

Fertility preservation

How common is cancer in adolescents and young adults?

Around 1000 Australian males aged 15 to 29 are diagnosed with cancer each year. The most common cancers in adolescent and young adult males are melanoma (skin cancer), Hodgkin's disease and cancer of the testis.

How does cancer affect fertility in men?

For many adolescent and young adult survivors of cancer the chance of having children later in life can be affected by cancer or more commonly cancer treatment. At the time of diagnosis future fertility and parenthood may not seem a high priority. However, the best time to take steps to preserve fertility is before cancer treatment starts. Cancer also affects older men who may still want to have children. Cancer treatments in these men also affects their fertility and they should think about fertility preservation before cancer treatment.

Any type of cancer, especially a more aggressive cancer, can affect sperm production. Males diagnosed with testicular cancer often have lower fertility before treatment starts. Treatment can reduce

The main option for fertility preservation is sperm storage before cancer treatment starts

fertility further.

In the longer term following a cancer diagnosis, many men will still be able to father healthy children naturally, even if they have a lowered sperm count.

How do cancer treatments affect male fertility?

Cancer treatments include surgery, radiation and chemotherapy. Cancer treatments can cause temporary (up to five years following treatment) or long-term (permanent) fertility problems. The level of fertility after treatment depends on the type(s) of treatment used, the duration of treatment,

and the age and fertility of the man before diagnosis.

For men who are sexually active, it is important that conception does not happen during cancer treatment; sperm DNA can be damaged during treatment and for some time afterwards. Contraception should be discussed with the doctor.

How does chemotherapy affect sperm production?

Chemotherapy or 'chemo' is a very common form of cancer treatment. Chemotherapy medicines act to stop or slow the growth of cancer cells.

Chemotherapy also attacks normal cells, such as the cells in the lining of the sperm-producing tubes in the testis. Chemotherapy can temporarily or permanently destroy developing sperm cells and hormone-producing cells.

How does radiotherapy affect sperm production?

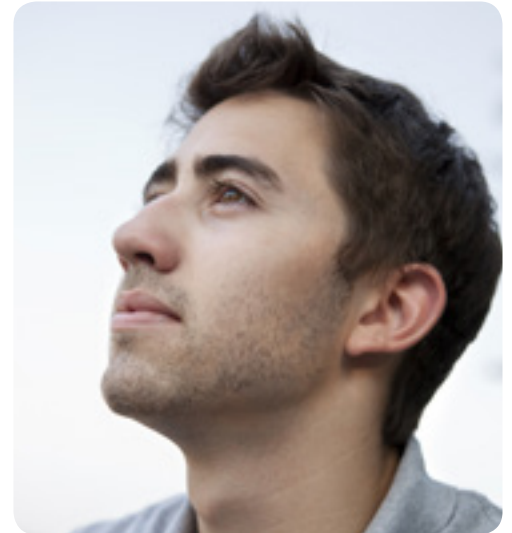
Radiation treatment or 'radiotherapy' uses high energy X-rays to kill cancer cells in a specific area while limiting damage to normal cells. Radiotherapy for testicular or other cancers near the testes can damage the testis, leaving permanent problems with sperm production.

Radiotherapy to the whole body (used before a bone marrow transplant) and radiation to the brain can also lower male fertility by affecting the glands that make hormones that act on the reproductive system.

As radiation to the testes can cause genetic damage in the early development stages of sperm (germ cells), it is best to avoid attempting a pregnancy for six to 12 months (depending on the type of treatment) after radiotherapy.

How does surgery affect fertility?

Fertility can be affected when a man has a testis surgically removed (orchidectomy) to treat testicular cancer. Cancer in a single testis may not affect the chance of having children if the remaining testis continues to make testosterone (male sex hormone) and sperm. Surgery within the



pelvic region (such as for bladder or colon cancer) can sometimes damage nerves in the region leading to erection and/or ejaculation problems.

What is fertility preservation for males with cancer?

If you are diagnosed with cancer as an adolescent or young adult, it is important to consider your fertility, as you may wish to have children in the future. If you are an older man with a cancer diagnosis, you may also want the option of having children in the future. Your fertility can be preserved before treatment for cancer begins, so it is important to know about the risks and options soon after cancer is diagnosed. Many health professionals are able to help and support you when making decisions about preserving fertility. The main option for preserving fertility is semen or sperm storage (sperm banking) before cancer treatment starts.

Why is sperm storage important?

All men with hopes for future fertility, who are going to have chemotherapy or radiotherapy should speak to their doctors about their fertility before treatment begins. It is highly recommended that semen samples are produced (through masturbation), if possible, for sperm storage (also known as sperm banking) before chemotherapy or radiotherapy.

Semen can be frozen and stored long-

term for future use. If a man wants to father a child at a later stage, the frozen semen is thawed and used in fertility treatments such as IVF (in vitro fertilisation). Modern treatments can be successful with just a few moving sperm.

When should sperm be stored?

It is recommended that sperm are collected before treatment begins but if that is not possible, in some cases sperm can be collected within certain periods during treatment. You should talk to your doctor about this.

Where can sperm be stored?

Specialist centres providing IVF and other assisted reproductive technology often have sperm storage facilities. Sperm are frozen and kept in liquid nitrogen (-196°C) for long-term storage.

What other options may be available to store sperm?

Some males are not able to produce a semen sample by masturbation because they feel so unwell or anxious, or are unable to get an erection or ejaculate for various reasons. In some cases, tissue samples containing sperm can be taken from a small piece of testicular tissue (biopsy). If sperm are found, the sample is frozen and stored for later use.

Are there problems with children born to males after cancer?

There are no known risks to children born using frozen sperm collected from males before cancer treatment. If your sperm are collected during treatment, it is important to speak to a genetic counsellor about any possible risks to children conceived from those sperm.

How is frozen sperm used later for fertility?

Stored sperm is thawed and can be used in either of the following ways to achieve a pregnancy, depending on the amount and quality of the sperm:

- artificial insemination/intrauterine insemination (IUI): semen is transferred into the uterus via the vagina with a small tube
- IVF: the woman is given hormones so her ovaries release several eggs. The eggs are removed in a small operation, fertilized with the sperm in a laboratory and then placed into the woman's uterus.

When is the best time to talk to your doctor?

The best time to talk about fertility is as soon as possible after your cancer diagnosis. This will allow time to get all the information you need to make a decision about fertility preservation.

Who can you talk to about cancer and fertility?

At the time of a cancer diagnosis you may have many feelings and thoughts about what cancer means now and in the future.

Health professionals involved in cancer treatment can talk to you about possible risks to your fertility. You may be referred to a fertility specialist and social workers, psychologists or genetic counsellors may be available. Parents, partners or family members can be helpful at this time.

What factors might influence your decision?

The decision to store sperm is a very personal one. The cultural or religious beliefs of a young man and his family, or his sexual orientation, may be important factors in his decision. Guidance from family and health professionals may be important for you when making a decision about cancer treatments and fertility. Sperm storage for boys and adolescents with cancer needs careful management. It can be difficult for males to come to terms with the diagnosis of cancer at a young age and fatherhood is not usually the main concern. Producing a semen sample by masturbation can be stressful for young men. Family support and encouragement without pressure can

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be extremely valuable.

How is fertility followed up after cancer treatments have finished?

Follow-up after cancer treatment depends on the type of cancer and the treatment. It is important to see a specialist for long term follow-up. Regular semen testing will check if fertility has been reduced and if it improves over time. Sometimes cancer and/or treatments lead to low testosterone levels that may need testosterone replacement therapy. Testosterone levels can be checked with a blood test. A referral to a fertility specialist may be needed when thinking about having children. The fertility specialist will talk about your options if fertility has not returned to normal.

Where can I find more information and support?

- *CanTeen*: www.canteen.org.au
- *Maybe Later Baby*: booklet available at www.canteen.org.au
- *Andrology Australia* consumer guides: *Male Infertility and Testicular Cancer*
- *Future Fertility patient* resources at <http://www.futurefertility.com.au/resources/>
- Victorian Assisted Reproductive Treatment Authority (VARTA) at <https://www.varta.org.au/information-and-support>
- *Cancer Council* Information and Support: Tel: 13 11 20
- Oncology or fertility departments at major hospitals and assisted reproduction clinics



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