

Sexual Health After Spinal Cord Injury

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Sexual health changes are common after spinal cord injury (SCI). This page provides an overview of changes to sexual function after SCI and options for management.

Key points

- Sexual health is an important part of health and well-being after SCI.
- People with SCI may experience changes to sexual desire, sensation, arousal, and orgasm because of the injury.
- Other changes related to the injury, such as changes to bladder and bowel control, movement, self-image, and life roles may also affect sexual health after SCI.
- There are a number of treatments and techniques that may be used to help improve sexual arousal and satisfaction after SCI, including medications, physical treatments, and adaptive devices.

What is sexual health?

Sexual health means being healthy and well in all parts of life related to sexuality. Sexual health is more than just being physically healthy; it also means feeling emotionally, mentally and socially well as a sexual being.

Having good sexual health means that we are able to be sexual beings and take part in sexual activities that are healthy and meaningful to each of us with our own unique needs, values, and life circumstances.



What is sexuality?

Sexuality describes who we are as sexual beings. It includes all the ways that we may experience and express ourselves sexually, including through aspects of our identities (such as gender identity), our physical features and functions, how we relate to others, our roles in relationships and society, and our sexual thoughts, values, beliefs and behaviours.

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Sexual health after spinal cord injury

Sexual health and intimacy are important parts of living a fulfilling life and this continues to be true after SCI. In most cases, injury to the spinal cord will affect a person's physical sexual functions in some way.

Although being sexual may not be the same as it was before the injury, people with SCI continue to be sexual

Sexual Health and SCI

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Watch a SCIRE YouTube video introducing sexual health after SCI.

beings and can still have satisfying sexual and intimate lives after injury.

What is "sex"?

We often think that "sex" means sexual intercourse involving penetration. However, this is only one small part of what sex is. "Sex" describes any activity that you find pleasurable and sexually satisfying. Sex means different things to different people and can include a wide range of activities, such as intimacy, kissing, touching, masturbation, oral sex, using sex toys and many other activities, as long as they feel like sex to you.

How is sex different after SCI?

Many people find that the beliefs they had about sex and the ways that they had sex before their injury may not be those that work best afterwards. Some things that might be different about sex after SCI may include:

- Sex might require more planning instead of being entirely spontaneous
- Activities that you enjoyed before your injury (such as penetrative sex) may be less important than they were before
- Body parts other than the genitals may be more pleasurable when touched (such as the lips, nipples, or areas of skin near the level of injury)
- Different sexual positions may work better after injury
- You may have a different role in your sexual relationships than you did before



After SCI, you may explore different ways to satisfy your sex life.²

• Communicating with your partner may be more important for satisfying sex than it was before

Everyone is different and will experience their sexuality differently after injury. Being open to different ideas about what sex is can be a helpful way to find what works best and is most satisfying for you after injury.



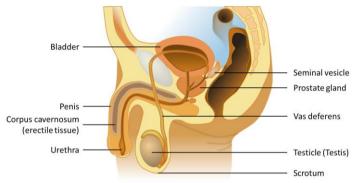
How do the sex organs work?

To help understand changes to sexual function after SCI, it can be helpful to understand how the sex organs work when the spinal cord is not injured.

The male reproductive system

The testicles (*testes*) are the main male sex glands, located within a sac called the *scrotum* underneath the penis. The testes create sperm and hormones, which then travel through connecting tubes towards the penis. The *prostate gland* and *seminal vesicles* are glands that make fluids that mix with sperm to make semen.

The penis is a shaft that has several columns of spongy tissue. These tissues contain blood vessels



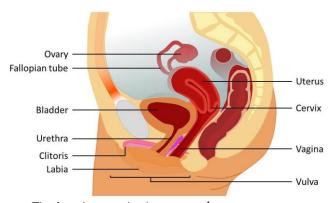
The male reproductive system.3

that can fill up with blood to make the penis firmer (an *erection*). The *urethra* is a tube that travels through the prostate gland and penis to expel semen during ejaculation. It also passes urine from the bladder.

The female reproductive system

The *ovaries* are the main female sex glands. They are located within the abdomen and produce egg cells. The *Fallopian tubes* connect the ovaries to the *uterus*. The *uterus* (or *womb*) is where fertilized eggs develop into a fetus. It connects below to the inner part of the vagina through the *cervix* (the "neck" of the uterus).

The vagina then extends from the cervix to the outside of the pelvis (the *vulva*), which is surrounded by the inner and outer vaginal lips (the *labia*). The opening to the *urethra*, where urine



The female reproductive system.4

is expelled, is between the opening to the vagina and the *clitoris*. The *clitoris* is a small, button-like organ which is sensitive to sexual touch. It is located at the top of the inner labia above the urethra and opening to the vagina.

Sexual arousal

Sexual arousal describes how the mind and body become sexually excited and prepare the body for sex. In men, sexual arousal causes increases circulation to the penis, which fills the spongy tissues with blood and causes an erection. In women, sexual arousal involves developing lubrication in the vagina and increased circulation to the vagina and clitoris.



Sexual arousal happens in two ways

Sexual arousal happens in response to sexual thought or touch. These two ways of getting aroused have different pathways through the nervous system.

Arousal from thoughts (Psychogenic arousal)

Becoming aroused by sexual thoughts is called *psychogenic arousal* ("psychogenic" means "originating in the mind"). This type of arousal happens when a person sees, hears, or imagines something sexual. This causes nerve signals from the brain to travel down the spinal cord and through nerves in the thoracic and lumbar spinal cord (from T11 to L2) to the sex organs.



Arousal from touch (Reflex arousal)

When arousal happens in response to sexual touch, it is called *reflex arousal*. Sexual touch causes nerve signals to travel to the spinal cord and back without travelling to the brain first. This leads to automatic (reflex) arousal of the sex organs. Reflex arousal involves nerves in the sacral spinal cord (from S2 to S4).

Orgasm

Orgasm is the peak of sexual excitement. It involves a sudden release of sexual tension caused by sexual activity, which is accompanied by rhythmic movement of muscles in the pelvis and feelings of pleasure.

In men, orgasm is often accompanied by ejaculation. Ejaculation involves coordinated movements along the reproductive glands and tubes that send semen out of the penis. The muscles at the neck of the bladder also close to prevent semen from accidentally entering the bladder. In women, orgasm is accompanied by rhythmic muscle tensing in the vagina and uterus.



What changes after SCI?

When the spinal cord is injured, some or all of the nerve signals that would normally allow the brain and sex organs to communicate with one another cannot get through. This can affect sexual responses in many different ways.

Changes to sensation

Most people will have some loss of feeling in the genitals and nearby skin after injury. Some people experience sensations that are less intense and others may not be able to feel their genitals at all. In some cases, pain or other unusual sensations may be felt in response to touch which was previously pleasurable.

While there is typically reduced feeling below the injury, some people notice that areas at or above the level of injury (such as the nipples, lips or ears) may be more sensitive to sexual touch after injury.



Changes to erection

Most men experience changes to their ability to get an erection and maintain it during sex. This is called *erectile dysfunction*. The type of erectile dysfunction that a person has depends on where the injury is on the spinal cord.

• Men with injuries at T10 and above typically lose the ability to get an erection from sexual thoughts (a psychogenic erection). However, they are usually able to get an erection through touch (a reflex erection). Sometimes reflex erections may happen in non-sexual situations (such as while inserting a catheter).



- Men with injuries from L3 to S1 may be able to have both psychogenic and reflex erections, although these responses may be poorly coordinated during sex.
- Men with injuries from S2 to S4 typically lose the ability to have reflex erections; however, they may be able to have psychogenic erections.

Most men with SCI can get an erection in some form. However, erections are rarely the same as they were before the injury. Most men find that their erections are unreliable and can often be inadequate for penetrative sexual activity. It may also be difficult to keep the erection during sex. There are many different options for treating erectile dysfunction after SCI, which are explained below.

Changes to ejaculation

Most men with SCI also experience changes to their ability to ejaculate. They may experience an inability to ejaculate during sex, unpredictable ejaculation, or a condition called *retrograde ejaculation*. Retrograde ejaculation is when semen is propelled into the bladder during ejaculation because the bladder neck muscles do not close at the right time. Retrograde ejaculation is most common in people with injuries from T11 to L3. Many men with SCI require medical assistance to obtain sperm to have biological children. For some men with injuries above T6, ejaculation can also trigger autonomic dysreflexia.

Changes to female arousal

In women, SCI may lead to reduced arousal responses (such as reduced vaginal lubrication). These changes depend on where the injury is on the spinal cord.

- Women with injuries at T10 and above may lose the ability to become aroused from sexual thoughts (psychogenic arousal), but may still be able to experience arousal from touch (reflex arousal).
- Women with injuries from L3 to S1 may retain both psychogenic and reflex arousal.
- Women with injuries from S2 to S4 may lose reflex arousal, but may still have psychogenic arousal.

In addition, women with SCI may also experience spasms of the vaginal muscles related to spasticity. This can cause difficulties with penetration. Treatments and techniques for improving genital arousal responses in women are outlined below.



Changes to female orgasm

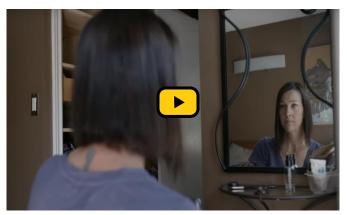
Women may experience a change in their ability to orgasm following SCI. This typically involves greater difficulties in having an orgasm or an inability to have an orgasm at all. Having an orgasm may also feel different after SCI.

Changes to sexual desire

Many people experience changes to sexual desire (sometimes called *libido*) after an SCI. This can happen for several reasons, related to both physical changes from the injury and other life changes. For example, hormonal changes, emotional distress, and reduced sexual sensation may affect sexual desire.

Changes to self-image

Self-image describes how a person sees themselves and believes that others see them. Self-image may affect how sexually attractive a person feels and their confidence in becoming sexual after an injury. It is also an important aspect of one's willingness to engage in social activities like dating or becoming intimate with a new partner. For some people, it takes time to adjust to the physical and life changes after an SCI and become comfortable in their own skin. Other people may find that assistance from mental health providers or peers can help them



Watch a SCIRE YouTube video about sexual self-esteem after SCI.9

regain their self-confidence to be sexual and participate fully in intimate relationships.

Changes to relationships

Spinal cord injury affects all aspects of life and this can cause changes to relationships as well. For example, partners may take on greater caregiving responsibilities and there may be changes in working and family roles within the partnership. While every couple is different, most people do experience some changes to their relationships which can have an impact on their sexual health.

Changes to fertility



Fertility is a male's capacity to cause a pregnancy in a fertile female and a female's ability to become pregnant from a fertile male. Men may have difficulty ejaculating during sex and often require medical interventions to obtain sperm. Sperm may also be lower quality following SCI because of a number of changes to the body. However, there are many medical interventions that may assist with fertility in men after SCI.

Women's fertility is typically not affected by an SCI and they can usually become pregnant after injury. Immediately after the injury, women may experience a temporary loss in menstruation (having a period) but can still become pregnant.

This page does not discuss fertility treatments, for more information, please see SCISexualHealth.ca.



What other considerations affect sexual health?

The function of the sex organs is only one part of sexual health. There are many other important considerations that may affect sexual health after SCI.

Bladder and bowel changes

Loss of bowel and bladder control is often one of the biggest concerns related to sex after SCI. People with SCI may experience bladder or bowel accidents during sex or have medical equipment such as an indwelling catheter. This can lead to anxiety or feeling self-conscious with being sexual with a partner.

Bladder and bowel changes can be managed in a number of different ways. The most important is to maintain a regular routine of bowel and bladder care to reduce the likelihood of having an accident. It may also help to:

- Discuss the topic openly with partners before sex (outside of the bedroom)
- Empty the bladder and bowel before sexual activity
- Maintain good bowel and bladder hygiene
- Prepare for potential accidents ahead of time by using waterproof sheets and having towels and wipes on hand to manage if an accident happens

Condoms can also be worn over an indwelling catheter that is folded back over the penis, please see the "Contraception" page on SCISexualHealth.ca for more information.

Positioning and movement for sexual activity

Assuming positions for sex may be more challenging after an SCI because of changes in movement control and flexibility. It may also be hard to get into certain positions because of reduced flexibility caused by spasticity and joint contractures. It may help to:

- Try out different positions to find out which positions work best
- Try out different places to have sex, such as in a wheelchair
- Use assistive devices, such as bolsters, slings, and other devices to help with movement and positioning

For a guide to assistive sexual devices, please see the pleasureABLE Sexual Device Manual for Persons with Disabilities.

Autonomic dysreflexia

Autonomic dysreflexia is a serious medical emergency that can affect people with SCI at T6 and above. This condition involves a sudden rise in blood pressure, which may be accompanied by heart rate changes, headaches, sweating, and other symptoms. It typically occurs in response to strong stimulation below the level of injury, even if there is no feeling in the area.

Refer our articles on
Autonomic Dysreflexia
and Emergency and
Hospital Care for more
information!

Autonomic dysreflexia may happen during sexual activity and ejaculation or as a result of sexual health treatments. If you are prone to autonomic dysreflexia, it is important to be able to recognize it when it happens and know how to treat it right away.







Medications

Some medications that are used to treat other symptoms of SCI may have sexual side effects. One of the most common is Baclofen, a medication that is used to treat spasticity, which can make it more difficult to have an

Refer our article on Baclofen for more information!

erection. Other medications, such as some antidepressant medications, may reduce sexual desire.

If you suspect that your medications may be affecting your sexual health, speak to your health providers for more information.



Certain medications can contribute to sexual dysfunction as a side effect. 12

Skin care

Care needs to be taken to avoid injuring the skin during sexual activity. Excessive rubbing, pressure or other forces to the skin during sexual activity can lead to pressure injuries. Care should be taken to avoid irritating or damaging the skin and any changes in skin condition should be noted and cared for as soon as possible.



Erections lasting for hours (priapism)

Priapism is an erection that lasts for more than two hours. If an erection is maintained for a long time, there will not be adequate blood circulation, which can damage the penis. Priapism is a medical emergency requiring immediate treatment from a doctor. It may happen as a side effect of treatment for erectile dysfunction, such as medications, penile rings, or injections. If you or your partner experiences an erection that lasts more than two hours, seek medical attention immediately.

Birth control and safe sex

Following an SCI, most women are still able to become pregnant, even if menstruation is temporarily stopped (which may last up to 6 months after injury). Men may also be able to cause a pregnancy after SCI. It is important that individuals who could potentially become pregnant use birth control according to your doctor's instructions.

In addition, your risk of contracting a sexually transmitted infection (an STI) is the same after injury as it was before the injury, so it is important to engage in safe sex practices.



Birth control is an important consideration in women who are sexually active.¹³

What is a sexual health assessment like?

A sexual health assessment is typically done with a health provider such as a nurse, physician, or other health provider specializing in the care of people with SCI. Depending on your location and the services available to you, this may take place at a doctor's office, rehabilitation centre, or specialized sexual health service.



General health and sexual health history

A review of your health and medical history, including information about your SCI, functional abilities (such as hand function) and other health conditions (including spasticity, mental health, and bladder and bowel changes), as well as your medications and other current medical treatments. Your health providers will also ask you about your current and previous sexual history and current sexual abilities and concerns.

Physical exam

Although most often not required, a sexual physical exam may include:

- Testing for movement control and muscle tone in the genitals and anus (such as the ability to squeeze the anus or control the pelvic floor muscles)
- Testing for sensation in the pelvic region
- Testing reflexes in the genital region, which may involve squeezing parts of the genitals and observing the reactions



A physical exam may be used for accurate diagnosis of your sexual condition.¹⁴

What medical treatments are available for men?

Erectile dysfunction medications



Several medications are used to treat erectile dysfunction after SCI. The most common medications are called *Phosphodiesterase 5 inhibitors* (*PDE5i*) such as Sildenafil (Viagra), Vardenafil (Levitra), and Tadalafil (Cialis). These medications work by opening the blood vessels and increasing blood flow in the penis. This helps maintain an erection during sexual activity.

There is strong evidence that phosphodiesterase 5 inhibitors are safe and effective for treating erectile dysfunction after SCI. In general, men able to have reflex erections respond better to these medications.

Injectable erectile dysfunction medications

Medications that are injected through a small needle directly into the penis (called intracavernosal injections) are another common treatment. The most common medication used is alprostadil (Caverject). The needle injects the medication into the sides of the penis to allow the blood vessels of the penis to relax and fill up with blood.

There is moderate evidence that injectable medications are effective for treating erectile dysfunction following SCI. However, there may be an increased risk of priapism, a prolonged erection that can cause damage to the penis.



Vacuum devices

Vacuum devices (sometimes called "pumps") are a non-drug treatment option for getting an erection. With these devices, the penis is inserted into a cylindrical device, where a handheld pump creates a vacuum by drawing air out of the cylindrical device. This causes a change in pressure that draws blood into the penis to cause an erection.

Penile (penis) rings may help to maintain an erection from a vacuum device. A ring can be placed around the base of the penis to limit blood flow away from the penis and keeping it firm. Care should be taken when using these devices and they should not be left on for more than 30 minutes because they can cause a risk of tissue damage, especially if there is reduced sensation.

Vacuum devices are commonly used for managing erectile dysfunction after SCI, as they are non-invasive and non-drug treatment options. They may also assist with maintaining a person's ability to have an erection over time. There is weak evidence that vacuum devices and penile rings are effective to assist with the treatment of erectile dysfunction after SCI. However, it is important that these devices are medically approved and used carefully.



Surgical implants (penile prostheses)

Surgical implants to the penis, also known as penile prostheses, are a permanent surgical procedure that involves inserting a flexible or inflatable implant into the areas of the penis that would normally become firm during an erection. They will then remain in place, holding the penis erect. Inflatable prostheses can be inflated to fill up only when needed.

Implants are typically only used if other treatments fail because they are permanent and once implanted, other methods will not work. There is weak evidence that surgical implants may be effective for improving erectile dysfunction after SCI.



Penile prostheses are a permanent method to treat erectile dysfunction¹⁷

Pelvic floor exercises (perineal muscle training)

The pelvic floor muscles (also called the perineal muscles) are a group of muscles which are located in the pelvic region. They support the internal organs from below and play a role in bladder, bowel, and sexual function. There is weak evidence that pelvic floor exercise may help improve erectile dysfunction in men with SCI who retain some ability to control these muscles.

Vibration

Vibration sensation applied to the penis from a commercial mechanical vibrator, such as the FertiCare device, may assist men with SCI in achieving ejaculation. This is sometimes called vibrostimulation, and is a frequently used technique to obtain sperm for fertility. There is weak evidence that vibration may assist with ejaculation in men with injuries above T10. These devices may also be used for sexual pleasure by some men.



Electroejaculation



Electroejaculation is another procedure which can be used for ejaculation to collect sperm. This procedure involves the insertion of an electrical probe into the rectum, which is placed close to the prostate gland and seminal vesicles. Electrical currents are then used to stimulate the nerves to cause a reflex ejaculation. There is weak evidence that this treatment can cause ejaculation in men that are unable to ejaculate through vibrostimulation.

Experimental treatments for improving sensation and pleasure

There are a few experimental treatments that have shown promise in improving sexual sensation following SCI that are not currently available for treatment.

- An experimental microsurgery procedure where nerves in the groin were connected to those from the penis showed improved sensation of the penis in some individuals with SCI.
- Sensory substitution training is an experimental technique in which stroking motions of the penis were connected to stroking of the tongue, so that the brain would be able to use the intact sense to substitute for one that is lost. In one study, this type of training improved sexual pleasure in men with SCI.

What medical treatments are available for women?

Clitoris stimulation

The clitoris is very sensitive to touch and can be stimulated manually or with a vibrator to assist with sexual arousal. There is moderate evidence that clitoral stimulation using a mechanical vibrator and stimulation with the hands both increased the sexual response of women with SCI and were equally effective. There is some evidence that stimulation of other areas such as the cervix or nipples may also result in orgasm, but more research is needed.



A vibrator may be used to enhance sexual stimulation.¹⁹

Vacuum devices

Vacuum devices are a relatively new technology for women with SCI, in which a small cup can be placed over the clitoris and a small amount of suction can be applied to increase blood to flow and arousal. There is moderate evidence that a vacuum suction device for the clitoris was effective for improving sensory stimulation and increasing lubrication in SCI women. However, further studies are needed to confirm these results.

Medications to assist with sexual response

Sildenafil (Viagra) has been studied as a way to improve sexual responses in women with SCI with some remaining genital sensation. However, there is moderate evidence from one study that this medication was not effective for improving sexual arousal in women with SCI.



Pelvic floor exercises (perineal muscle training)

Although it has been proposed that pelvic floor exercises may help with sexual function in women with some control in these muscles, it has not yet been studied in people with SCI.

What other techniques are used to improve sexual health?

For people of all genders, there are many other tips and techniques that may be recommended by health providers and peers to improve sexual satisfaction and participation. However, because these techniques have not been scientifically studied, we do not know how effective they are.

Assistive devices

Sexual assistive devices and sex toys, such as hands-free vibrators or positioning products like bolsters and slings, may assist with enabling different activities and enjoyment during sexual activity. For a guide to assistive sexual devices, see the pleasureABLE Sexual Device Manual for Persons with Disabilities.

Counselling and talk therapies

Many people experience mental distress and anxiety related to changes to their sexual health. For many people, this can be one of the biggest barriers to being sexual after SCI. It may be helpful to speak to a mental health professional, sexual health clinician, or peer about your concerns and feelings.



Healthcare providers can support you through sexual health counselling.²⁰

Sexual exploration

Because the body responds differently to sex than it

did before, many people find that exploration is an important way to find what feels and works best after SCI. For example, exploring other areas of arousal (such as the lips, neck, ears, or nipples) on your own or with a partner may help find new ways to experience sexual pleasure. Often, people find that the areas of skin near the level of injury are sensitive to sexual stimulation.

In addition, experimenting with different positions during sexual activity may also help during sex. Some people find it easier to get an erection in certain positions over others and that increasing time spent on foreplay may assist with achieving arousal in both men and women. Talking to your partner about your needs and what feels best during sex can be an important part of your sexual life after SCI.

The bottom line

Sexual health is an important part of living well after SCI. SCI may affect many aspects of sexual function, such as sensation, arousal, and orgasm. However, people with SCI can still have fulfilling sexual lives after injury.

Several medical treatments have been shown to assist with physical arousal responses in men and women, such as medications and vacuum devices. Many other ways of enhancing sexual health may also be recommended, such as trying out different positions, activities, and sexual devices.



For a list of included studies, please see the Reference List. For a review of how we assess evidence at SCIRE Community and advice on making decisions, please see SCIRE Community Evidence.

Related resources

SCIRE Project Sexual Health Video Series: scireproject.com/community/videos/sexual-health/

Spinal Cord Injury BC: SCISexualHealth.ca

PleasureABLE: Sexual device manual for persons with disabilities: http://www.dhrn.ca/files/sexualhealthmanual_lowres_2010_0208.pdf

Dr. Mitchell Tepper 'Sex and Paralysis Video Series':

https://www.drmitchelltepper.com/sex_and_paralysis_video_series

Abbreviated reference list

Parts of this page have been adapted from the SCIRE Professional "Sexual and Reproductive Health" Module:

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Available from: scireproject.com/evidence/sexual-and-reproductive-health/

Full reference list available from: community.scireproject.com/topic/sexual-health/#reference-list Glossary terms available from: community.scireproject.com/topics/glossary/

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