow freezing cools the embryos gradually, about -0.3°C a minute, until they fall below -30°C and are therefore fully frozen. The frozen cells are then stored in liquid nitrogen at -196°C .

This process has evolved to an alternative method known as vitrification, which has been developed internationally and adopted by City Fertility Centre to enhance the ability of cells to survive during and after the cooling process.

What Does Vitrification Involve?

With vitrification, the solution containing the oocyte or embryo protects the cells from freezing-related damage. The cooling process is so rapid that the water molecules in the cells do not have time to form destructive ice crystals and instantly solidify into a glass-like structure.

Under this freezing method ($2,000$ - $2,500^{\circ}\text{C}$ a minute), which is $7,000$ times faster than conventional slow-cooling techniques, the survival rate of thawed embryos has risen from 60 - 70% to 90 - 95% .

How are Embryos Vitrified?

To rapidly freeze an embryo, it is suspended in a drop of cryopreservation media on a small device with a tiny hook on the end. The droplet is lowered onto a metal block that has been cooled by liquid nitrogen, where it hardens into a glass-like bead.

A typical embryo vitrification protocol is complete in about 10 minutes. The frozen embryos are then stored individually in a labelled cane in a liquid nitrogen vessel.

What are the Benefits of Rapid Freezing?

- Patients who have extra embryos after an IVF cycle can freeze them and attempt pregnancy at a later date.
- If the fresh-embryo transfer fails, you do not have to go through a full IVF cycle because you already have a frozen embryo available.
- Transferring thawed embryos after rapid freezing has brought improved outcomes: about 95% survive vitrification and at least 40% will go on to achieve a pregnancy.
- Frozen embryos do not deteriorate with age. For example, if you freeze an embryo when you are aged 30 and decide to thaw and use it at age 35, its cell structure and quality remain as they were when you were 30.

How Long can I Store Frozen Embryos?

Frozen embryos can be stored indefinitely; however, in Australia a time limit of five years may apply, depending on which state you live in, so please check with your local City Fertility Centre clinic. An annual fee is charged for embryo storage.

If you do not wish to use your spare embryos, another option is to donate them to the City Fertility Embryo Donation Program to help patients who require a donated embryo to have a baby.

If you wish to discuss the use of vitrification in your treatment cycle, please contact City Fertility Centre.

For information about vitrification relating to eggs and sperm, please refer to our fact sheets titled Egg Freezing and Storage and Sperm Freezing and Storage.

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

New fertility patient referrals are guaranteed an appointment within 10 working days with the first available specialist.

Contact Us

Call 1300 354 354

Email contactus@cityfertility.com.au

Visit cityfertility.com.au

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