



**CAN SPERM BE
STORED FOR
FUTURE USE?**

**ISAR FERTILITY PRESERVATION
SPECIAL INTEREST GROUP**

What is sperm freezing?

Sperm freezing is the procedure whereby sperms are frozen to be stored for future use. Embryologists freeze the sperm using a cryo protectant media then maintain them in liquid nitrogen at -196C, and it can be stored for many years while maintaining a reasonable quality.

How many vials of sperm should be frozen if one wants to preserve their fertility?

Incidentally, 3-6 vials should be frozen for multiple ART cycle. But sometimes there is not enough time before the diagnosis of the cancer or start of the treatment. Hence, if the sperm count is sufficient, then 2 – 3 vials should be enough.

What can men do to preserve fertility before cancer treatment?

- Men can also take steps to preserve their fertility before undergoing cancer treatment. For example:
- Sperm cryopreservation: Before cancer treatment starts, ejaculated semen or sperm removed from testes, can be frozen and stored for years. Depending on the amount of sperm available, samples might be used for intrauterine insemination or preferably in vitro fertilization.
- Gonadal shielding: Carefully placed shields can reduce patient's testicles' exposure to radiation.
- Testicular tissue freezing: This method of fertility preservation for men still being researched, where testicular tissue is surgically removed, frozen and later reimplanted.

Is frozen sperm good for IVF?

There is no significant difference found in morphokinetic parameters when comparison was done between implanted embryos fertilized by either fresh or cryopreserved sperm if it is maintained in proper condition.¹

How long can cryopreserved sperm survive?

Pregnancy has been achieved with sperm that has been cryopreserved for 40 years. The viability of frozen semen can be maintained for several decades in humans. It is believed that sperm may be stored for years.

Can frozen sperm cause birth defects?

In terms of birth defects and chromosomal abnormalities, no difference has been observed in children born after using frozen semen sample. Preimplantation genetic testing (PGT) is recommended to avoid the birth of an infant with high risk of inherited cancer.²



What are medico-legal problems related to male fertility preservation?

It includes:

- The use and disposal of sperms in case of death of the patient or nonpayment of storage fees.
- Posthumous use of these gametes.
- The third major issue is the legal rights of the child arising out of such an arrangement, if there is the demise of the patient who has stored the sperm.

(American Society of Reproductive Medicine (ASRM) and American Society of Clinical Oncology (ASCO))

What is the role of Gynaecologist for fertility preservation?

- The gynecologist is an essential part of an oncofertility team.
- Gynecologists are in a unique position, as they form the connecting link between the oncologists and the patients. It is important that the oncologists treating young adults in the reproductive age group with cancer refer them to their gynaecologists before starting any cancer therapy, to understand his/her options of preserving fertility. It is also important that the gynaecologists assist the patients and provide them the details of drugs used, the length of treatment and the chances of pregnancy - post cancer treatment.

What is meant by slow freezing?

- The slow freezing technique proposed by Behrman and Sawada. Progressive sperm cooling over a period of 2–4 h in two or three steps, either manually or automatically using a semiprogrammable freezer.
- The manual method is performed by simultaneously decreasing the temperature of the semen while adding a cryoprotectant in a stepwise manner and after plunging the samples into liquid nitrogen. It has been shown that the optimal initial cooling rate of the specimen from room temperature to 5°C is 0.5–1°C/min. The sample is then frozen from 5°C to –80°C at a rate of 1–10°C/min. The specimen is then plunged into liquid nitrogen at –196°C

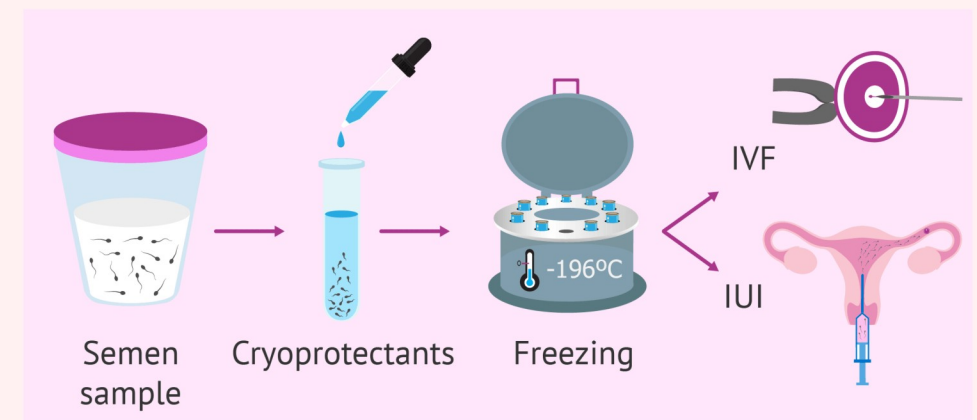
Are there any precautions to be taken before freezing ovarian cortical tissue?

There are many factors that should be taken care of, at the time of ovarian tissue freezing and grafting :

- Proper counselling of patients prior freezing
- Age of the patient at the time of freezing
- Ovarian reserve at the time of treatment
- History of cancer treatment
- Selection criteria for ovarian tissue cryopreservation
- Transportation of harvested tissue
- Method of ovarian tissue preparation
- Freezing-thawing techniques.
- Size and number of tissue frozen per device
- Transplantation techniques and graft sites
- Degree of ischemia after transplantation
- Number of follicles survived in ovarian grafts

Ref.

1. Harsha K Bhadarka et al. Study of Morphokinetics in Day 3 Embryo with Implantation Potential and Effect of Sperm Cryopreservation on embryogenesis. International Journal of Infertility and Fetal Medicine, May-August 2017;8(2):1-7 1)
2. Lansac J, Royere D. Follow-up studies of children born after frozen sperm donation. Hum Reprod Update. 2001 Jan-Feb;7(1):33-7.



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