

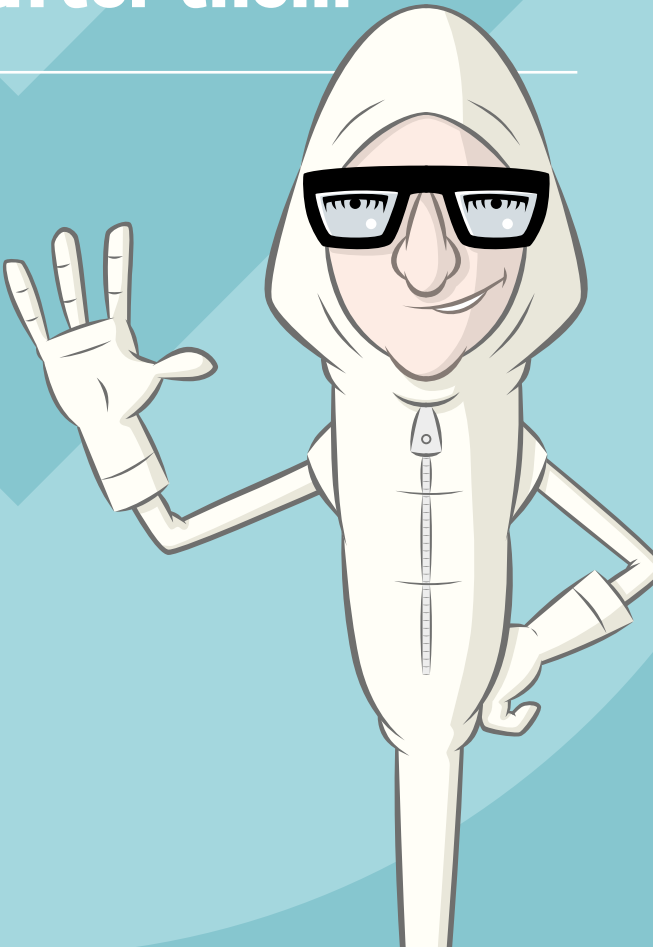


**HEALTHY MALE**  
ANDROLOGY AUSTRALIA

---

# Your sperm and how to look after them

---



---

**You might not think about your ability to have children (your fertility) or the health of your sperm until the time comes to start a family. But whatever your age or relationship status, it's a good idea to protect your fertility so that natural conception can happen if, and when, you're ready to have children.**

To give yourself the best chance of conceiving a child, it's important to know how your reproductive system works and to keep in mind the medical, lifestyle and environmental factors that can harm your sperm and reduce fertility.



# Contents

<b>THE SPERM'S JOURNEY</b>	<b>6</b>
<b>THE MALE REPRODUCTIVE SYSTEM</b>	<b>7</b>
<b>FACTORS THAT CAN HARM YOUR SPERM</b>	<b>11</b>
Infections	11
- Sexually transmitted infections	11
- Prostate infections	12
- Epididymo-orchitis	12
- Mumps	13
Drugs	14
- Prescribed drugs	14
- Treatments for cancer	15
- Illegal drugs	15
Medical treatments	17
Testicle problems	18
- Undescended testicles	18
- Twisted testicle	19
- Small testicles	20
Sporting & recreational injuries	21
Heat	22
Lifestyle issues	23
- Smoking	23
- Alcohol	24
- Weight	24
- Diet and vitamins	25
Age	26
Environment	27
- Endocrine disrupting chemicals	27
- Workplace environments	27
How can my sperm affect the health of my child?	28
Vasectomy	29
<b>STORING SPERM FOR LATER</b>	<b>30</b>



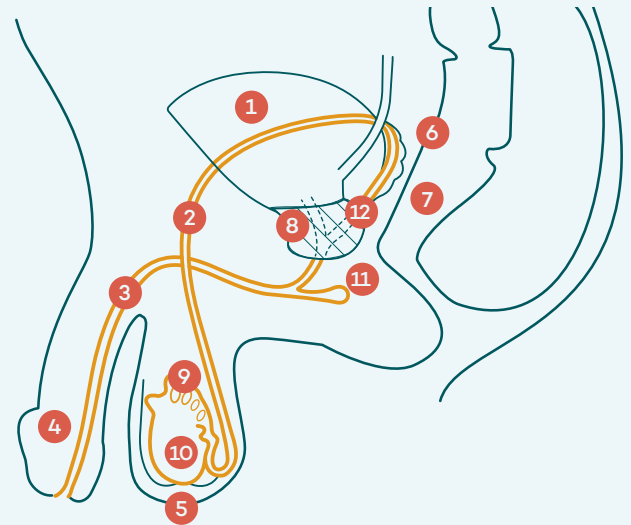
## THE SPERM'S JOURNEY

**Sperm and testosterone (the male sex hormone) are made in the testicles, so it's important to care for them to protect your reproductive health.**

After sperm are made in the testicles, they travel through the male reproductive system along with a few drops of fluid. As the sperm move through the system, they mix with more fluid (made by the prostate and seminal vesicles) until the whole combination (semen) is released (ejaculated) at sexual climax (orgasm).

## THE MALE REPRODUCTIVE SYSTEM

Your reproductive system is made up of many individual organs acting together. Some are visible, such as the penis and the scrotum. Some are hidden inside your body, such as the prostate.



- |                   |                     |
|-------------------|---------------------|
| 1 Bladder         | 7 Rectum            |
| 2 Vas deferens    | 8 Prostate gland    |
| 3 Urethra         | 9 Epididymis        |
| 4 Penis           | 10 Testicle         |
| 5 Scrotum         | 11 Cowper's gland   |
| 6 Seminal Vesicle | 12 Ejaculatory duct |

## Penis

The penis is made up of two erectile cylinders (corpora cavernosa) that swell with blood during erection. A tough, fibrous, partially elastic outer casing surrounds the two cylinders. Your urethra sits below the two cylinders and is surrounded by a spongy tissue (called the corpus spongiosum). If you're uncircumcised, the head of the penis (glans penis) is covered by foreskin.

## Urethra

The urethra (you-ree-thrah) is a tube that runs from your bladder to the end of the penis. It carries urine and semen from your bladder to the outside of your body.

## Scrotum

The scrotum is a loose pouch of skin that hangs outside your body from your lower abdominal region behind the penis. Your scrotum holds your testicles in place, and helps to keep them cooler than your core body temperature.

## Testes

The testes, or testicles, are a pair of egg shaped glands that sit in your scrotum, next to the base of the penis on the outside of the body. You need testicles for your reproductive system to work normally.

The testicles have two related, but separate roles:

- To make sperm
- To make testosterone.

## Epididymis

Your epididymis (ep-ee-did-ee-miss) is a thin, coiled tube that lies at the back of each testicle and connects the testicle to another single tube, called the vas deferens.

## Vas deferens

The vas deferens (vaas def-er-ens) is a muscular tube, about 30 cm long, that connects the epididymis to the urinary tract (urethra) at the back of the bladder. The main job of the vas deferens is to transport mature sperm and semen to the urethra.

## Ejaculatory duct

The ejaculatory duct is a tube that joins the vas deferens and the seminal vesicle. The ejaculatory duct empties mature sperm and semen into the urethra.

## Seminal vesicles

The seminal vesicles (sem-in-al vess-ick-ells) are two small glands that sit directly above your prostate gland, near the base of your bladder. These glands are very active, and create a fluid that makes up more than half of the semen volume.

## Prostate

The prostate is a small but important gland. The main role of your prostate is to make fluid that protects and gives nutrients to sperm. Your prostate makes about one third of the fluid that is ejaculated from the penis when you orgasm.

## Cowper's glands

Cowper's glands are a pair of pea-sized glands that sit near your prostate. These glands produce clear mucus that's released before ejaculation to neutralise any urine that might be left in your urethra. This fluid also acts as a lubricant.

## Bladder

The bladder is a muscular sac that stores urine. The bladder receives urine from the kidneys. When the bladder is full, urine is released into the urethra, the tube that carries the urine out of the body.

## Rectum

The rectum is the final 20 cm strip of the large intestine. Bowel motions (faeces) are stored in the rectum before being passed out during a bowel movement.

## Sperm

Sperm are male reproductive cells that contain the father's genetic information (DNA) that will be passed on to his children. Each sperm takes about three months to mature. Mature sperm have a tail, allowing them to move inside the female reproductive tract to meet the egg (female reproductive cell).

## Semen

Semen is the fluid that transports the sperm during ejaculation. During an orgasm, sperm are released from the epididymis, and are mixed with fluid released by the prostate gland and the seminal vesicles. This creates semen. The semen fluid protects and provides nutrients to the sperm.

## FACTORS THAT CAN HARM YOUR SPERM

---

### INFECTIONS

#### Sexually transmitted infections (STIs):

Gonorrhoea, chlamydia, syphilis, warts... these little nasties are not only be painful, but some of them can affect your fertility. STIs, especially untreated gonorrhoea and chlamydia, can cause blockages in the sperm tubes. This means that sperm can't move on from the testicles (where they are produced) into the semen to then be ejaculated. There are surgeries that can fix the blocked tubes, but they sometimes don't work and aren't always possible.

It's essential to practice safe sex by using a condom to stop infections. Some infections like chlamydia might not show any symptoms, but internal damage can still be happening.

If you think you have a STI, it's important to see a doctor and get treatment straight away. The quicker you get treatment, the lower your chance of getting blockages in your reproductive system. Chlamydia can also cause fertility problems in women, so getting treatment is also important to stop the spread of disease to a female sexual partner.

Practicing safe sex by using condoms is the only thing that can stop STIs from being passed to or from a partner. This means that using condoms hugely reduces your chances of developing tube blockages and permanent damage to your reproductive system.

## Prostate infections:

The prostate sits underneath the bladder, and adds fluid to protect sperm on their journey through the reproductive system.

Infections of the prostate, known as prostatitis, can cause fever and pain in the abdomen. As the sperm move through the prostate into the urethra, swelling of the prostate can stop sperm from passing through the reproductive system. White blood cells developed from the infection can also damage sperm.

Some STIs can cause infection in the prostate (bacterial prostatitis) - another reason it's important to use protection!

---

## Epididymo-orchitis:

Painful or swollen testicles might be the result of epididymo-orchitis (pronounced ork-eye-tis). Usually caused by an infection, they're often painful and can be hard to ignore.

This viral or bacterial infection happens in the tube that carries sperm out of the testicles, and spreads back into the testicle. It can last for several days.

Epididymo-orchitis usually happens because of infections in the urinary system. It can cause permanent blockages and damage to the testicles (and the ability to make sperm), but this is rare. It's important to get treatment for the infection early to stop blockages and other damage from happening.



## Mumps:

Mumps is a viral infection that can be caught by anyone at any age, but it's much more dangerous for adult men.

Besides causing swelling of the salivary glands, fever, and headaches, mumps can also cause inflammation and pain in the testicles.

The mumps virus can destroy the tubes that make sperm, and permanently stop sperm production. Even mild cases of mumps can stop sperm production for a short time (six to twelve months).

***It's important for young boys to be vaccinated against the mumps virus to protect their long-term fertility. To check whether you've been immunised, ask your doctor or parents. Adult men who have missed out as children can still be vaccinated.***

## DRUGS

---

### Prescribed drugs:

If you've had cancer or a kidney problem, you might have been prescribed a drug called cyclophosphamide that can cause long-term fertility problems.

Salazopyrin, which is a drug prescribed to treat inflammatory bowel disease, ulcerative colitis, Crohn's disease, and other conditions such as rheumatoid arthritis, can also cause fertility problems.

Testosterone prescribed as part of hormone replacement therapy acts as a powerful contraceptive, so before undertaking treatment be sure to discuss your fertility plans with your doctor. When testosterone treatment is stopped, sperm production takes several months to return.

Antidepressants and sedatives can also have a negative effect on sexual performance.

***Ask your doctor about treatments for serious conditions like cancer, bowel, immunological or kidney problems, which can damage fertility. Before having these treatments, you might want to consider sperm storage. You can also talk to your doctor about when it is safe to try and conceive naturally after these treatments have stopped.***

### Treatments for cancer:

Cancer affects people of all ages. Radiation or chemotherapy drugs are often given as treatment to kill the cancer cells. These drugs can cause short-term or long-term fertility problems. Radiation works by attacking and destroying rapidly dividing cancer cells. This means that radiation therapy for testicular cancer, or other cancers near the testicles, can easily damage the nearby cells that help produce sperm.

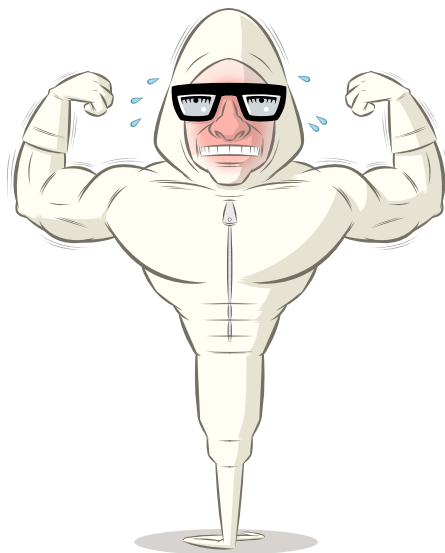
Although fertility might not be the first thing you think about when diagnosed with cancer, radiotherapy and chemotherapy can cause long-term problems with sperm production. Often, sperm can be stored before starting treatments, so that IVF and other reproductive treatments can be used later on if you want to have children.

See 'Storing sperm for later' on page 30.

---

### Illegal drugs:

Fertility can be affected by illegal drugs, such as marijuana, cocaine, and heroin, because they lower testosterone levels and sex drive.





Many other illegal drugs can also affect sexual performance, reduce sperm production, and damage the sperm themselves.

Taking steroids (also known as anabolic steroids) for bodybuilding or competitive sports damages your body, and can have serious consequences for fertility.

Anabolic steroids are a synthetic version of the male sex hormone testosterone. Taking 'man-made' testosterone can have unwanted side-effects, including acne and weight gain, and can cause the testicles to shrink, which stops sperm production in its tracks. Anabolic steroids also cause problems with other reproductive hormones, and can affect your erections.

Once you stop taking anabolic steroids, sperm production can take one to two years to recover, and there's no guarantee that your fertility will ever fully return.

***It's impossible to avoid the risks that come with using illegal drugs, including steroids - so the best idea is not to take the risk.***

## MEDICAL TREATMENTS



If you're having a surgical procedure where you need to be given a general anaesthetic (which means getting 'knocked out'), the anaesthetic can lower your sperm count for a short time.

Surgery within the pelvis (for cancer, prostate or bowel problems) can damage nerves, and create serious problems with erections and ejaculation.

Getting sick with a fever can also make sperm production drop off, and it can take several months for sperm counts to recover. This means it's a good idea to wait a couple of months after any major surgery or illness, especially illness with a fever, to start trying for a family.

## TESTICLE PROBLEMS

---

### Undescended testicles:

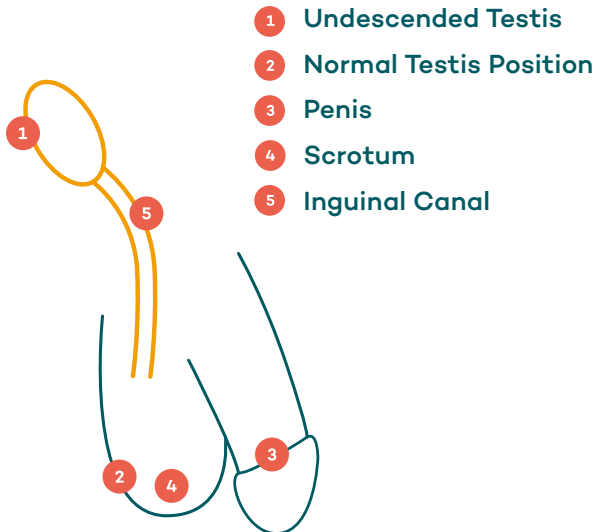
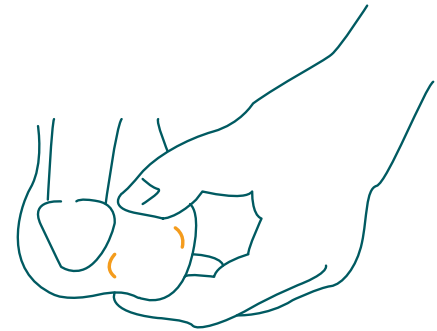
When you're in the womb, your testicles grow in your abdomen. Before or just after you're born, they move down into the scrotum. When testicles don't move into the scrotum around the time of birth, they're called undescended testicles.

Testicles might not move down into the scrotum because they are 'stuck' in the groin or still inside the abdomen. Because the abdomen is warmer than the scrotum, the extra heat causes damage to the sperm-producing tubes in the testicles. The longer the testicles spend in the abdomen, the more sperm production in later life will be affected because of damage to the tubes.

Even when undescended testicles are surgically corrected in early childhood, there's a much higher chance you'll have fertility problems later in life.

Undescended testicles also raise the risk of testicular cancer.

***If you know that you had undescended testicles as a child, you should check your testicles regularly for lumps and go to the doctor if you notice any changes in your testicles.***



### Twisted testicle:

Sometimes the testicle can twist in the scrotum and cut off the blood supply, causing the testicle to swell up. If you have a twisted testicle (also known as torsion of the testicle), you'll know it because you'll be in extreme pain. This most commonly happens in teenagers and young men.

This condition is a medical emergency and needs to be operated on immediately. If it's not treated quickly (within six to eight hours at the very most), the testicle will not receive proper blood supply and it will die.

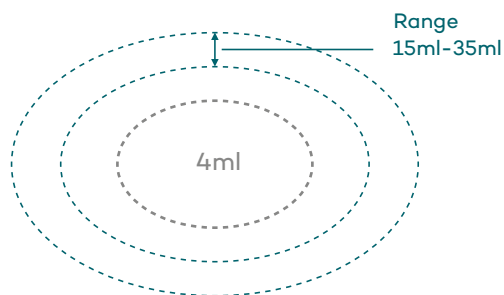
***If you experience extreme pain in your testicle, don't be embarrassed - go to hospital straight away.***

## Small Testicles:

Small testicles are often a sign of problems with fertility or hormone levels. But how small is small? If you're an adult, and your testicles are around the size of a green grape, this could be a sign that your testosterone levels are low, and you might have problems getting a partner pregnant.

It's important to know what size is normal when it comes to your testicles. If you think your testicles might be on the small side, make an appointment to see your doctor for a full health check that includes a quick measure of your testicles.

### Testicle size chart (actual size):



#### Abnormal testicle size range

Less than 15ml

(4ml testicle is shown)

#### Normal testicle size range

15ml-35ml

## SPORTING AND RECREATIONAL INJURY



Severe injury to the testicles can happen in many settings, such as a blow from a blunt object, being stabbed with a sharp object, or being crushed in heavy machinery.

There is nothing funny about 'a kick in the nuts' – besides severe pain, a ruptured testicle can cause long-term problems with fertility.

If you're in a dangerous job or play high contact sport, it's a good idea to wear safety gear to protect yourself.

## HEAT

---

To produce quality sperm, your testicles need to be a couple of degrees cooler than your core body temperature. Normally the scrotum works as an 'evaporative air cooling' system by sweating. But if it's too hot, and the scrotum can't sweat, your testicles will have trouble making sperm.

This means that taking very hot baths or spas regularly isn't a good idea. If the scrotum has been too hot for too long, sperm production stops, and doesn't start again until the temperature of the scrotum is back at its normal level. Because it takes about 70 days for sperm to be made, it might take a few months for your sperm count to bounce back.

Additionally, studies have found that wearing loose-fitting underwear is better for your sperm count. Wearing boxer shorts can help keep things cool down there.



## LIFESTYLE

---



### Smoking:

Tobacco smoking is a major cause of many health problems, including lung cancer, emphysema, and heart disease.

Another reason to quit is that smoking cigarettes reduces your fertility - heavy smokers produce up to 20 percent fewer sperm than non-smokers. Smoking can increase the number of abnormally shaped sperm and affect the sperm's swimming ability, making it harder for sperm to reach and fertilise the egg.

New evidence shows that the sperm DNA (genetic material) is damaged by the chemicals in tobacco smoke. This can lower the chance of a healthy pregnancy, and can affect your child's future health.

## Alcohol:

Drinking alcohol is a part of daily life for some people, and drinking in small amounts is not harmful to fertility.

However, binge drinking and regular heavy drinking can harm your health. Drinking heavily can cause liver problems and affect a whole range of body functions, including sexual and reproductive function. It can reduce testosterone levels, affect your ability to get an erection, and reduce sperm count and quality.

## Weight:

The number of overweight and obese men in Australia is rising rapidly.

Men who are obese are particularly at risk of fertility issues as they are less fertile than men of normal weight, have lower sperm counts, and

fewer sperm that can swim well. Obesity can also damage the sperm's DNA.

We are not sure why obesity affects fertility, but changes in hormone levels and the presence of too much heat around the scrotum are likely causes. Sexual problems, such as difficulty getting an erection, are also more common in obese men. Weight loss can help improve fertility.

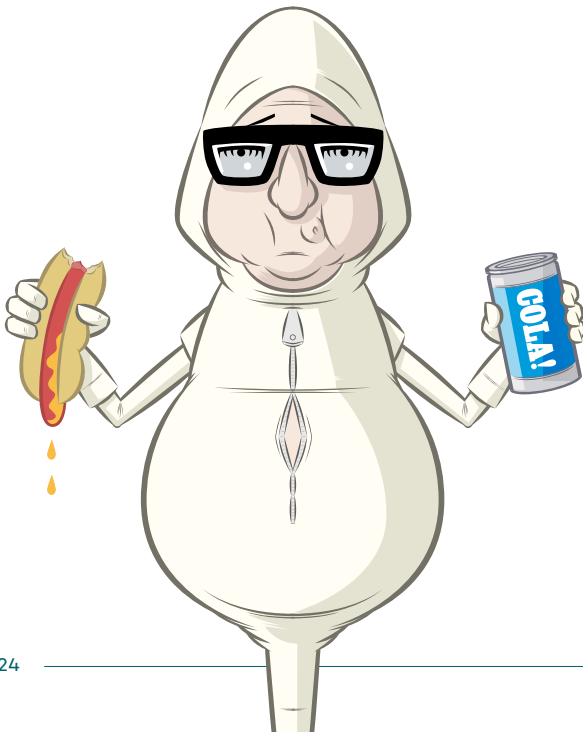
## Diet and vitamins:

Having a balanced and nutritious diet is important for your overall health and wellbeing, especially when trying to start a family.

Sometimes, foods such as fenugreek or pumpkin seeds, walnuts, as well as vitamins such as zinc, vitamin C, D and E and various antioxidants are promoted as improving fertility in men.

However, there is no strong scientific evidence to show that specific foods or other natural therapies improve fertility. Eating healthily is associated with better fertility, but you can't rely on specific foods or expensive supplements to strengthen your sperm.

***Living a healthy lifestyle, including watching your weight, having a healthy diet, exercising regularly, not smoking, and only drinking alcohol in moderation, is the best way to help keep your sperm happy and healthy.***



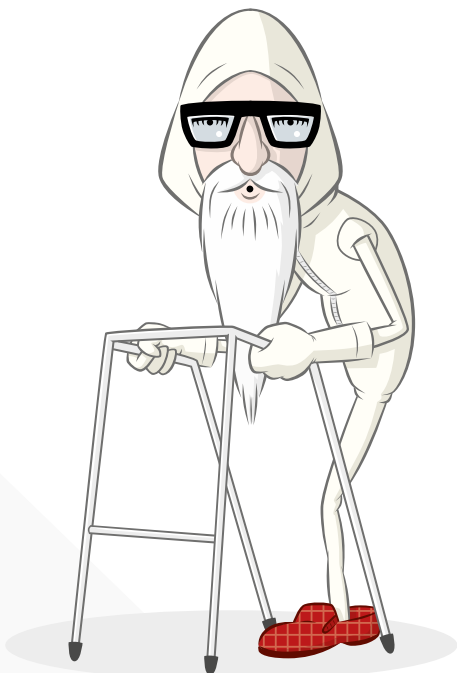
## AGE

---

As you enter middle age, you become less fertile, and it can take longer for you and your partner to achieve a successful pregnancy. Sometimes this is because middle aged people have less sex, but it can also be because of erectile problems, or other health issues that become more common as you get older.

Even if you're very fit and healthy, the amount of semen, sperm movement and sperm DNA quality is lower in older men. Not only does this lower your fertility, it increases the risk of your partner having a miscarriage.

***It's important that you understand the effects of age on your fertility. If you and your partner plan to have children, keep in mind that fertility lessens with age.***



## ENVIRONMENT

---



### Endocrine disrupting chemicals:

Being aware of the harmful chemicals that you're exposed to in day to day life, and taking precautions to reduce your exposure to them, can help reduce their potential effects on sperm.

Studies have suggested that a particular group of chemicals called endocrine disrupting chemicals (EDC) are likely to cause male infertility and reduce sperm quality. These EDCs are found in some plastics and pesticides. For example BPA is an EDC and is often found in plastic drink bottles.

Steps to reduce your exposure to harmful chemicals are simple: washing fruit and vegetables, eating fewer plastic-wrapped foods, reheating food in china or glass containers rather than plastic ones, drinking from glass cups or bottles, and limiting the use of strong household cleaners.

### Workplace environments:

Pesticides, heavy metals, toxic chemicals and radiation can affect the quality and quantity of sperm you produce. If you work with agents such as these, it's crucial that you wear protective clothing and follow occupational health and safety guidelines which reduce your exposure.

Toxic agents are not the only cause for concern in the workplace. Physical injury at work can also affect fertility, so it's important to make sure you're taking care of your physical safety in your work environment.

## HOW CAN MY SPERM AFFECT THE HEALTH OF MY CHILD?

Research is beginning to show that sperm DNA can be altered by different lifestyle factors (such as smoking or being overweight) or environmental exposures, which can change how genes work (this is called 'epigenetics'). Since this DNA is passed on to your child, it can affect how your child's own DNA and genes work.

While research is still in its early stages, it does suggest that unhealthy sperm can influence a child's health in the future.

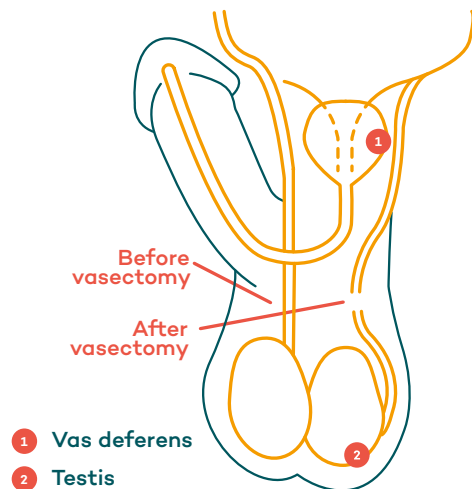
## VASECTOMY

A vasectomy is a surgical operation that cuts the tubes (called the vas deferens or the 'vas') that carry the sperm from the testicles to the tip of the penis. Men generally get vasectomies to prevent pregnancy with a partner. It's a very effective, safe and permanent form of contraception.

Australian men have one of the highest rates of vasectomy in the world – about one in four men in their forties have had the procedure.

Vasectomy is often reversible, but not always. This means that the decision to have one shouldn't be made lightly, and you should be aware that if you change your mind about having children later on, you might not be able to restore your fertility.

***If you're planning a vasectomy, you can talk to your doctor about storing sperm before having the surgery.***



## STORING SPERM FOR LATER

---

Storing sperm for later use is a good thing to think about, especially if you have to have radiation or chemotherapy treatment for cancer.

Semen can be stored long-term and kept for later use in fertility treatments such as in vitro fertilisation (IVF). Semen samples can be collected and frozen at a fertility clinic with liquid nitrogen storage facilities, before cancer or other medical treatment starts.

For many men, producing a semen sample for long-term storage can be confronting. Facilities that store semen are sensitive to the need for privacy, and understand that many men are concerned about producing a semen sample.

Contact your local fertility clinic or talk to your doctor to find out more about long-term sperm storage.

### - HOW TO FIND OUT MORE

The most important step is to see your doctor.

If you would like more information about a range of male reproductive and sexual health issues, visit the Healthy Male website at [healthymale.org.au](http://healthymale.org.au).

You can also download or order resources on male reproductive and sexual health issues from the Healthy Male website.

This information is supported by The Fertility Society of Australia and ACCESS (Australia's National Fertility Network).



The  
Fertility Society  
of Australia



This information has been reviewed by a panel of experts in male reproductive health.

Healthy Male gratefully acknowledges the reviewers and consumers who provided valuable assistance and input into the production of this guide.





---

Healthy Male is supported by funding from the Australian Government Department of Health and is administered by Monash University.



Australian Government  
Department of Health

**Date Reviewed: November 2018 (2nd edition)**  
**© Healthy Male (Andrology Australia) 2008**

**For more information, go to [healthymale.org.au](http://healthymale.org.au)**

---