

Male Fertility after Spinal Cord Injury

This information is not intended to replace a consultation with your medical provider

There are two main problems after spinal cord injury that may affect fertility:

1. Ejaculation may not occur normally
2. Sperm may be slower and not work well enough to fertilize an egg.

Ejaculation

- Only 10% of men with spinal cord injury can ejaculate normally during intercourse
- Ejaculation reflex is controlled in the spinal cord at **L3-L4**
- There are two parts to ejaculation: emission and expulsion
- **Emission** is the start of sperm coming out of the testes
 - Controlled in the spinal cord at **T10-L2**
 - Tells the bladder neck to close so semen does not go into the bladder
 - Causes contraction of muscles in the genital area
- **Expulsion** is when the sperm comes out of the penis
 - Controlled in the spinal cord at **S2-S4**
 - Causes relaxation of muscles in the genital area

Sperm Quality

- Even though the total number of sperm is normal, for complete or incomplete spinal cord injuries, there are fewer motile sperm after spinal cord injury (the sperm do not move as fast) and the viability of the sperm is low (do not live as long)⁴
- The semen ejaculated may be brown or red in color
 - It is not completely understood why this occurs, but it seems to be caused by other bodily cells in the semen that are not there normally.

Things That Effect Sperm Motility (Ability to Move)

Choice of Bladder Management: Sperm motility (movement) is affected by the method of bladder management⁵

- Intermittent catheterization (IC) 27% sperm motility
- Sphincterotomy 25% sperm motility
- Voiding 15% sperm motility
- Suprapubic catheter 17% sperm motility
- Indwelling urethral catheter 5% sperm motility

Method of Ejaculation: The method used to get sperm to come out of the penis may also affect sperm motility

- Masturbation
 - Best sperm motility of SCI subject group (although still much lower than non-injured men)
 - 36.9% average motile sperm
- Penile Vibratory Stimulation (PVS)
 - 25.9% average motile sperm
- Electro-Ejaculation (EJ)
 - 15% average motile sperm

Taking Testosterone Supplements

- If men having with low testosterone levels, start taking testosterone supplementation, this causes the testes to stop producing their own testosterone, which is needed for creation of sperm³
 - This means that sperm production will significantly decline and in some cases may stop completely
- After stopping testosterone supplementation, normal sperm production usually returns within 1 year.

What Are The Options To Help Get Semen/Sperm?

- Penile Vibratory Stimulation
- EEJ (Electro-ejaculation)
- Prostate Massage
- Testicular or epididymal sperm aspiration
- Testicular Sperm Extraction (Surgical Sperm Retrieval from the Testes)
- Microsurgical Testicular Sperm Aspiration

Penile Vibratory Stimulation (PVS)

- **T10 or above:** Using the Ferticare PVS device there is an 86% success rate in achieving ejaculation
- **T11 or below:** Using the Ferticare PVS device there is a 15% success rate in achieving ejaculation
- **All levels of injury:** The Viberec X3 PVS device had a 77% success rate²
- The PVS procedure may cause swelling/edema to the head of the penis, abrasion, and autonomic dysreflexia
- Patients who have not been injured more than 1 year may have inconsistent response or no response to PVS, which may change/improve after 1 year from injury
- Much less expensive than other methods, and easier to control Autonomic Dysreflexia
- May be done at home
- Ejaculation can be used for vaginal insemination if the sperm motility is good enough

Electro ejaculation (EEJ)

- An electric probe or electro ejaculator is inserted into the rectum and positioned against the prostate
- Uses energy to cause ejaculation.
- Ejaculation happens almost 100% of the time
- Will often cause retrograde ejaculation (sperm goes into the bladder instead of out of the penis)
- Many doctors will not have this machine in their offices.
- Must be done in a medical office by a trained medical professional
- Less motile sperm results than with PVS
 - May need to proceed with IUI (Intrauterine insemination) or IVF (InVitro Fertilization) if there are not enough motile sperm for vaginal insemination
 - This requires cooperation with a reproductive endocrinologist
- Can cause pain/discomfort, autonomic dysreflexia, and rectal tissue injury
- If the person has sensation, EEJ may not be the best option
 - Doing the procedure under general anesthesia can be more dangerous and expensive.
 - It is usually only a good option for men that have failed PVS and who will not require anesthesia

Prostate Massage

- No specialized equipment needed
- Finger is inserted into the rectum against the prostate, and prostate massage is performed
- Amount of sperm may be different each time

Testicular Sperm Aspiration

- Procedure where a needle is inserted into the testis and sperm is taken out
- Higher motility than regular ejaculation by a person with a spinal cord injury
- The amount of sperm extracted is less
- May cause scarring
- Useful for in-vitro, but not enough for vaginal or uterine insemination

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Testicular Sperm Extraction

- Will have higher motility sperm than ejaculate
- This is a surgical procedure where a small incision is made into the testes and sperm is extracted
- For in-vitro use only

Microsurgical Testicular Sperm Extraction

- The outer cover of the testicle is opened and the inside is checked for areas more likely to be making sperm.
- This technique is done by a Urologist trained in microsurgery and is usually done in the operating room.
- More of the testes are examined, but less tissue is removed and there is less damage to blood vessels.

Old beliefs

It used to be thought that sperm motility might worsen the longer you have had a spinal cord injury. That sperm was changed due to higher scrotal temperature (from having your legs together in the wheelchair), or that not ejaculating often enough will cause changes to sperm. We know now that these beliefs are untrue.

References:

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