

## Advancements of Frozen Embryo Transfer in Assisted Reproductive Technology

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### ABOUT THE STUDY

The field of reproductive medicine has considered exceptional advancements in recent years, and one of the most significant advancements have been made in the field of Frozen Embryo Transfer (FET). FET represents a critical component of *In Vitro* Fertilization (IVF) procedures, giving a number of advantages and innovations that have changed the environment of assisted reproductive technology. Fresh embryo transfers were typical in IVF treatments, but FET has instantly came to importance. This technique involves the freezing and storage of embryos for future use, allowing better adaptability in timing and improved pregnancy success rates. Over the years, FET has evolved significantly, with improvements in freezing methods, freezing techniques, and the sequence of transfers, all contributing to its increasing efficacy.

### Understanding IVF and Frozen Embryo Transfer (FET)

*In Vitro* fertilization is a complex and multi-step fertility treatment that involves the fertilization of an egg with sperm outside the body, generally in a laboratory. Once fertilization is successful, the resulting embryos are cultured for a few days to allow for their development and maturation. Generally, these embryos were transferred into the woman's uterus during the same IVF cycle, which is known as fresh embryo transfer. However, advancements in cryopreservation techniques have made it possible to preserve these embryos for future use through freezing, leading to the development of frozen embryo transfer. This process involves the transfer of embryos that have been cryopreserved (frozen) to a uterus of a woman in the future. This process allows for a more controlled and individual approach to IVF, giving both patients and healthcare providers several benefits.

### Advantages of frozen embryo transfer

**Timing and synchronization improvements:** One of the key advantages of FET is the ability to time the embryo transfer with

greater accuracy. Unlike fresh embryo transfer, where the embryos are immediately transferred following recovery, FET allows for better synchronization of the embryo with the woman's natural menstrual cycle or an artificially controlled cycle. This synchronization often results in a more receptive uterine environment for implantation, which can improve the chances of a successful pregnancy.

**Improved embryo selection:** During a fresh embryo transfer, hormonal stimulation of the ovaries can affect the uterine lining, reducing its ability to respond to implantation. With FET, the problem is reduced as it allows for a careful examination of the woman's uterine environment, making it possible to select the most appropriate time for embryo transfer. This can lead to a higher probability of successful implantation.

**Increased pregnancy success rates:** Several studies have shown that FET can lead to higher pregnancy success rates compared to fresh embryo transfers. It provides a source to the improved synchronization and the ability to select the healthiest embryos for transfer, resulting in a greater chance of successful implantation and pregnancy.

**Reduced health risks:** The controlled, non-stimulated cycle used in FET is generally associated with lower health risks compared to the hyper stimulated cycle required for fresh embryo transfer. This can be particularly favorable to women with certain medical conditions, such as Polycystic Ovarian Syndrome (PCOS) or a history of Ovarian Hyper Stimulation Syndrome (OHSS).

**Improved emotional and psychological health:** FET can also offer psychological and emotional benefits to couples undergoing IVF. It allows for better planning, reducing the stress associated with a fresh cycle's uncertainties. Couples can also take breaks between IVF cycles if needed, improving their emotional well-being during the process.

### Success rates of frozen embryo transfer

The success rates of frozen embryo transfer have improved gradually over the years, making it an attractive option for many

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couples. Several factors influence the possibility of success, including the woman's age, the quality of the embryos, and the expertise of the healthcare team. However, overall, FET has shown promising success rates:

**Age:** A woman's age plays an important role in IVF success rates. Women under the age of 35 typically have higher success rates, with pregnancy rates ranging from 40% to 50% per transfer. The success rates gradually decrease with age, with women over 40, average success rates of around 10% to 20% per transfer.

**Embryo quality:** The quality of the embryos used in FET is a crucial factor in determining success. High-quality embryos have a higher probability to be implanted successfully and result in a healthy pregnancy.

**Number of embryos transferred:** The number of embryos transferred can affect the chances of a multiple pregnancy. Many clinics respect the rules that recommend single embryo transfer to reduce risk factors associated with multiple pregnancies.

**Uterine health:** A healthy uterine environment is essential for successful embryo implantation. Conditions such as uterine fibroids or scar tissue can reduce the chances of a successful pregnancy.

## CONCLUSION

Frozen embryo transfer has become a popular and successful technique in the field of assisted reproductive technology. There are many advantages to it, including improved timing and synchronization, improved embryo selection, higher pregnancy success rates, reduced health risks, and improved emotional health, making it a most suitable option for many individuals and couples struggling with infertility. While success rates vary depending on factors like age, embryo quality, and uterine health, FET offers a positive option for people who want to achieve their dream of starting or expanding their families. As technology and techniques continue to advance, the field of IVF and fertility treatment will only become more refined, offering even greater hope for those on their journey to parenthood. For anyone considering IVF, it's vital to consult with a qualified fertility specialist to determine the most suitable approach, whether it's fresh embryo transfer or frozen embryo transfer, based on individual conditions and goals.