



Sperm banking is a means of preserving a man's ability to make a woman pregnant when that ability is threatened by life's unanticipated events. A single sperm is a cell whose DNA holds a man's heritage, including the DNA memory of his parents and his parent's parents. As cells go, a sperm is a tough structure but a number of events can put its ability to contribute to reproduction at risk. Sperm banking is a way of minimizing that risk. Sperm banking can be thought of as a sort of biological insurance, a genetic spare tire if you wish, that can be used when a man's natural reproductive capacity is diminished. It is a good insurance policy. It remains in effect for decades.

Investigate our new NextGenSM program and donate from the privacy of your home. visit clevelandclinic.org/nextgen or 866.9BANKIN.

Who should think about sperm banking?

It is fortunate that many of the events that jeopardize the integrity of sperm and put a man's reproductive ability at risk can be anticipated.

These are:

- Cancers, such as prostate and testicular
- Diseases: obesity, diabetes, mumps orchitis
- Medical therapies: chemotherapy, radiation treatments, some surgeries
- Exposure to pesticides and other environmental chemicals
- Voluntary exposure to chemicals: alcohol, tobacco, anabolic steroids
- Vasectomy



What Can Impact Sperm?

Cancers – Testicular cancer carries the most obvious threat to sperm but newly-diagnosed Hodgkin's disease, lymphoma or leukemia can affect the quality of semen, the fluid that carries sperm. Testicular cancer is rare and highly treatable when diagnosed early. Even so, it is the most common cancer in boys and young men aged 15 to 34. For most men, these are the ages of parenting.

Other Diseases – Obesity is not a disease in the strictest sense but given the difficulty of resolving the problem, it is often classified as such. Diabetes has been shown to directly affect sperm DNA.

Medical therapies – Cancer is a powerful disease and requires powerful treatments. Any male patient receiving chemotherapy for any type of cancer should consider preserving his sperm. Radiation affects a number of cell types in the body to include spermatogonia, the stem cells that eventually become sperm. Chemotherapy regimens have been shown to put male fertility at risk, either directly by affecting the sperm or indirectly by upsetting hormonal balance. Surgeries for prostate or bladder cancer can involve severing the seminal vesicles, the conduits for the fluid that becomes semen. The procedures can also cut or damage the nerves involved in erections.

Environmental factors – Pesticides have been linked to male infertility and a number of other chemicals are suspected of posing risks.

Voluntary exposure – Tobacco use, heavy alcohol use, and the use of anabolic steroids for body building can affect male fertility.

Vasectomy – This is cutting the vasa deferentia, the vessels that carry sperm during ejaculation. It is an effective form of birth control and is a reversible procedure, although success rates for reversal depend on the time since the vasectomy and the experience of the surgeon performing the procedure.



Preserving sperm

The preservation process begins as soon as possible after a donation is made because the vitality of the sperm begins to deteriorate soon after it is produced. After a small sample is withdrawn for analysis, the sperm is put into several specially designed "cryo vials" along with a cryopreservative that will protect the sperm during freezing. The vial is placed in a freezer and its temperature is gradually lowered to below freezing. Dropping the temperature too quickly can be damaging. Once frozen, the vial is transferred to a container holding liquid nitrogen which over the course of 30 to 60 minutes will further lower its temperature to -196° Celcius. After a minimum of 48 hours have passed, another small sample is taken to check the success of the freezing process and its affect on the sperm. The vial is then transferred to a storage unit where it can be held at -196° Celcius indefinitely. The unit is specially designed to protect its contents against power outages and similar events.

For more information on NextGenSM sperm banking services call 866.9BANKIN



The current record for the successful use of frozen sperm is 22 years. A young leukemia patient now living in North Carolina had a sperm sample frozen in 1986 when he was a teenager. The sample was thawed and used to conceive a healthy baby girl, Stella, in 2008. The father has been free of leukemia ever since he was treated for the cancer in his youth.

The donation process

Cleveland Clinic offers two means of donating sperm, both of which require referral from a physician and completion of the appropriate paperwork. A donor can visit the Andrology Laboratory and Reproductive Tissue Bank on Cleveland Clinic's main campus in Cleveland, OH. Following completion of the appropriate paperwork, he will complete the donation process in private in a room designed for that purpose, or use the NextGenSM Home Sperm Banking program.

NextGenSM Home Sperm Banking

All of Cleveland Clinic's endeavors focus on putting the patient first. In keeping with this long-established tradition, the Andrology Laboratory recognizes that many patients may view sperm donation as a personal and private activity.

The Andrology Lab and Reproductive Tissue Bank has established the new and novel NextGenSM Home Sperm Banking Service. Individuals opting for this service will receive a specially-designed NextGenTM donor kit which is delivered to the patient's home with instructions for its use. Home donation alleviates the anxiety that may accompany donations in a clinic donation room. This program is ideal for men with cancer or underlying subfertility; pre-vasectomy patients who may want to cryopreserve in advance of their vasectomy; men with a desire to insure potential future fertility and military personnel going on long-term deployment.

Those interested in exploring this service, call 1-866-6546 (866.9BANKIN) Monday through Friday between 7:30 a.m. and 4 p.m., ET, to speak with a specialist who will explain the process in detail. He or she will acquire the necessary information and accept a credit card payment for the service during the conversation. The specialist will then coordinate the shipment of a collection kit to the comfort of your home. The NextGenTM kit contains collection materials, complete instructions and forms that require signatures. Once the sample is collected, it will be returned to the Andrology Lab at Cleveland Clinic. Tests will be conducted and results will be reported in a timely manner.

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Additional Information

'Therapeutic Sperm Banking' is preservation of sperm in the face of a disease such as cancer. Sperm should be donated as soon as possible after diagnosis to reduce risk to the sperm and allow cancer therapies to be initiated quickly.

Cryopreserving sperm does not increase the risks of birth defects when it is eventually used. Children conceived with preserved sperm are as healthy as those conceived naturally.

All sperm donated for cryopreservation undergo a standard analysis that includes:

- establishing the total number of sperm in the sample
- establishing the total number of live sperm in the sample
- the percentage and the number of sperm that are moving.

A wide variety of other tests may be conducted at the request of the patient's physicians or fertility specialists.

Preserving sperm should certainly be considered when sperm quality is less than optimal (when the sperm count is low or the sperm evidence weak or no motility.) Some conception procedures such as intracytoplasmic sperm injection (ICSI) require only a single sperm to be successful.

The laboratory should be notified four weeks in advance when donors or family members request withdrawal of the samples. Cleveland Clinic will ship specimens to any physician or laboratory that has the technology to keep the sperm frozen until it is to be used.

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