

AN INTRODUCTION TO

SPINAL CORD INJURY

4TH
EDITION

UNDERSTANDING
THE CHANGES

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UNDERSTANDING THE CHANGES

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Introduction

Approximately 200,000 individuals in the United States have spinal cord injuries. Every year, approximately 10,000 people sustain new spinal cord injuries. Most of these people are injured in auto and sports accidents, falls, and industrial mishaps. An estimated 60 percent of these individuals are 30 years old or younger, and the majority of them are men.

If you or someone you know has just suffered a spinal cord injury (SCI), you will have many concerns and questions about the injury and how it will affect your life. By nature, an SCI has a very sudden impact on an individual, physically as well as emotionally and socially. It is crucial to remember that many other people have experienced SCIs and have continued to lead happy and productive lives.

In order to resume a full and satisfying life as quickly as possible, you must become an active participant in your recovery. Many health-care professionals—including physicians, therapists, and nurses—are available to help you learn about your injury and your options for rehabilitation. Your family and friends can provide essential emotional support during your recovery and rehabilitation. Countless resources are now available for individuals with SCIs to help them return to an active life. It is important for you to recognize and to utilize these resources.

This pamphlet provides some basic information about spinal cord injury and some of the background you will need to plan your recovery. Since this material is general in nature, you should consult with your physicians and other professionals to answer specific questions and concerns.

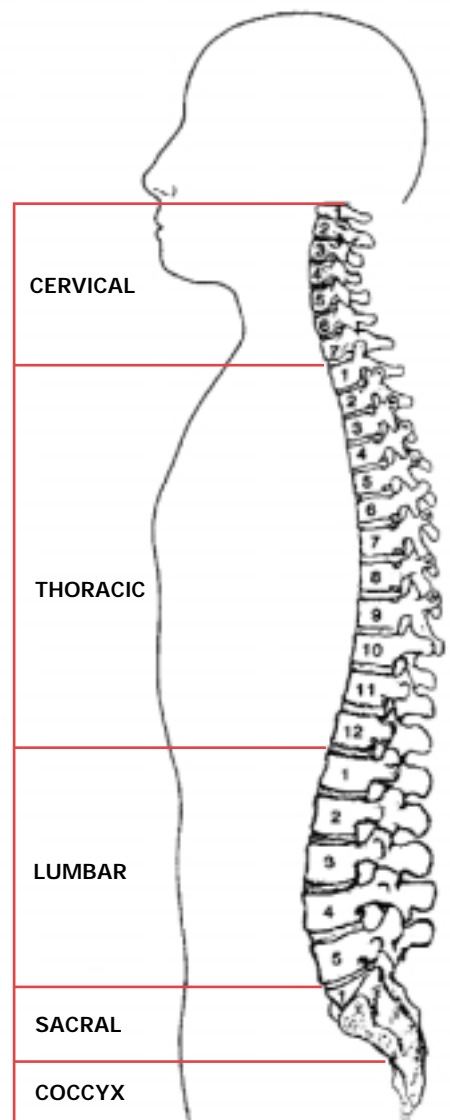
What Is a Spinal Cord Injury?

When a person receives an SCI, the communication between the brain and other parts of the body is disrupted, and messages no longer flow past the damaged area. The extent of the communication breakdown is dependent on both the severity and location of the injury.

The human spinal cord is a bundle of nerve cells and fibers approximately 17 inches long that extends from the brain to the lower back. The spinal cord carries messages from the brain to all parts of your body and receives incoming messages from the body as well. The cord is protected by your backbone, which is made up of 33 individual vertebrae. These vertebrae have different names depending on their location. There are:

- 7 cervical vertebrae located in the neck,
- 12 thoracic vertebrae in the upper back,
- 5 lumbar vertebrae in the lower back,
- 5 fused sacral vertebrae in the hip area, and
- 4 fused vertebrae in your coccyx (tailbone).

Spinal cord injuries can occur at any level of the spinal cord, and the level of the injury will dictate which bodily functions are altered or lost.



THE SPINAL COLUMN

How Does a Spinal Cord Injury Affect Bodily Functions?

Effects on Sensation and Movement

The higher the injury is along the backbone, the more movement and sensation will be altered or lost. For example, an injury to the spine in the cervical (or neck) level may cause paralysis in both arms and legs and result in “quadriplegia,” while a lower injury, such as at the thoracic (or upper-back) level, may affect only the legs and lower parts of the body and result in “paraplegia.” Letters and numbers are used by physicians and therapists to refer to the specific level of the injury. For example, a C4 injury means the damage is at the level of the 4th cervical spinal cord segment, a T6 injury means the damage is at the level of the 6th thoracic spinal cord segment, and so forth.

Injuries are also classified as “complete” or “incomplete,” although every individual injury is different. Typically, a complete injury results in a total loss of movement and sensation below the level of injury. By contrast, an incomplete injury does not cause total loss of movement and sensation. Importantly, the classification of an injury can sometimes change during recovery. That is, some injuries that are initially believed to be complete may be discovered later to be incomplete. Therefore, regardless of the level of the injury, it is important to work with physicians and therapists to maximize the degree of function that remains.

Effects on Bowel and Bladder Function

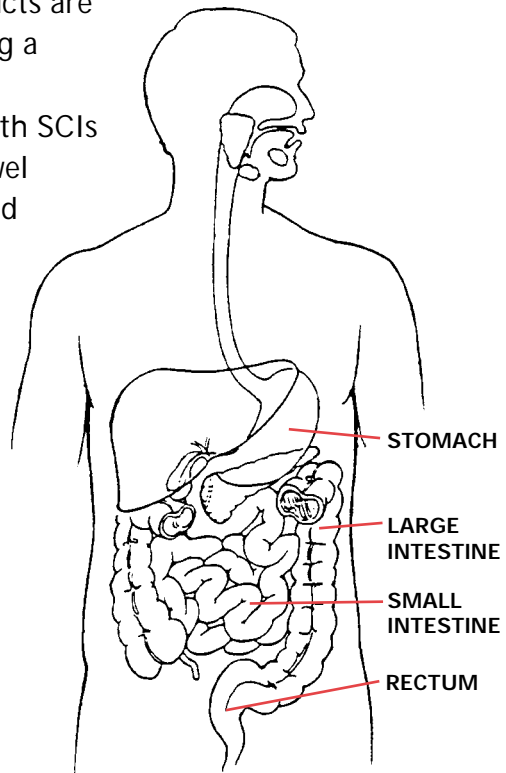
Another significant impairment that can occur as the result of an SCI is the loss of bowel and/or bladder control. In the following sections, the changes that can occur in bowel and bladder function are explained. Because this information is basic in nature, you should direct specific questions about your individual injury, and about the management of complications, to a health professional such as a physician or a therapist.

How Will the Bowel be Affected?

The bowel is a part of the intestinal tract and is responsible for the elimination of solid waste from the body. Part of the bowel's action is automatic, and part of it is under voluntary control. Following an SCI, voluntary control over waste elimination may be lost.

In order to eliminate waste from the body, the muscle at the end of the bowel (the anal sphincter) relaxes, allowing intestinal and abdominal muscles to force out the waste material. Although voluntary control of these muscles may be impaired, the automatic muscles of the intestinal tract will continue to empty the bowels. Initially, you may not be able to tell when your bowels are full or when the automatic muscles will empty them. It is necessary to establish a schedule of eliminating waste on a regular basis to prevent accidents, constipation, and possible blockage of the bowels.

Medications and other products are available to assist in establishing a schedule of waste elimination. Fortunately, most individuals with SCIs are successful in regulating bowel movements through training and can establish a schedule that is convenient for them.

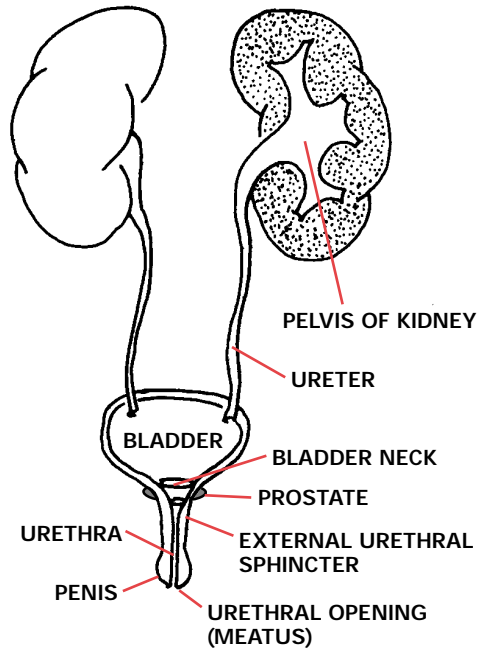


THE BOWEL SYSTEM

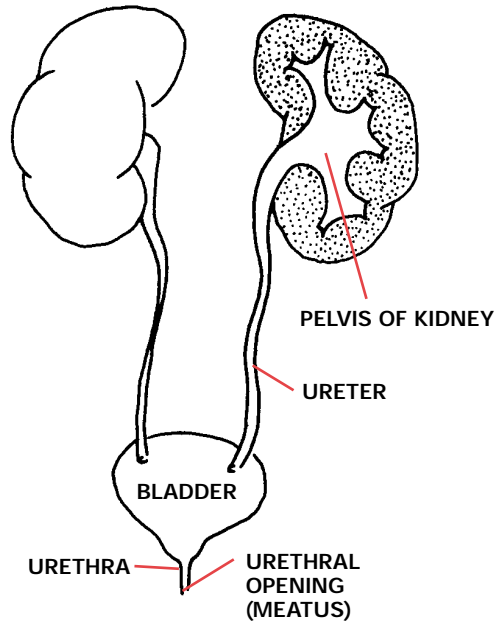
How Does the Bladder Work?

The urinary tract consists of the kidneys, the bladder, and two sets of “tubes” that connect these organs with the outside of your body. The kidneys filter waste material and fluids not needed by the body. The ureters are two tubes that carry these waste materials, called urine, from the kidneys into the bladder. The urine flows from the bladder to the outside of the body through a second tube called the urethra.

Like the bowel, the urinary tract is partly automatic and partly under voluntary control. Because the nerve pathways connecting the bladder with the brain are interrupted in many SCIs, you will probably not be aware when your bladder is full, and you will probably not be able to prevent it from emptying. This interference in bladder function is called a neurogenic bladder. When you first entered the hospital following your injury, a tube called an indwelling catheter may have been inserted into your bladder to assist the body in eliminating urine. During the first few weeks after the



MALE URINARY SYSTEM



FEMALE URINARY SYSTEM

injury, you may have a catheter inserted periodically to encourage the bladder to fill and empty as it did before the injury. Use of a catheter to empty urine prevents the urine from backing up from the bladder into the kidneys (called reflux), which could cause a kidney infection. The routine emptying of the bladder can also help prevent urinary tract infections.

The extent of your injury will determine the type of bladder management program that will work best for you. There are many methods used to develop reflexive elimination of urine, and a management program will be set up based on your needs.

For managing both bowel movements and urinary function, it is important to work with your physicians and therapists to develop a schedule that best suits your needs. Because every SCI is different, there is a great deal of variability in the amount of control an individual will have. Depending on the location and severity of the injury, bladder and bowel control may be altered or completely lost. However, the disruption or loss of bladder and bowel control can be managed. It is essential to work with your rehabilitation team to develop a program that works well for you.

Effects of Spinal Cord Injury on Sexuality

Sexuality is an important part of our lives, and it is normal to be concerned about how your SCI will affect your sexual feelings and activities.

Will a Sex Life be Possible After SCI?

Yes, it will. Although some modifications may have to be made in sexual activities, you can still have a full and satisfying sex life. Your attitudes toward sex and how you adapt emotionally to the injury will play an important part in the fulfillment that can be obtained through sexual relationships.

For many individuals with spinal cord injuries, the change in or loss of sensation has the greatest physical and emotional impact. These changes in function and sensitivity will depend greatly on the level and severity of the injury. It is important to be patient during rehabilitation following an SCI; it will take some time from the onset of the injury to determine how much sexual function will return.

Although function and sensitivity below the level of the injury may be altered or lost, other areas above the level of the injury may become increasingly sensitive to stimuli. Many men with spinal cord injuries are able to have erections of some kind, although they may be unable to ejaculate or to experience genital orgasm. Women, like men, may also not experience orgasm as it is usually defined. However, most women with spinal cord injuries are able to have sexual intercourse. Both men and women can achieve nongenital orgasm by using sensations in other parts of their bodies.



Regardless of whether intercourse is possible, sexual activities can be satisfying to both partners when individuals understand their sexual potential and how to best use the abilities they have. There are many different techniques that people can experiment with to achieve a satisfying and pleasurable relationship. Many individuals with spinal cord injuries believe that sex is much more intimate and spiritual than it was before their injury. These people have learned to find pleasure in discovering their own and their partner's bodies in new and different ways. Although redefining your sexuality following an SCI can be a difficult endeavor, it is essential to be open to new ideas and to maintain good communications with your partner.



Effects of Spinal Cord Injuries on Fertility

In women with spinal cord injuries, the injury usually does not affect their reproductive organs. Thus, most women continue to have menstrual periods, can become pregnant, and can have healthy, full-term babies. However, when a woman with an SCI is considering becoming pregnant, she should work with her doctor to understand individual problems that she might encounter during pregnancy and delivery.

Following an SCI, a man does have a lower chance of producing children. Some men will be able to father children through normal intercourse. Others may consider artificial insemination, although this method should be discussed thoroughly with a physician. Adoption is another alternative for people who wish to have a family. Regardless of whether or not a couple decides to have children, they should discuss the issue of parenting and the responsibilities that follow thoroughly with each other. Your rehabilitation team can also be a useful resource for information about reproduction or parenting.

Other Effects of Spinal Cord Injuries

What Is Spasticity?

Following a spinal cord injury, the body is in a state of “spinal shock,” which can last from weeks to months after the injury. During this time, normal reflexes are no longer present below the level of the injury. Following the period of spinal shock, reflexes will return, and spasticity may develop.

Spasticity occurs when normal reflexes become exaggerated and are no longer under control by the brain. Under normal circumstances, the body responds to different stimuli in the environment by moving the body in an appropriate way. For example, if a pin pricked your finger, you would respond by moving your finger away from the pin. These responses are called reflexes, and they generally do not require conscious thought. The nervous system is designed so that many of the reflex movements that we make are controlled primarily by the spinal cord, but can be regulated by information from the brain.

When the spinal cord has been damaged, information about the environment can no longer reach the brain, and the brain can no longer regulate reflex activity that occurs in response to changes in the environment. When this happens, the reflex activities in the spinal cord can become exaggerated over time and cause spasticity.

You may consider spasms a problem to be corrected. If spasms become severe enough, some form of medical treatment may have to be taken to reduce them. However, it is important to remember that spasms can be a great help as well as a hindrance. They can keep muscles in tone that would otherwise waste away following a spinal cord injury. In addition, some individuals with spinal cord injuries can learn to use their spasms to aid them in such functions as turning over in bed and transferring in and out of a wheelchair.

It is frequently difficult to identify the stimulus that causes a particular spasm. It might be a draft of cold air, a pin prick, sensa-

tions from a pressure sore, tight shoes or braces, or bladder stones. In fact, any stimulus entering the cord below the level of injury can cause a spasm. Worry, tension, and anxiety can aggravate spasticity. However, with experience, you will learn which stimuli can trigger spasms and how to avoid or utilize them.

What Are Pressure Sores, and Why do They Occur?

Pressure sores are areas of the skin where the skin tissue has broken down. They are also called bedsores or decubitus ulcers. Individuals with SCIs are extremely susceptible to developing pressure sores due to a number of factors, including sitting or lying in one position for a long period of time.

As the name implies, pressure is the main cause of skin breakdown. The body has many areas where bones come close to the outer skin and do not have a thick layer of fatty tissue to protect them. Areas that are particularly prone to pressure sores are those places that support your weight when you're sitting or lying in bed. When the body rests on a surface for a long period of time, the bone compresses the skin and reduces the flow of blood to the area. If the blood supply to the skin is blocked for too long, the skin will begin to break down.

Since an SCI reduces or eliminates sensation below the level of the injury, you will probably not be aware of any signals indicating that you have been sitting or lying in a position for too long. Therefore, it is essential to take preventive measures against unrelieved pressure. Change positions frequently to prevent the skin in any one area from being compressed for too long. Maintain good nutritional and hygiene habits; they are essential to maintaining healthy skin. Inspect the skin daily to see if a sore is developing. If you detect a problem, it is important to alert your physician immediately. Many measures can be taken to remove the cause of the sore and to prevent it from becoming worse.

Rehabilitation

What Is Involved in Rehabilitation?

Rehabilitation is a word that you will be hearing frequently during the months following your injury. One of the primary goals of rehabilitation is to enable you to optimize your level of independent functioning, with the ultimate goal being to return you to an active and productive life as efficiently as possible. Professionals, such as physicians, nurses, and physical and occupational therapists, will help you learn how to adapt to your injury and to care for yourself on a daily basis.





It is critically important from the time you are injured onward for you to be an active and determined participant in your rehabilitation. You are the most important member of your rehabilitation team. Remember to take full advantage of the rehabilitation process—ask questions and gather information from the

professionals. In addition, remember that the understanding and encouragement of people close to you are also very important factors in the success of your rehabilitation program.

Proper Nutrition Can Benefit Rehabilitation

Proper intake of foods and fluids is essential to all people. A balanced diet will help maintain regular waste elimination and will assist in preventing tissue and muscle breakdown. In addition, a high-protein diet is recommended for individuals with SCIs to reduce the possibility of developing pressure sores. It is important to consume adequate but not excessive calories. Excessive weight can make physical activities even more difficult for individuals with SCIs.

It is also essential to drink plenty of fluids. This not only will help to facilitate waste elimination, but also will keep the urinary system healthy. A good fluid intake can help reduce the occurrence of urinary tract infections and kidney or bladder stones. A diet plan will likely be developed for your individual needs, and it is important to follow it consistently.

How Do I Resume an Active Life Following an SCI?

How Does an SCI Affect Personal Relationships?

The sudden presence of a disability can be both frightening and confusing to you and your family and friends. You will probably have many questions about your injury and about the steps you should take to begin rehabilitation.

Following an injury such as an SCI, there will be changes in your physical condition as well as changes in how you interact with the world. It is normal to have concerns about the effects of your injury on your lifestyle, your financial situation, and your relationships with other people. Your friends and family may have to take on new responsibilities as a result of your SCI, and it is normal for this to result in some emotional stress. It will take time to adjust to your disability and to manage the difficulties that arise. However, these adjustments can and will be made, and will likely strengthen relationships with many of your friends and family.

During this transitional period, individuals may respond differently to your disability. Your relationship with some people will remain unchanged. However, your interactions with other people may feel a bit awkward at first. Remember that some individuals feel a little strange or uncomfortable around a person with a disability. This is often the result of their uncertainty as to what to say to you or whether their behavior is appropriate. This often can be over-



come by educating these people about your disability. Open communications can have an extremely positive effect on friends and family and will help them adjust to and be comfortable with your disability.

Employment After an SCI

Although it might seem as though an SCI would prevent you from working at a regular job, this is frequently not the case. The ability of a person with an SCI to continue working at the same job depends a great deal on the type of injury the person has sustained and the nature of the work performed. Frequently, people can alter their daily activities or can change jobs to accommodate their injury. Furthermore, a great deal of adaptive equipment is available to assist people with spinal cord injuries as they return to their old or new jobs.



Sports and Recreation After an SCI

After suffering an SCI, you may feel that you cannot participate in those recreational activities you once enjoyed. However, having an SCI does not mean that you must give up your favorite sports and hobbies.

Wheelchair sports have been used for enjoyment as well as a rehabilitation tool since World War II, when PVA members started playing wheelchair basketball. Since then, almost every sport has been adapted to allow people with disabilities to participate. In addition, there are many recreational activities available to enhance your life, many of which can be enjoyed with your friends and family.

Wheelchair sports are also an important tool in maintaining post-injury fitness and improving social





and mental aspects of life. Developing a well-rounded fitness program and participating in organized sports help to maintain overall good health.

For example, sports such as track and swimming improve the cardiopulmonary system, while other sports such as weightlifting build muscle strength and mass. When you develop the necessary skills to master a particular sport, you improve your balance, mobility, and knowledge of how to handle your wheelchair. Sports like scuba diving and sailing allow you to abandon your chair, while fishing and hunting allow you to enjoy the outdoors. You can pursue these activities at any level, for competition and training or for purely recreational pursuits.

A Guide to Wheelchair Sports and Recreation, which lists competitive and recreational activities as well as respective governing bodies and equipment manufacturers, is available from PVA. To order your copy, call the PVA Distribution Center toll free at (888) 860-7244, order #3100-2 (English) or #3100-85 (Spanish).



Using the Financial Resources and Services Available to You

With the occurrence of an SCI, you may need financial assistance and supportive services to meet the requirements of treatment and rehabilitation.

The first step in obtaining benefits is to learn about every source of assistance that is available to you. Usually, a social worker will be present at the hospital to help identify resources that are available. If a social worker is not present to assist you, you will need to locate the public and voluntary agencies in your area that may provide you with appropriate assistance.

You may be eligible for economic assistance or support services on the federal, state, or local level. You can find many of these contacts in your telephone book. For example, the Social Security Administration can determine if you are eligible for financial assistance because of the disability. Social Security Disability Insurance and Supplemental Security Income are some programs you may wish to investigate. If you are a veteran, you may be eligible for financial and support services. Contact the Department of Veterans Affairs regional office in your area to determine what kinds of services and benefits may be available to you. County or state departments of social services may also provide public assistance and support services to people with disabilities and their families. State departments of vocational rehabilitation may assist you with the purchase of equipment, counseling, job placement, and other forms of financial assistance intended for rehabilitation of injured people.

There are also voluntary and charitable organizations on the national, state, and local level that may provide information about services to which you are entitled and where to get them. Some of these agencies are religiously affiliated (e.g., Catholic Charities, Lutheran Social Services, and Jewish organizations), and others are not affiliated with a religion (e.g., United Way and Easter Seals).

A number of groups exist that focus their efforts on the spinal cord injured population. The Paralyzed Veterans of America (PVA) and the National SCI Association are examples of these groups. PVA's Veterans Benefits Department works to ensure that benefits earned through military service are provided to eligible veterans and their dependents and survivors. Service offices are located in the Department of Veterans Affairs regional offices and medical centers throughout the United States.

Programs have also been set up in many communities that provide information about local resources available for people with disabilities. Some of these programs can be found through departments of social services or your local legislator's office.

YES, YOU CAN!

A Guide to Self-Care for Persons
with Spinal Cord Injury
THIRD EDITION

Yes, You Can! is one of the most informative guides for the patient with a spinal cord injury—newly injured, throughout rehabilitation, and after leaving the hospital. It's also useful for family, friends, and caregivers.

This third edition has been revised to provide the most up-to-date information available, including web sites and other internet resources. It has also been expanded to address the following new topics:

- Exercise
- Equipment
- Staying Healthy
- Pain
- Substance Abuse
- Alternative Medicine

Order your copy today!

See ordering information on the next page.



Resources

There are many books and pamphlets relevant to SCI that can be of assistance to you. Some suggested materials are listed below, but there are a number of others that are also informative. Use your library and the internet and ask the rehabilitation team what types of reading might be useful to you.

Yes, You Can!

A Guide to Self-Care for Persons with Spinal Cord Injury

Third Edition

Yes, You Can! provides comprehensive and easy-to-read practical knowledge on medical, psychological, social, and vocational issues for people with an SCI. It is used immediately after injury, on a day-to-day basis throughout rehabilitation, and after leaving the hospital by people with SCI and their families, friends, and caregivers. Designed to promote independence and improved quality of life, the guide gives information and resources on a wide range of topics, including bowel and bladder management, skin care and pressure sores, sexuality, community resources, respiratory care, exercise, range of motion, nutrition, medications, home modification, and driver's training.

Available from the Paralyzed Veterans of America Distribution Center

(888) 860-7244 (toll-free)

Price: \$15.00 plus shipping and handling

Order No. (English): 5200-149

Order No. (Spanish): 5200-57 (second edition only, \$5.00 while supplies last)

Reducing Risks to Secondary Conditions: Prevention & Treatment

These booklets address prevention and management of secondary conditions affecting individuals with SCI and other sensory/motor disabilities. Each booklet provides suggestions on prevention, treatment techniques, and references in an easy-to-read format. Camera-ready pages are also available for institutions to use in their own newsletters.

Series A

(Available in English and Spanish)

1. Pressure Sores
2. Urinary Tract Infections
3. Chronic Pain Management
4. Chronic Fatigue
5. Joint Problems
6. Spinal Cord Injury and Aging

Series B

(Available in English and Spanish)

1. Spasticity
2. Contractures
3. Deconditioning & Weight Gain
4. Depression
5. Bowel Dysfunction
6. Sexuality

Available from The Research and Training Center on Independent Living

University of Kansas

Life Span Institute

4089 Dole

Lawrence, Kansas 66034

(913) 864-4095

Price: \$2.50 each

Sexuality after Spinal Cord Injury: Answers to Your Questions

This 400-page book addresses the urgent questions surrounding sexuality after a spinal cord injury. In a question-and-answer format, the authors relay practical information in an easy-to-understand, no-nonsense style. Some of the topics addressed are anatomy, self-esteem, fertility, and parenting. This book enables individuals to privately explore the physical and emotional aspects of sex after SCI.

Available from Brookes Publishing Co.

PO Box 10624

Baltimore, MD 21285

(800) 638-3775

Price: \$22.00

Autonomic Dysreflexia: What You Should Know

This consumer guide from the Consortium for Spinal Cord Medicine explains in clear and simple language the most common warning signs of autonomic dysreflexia and what steps to follow if you think you are experiencing an episode of this life-threatening condition. Contained in the back pocket of the guide is a brochure with an attached wallet card that summarizes the common warning signs and steps to follow.

Available from the Paralyzed Veterans of America Distribution Center

(888) 860-7244 (toll-free)

Price: \$9.95 plus shipping and handling

Order No. (English): 2900-103

Order No. (Spanish): 2900-104

Neurogenic Bowel: What You Should Know

This guide for people with spinal cord injury, their caregivers, and health professionals, from the Consortium for Spinal Cord Medicine, explains the changes in bowel functioning following a spinal cord injury and techniques for a successful bowel management program.

Available from the Paralyzed Veterans of America Distribution Center

(888) 860-7244 (toll-free)

Price: \$9.95 plus shipping and handling

Order No.: 2900-126

Depression: What You Should Know

This guide for people with spinal cord injury, their caregivers, and health professionals, from the Consortium for Spinal Cord Medicine, describes some signs of depression, which can often follow a spinal cord injury. Included is advice on where to go for help, the types of therapy available, and the message that depression can be treated!

Available from the Paralyzed Veterans of America Distribution Center

(888) 860-7244 (toll-free)

Price: \$9.95 plus shipping and handling

Order No.: 2900-141

Accessible Home Design: Architectural Solutions for the Wheelchair User

Through case studies, extensive illustrations, and easy-to-read text, this guide shows the design changes that can be made to new and existing houses to increase the independence of people who use wheelchairs. Chapters address such key areas as entrances, kitchens, and bathrooms.

Available from the Paralyzed Veterans of America Distribution Center

(888) 860-7244 (toll-free)

Price: \$22.95 plus shipping and handling

Order No.: 2500-128

Managing Personal Assistants:

A Consumer Guide

Some people with spinal cord injury require help with activities of daily living from personal assistants (also called personal care attendants, personal aides, or health-care aides). This is a how-to guide on recruiting, hiring, training, managing, and firing personal assistants.

Available from the Paralyzed Veterans of America Distribution Center

(888) 860-7244 (toll-free)

Price: \$15.95 plus shipping and handling

Order No.: 2900-143

Spinal Cord Injury Information Network

A comprehensive website for the entire SCI community, it provides up-to-date information and resources developed by recognized centers and organizations. This site promotes interaction among individuals with SCI, caregivers, spouses, and rehabilitation specialists, as well as product vendors. Some of the site's main sections include Breaking News, Frequently Asked Questions, and Feedback.

Visit the website at
www.spinalcord.uab.edu



PN/Paraplegia News

This magazine keeps you informed, entertained, and up-to-date. Each month you get the latest news about products, publications, trips, transportation, research, education, and recreation. Stay informed about accessible housing, legislation, veterans services, and other important issues that affect your life.

Available from PVA Publications
2111 East Highland Avenue, Suite 180
Phoenix, AZ 85016
(602) 224-0500
Price: \$23.00 annually

Sports 'n Spokes

This bimonthly magazine covers the latest in sports events and recreational opportunities for wheelers around the world. From bass fishing to tennis, from skin diving to skiing. It keeps you informed to help maintain a healthy, active lifestyle.

Available from PVA Publications
2111 East Highland Avenue, Suite 180
Phoenix, AZ 85016
(602) 224-0500
Price: \$21.00 annually



**Mainstream Online—
Magazine of the Able-Disabled**

Available at
www.mainstream-mag.com

**New Mobility—
Disability Lifestyle, Culture
& Resources**

Available from Miramar
Communications, Inc.
23815 Stuart Ranch Road
Malibu, CA 90265
(800) 543-4116
Price: \$27.95 annually

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PVA
PARALYZED VETERANS
OF AMERICA

Glossary

Acute stage: The time immediately after your injury when you are in the hospital and may be treated for many different types of medical problems.

ADL: Activities of daily living: dressing, eating, getting in and out of bed, etc.

Advocate: Someone who represents you and who speaks out with your best interest in mind.

Ambulation: Walking with braces and crutches.

Cervical: Refers to the part of the spine in the neck region.

Coccyx: The bottom tip of the spine; the tailbone.

Cystogram: An X-ray taken after injecting dye into the bladder.

Cystometric examination: An examination that measures and compares the forces that empty the bladder with those that prevent emptying of the bladder. These measurements are used to determine when and if a catheter can be removed.

Cystoscopy: Examination of the interior of the bladder with a special instrument.

Edema: Swelling, usually caused by the buildup of fluid in a particular area.

EMG: Electromyogram, a test using electronic devices that determines how well nerves and muscles are working.

Fecal impaction: Blockage of the bowels; may result in severe constipation.

Flat plate: X-ray taken of the abdomen.

Gait: A description of an individual's style of walking.

Hydronephrosis: Stretched kidney resulting from excessive reflux.

Incontinence: A bowel or bladder accident.

Intervertebral disk: Tough "cushions" made of a gristle-type material that separate the vertebrae in the spine.

Intravenous pyelogram (IVP): X-ray taken after injecting a dye into the vein that outlines the urinary system.

Laminectomy: An operation sometimes used to relieve pressure on the spinal cord. Also used to examine the extent of damage to the cord in special cases.

Lumbar: Refers to the area of the spine at the mid to lower back.

Myelogram: A test in which an opaque liquid is injected into the spinal canal that produces an outline of it on X-rays or fluoroscope.

Neurectomy: An operation in which the nerves to particular muscles are cut to eliminate severe spasticity in them.

Occupational therapist (OT): A professional who helps patients improve their range of motion, strength, and coordination of small

movements of muscles and joints in order to help them perform activities of daily living or return to work.

Orthosis: A device applied to the exterior of the body to support, aid, and align the body and limbs, or to influence motion by assisting, resisting, blocking, or unloading part of the body weight.

Paralysis: The inability to control movement of a part of the body.

Paraplegia: A condition involving complete paralysis of the legs.

Paresis: Incomplete paralysis or weakness of a part of the body.

Physiatrist: A doctor whose specialty is physical medicine and rehabilitation.

Physical therapist (PT): A professional who helps patients improve their strength, coordination, and range of motion of large movements of their muscles and joints.

Pressure sore: Also known as a pressure ulcer, decubitus ulcer, or bed sore; a reddened area or an open sore usually found on the skin over bony areas such as the hip-bone or tailbone. It is usually caused by too much pressure on those areas.

Prone: Lying flat on the stomach.

Prosthesis: An artificial substitute for a missing body part.

Quadriplegia: Also called tetraplegia; a condition involving complete paralysis of the legs and partial or complete paralysis of the arms.

Range of motion: An arc of movement of a joint of the body.

Reflux: The back-flow of urine from the bladder into the ureters and kidneys.

Rehabilitation: The process of recovering from, adapting to, or compensating for disabilities.

Residual: Usually refers to the amount of urine left in the bladder after voiding without a catheter.

Rhizotomy: An operation to disconnect specific nerve roots in order to stop severe spasticity.

Sacral: Refers to the part of the spine in the hip area.

SCI: Spinal cord injury, an injury to back or neck causing damage to the spinal cord, leading to paralysis.

Sensation: Physical feelings like touch, pain, temperature, pressure, or awareness of where a body part is in space.

Spasm: A sudden, often uncontrolled, contraction of a muscle; a muscle jerk.

Spasticity: Movement in arms and legs due to muscle spasms that may occur as a result of spinal cord injury.

Spinal tap: A minor operation involving the insertion of a needle between two vertebrae to check the pressure of the spinal fluid.

Suprapubic cystostomy: A small opening made in the bladder in order to remove stones or establish suprapubic catheter urinary drainage.

Thoracic: Refers to the part of the spine at the upper-back to mid-back level.

Ventilator: A piece of equipment that helps a person to breathe who cannot do it independently.

Vertebrae: The bones that make up the spine.



About the Paralyzed Veterans of America

Organized following World War II, the Paralyzed Veterans of America (PVA) is a nonprofit organization chartered by the United States Congress and dedicated to serving the needs of our members—all of whom have catastrophic paralysis caused by spinal cord injury or disease.

Since its inception, PVA has been in the forefront of improving health care, rehabilitation, and access to society for paralyzed veterans. PVA also supports initiatives designed to help all veterans and all Americans with disabilities.

Today, PVA is a dynamic, broad-based organization with more than 40 chapters and subchapters and 58 national service offices nationwide. Since its founding, PVA activities and programs have expanded dramatically in size and scope, and now include veterans benefits, medical research, legislative action, public education, wheelchair sports, accessible design, and veterans law.

PVA's key objective is to take those actions that help veterans with spinal cord dysfunction restore their physical capabilities and quality of life as closely as possible to those of the nondisabled population.

Additional Information

If you need information on becoming a member of PVA or have any questions about its programs and activities, call or write to:

PARALYZED VETERANS OF AMERICA

801 Eighteenth Street, NW, Washington, DC 20006

(800) 424-8200 • (202) 872-1300 • (202) 416-7622 TTY

www.pva.org



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