Male Infertility

Some male cancer survivors find that they are not able to have children due to the effects of cancer treatment. By identifying your risk for infertility, you can take steps before treatment to preserve your fertility. For survivors who have already completed treatment, there are other options for having children.

Male Infertility: Detailed Information

This information is meant to be a general introduction to this topic. The purpose is to provide a starting point for you to become more informed about important matters that may be affecting your life as a survivor and to provide ideas about steps you can take to learn more. This information is not intended nor should it be interpreted as providing professional medical, legal and financial advice. You should consult a trained professional for more information. Please read the Suggestions (http://www.livestrong.org/Get-Help/Learn-About-Cancer/Cancer-Support-Topics/Physical-Effects-of-Cancer/Male-Infertility#a#a) and Additional Resources (http://www.livestrong.org/Get-Help/Learn-About-Cancer/Cancer-Support-Topics/Physical-Effects-of-Cancer/Male-Infertility#a#a) sections for questions to ask and for more resources.

Cancer and treatment may put survivors at risk for infertility. Male infertility generally means an inability to produce healthy sperm or to ejaculate sperm. There are many different causes of infertility in cancer survivors including physical and emotional. Certain treatments can cause or contribute to this condition.

It is best to discuss the risks of infertility with your doctor before cancer treatment begins. However, there are options for survivors who experience infertility as a result of cancer or treatment. Set up an appointment with a member of your health care team to discuss any concerns or questions you may have. Keep in mind that you can ask for a referral to a fertility clinic or specialist for help with this important issue.

Learning that you are no longer fertile or that infertility could occur can affect you emotionally. If you want to have children, it is understandable that this could be upsetting. This document outlines the physical causes of infertility and options for survivors who experience difficulty having children. It does not discuss the emotional effects. Talk with your doctor if you think that infertility may be having an impact on your emotional well-being.
What causes infertility in men?

Fertility in men can be affected by a number of factors including:

- **Genetic**: Male infertility can be inherited, especially when Y-chromosomes are missing a tiny piece of genetic code. Men who have genetic causes of infertility may pass the problem to their sons if they are able to father a child through infertility treatments.
- **Hormonal**: Men whose hormones are out of balance can become infertile. This can sometimes be related to cancer or treatment.
- **Physical**: There may be physical reasons such as problems with the tubes that form the pathway for sperm to travel to the areas near the prostate. These tubes can be blocked by scar tissue after injury or infection. Lower sperm counts can also be caused by varicoceles or clusters of enlarged veins in the testicles.
- **Disease-related**: Some diseases or illnesses can cause lower sperm counts such as cancer, diabetes, mumps orchitis or tuberculosis.
- **Environmental**: Exposure to environmental factors can affect fertility such as high heat, radiation or pesticides.
- **Lifestyle factors**: Obesity, tobacco use, heavy drinking or using anabolic steroids for body-building can affect fertility.
- **Age**: Semen quality may decrease with age.
- **Cancer and treatment for cancer**: Some types of cancer treatment may interfere with a man's fertility, either temporarily or permanently

Which cancers are most likely to cause male infertility?

Some cancers are more likely to cause male infertility such as:

- **Testicular cancer**: Fertility may be poor during the two years before testicular cancer is discovered. Although only 1 to 3 percent of men with testicular cancer get cancer in both testicles, the cancer-free testicle may not be totally normal.
- **Newly-diagnosed Hodgkin's disease, lymphoma or leukemia**: Recent surgery, fever or physical stress experienced by survivors may affect the quality of semen.

Which cancer treatments are most likely to cause male infertility?
Cancer treatment, not cancer itself, is often the factor that damages a man's fertility. For example, radiation and chemotherapy treatments kill cells that are in the middle of dividing and growing at a time when they may be more easily damaged. Cancer cells divide much more often than most normal body tissues, so they are killed off while normal cells survive. However, hair and sperm cells are more sensitive to chemotherapy and radiation because they grow constantly.
Some of the concerns for specific types of treatment follow:

Radiation Therapy

- Radiation therapy can slow down or stop sperm cell production if the testicle is in or near the target area for the radiation. A lead shield can help protect the testicles during radiation aimed at a nearby organ such as the prostate.
- Total body irradiation used before some bone marrow transplants often causes permanent infertility.
- If the testicles get a mild dose of radiation, a man's fertility may drop but can then recover over the next one to four years.
- If the radiation dose to the testicles is high, sperm production may stop forever. This happens because the spermatogonia are destroyed. These are the stem cells in the testicles that divide and grow to produce mature sperm.
- Radiation damage to the part of the brain that controls hormone production can sometimes prevent the hormone messages from getting to the testicles.

Chemotherapy

- In high doses, cisplatin chemotherapy (Platinol) or bleomycin (Blenoxane, Bleomycin), that is often used to treat testicular cancer, can also damage fertility.
- The alkylating chemotherapy group does the most damage to fertility. These drugs include cyclophosphamide (Cytoxan), chlorambucil (Leukeran), busulfan (Myleran), procarbazine (Natulan, Matulane), nitrosoureas (Carmustine, Lomustine), nitrogen mustard (Mustargen), and L-phenylalanine mustard (Alkeran).
- A man is at higher risk for infertility if he gets two or more alkylating medicines, has higher doses of chemotherapy, or has a combination of chemotherapy and pelvic radiation.

Surgeries

- Radical surgery to treat prostate or bladder cancer removes the prostate and seminal vesicles. These glands make the liquid part of a man's semen. They also cut the pathway for sperm cells to be included in the semen.
- Men with testicular cancer or colon cancer sometimes have surgery that can damage nerves involved in orgasm. The result may be a “dry orgasm” or the sensation of pleasure, but without ejaculating any semen.

What are symptoms of male infertility?

Men usually do not have any symptoms of infertility unless they have dry orgasms. They generally do not realize that they are infertile until they have a semen analysis and discover that the semen quality is low. If you are curious about your own fertility, talk to your doctor about being tested.
How can a man's fertility be tested?

A semen analysis tests a man's fertility. A sample is collected very soon after ejaculation and examined under a microscope. The analysis usually includes at least three scores that define semen quality:

- The sperm count is the number of sperm present. A normal count is at least 20 million sperm per milliliter of semen.
- The motility is the percentage of sperm that are actively swimming around. At least 50 percent of the sperm should be motile.
- The morphology is the shape of the sperm. It is considered normal if at least 30 percent of the sperm have an ideal shape. Some labs use a different (Kruger) scoring system which is stricter—only 14 percent of sperm cells need to have an ideal shape with this system.

When does cancer-related infertility start and how long does it last?

Infertility is most likely to happen before cancer treatment and just after treatment is finished. It is possible that an analysis may say you are infertile, yet the results may change over the next month or even years.

If a man is going to recover sperm production, his semen analysis will usually improve within one to three years after he finishes cancer treatment. However, some men have had improvements many years later. It is important that men be aware that an abnormal sperm analysis should not be counted on as an effective means of birth control.

What are some options for a man whose fertility was or will be affected by cancer or treatment?

Options for men who have concerns about the effect of cancer or treatment on fertility include:

- Sperm banking
- Testicular tissue freezing
- Donor sperm
- Adoption

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Works Cited


**Male Infertility: Suggestions**

The suggestions that follow are based on the information presented in the Detailed Information (http://www.livestrong.org/Get-Help/Learn-About-Cancer/Cancer-Support-Topics/Physical-Effects-of-Cancer/Male-Infertility#a#a) document. They are meant to help you take what you learn and apply the information to your own needs. This information is not intended nor should it be interpreted as providing professional medical, legal and financial advice. You should consult a trained professional for more information. Please read the Additional Resources (http://www.livestrong.org/Get-Help/Learn-About-Cancer/Cancer-Support-Topics/Physical-Effects-of-Cancer/Male-Infertility#a#a) section for links to more resources.

**The following are fertility options that may be available for male cancer survivors:**

**Sperm Banking**

**How it is done:**

- Before beginning chemotherapy or radiation, a semen sample is produced at a medical laboratory or sperm bank.
- A semen analysis is done. As long as the sample contains some live sperm cells, it can be frozen and stored for future use in infertility treatment.
- Once frozen, samples can be kept for at least 10 to 15 years (possibly longer) without further damage.
**Cost:** Most health insurance plans do not cover the cost of storing frozen semen. However, many do pay for semen analysis. Many sperm banks have monthly payment plans to make banking more affordable.

**Who can do it:** Males who have reached puberty (even as young as age 12 or 13) can bank sperm for as long as the semen contains enough live and healthy sperm.

**Where to bank sperm:** Most large cities have sperm banks that can be found listed in the yellow pages. A member of your health care team may be able to give you a referral. If a sperm bank is not located near your home, you can find sperm banks on the Internet. Check with a member of your health care team to find out if the sperm bank is reputable.

Some sperm banks provide express mail kits to men who want to collect their semen at home. Some work with a local laboratory to process your sample and send it to the sperm bank.

**In Vitro Fertilization - Intracytoplasmic Sper m Injection (IVF-ICSI)**

**How it is done:**

- The woman who will carry the child must undergo hormone shots for several weeks to stimulate her ovaries to ripen more than one or two eggs.
- The woman's eggs are harvested or collected through a minor outpatient surgery.
- The harvested eggs are cleaned in the laboratory and stored in individual dishes to be ready for fertilization.
- The embryologist uses a special microscope to choose a healthy-looking sperm and injects it into an egg. If all goes well, several embryos can be created.
- One, two, or (occasionally) three embryos can be placed into the uterus of the female partner in the hopes that they will implant and start a pregnancy.

**Cost:** IVF-ICSI is expensive and involves some medical risks for the woman. However, it is also very successful, especially if the woman has normal fertility and is younger than age 35.

**Who can do it:** Since only a few sperm are needed, IVF-ICSI is a good option for men who have poor semen quality or have sperm with poor motility.

**Intrauterine Insemination (IUI)**

This option is for men with semen quality that is closer to normal.

- A man's semen sample is purified and concentrated to contain as many active sperm as possible.
- In a doctor's office, the sample is put in a thin catheter (tube) and slipped directly through the woman's cervix into her uterus to give the sperm a head start on fertilizing the egg.
• The procedure is done at a woman's midcycle, her fertile time of month. Sometimes the woman is given extra hormones to ripen more than one egg, but not in the high doses used in IVF.

**Donor Insemination**

• A man donates his sperm. The survivor may choose someone that is known personally or donor sperm from a sperm bank may be used.
• The semen is used as in IUI to create a pregnancy

**Adoption**

• Adoption is accepting legal responsibility for an orphaned child. Contact an adoption agency for more information.

**Cost:** The process can be expensive ($5,000 to $40,000) and may take a long time.

**Who can do it:** Adoption agencies have screening processes for anyone who wants to adopt. Talk with your health care team about getting any documentation that may be needed to confirm that you are healthy and able to care for a child.

**Male Infertility: Additional Resources**

**LIVESTRONG Care Plan**
[www.livestrongcareplan.org](http://www.livestrongcareplan.org)

This free online tool was created to help you develop a personalized plan for post-treatment care. It can help you work with your oncologist and primary health care provider to address medical, emotional and social challenges that may arise after cancer treatment is completed. By answering some questions related to your cancer treatment, you will receive information about your follow-up care. This information includes symptoms to watch for in the future and steps you can take to stay healthy.

**LIVESTRONG Navigation Services**

Online: Complete an intake form through the LIVESTRONG website.
Phone: 1.855.220.7777 (English and Spanish)
Navigators are available for calls Monday through Friday, 9 a.m. to 5 p.m. (Central Time). Voicemail is available after hours.

LIVESTRONG offers assistance to anyone affected by cancer, including the person diagnosed, loved ones, caregivers and friends. The program provides information about fertility risks and preservation options, treatment choices, health literacy and matching to clinical trials. Emotional support services, peer-to-peer matching and assistance with financial, employment and insurance issues are also available. To provide these services, LIVESTRONG has partnered with several organizations including Imerman Angels, Navigate Cancer Foundation, Patient Advocate Foundation and EmergingMed.
Cancer Hope Network
www.cancerhopenetwork.org

Cancer Hope Network is a not-for-profit organization that provides free and confidential one-on-one support to cancer patients and their families. They offer support by matching cancer patients or family members with trained volunteers who have already undergone and recovered from a similar cancer experience. You can submit your request by phone or by email. A volunteer will try to contact you within 24 hours.

Fertile Hope
www.fertilehope.org

Email: fertilehope@fertilehope.org
Phone: 1-888-994-2353

Fertile Hope is a national, nonprofit organization dedicated to providing information, support and hope to cancer patients whose medical treatments present the risk of infertility. Fertile Hope works with cancer patients and survivors through programs of awareness, education, financial assistance, support and research. Fertile Hope produces a wide array of free publications for you to read or order. You can also download transcripts from lectures, teleconferences and events.

MyOncofertility.org
www.myoncofertility.org

MyOncofertility.org is a patient education resource provided by the Oncofertility Consortium. This website provides information and tools to educate young adults about fertility preservation options before, during and after cancer treatment. Resources include survivor videos related to fertility issues that were obtained through Gilda's Club in Chicago. The site contains 126 fertility expert videos and 90 cancer survivor stories.

RESOLVE: The National Infertility Association
www.resolve.org

RESOLVE: The National Infertility Association provides support, education and advocacy to those dealing with infertility. The website provides timely information related to all family building options, including assisted reproductive technology, third party donors, adoption, and living childfree. The website offers information about local RESOLVE support groups, educational events, and facts about state insurance coverage for the diagnosis and treatment of infertility. There are also a variety of RESOLVE publications and online social networking communities.
Society of Assisted Reproductive Technology
www.sart.org

The Society for Assisted Reproductive Technology is an organization of medical professionals who treat infertility. SART promotes and advances the standards for the practice of assisted reproductive technology. The website includes information on assisted reproductive technologies such as in-vitro fertilization, gamete intrafallopian transfer and tubal embryo transfer. Information includes step-by-step descriptions of some procedures and a look at both the financial and emotional effects of assisted reproductive technology. The site also includes a search tool to find practitioners in your area and links to other resources.

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1-877-HOPE NET (1-877-467-3638)
Phone: This number is answered Monday-Friday, from 8:00 a.m. to 5:30 p.m. (EST). Voicemail is available after hours.

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