

## WOMEN'S SEXUAL HEALTH

## Women's Sex Life After Spinal Cord Injury



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## ABSTRACT

**Introduction:** After spinal cord injury (SCI), individuals are typically considered by the general public to be asexual. Handicapped women have more problems with socio-sexual adaptation, stemming from low self-confidence, low self-esteem, and the absence of spontaneity.

**Aims:** To determine changes in the sexual lives of women after SCI.

**Methods:** A self-constructed questionnaire was used to map sexual function after SCI. We retrospectively compared sexual function in 30 women with SCI with that in 30 without SCI who led an active sexual life. Descriptive and inductive statistics were applied using the Student paired and non-paired t-tests and the Levene test.

**Main Outcome Measures:** The main variables were presence vs absence of sexual dysfunction in a group of women after SCI and a comparison of the incidence of sexual dysfunctions in women after SCI with that of a control group.

**Results:** A significant difference was ascertained in women with SCI in sexual desire ( $P < .001$ ), lubrication ( $P < .001$ ), and reaching orgasm before and after injury ( $P = .030$ ). A comparison of the two groups showed a significant difference in the realization of coital sexual activity ( $P < .001$ ), erogenous zones of the mouth ( $P = .016$ ), nipples ( $P = .022$ ), and genitals ( $P < .001$ ), and in the ability to reach orgasm ( $P = .033$ ). The negative impact of incontinence on the sexual life of women with SCI proved significant ( $P < .001$ ). Negative factors for sexual activity in women with SCI were lower sensitivity in 16 (53%), spasms and mobility problems in 12 (40%), lower desire in 11 (36%), pain in 4 (13%), and a less accommodating partner in 3 (10%).

**Conclusion:** Intercourse was the preferred sexual activity in women with SCI. Compared with the period before injury, there was significant lowering of sexual desire, impaired lubrication, and orgasmic ability after SCI. A comparison of the two groups showed a difference in erogenous zones and in reaching orgasm. **Sramkova T, Skrivanova K, Dolan I, et al. Women's Sex Life After Spinal Cord Injury. Sex Med 2017;5:e255–e259.**

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**Key Words:** Spinal Cord Injury; Women; Arousal; Vaginal Lubrication; Orgasm; Satisfaction

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## INTRODUCTION

In the Czech Republic alone, 250 to 300 individuals have a spinal cord injury (SCI) every year. Women represent one third of those injured. Falls are the most frequent cause of injury, with car accidents being the second.<sup>1</sup> Transverse spinal cord lesions result in loss of mobility and sensitivity below the level of transection and in vegetative dysfunctions including impaired sexual function.<sup>2</sup> In connection with SCI, women tend to experience impairment in sexual desire, arousal (lubrication), ability to reach orgasm, and sexual satisfaction. Most women continue to be sexually active after injury and sex remains an important part of their lives.<sup>3</sup> Nevertheless, sexual activity does decrease after SCI. Jackson and Wadley<sup>4</sup> observed that 87% of women with SCI reported having sexual intercourse before injury, with only 67% having sexual intercourse after injury. Kreuter et al<sup>3</sup> found a

decrease in sexual desire and frequency in 26% of women after injury, no or very low sexual desire in 13%, and difficulties achieving orgasm in 8%. Men have SCIs more frequently than women, and men's sexual functions are more affected than women's by such injury. After such injury, women menstruate, ovulate, remain able to reproduce, and can have sexual intercourse. This is why more attention from urologists, andrologists, and sexologists is paid to men with SCI. Although sildenafil is highly effective in treating men's erectile dysfunction, its use in women has been disappointing. Flibanserin also did not meet expectations. In the treatment of women's sexual dysfunctions, we can see only the tip of the iceberg. Compared with men's sexuality, women's sexuality is more affected by their psyche than by their bodily predispositions. Women with SCI less frequently seek a doctor's help with intimate issues, which is the reason people discuss and know less about them. These are the reasons we decided to map the sexuality of women with SCI and compare the sexual function of healthy women with and without SCI.

## AIMS

Our research investigated the changes that occur in sexuality in women with SCI. This is the first study of its kind in the Czech Republic.

## METHODS

### Sample and Subjects

The subjects were 30 women with traumatic SCI who were in a wheelchair and who were treated in spinal units in Prague and Brno in the Czech Republic. The study was conducted in accordance with the principles of the Declaration of Helsinki and approved by the Ministry of Health of the Czech Republic and by the 1st Faculty of Medicine of Charles University (Prague). The survey was administered anonymously by trained researchers under the supervision of the Institute of Sexology at the 1st Faculty of Medicine of Charles University. All respondents gave informed consent to participate. Data collection took place from June until December 2015. The inclusion criteria were age older than 18 years, at least since 6 months since SCI, and an active sex life. Of the 30 women, SCI occurred 5 years previously in 23.3%, 6 to 10 years previously in 53.3%, and more than 16 years previously in 13.4%. Women in the continuing spinal health care outpatient department with a post-traumatic transverse spinal lesion from an SCI of traumatic etiology were addressed. Information on the level of injury was part of the questionnaire. Their willingness to participate in the research was verified in a telephone interview during which the women expressed their consent to being monitored. A self-constructed questionnaire was used to map sexual function after SCI. The questionnaire was created by a sexologist (T.S.) based on sexology practice and experience working with men and women after SCI. All subjects received a questionnaire by post with a return envelope with prepaid postage. The response rate was

100% ( $n = 30$  women). Bladder management consisted of self-catheterization in all women in the SCI sample. Participants in the control group were included if they currently had an active sex life. These were employees of social and health facilities who attended a medical course and agreed to fill out the questionnaire. The women from the control group attended a lecture on sexuality in relation to SCI.

### Measures

The subjects were asked to assess their current situation and describe their state before SCI. The first part of the questionnaire included basic demographic characteristics. The second part reflected the domains of one's sexual life: frequency of sexual activity, coital or non-coital sex, erogenous zones, lubrication, orgasm, and satisfaction (Appendix 1). The total number of items was 13. Question 13 inquired about factors that have a negative influence on sexuality. A yes answer indicated the absence of sexual dysfunction, a no answer indicated its presence, and a sometimes answer indicated less than 25% of the time (SD).

### Statistical Analysis

Data analysis was conducted using an Excel (Microsoft, Redmond, WA, USA) spreadsheet and SPSS software (<https://cs.wikipedia.org/wiki/SPSS>). We performed statistical comparisons of sexual function of women with SCI before and after injury and of the sexual of the women with and without SCI. Descriptive and inductive statistics were applied using the Student paired and unpaired t-tests and the Levene test to determine homogeneity of variance. The Levene test followed by the Student t-test was used for the statistical processing of results. The results of parameters children and lubrication were interpreted results from the Levene test. Levels of statistical significance were  $P$  values less than .01 and .05. Because of the small number of tetraplegic women (4 of 30), we did not compare sexual function based on the level of the lesion.

## MAIN OUTCOME MEASURES

The main variables of the research were presence vs absence of a sexual dysfunction in a group of women after SCI and a comparison of the incidence of sexual dysfunction of women after SCI with that of a control group.

## RESULTS

### Description of Sample

The SCI sample consisted of 30 women with a mean of age 35 years (range = 19–51; Table 1). Average time since injury was 9 years (range = 4–23). The sample of women with SCI was composed of more single women; most women in the control group were married ( $P = .028$ ). Sixteen women with SCI and 21 control women had children ( $P < .001$ ). Two women in the SCI group and nine in the control group did not have a menstrual cycle, presenting a relatively significant difference ( $P < .001$ ).

**Table 1.** Description of sample

Demographics	Paralyzed	Healthy	Levene test	P value
Single	16	7		
Married	11	20		
Divorced	2	3		
Widowed	1	0	5.097	.028
Children yes	16	21	5.055	.028
Menstruation yes	28	21	31.533	<.001

**Overall Change in Sexual Life Over Time in Injured Patients**

By comparing the sexual function of women with SCI before and after injury, we found a significant difference in sexual desire ( $P < .001$ ), lubrication ( $P < .001$ ), and the ability to reach orgasm ( $P = .033$ ; Table 2).

**Sexual Function in Patients vs Controls**

Compared with the control group, women with SCI tended to prefer coital sexual activity more ( $P < .001$ ; Table 3). The erogenous zones of the mouth ( $P = .026$ ) and nipples ( $P = .022$ ) were given priority by women with SCI; differences were significant. The preferred erogenous zone of the control group was the genitals ( $P < .001$ ). Nine women with SCI (30%) described sexual dysfunction before injury. In the SCI group, post-injury sexual dysfunction was found in 23 women (77%) compared with 10 (33%) women in the control group. Statistically significant differences were found between women with SCI and women in the control group for lubrication ( $P = .002$ ) and ability to reach orgasm ( $P = .033$ ). The negative influence of incontinence on the sexual life of women with SCI was statistically significant ( $P < .001$ ). Negative factors for sexual activity in women with SCI were lower sensitivity in 16 (53%), spasms and problems with mobility in 12 (40%), lower sexual desire in 11 (36%), pain in 4 (13%), and a less accommodating partner in 3 (10%). There were no differences in the frequency of sexual contact and in achieving satisfaction between groups. Only 11 of 30 women with SCI used contraceptives (hormonal contraception in 6, intrauterine device in 3, and condoms in 2) and 19 did not; 9 of these 19 planned to have children; therefore, 8 did not prevent conception in any way. There was no significant difference between samples in contraceptive use.

**Table 2.** Overall change in sex life over time in injured patients

	Sometimes (<25%)			t	P value
	Yes	No	t		
Desire before/after	30/16	0/14	0/0	5.288	<.001
Lubrication before/after	28/16	2/10	0/4	4	<.001
Orgasm before/after	21/8	8/8	1/14	2.282	.030

**Table 3.** Sexual function in patients vs controls

Kind of sexual activity	Paralyzed	Healthy	Levene test	P value
Coital/non-coital	13/7	6/24	13.703	<.001
<b>Erogenous zones</b>				
Mouth	22	17	6.176	.016
Nipples	21	15	5.524	.022
Genitals	17	27	45.298	<.001
<b>Lubrication</b>				
Yes	16	21		
Sometimes (<25%)	16	9		
No	4	0	10.742	.002
<b>Orgasm</b>				
Yes	8	16		
Sometimes (<25%)	8	10		
No	14	4	4.747	.033
Urinary incontinence	8	1	43.798	<.001

**DISCUSSION**

SCI gives rise to multiple comorbidities that not only affect one’s physical and psychological functions but also cause detrimental psychological consequences and sexual dysfunction.<sup>3</sup> The extent of sexual dysfunction is influenced by the severity of the neurologic lesion, the presence of bladder and bowel problems, pain, and spasticity, and by difficulties with interpersonal and social relationships.<sup>5</sup> Impaired sensitivity of the genitals contributed to the lower popularity of non-coital sexual activity in women in the present SCI sample. Many women reported heightened sensations in different parts of the body, such as the neck, earlobes, arms, lips, or other areas of the skin.<sup>3</sup> Women in our sample preferred the mouth and nipples. Hajiaghababaei et al<sup>6</sup> observed at least one type of sexual dysfunction in 88% of a sample of women with SCI vs 37% of healthy controls compared with 77% vs 33%, respectively, in the present sample. Sipski et al<sup>7</sup> examined 68 premenopausal women using audiovisual erotic stimuli and in combination with manual genital stimulation. Fewer than 50% of women with SCI achieved orgasm compared with 100% of able-bodied women ( $P = .001$ ). In total, 26.6% of the paralyzed women in our sample claimed to reach orgasm vs 70% of the control women.

Our findings concur with those of Otero-Villaverde et al<sup>8</sup> who found that the major effects of SCI on sexual function for women are the loss of sensation and the ability to lubricate. This was the case for 46.6% of the paralyzed women in our sample. Silicone gel can help ameliorate problems with lubrication. It is important for partners to talk together about what feels good and what does not. Popular places to have sex are in a wheelchair, where spasms are usually more easily controlled and hand and arm function is better, and in the shower, where the sensation of water feels good.<sup>5</sup> Sixty percent of women after SCI had amenorrhea, and the average time until menses resumption was 5 months.<sup>6</sup> In our sample, 20% used hormonal pills, 13% used an intrauterine device, and 6% used condoms. No sterilization was recorded. In total, eight women with SCI did not use any

contraceptives! Most women can bear children after SCI. Problems during pregnancy included autonomic dysreflexia, decubitus ulcers, urinary tract infection, water retention, bladder and bowel problems, anemia, spotting, fatigue, cardiac irregularity, and toxemia.<sup>9</sup> In our sample, nine women planned to have children (30%). In a multicenter study, Jackson and Wadley<sup>4</sup> reported that 14% of 472 women with SCI became pregnant after injury. Women with SCI have problems with bladder management and urinary tract infections and a higher risk of autonomic dysreflexia with injuries above T6, with a negative influence on sex life. In our sample, urinary incontinence had a significantly negative influence on the sexual life of women with SCI. These findings are supported by those of Cramp et al<sup>10</sup> who conducted a review of the literature on women's sexuality after SCI, including studies from 1990 to 2011 retrieved from PubMed. Women had sexual dysfunction and showed a decrease in sexual satisfaction, which also negatively affects quality of life.

A neurogenic bladder is common after SCI and has a negative influence on sexuality. We focused on monitoring the impact of urinary incontinence on women's sexuality after SCI. Embarrassment resulting from urinary incontinence and unpleasant feelings toward it can result in decreased sexual desire. Women with SCI must be aware of the variables that influence the prevalence of incontinence, especially during sexual activities, such as drinking alcohol before sexual encounters, especially beer and white wine, or caffeinated beverages such as coffee, tea, cola, or energy drinks. Women should be aware that menses and urinary infections can increase the risks of incontinence. They should catheterize or void their urine just before sexual activity because sexual arousal can increase diuresis.<sup>10</sup> Urinary incontinence can similarly influence self-esteem, gender roles, relationships, seduction, sexual confidence, sexual quality of life, and sexual satisfaction, all of which can cause adverse effects on quality of life.<sup>2</sup> We conclude that to improve sexual satisfaction and quality of life for women with SCI, future research needs to explore the effects of urinary incontinence on various aspects of sexuality.<sup>10</sup>

It is vitally important to educate women after SCI about the necessity to undergo regular preventive gynecologic examination once a year and a mammography examination. Paralyzed women were less likely to undergo routine mammography. They reported a lack of similar preventive practices such as performing breast self-examinations and undergoing gynecologic examination of the cervix.<sup>2</sup> Most women perceive their bodies as less attractive after SCI. Psychological support from medical professionals and one's partner is very important. There is a lack of information on sexuality after SCI.<sup>5</sup> Sexual information and counseling should be available during initial rehabilitation and after the women have returned to their homes.<sup>3</sup> At the spinal cord unit of the department of trauma surgery, we provide information on sexuality after SCI during hospitalization to prepare women and their partners for the changes in their sex lives, which are described below. Thirty-three subjects with traumatic SCI were interviewed in a study in Malaysia.<sup>11</sup> Although 40% had sexual activity after SCI, only 24%

were involved in a sexual relationship at the time of the study. The frequency of intercourse after SCI decreased from an average of 4.6 to 1.5 times per month. Three top psychological barriers to sexual activity were found: feeling unattractive, unable to satisfy the partner, and less confident about sexual ability.

Fifty-two percent preferred to receive information 6 months to 2 years after the injury. Some sexual information was given to 53% of subjects. At the time of the study, 70% wished to receive sexual information during their rehabilitation. For content, most (78%) would have liked to have received information on the effects of SCI on sexual function, followed by pregnancy and labor issues (74%), fertility (70%), and managing bladder and bowel functions for sexual activity (70%).<sup>11</sup>

Celik et al<sup>12</sup> evaluated 26 women with SCI for longer than 6 months. Twenty-four patients in the study received no information about pregnancy or sexual health after SCI, although all women reported being receptive to the idea of receiving such information. These patients expected the doctors to start the conversation about sexuality rather than asking about it. All patients had sexual dysfunction. The investigators concluded that sexual rehabilitation should be fully addressed in all spinal units and rehabilitation centers, in addition to other aspects of rehabilitation. Women with SCI consistently express their dissatisfaction with the quality of sexual rehabilitation services during their therapy, which is poor, fragmented, and male-oriented.<sup>9</sup> In our spinal unit, education is provided regardless of sex and is usually part of consultations included in the research results. We provide an educational DVD program and a book, *Spinal Cord Injury from a Sexologist's Point of View*. Clinical practice has shown that early education improves patient compliance during subsequent treatment of sexual dysfunction.

There is no central database of women with SCI in the Czech Republic; therefore, locating patients and obtaining data were rather difficult tasks. In consequence, a relatively small sample of women with SCI represents a limitation of the study. Retrospective assessment of sexuality before SCI might have been distorted by the passage of time. A longer interval from injury to filling out the questionnaire might be another limitation. An additional limitation of our study was absence of impairment of American Spinal Cord Injury score, which must be evaluated by a physician. The questionnaire assessment was anonymous; therefore, medical data were not available.

## CONCLUSIONS

Given their lack of sensitivity to stimuli, women with SCI tended to prefer coital activity. The mouth and nipples were the most significant erotogenous zones. By comparing the sexuality of women with SCI before and after injury, we found a significant difference in sexual desire, lubrication, and ability to reach orgasm. Compared with the healthy control group, women with SCI had significantly decreased lubrication and worsened ability

to reach orgasm. They also had a more frequent problem with urinary incontinence. One third of women with SCI planned conception.

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## SUPPLEMENTARY DATA

Supplementary data related to this article can be found at <http://dx.doi.org/10.1016/j.esxm.2017.07.003>.