

# Penile vibratory stimulation for men with spinal cord injury

## VIDEO

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Most men with spinal cord injury cannot ejaculate via sexual intercourse (Bors and Comarr, 1960) and require medically assisted ejaculation procedures to obtain their semen. The most common procedures are penile vibratory stimulation (PVS) (Brackett *et al.*, 1998) and electroejaculation (EEJ) (Bennett *et al.*, 1988). It is recommended that PVS be used as the first line of treatment because it is less invasive, is preferred more by patients, and results in better semen quality than EEJ (Brackett *et al.*, 1997, Ohl, *et al.*, 1997). Approximately half of all men with spinal cord injury respond to PVS (Brackett, *et al.*, 1998), and higher success rates (65%–90%) may be obtained when a high amplitude vibrator is used on selected patients (Sonksen *et al.*, 1994; Brackett *et al.*, 1998).

Prior to the first trial of PVS, a patient should be evaluated for the potential the risk of autonomic dysreflexia, and for any other possible contraindications to PVS, such as severe inflammation of the penile skin, a penile prosthesis, untreated hypertension, etc. (see Brackett, 1999). In patients likely to have a retrograde ejaculate, the bladder should be properly prepared (see Brackett, 1999). Patients should be transferred from their wheelchair to a multi-positional examination table. If transfer is difficult, as in some patients with a high cervical injury, severe pain or obesity, or other reasons, it is possible to perform PVS with the patient in his wheelchair. The first patient shown in the video was such an example. He was a tall patient with a high cervical injury, and transfer was somewhat difficult. PVS was performed with his wheelchair in a reclining position. In such cases, care must be taken to secure the wheelchair and safely position the patient so that neither moves precariously during the procedure.

The video will demonstrate four different PVS procedures in the following order: a low amplitude vibrator, two different high amplitude vibrators, and finally, a sandwich technique using two vibrators simultaneously. Amplitude refers to the peak to peak distance of the moving part of the vibrator, i.e., how far the vibrating part is moving up and down. Ejaculatory

success rates are better with high amplitude vibrators (Brackett, *et al.*, 1998; Sonksen, *et al.*, 1994) and excellent ones have been engineered specifically for the purpose of retrieving semen from men with spinal cord injury (FERTI CARE<sup>®</sup> clinic, and FERTI CARE<sup>®</sup> personal vibrators, Multi-cept, Denmark). In this report, a vibrator capable of delivering an amplitude of  $\geq 2.5$  mm when pressed to the penis will be referred to as a high amplitude vibrator. Other commercially available devices, while not specifically designed for ejaculation of men with spinal cord injury may be used for this purpose. Typically called massagers in the USA, such devices are marketed to the general public for relief of muscle strain. Most of these massagers deliver an unloaded amplitude of  $\leq 1.6$  mm, and for the purposes of this paper, they will be referred to as low amplitude vibrators. The advantage of these low amplitude vibrators is that they are usually less expensive and easier to obtain than high-amplitude vibrators. To maintain hygiene from patient to patient, the low amplitude vibrator shown in the video has been covered with a non-spermicidal condom. The FERTI CARE<sup>®</sup> vibrators shown in segments 2–4 have parts which may be removed for cleaning or sterilizing.

### Segment number 1

Patient number 1 has a C4 incomplete injury (as determined by the University of Miami Neurospinal Index, Klose, *et al.*, 1980). The low amplitude vibrator used in this video was Sunbeam Model 1850. It has an on-off switch, but no variable speed (i.e., it has only one amplitude). The patient was given 20 mg of nifedipine, (a calcium channel blocker, given to regulate blood pressure) sublingually, prior to the procedure. His bladder was drained by urinary catheterization prior to the PVS procedure, and 25 ml of spermatozoa washing medium was instilled into the bladder in the event of a retrograde ejaculate. Ejaculation occurred after 8 sec of stimulation. Prior to and during ejaculation, this patient showed some of

the somatic responses typically observed during PVS of men with spinal cord injury (see Brackett, 1999), including abdominal contractions, thigh abduction, and lower extremity spasms. These somatic responses continued for 10 sec after ejaculation. His antegrade ejaculate volume was 2.0 ml and contained  $23 \times 10^6$  spermatozoa/ml, 4% of which showed forward progression. The brown colour of his semen specimen is characteristic of 27% of men with spinal cord injury. The cause of the brown colour is unknown (Wieder, *et al.*, 1999).

## Segment number 2

Segment number 2 shows PVS using a FERTI CARE® *personal* vibrator. This is a good vibrator for home use because it is small and easy to manipulate. Care must be taken in recommending home PVS. The patient must be at low risk for autonomic dysreflexia or other complications (see Brackett, 1999). Patient number 2 has a T6 incomplete injury. The video shows him using the vibrator while an assistant holds the specimen cup. The amplitude and frequency have been set to 100 Hz and 2.5 mm amplitude respectively, and these are the most common vibrator settings used to induce ejaculation in men with spinal cord injury. Patient number 2 ejaculated in 14 sec and his somatic responses, which occurred most prominently after ejaculation, included abdominal contractions, thigh adduction, and lower extremity spasms.

## Segment number 3

Segment number 3 demonstrates PVS with a FERTI CARE® *clinic* vibrator. It is the vibrator we prefer to use in the clinic because, when pressed to the penis, it holds an amplitude more reliably than the FERTI CARE® *personal* (our own experience). It also has the capability of delivering a wide range of amplitudes and frequencies. Patient number 3 has a C4 incomplete injury. The video shows the last 12 sec of a one minute stimulation period. It is interesting to note that Patient number 3 had a brown-coloured ejaculate, as did Patient number 1.

At the end of Segment number 3, an alternative vibrator placement is demonstrated that may be used with any vibrator—placement on the frenulum. In some patients, this placement is more effective for inducing ejaculation than placement on the dorsum of the glans penis.

## Segment number 4

The final segment shows what we term the ‘sandwich’ technique, because it ‘sandwiches’ the penis between two vi-

brators—in this case, two high amplitude vibrators. This technique is sometimes effective when one vibrator fails. Due to the greater intensity of stimulation with two vibrators compared to one vibrator, care must be taken to monitor for signs of autonomic dysreflexia, and for signs of injury to the penile skin.

Patient number 4 has a C4 incomplete central cord syndrome, and has variable responsiveness to one vibrator. The video shows the last 12 sec of a total stimulation time of 5 min, 25 sec. After the first 3 min, stimulation was stopped for 1 min to inspect the penile skin, and then stimulation was resumed. Due to the incompleteness of his injury, this patient did not require nifedipine, and he did not become dysreflexic.

## Conclusions

PVS is a safe and reliable method of obtaining semen from men with spinal cord injury. High amplitude vibrators offer the best success rates of ejaculation. Although the video showed men with high levels of injury, almost any man with spinal cord injury—regardless of his level of injury—is a candidate for PVS (see medical contra-indications, above). A more complete description of the method of PVS is provided in Brackett, 1999.

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