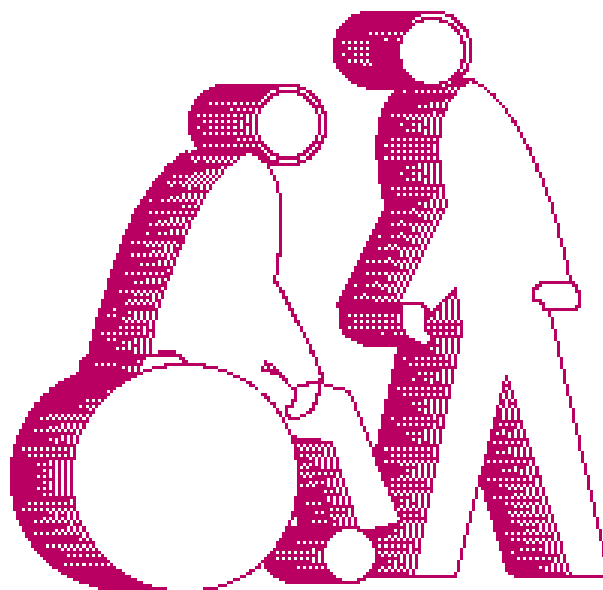


PREVENTING SECONDARY MEDICAL COMPLICATIONS: A Guide for Personal Assistants to People with Spinal Cord Injury



Medical Rehabilitation Research and
Training Center in Secondary Complications
in Spinal Cord Injury

UAB SPAIN
REHABILITATION CENTER
University of Alabama at Birmingham

Preventing Secondary Medical Complications: A Guide For Personal Assistants to People With Spinal Cord Injury

Developed by:

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Acknowledgment

Our thanks to the following individuals who helped us in the development of this booklet:

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This publication is supported in part by a grant (#H133B30025) from the National Institute on Disability and Rehabilitation Research, Department of Education, Washington, D.C. 20202. Opinions expressed in this document are not necessarily those of the granting agency.

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Introduction

Secondary complications are medical problems that result after a spinal cord injury (SCI). Many of these medical problems which result from the spinal cord injury are preventable. Some of the more common medical complications include bladder and bowel problems, respiratory (lung) problems and skin breakdown.

Information is available for the health care staff on preventing secondary medical complications in persons with SCI. However, few materials exist to train personal assistants (PA's). This easy-to-read booklet is designed to help PA's assist the person with SCI in his daily routines. The proper health care assistance given by the PA can help prevent secondary medical complications.

In this booklet the person with SCI will be referred to as the employer. Both male and females may have SCI and employ a PA, however in this booklet the employer will be referred to as "he".

You and your employer are a TEAM! You will work together to help him stay healthy. He is your employer because he hires you and is responsible for telling you how to assist him. He may work with an agency to train and hire you to be his PA.

Space is available at the end of this book for you to make notes about your employer's individual health care needs.

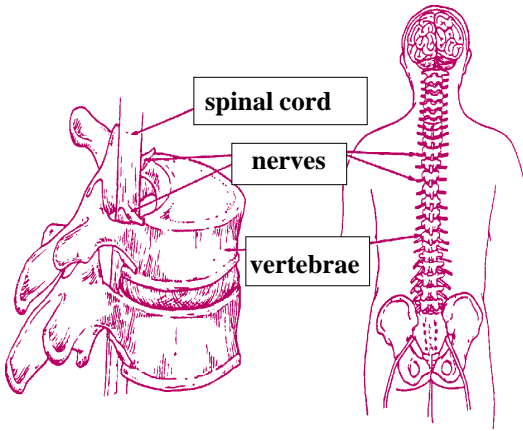
The assistance of the following individuals is gratefully acknowledged in the development of this booklet.

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1 What Happens After a Spinal Cord Injury?

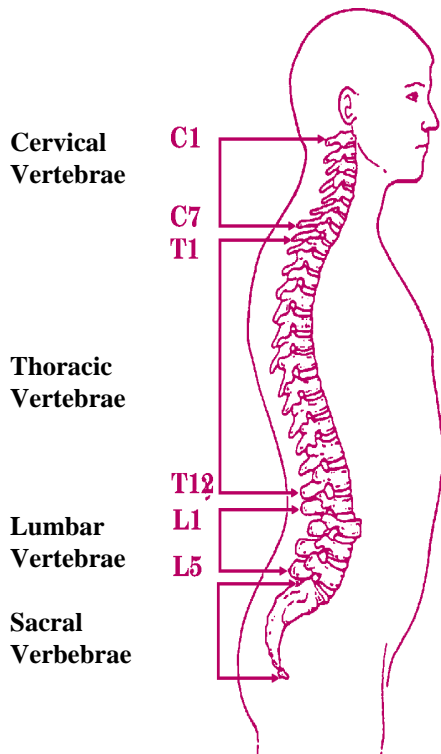


The spinal cord is protected by the vertebrae (backbone).

The backbone is the number one support for the body. The backbone is made up of many bones stacked on top of each other like building blocks. These bones are called vertebrae (**ver-te-brae**). The spinal cord runs through the middle of these vertebrae. The bones help protect the spinal cord.

The spinal cord is part of the body's nervous system. It is like a group of telephone wires. The spinal cord goes from the brain, down the middle of your back, to your buttocks. It is about 18 inches long. The many nerves in the spinal cord are like the wires in a telephone cable. With a spinal cord injury (SCI), the spinal cord can be hurt any place from the neck down to the buttocks. The spinal cord acts like a telephone cable, sending messages to and from the brain to all parts of your body. The brain is like a computer and sorts all the messages.

What happens after a spinal cord injury?



This shows the location and name of the vertebrae. Your employer will show you where his level of injury is.

All the nerves above the injury keep working like they always have. Below the injury, it is like when the telephone is not working right. Signals cannot be sent to the brain from areas of the body that are affected by the injury. Messages from the brain can no longer reach certain areas of the body to tell it what to do. Feelings such as hot and cold cannot get to the brain. The lungs, bladder and bowel are some parts of the body that no longer work the same as they did before the injury. The brain can no longer tell certain muscles to move.

The spinal cord injury is described according to how the body is affected. A person who cannot use his legs has paraplegia (**par-a-ple-gi-a**). (See picture 1 on the next page). A person who is not able to move his legs and is not able to use his arms like before his injury has been injured in the neck area. He has tetraplegia (**tet-ra-ple-gi-a**), sometimes called quadriplegia (**quad-ri-ple-gi-a**) (See picture 2 on the next page). The closer the injury of the spinal cord is to the brain, the higher the level of injury. Fewer parts and systems of the body work normally when there is a higher level of injury. A person with quadriplegia has a higher level of injury.

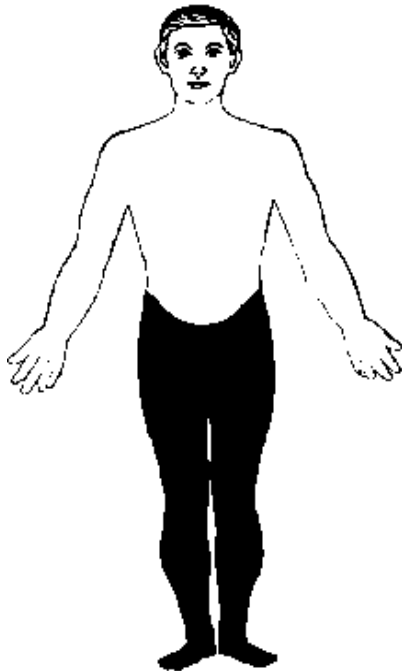
There are also different types of SCI. A person can have

a complete or an incomplete injury. A person with a complete spinal cord injury cannot feel or move parts of his body that are affected by his level of injury. A person with an incomplete injury may be able to move or feel parts of his body that are affected by his level of injury.

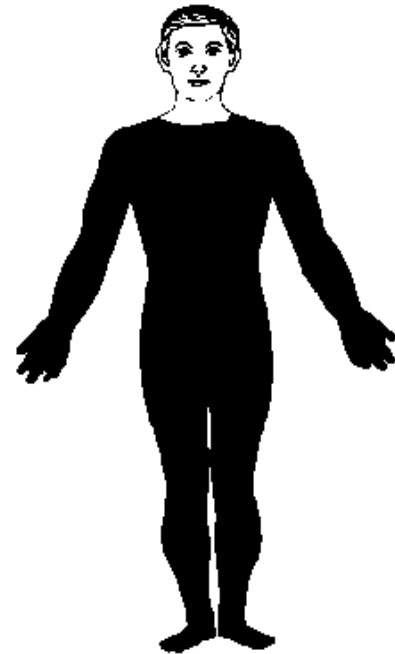
The different levels and different types of SCI can affect how much an individual can move, feel, and do things for themselves. This is why it is important for your employer to have a personal assistant (PA) help with his daily routines. Each person's injury is different. Ask your employer what his "level of injury" is. Ask what parts of the body work differently because of the SCI.

Tips

- Know what your employer's level of injury is.
- Have your employer explain to you how his body has been affected by his SCI.

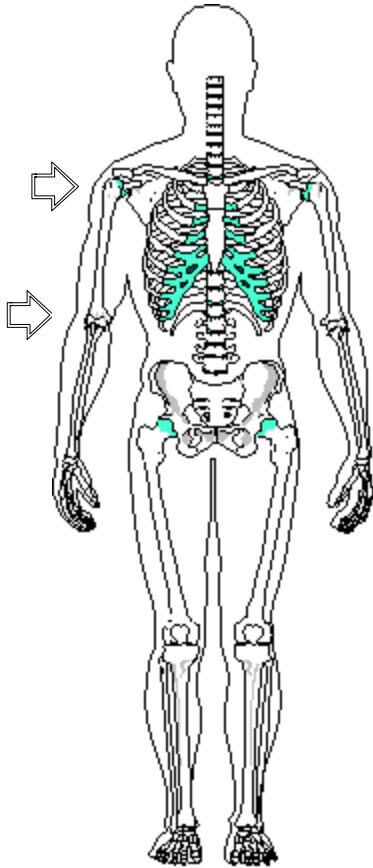


Picture #1
This shows a person with a T-11 level injury to the lower spinal cord. The shaded area shows the parts of the body that do not work the same way after a spinal cord injury. This person has paraplegia.

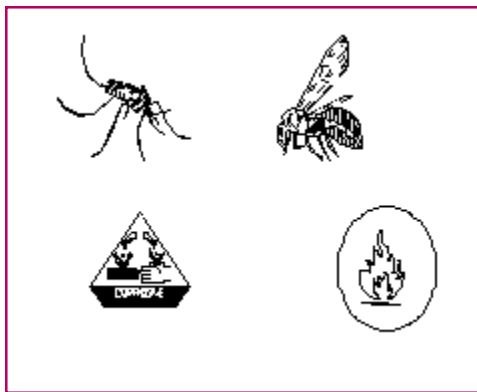


Picture #2
This shows a person with a C-3 injury to the neck. The shaded area shows the parts of the body that do not work the same way after a spinal cord injury. This person has tetraplegia.

2 Skin Care



The bony areas where pressure sores are likely to occur are the heels, elbows, buttocks, hips, and shoulders.



Avoid burns, chemicals, and insect bites. They can cause skin breakdown.

The skin helps protect the body from loss of fluid. Skin acts as a guard against infection and injury. Any breakdown to the skin must be prevented since it can lead to infections. A person with spinal cord injury often cannot feel when he gets a cut, burn, or has too much pressure on his skin. After the injury the nerves are not working right and the messages of heat, cold, or pain on his skin cannot reach the brain. Your employer may not be aware of when he has skin breakdown.

Pressure Sores - Pressure sores, sometimes called bed sores, usually occur from lying or sitting in one position for too long a time. Blood and oxygen to the skin get cut off and then the skin begins to die. Pressure sores start as discolored areas that do not go away within 20 minutes after getting pressure off the area. Pressure sores usually develop over bony areas on the body. Bony areas don't have padding like the other parts of the body. Examples of bony areas are the elbow and the heel. Your employer can no longer feel parts of his body below the level of injury. He is not aware of feelings of discomfort that warn him to move and change positions like before the injury.

What can cause skin breakdown?

Skin breakdown can occur from pressure, burns, insect bites, chemicals on the skin, or friction. Damage to the skin can occur in a very short time. Heat, wet or tight clothing, or other conditions cause skin breakdown to occur in an even shorter time. Here is an example of how quickly heat caused a burn. A girl with SCI was riding with her family in a pickup truck. Her feet were on the floorboard of the truck. Although she had on tennis shoes, her feet were in one position for too long. The hot floorboard caused the bottom of her feet to blister. The blisters developed into sores. When the skin breaks down, it is easier for sores to develop.

How can you help your employer prevent skin breakdown?

Proper covering on the feet and properly fitting clothes on the body reduce the chances of sores developing. Make sure small items like safety pins, pencils or pens do not get in the bed

or wheelchair. Keep bed sheets and clothing smooth. Sitting on these small things or even wrinkled bed sheets can quickly cause your employer to get a pressure sore.

Pressure sores can develop during transfers. Be careful not to drag your employer across a bed or toilet seat. Simple movements, like careless transfers in and out of the wheelchair and bed, can lead to skin breakdown.

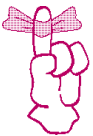
Your employer's wheelchair should fit correctly so he sits up straight and evenly. His wheelchair cushion must be the right type and fit. Good posture prevents pressure sores.

It is very important to keep your employer's skin clean and dry. Skin can become wet from urine leaking from his leg bag or catheter. He needs to be cleaned properly after having a bowel movement. Waste products, such as urine and BM left on the skin can cause skin breakdown. Wet clothing or soiled bed linens may also cause skin breakdown.

Eating right also helps keep the skin healthy. Foods high in protein and vitamins A & C help skin to heal and stay healthy. Fish, eggs, chicken and meat are high in protein. Green & yellow vegetables are high in vitamins. Avoid preparing greasy and fried foods. Always try to fix healthy foods for your employer to eat.

Why do you need to help your employer avoid getting pressure sores?

Pressure sores can severely limit your employer's independence. For example, a pressure sore on the buttocks means he must stay off the sore until the sore heals. This means he can't sit in his wheelchair or go to work. Pressure sores limit his daily activities. For a pressure sore to heal, he must keep pressure off the area. If the sore is open and gets worse, your employer needs to get medical help.



Remember, you and your employer should check his skin daily for signs of skin breakdown. He should stay off areas that look discolored.

Tips

For Good Skin Care, You and Your Employer Should:

- Check his skin daily for signs of skin breakdown.
- Stay off any area if there are signs of skin breakdown.
- Relieve pressure on an area by moving every 15-20 minutes.
- Keep skin clean and dry.
- Always use a wheelchair cushion and sit up straight!
- Eat a healthy diet.
- Drink 8 -10 glasses of water a day.
- Protect his skin from heat and cold.
- Keep his feet clean and dry and keep his toenails cut.

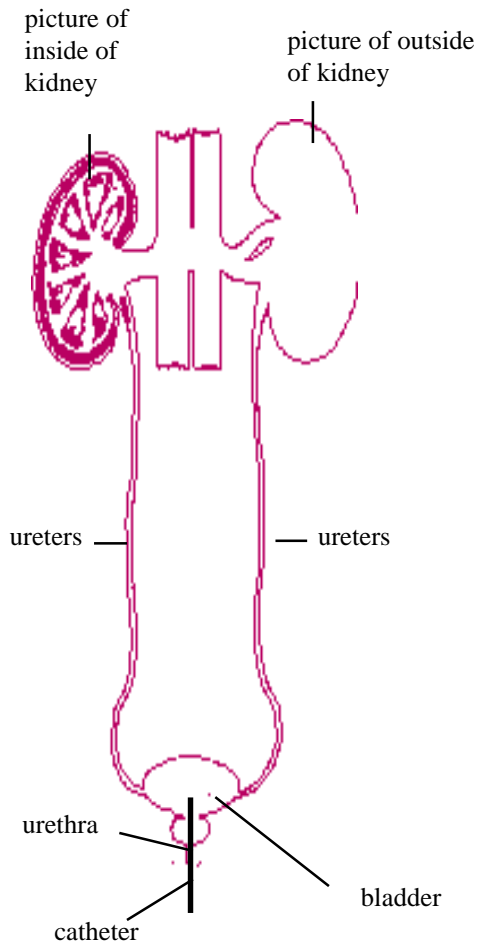


**HOME
SWEET
HOME**



You and your employer need to check his skin every day for signs of skin breakdown.

3 Bladder Care



A catheter is inserted, if necessary, to help drain the bladder.

Our bodies have 2 kidneys. Kidneys remove waste and filter the blood. The waste leaves the body in the form of urine. Urine goes from the kidneys down tubes called ureters to the bladder. The bladder holds or stores the urine. When the bladder fills, the person without SCI feels the urge to void or urinate (“pass water”).

After a spinal cord injury, the message cannot get to the brain to tell it that the bladder is full and ready to empty. Another problem after SCI is that the bladder may not fill and empty completely. Therefore germs may grow in the urine leading to a urinary tract infection (UTI). Repeated UTI's may cause serious damage to your employer's bladder, ureters and/or kidneys.

How will your employer empty his bladder?

"In and Out" Catheterization (cath-e-ter-i-za-tion):

Your employer may use a tube called a catheter (**cath-e-ter**) that is put into and taken out of his bladder. This tube carries the urine out of his body and drains into a container. If your employer uses this method and you are responsible for performing it, you need to learn the correct way to do it. Using the correct method can help prevent your employer from getting a UTI.

External Condom Catheter:

Most men with SCI use an external condom catheter. The urine drains from the condom catheter to a collecting bag (leg or bed bags). It is important that you learn the correct way to apply the condom catheter and to clean the bags. Using the correct method can help prevent your employer from getting a UTI. The bags last longer and there is less of a chance of urine odor when the bags are cleaned properly. Be sure the condom is not taped on too tight or serious skin breakdown may occur.

Foley or Suprapubic Catheter:

A foley catheter is inserted through the urethra (**u-re-thra**) into the bladder to drain the urine. A suprapubic (**su-pra-pu-bic**) catheter is a tube that goes through a hole in the stomach into the bladder and drains the urine. The foley catheter and the suprapubic catheter will stay in the bladder.

Your employer's doctor may have him use any one or a combination of these methods. The external condom catheter is used only by males. The other methods listed above may be used by both males and females. Your employer will teach you the method(s) he uses.

How can you help your employer stay clean and healthy?

- Keep catheter and bags clean to help prevent odors. Supplies last longer if kept clean.
- Keep the catheter and bags clean to prevent infection.
- Use care and cleanliness when inserting the catheter into your employer.
- Your employer should drink 8 - 10 glasses of water a day. He can also drink juices, Koolade, lemonade and decaffeinated tea. He should not drink alcohol. He should limit milk, coffee, tea orange or grapefruit juices, and carbonated soft drinks to 8oz. per day. Sugar free drinks are allowed.
- **If your employer runs a fever, has chills, or there is blood in his urine, he should call his doctor.**



It is important for your employer to drink 8 - 10 glasses of water a day.



Remember, if the urine in the leg bag is cloudy, brown, red or smells, it could be a sign of infection. Cleanliness is important. It helps prevent infection.

Tips

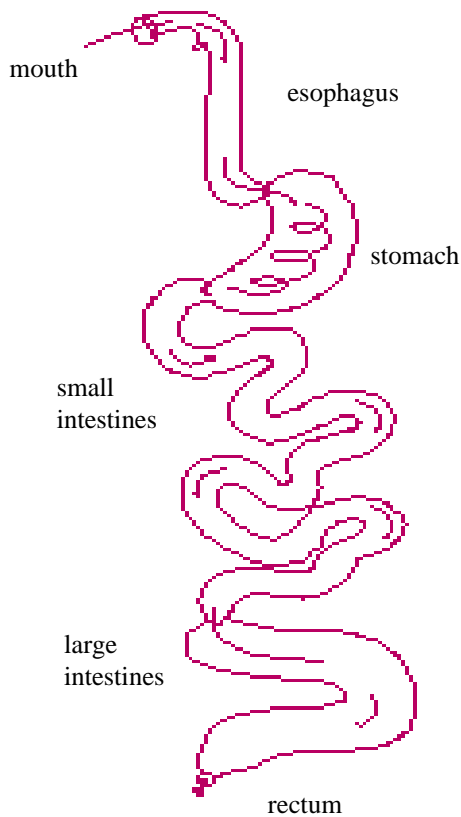
To prevent urinary tract infections:

- Clean the GU bags daily (usually with a bleach or vinegar solution) and keep supplies in a clean, dry storage place.
- Use proper methods when performing any urinary procedure. Your employer should -
 - Take medicines as ordered by his doctor.
 - Call the doctor when chills, fever, or blood in the urine occurs
 - Increase water intake if dark, cloudy, smelling urine is noted.
 - Drink 8 - 10 glasses of water a day.
 - Limit intake to 8 oz. per day of
 - sugar-based drinks
 - sodas
 - tea/coffee
 - orange/grapefruit juices

4 Bowel Care



After food is eaten it moves through the body like the picture on the left side of this page. Some of it is broken down into waste called bowel movement (BM). The waste moves through the stomach and intestines and out of the body as a BM. Normally the bowel sends a message to the brain when it is ready to go to the bathroom. Since your employer's injury, the nerves ("wires") do not send messages to and from his brain like before his injury. He may not know when it is time to go to the bathroom. He may not be able to hold his BM until he is ready to go.



How will your employer have a bowel movement(BM)?

Your employer will follow a routine called a bowel program. Following his bowel program will help him prevent having BM accidents. Your employer will teach you how to do his bowel program to prevent accidents. He will use a suppository (**sup-pos-i-to-ry**), also called a "silver bullet". A suppository is medicine that helps his bowel movement happen at the right time.

- He will teach you to unwrap the suppository and put it in his rectum. This is done at a scheduled time, usually after he eats.
- His doctor and nurse will tell him when to take his suppository ("silver bullet"). This is called his bowel program.
- Rub the suppository against the wall of the rectum for 30 seconds before inserting. Be sure it is not placed in BM.
- He might be on medicine to keep his BM soft.
- If he can be transferred to a commode (toilet) seat, his BM will work faster. Sitting-up helps BM come out better.
- He may need digital stimulation. This means inserting your finger, wearing a lubricated glove, into his rectum. This helps his bowels have the urge to empty. Be careful when inserting a suppository or your gloved finger into his rectum. Do not scratch or hurt the lining of his rectum. It is very delicate. Keep your fingernails trimmed to prevent scratching.
- Like good bladder care, good bowel care is important in the prevention of medical complications.
- Cleanliness is important. Be sure your employer is clean after his bowel program to prevent infection and odor. Have your employer teach you his bowel program.
- If your employer has problems with his bowel program, he should call his doctor.

S- Schedule your bowel program

E- Exercise everyday

L- Liquids, drink 8 - 10 glasses each day

F- Eat Foods with Fiber

1

1 SILS(Spinal Injury Learning Series),Norris, Noble, and Strickland, Learning Systems, Jackson, Mississippi, 1978.

What are common complications your employer may have with his bowel program?

Diarrhea is watery, loose stools.

Causes of diarrhea may be:

- * flu or stomach virus
- * change in medications, especially using antibiotics
- * poor diet, especially eating too many spicy or greasy foods
- * using too many stool softeners
- * increased stress or emotional problems
- * eating too much fruit or fiber in diet

Ways to deal with diarrhea are:

Constipation is hard stools or when there is no bowel movement for several days. The stomach may be swollen, hard or crampy. Your employer may have a lack of appetite.

Causes of constipation may be:

- * not eating 3 meals a day
- * not drinking 8 - 10 glasses of liquid a day
- * not having enough physical activity
- * staying in bed too much
- * not following a schedule for bowel program
- * eating too much cheese or dairy products
- * changing medications, especially taking narcotics
- * not using proper methods when giving

Ways to deal with constipation:

Impaction is when stool blocks the rectum. Signs of impaction are the stool may be hard or watery. The person may not have had a bowel movement in several days. The stomach is swollen, hard or crampy. The person may have a lack of appetite and nausea.

Causes of impaction are the same as constipation.

Ways to deal with impaction is the same as for constipation except for giving the suppository. Gently

How can you help him deal with these problems?

- * eating bland foods, like mashed potatoes, rice, crackers, broth until BM is formed
- * stop giving stool softeners until BM is formed
- * talking to Physician about change in medication
- * eating a healthier, more balanced diet
- * stop giving fruit juices until stools are formed
- * talking to your employer about stresses in his life

- * increasing activity
- * limiting dairy products, especially cheese
- * increasing liquids
- * following a schedule for bowel program
- * giving 1-2 suppositories daily until the constipation is gone
- * giving stool softeners until the BM softens
- * talking to the doctor about changing medication

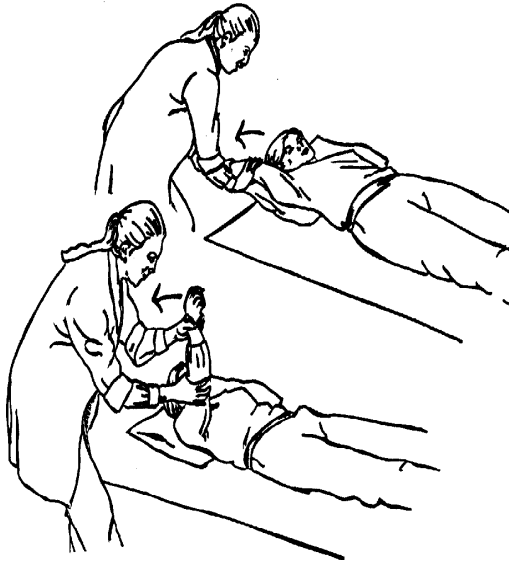
Call the doctor or nurse if no results. An enema or other treatment may be needed

remove whatever stool can be reached. Use a lubricated gloved finger. Then try giving two suppositories at one time. You may need to get medical help if the results are poor.

Tips

- Serve your employer foods high in fiber, like vegetables, fruits, cereals and beans.
- Your employer should drink 8 - 10 glasses of water every day.
- Remember to remove the suppository from its wrapper before inserting.

5 Range of Motion Exercises



When doing range of motion exercises, be careful to move your employer only as far as the joint can comfortably move.

Our muscles stretch every time we move in our daily activities. Depending on your employer's level of injury, he may not be able to move certain muscles on his own. Therefore, he will teach you range of motion (ROM) exercises to do to stretch his muscles and joints. These ROM exercises need to be done every day. If muscles do not work or do not work well, joints can become stiff. Stiff joints can cause your employer pain when moving, difficulty with sitting, pressure sores, or deformity. That is why daily ROM exercises are important.

Your employer will explain the correct way for you to do his daily ROM exercises. If you notice some tightness during ROM exercises, tell your employer about it. Do not force tight muscles or joints. Broken bones or other damage may result from over-stretching tight muscles. You need to make sure you don't force muscles or joints during a spasm. A spasm is when your employer's muscles twitch and shake all by themselves. He cannot voluntarily control spasms when they occur.

*To do ROM exercises **safely and correctly:***

- Be sure your employer is in a safe position for exercising.
- Do each exercise 10 times during each exercise period.
- Be sure joints are bent as they normally bend. Because the muscles are weak or absent, it is easy to bend a joint too far the wrong way.
- Move your employer's joints slowly, not in a jerky fashion.
- Be aware of how far the joints move each day. Do not force tight joints to move farther than they will easily move.
- Remember to exercise all joints, including toes and fingers.
- Encourage your employer to move as much as he can by himself, as this will maintain or build up his strength.



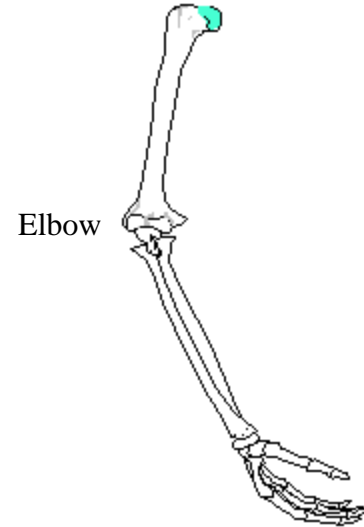
Remember, do ROM exercises every day to prevent stiffness.

Tips

- Do not force muscles during spasms.
- Do not push your employer's joints farther than they can move on their own.

6 Heterotopic Ossification

While doing ROM exercises, be alert to a condition known as heterotopic ossification (**het-er-o-top-ic os-si-fi-ca-tion**)(HO). In people with SCI, HO is when bone grows in an uncommon place, below your employer's level of injury. It usually occurs around the hips, knees, shoulders and elbows. Signs to look for are swelling, redness and/or heat around the area. The person with SCI may have a low grade fever. Tell your employer if you notice any of these symptoms. ROM exercises become harder to do because the bone growth is starting in a joint area. If these symptoms are present, **don't force muscles or joints during ROM exercises**. Your employer should contact his physician at once to see what is wrong and receive treatment. Doing daily ROM exercises may help prevent loss or range of motion from mild HO.



Swelling in the leg area could also mean your employer has other serious medical problems besides HO. Your employer should get medical care to see what is wrong and receive treatment.

Watch for signs of swelling or redness in joints, such as the elbow. This could be a sign of HO.



Remember, look for signs of heterotopic ossification when you do daily ROM exercises.

Tips

- Watch for signs of HO, such as swelling at joints.
- Do not force joints during ROM exercises.
- HO can be a very serious problem. Your employer should contact his physician at once.

7 Autonomic Dysreflexia

Autonomic dysreflexia (**au-to-nom-ic dis-re-flex-i-a**), also called AD or autonomic hyperreflexia, may be a life threatening emergency. It may happen to your employer if his injury is to his neck or upper back (T6 level or above). It is like an alarm that tells your employer that his body has a problem that needs to be fixed now! Anything that causes pain to his body can lead to AD. If it occurs, it should be treated as *a medical emergency* and it may require a doctor's care.

What are signs and symptoms that your employer might have to tell him that he has a problem?

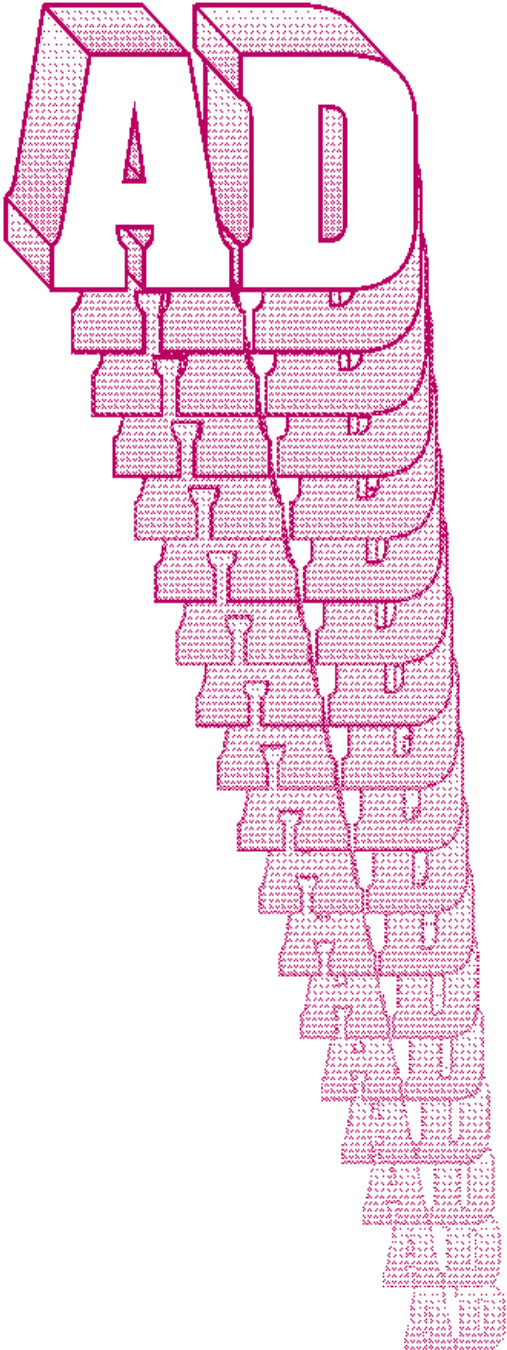
- Sweating on face, arms, or chest (usually *above* his level of injury)
- Bad headache
- Red, blotchy skin on face, arms, or chest *above* his level of injury
- Pale skin *below* the level of injury
- Raised blood pressure
- Stuffy nose and trouble breathing
- Blurring of vision or spots before his eyes
- "Goosebumps" on arms, chest
- Slow pulse

Your employer does not have to have all the above symptoms to have AD. He may have just one symptom or he may have several of these symptoms.

What are some common causes for your employer getting AD?

AD is your employer's body telling him that he has a problem that needs to be fixed. It happens because of his spinal cord injury. Causes may be:

- Stretching of his bladder from being too full.
- Stretching of his bowel from constipation or impaction (lodging of stool in the rectum).
- Prolonged pressure - a pressure sore, an ingrown toe nail, a tight belt or clothing.
- Spasms of the uterus during a woman's monthly menstrual period.



What actions should you take if your employer has AD?

1. Sit him up - this helps to lower blood pressure.
2. Take off any tight clothing.
3. Check the catheter tubing to see that it is open and that it does not have any kinks in it that is keeping the urine from flowing out from the bladder.
4. Empty his bladder. Put the catheter (tube) in and empty his urine ("water") out. If he doesn't feel better,
5. Empty his bowels out. Put on gloves and take out all the BM that you can reach. If he doesn't feel better,
6. Go to an emergency room immediately. He will need medicine to get his blood pressure down. He needs a doctor and nurse to find the cause of his problem.

If you find and remove the cause, the symptoms should stop immediately.

Make sure your employer knows about AD. Here is a card for your employer to carry with him. Put his name in the space. Have your employer take it with him to the Emergency Room and give it to a doctor in case of an emergency. Some doctors may not be very familiar with AD. The card will help them take the necessary actions. Make a copy to tape up in your employer's kitchen or bedroom. Look at it every day.



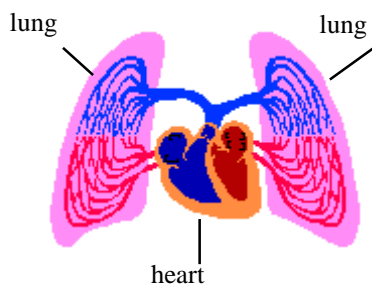
Remember, when someone has AD try to find the cause as quickly as possible. If you can't find the cause, get your employer to an emergency room as quickly as possible.

<p style="text-align: center;">Fold Here</p> <p style="text-align: center;">MEDICAL ALERT FOR AUTONOMIC DYSREFLEXIA</p> <p>_____ is subject to the above syndrome. This is a serious medical problem that can occur in people with spinal cord injury at or above the 6th thoracic level. The symptoms of autonomic dysreflexia (AD) can be caused by many types of stimuli below the level of the spinal cord injury, but the most common emergency causes are: (1) full or spastic bladder or (2) bowel distention (usually from stool in rectum). Severe AD is a medical emergency which if not properly treated can result in cerebral vascular hemorrhage (stroke).</p> <p>Symptoms:</p> <ol style="list-style-type: none"> 1. Pounding headache 2. Flushing of skin and sweating above the level of injury 3. Increased blood pressure (as high as 250/150), slow pulse 4. Apprehension/anxiety 5. Nasal stuffiness 6. Vision changes-blurring, spots before the eyes 7. "Goose bumps" 	<p>Medical Treatment:</p> <ol style="list-style-type: none"> 1. If the AD episode is not resolving after the previous measures, medical treatment is necessary. Ask the patient if he has his own supply of any AD medications. If not, transport patient to an emergency room as soon as possible. 2. If the AD episode is not resolving and/or the blood pressure reaches 160 systolic, give the patient Nifedipine 10 mg sublingual. Instruct patient to bite through the capsule and hold it beneath his tongue. May repeat Nifedipine dosage after 15 minutes if blood pressure has not responded. 3. Continue to look for causes of AD by checking the patient's entire body. Other causes include fractures, sores and tight clothing. 4. Alternate treatments (if Nifedipine not available or does not work): <ol style="list-style-type: none"> (a) Nitroglycerine ointment: 1 inch to upper chest or back. If no resolution in 15 minutes, add additional 1 inch. (b) Markedly elevated blood pressure not responding to the above measures should be treated with IV Apresoline (20mg/1 cc.) Inject .5c SLOWLY. May repeat dosage after 15 seconds if no response. Other IV medicines may be substituted. 5. Blood pressure may be safely lowered to 90/60 which is typical of quadriplegics in the sitting position. 6. After an episode of AD, it is not uncommon for a second episode or rebound to occur, so blood pressure should be checked every 30-60 minutes for the next 4-5 hours. 7. Patient should be monitored for hypotension after treatment of AD. <p><small>2 Taken with permission from the Paralyzed Veterans of America publication <i>Yes, You Can!</i> - 1989</small></p>
<p style="text-align: center;">Fold Here</p> <p>What To Do: (First Aid)</p> <ol style="list-style-type: none"> 1. Place patient in a sitting position 2. Drain the bladder <ol style="list-style-type: none"> (a) If catheter in place, check for kinking. If catheter is plugged, do not try to irrigate. Change foley by using Lidocaine jelly for lubrication. (b) If no catheter is present, insert a catheter using Lidocaine jelly for lubrication. Do not crede (push on) the bladder. 3. If emptying the bladder has not decreased the blood pressure and there is stool in the rectum, apply Lidocaine jelly to the anal sphincter and wait three minutes. Then, using a Lidocaine-lubricated gloved finger, gently remove stool from rectum. 	

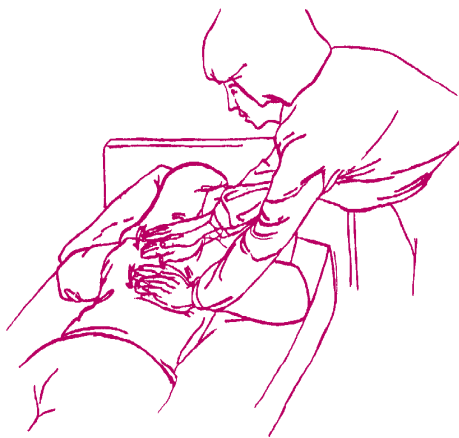
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8 Respiratory Care

After your employer's injury, his muscles used for breathing and coughing may be weak or may not work like they used to. Also, bedrest keeps him from breathing deeply. If he cannot breathe deeply or cough strongly, he might get a lung infection called pneumonia (**pneu-mo-ni-a**). Thick secretions (snot or mucus) will form in his lungs. Secretions (**se-cre-tions**) in the lungs make it harder for your employer to breathe.



The lungs assist with breathing.



Chest percussion helps to keep the lungs clear.

What are signs of lung problems?

Your employer is someone who is at risk for having respiratory (lung) problems. If your employer has a fever, shortness of breath, has trouble coughing up secretions (mucus) to clear his lungs, or the secretions are not clear or white, this could be a sign of lung infection.

What are ways to keep your employer's lungs healthy and clear?

He should have a daily routine of care for clearing out his lungs. Your employer will teach you his routine. Make sure you know and understand all the steps needed to clear his lungs.

- **Assist cough or quad cough**

Since his muscles for breathing do not work like before the SCI, you will need to help your employer cough. This is sometimes called "assist cough" or "quad cough." It is very similar to the Heimlich maneuver. Place your hands below the diaphragm and press up while your employer coughs. It helps to get up a lot of mucus and secretions to the mouth.

- **Postural drainage**

Your employer may need postural drainage to clear his lungs. This is done by placing your employer in different positions so his lungs can drain and he can cough up secretions. Your employer should know about this procedure. Make sure he explains it to you in detail.

- **Chest percussion**

Along with postural drainage, you may have to help your employer with chest percussion to help him clear his lungs. It is done by clapping your employer's chest with your hand held slightly cupped and your fingers and thumb together. A cushion of air is then trapped between your hand and the chest. When you do the clapping, hold your arms so that the elbows are bent and the wrists are loose. Bring your hands down

sharply on the chest in a whipping motion—left, right, left, right. Continue for about a minute over each area of the chest. It is a noisy procedure, but is not usually painful to your employer.

- **Chest Vibration**

You may also do chest vibration. This is done by placing both hands on the front or sides of the chest. Then while using moderate pressure, shake the chest wall each time your employer breathes out. Repeat five times over each area of the chest.

Some persons with SCI have a tracheostomy (**tra-che-os-to-my**). This is a hole in the windpipe which allows the person to breath. You may have to help your employer clean his tracheostomy. Keep this hole clean to prevent infection. Your employer will explain this to you in detail if needed.

Because of your employer's risk for infection, his doctor may recommend a flu shot or pneumonia shot.



Clean air helps keep your employers lungs healthy



Remember, learn all the steps of respiratory care. Don't smoke around your employer. Watch for signs of respiratory infection.

Tips

- Your employer should drink at least 10 glasses of water a day.
- Encourage activity in a sitting position.
- Decrease or eliminate smoking by anyone around your employer.
- Keep your employer away from persons with colds and flu.
- Assist your employer with his lung exercises.
- Use correct methods when performing lung exercises.

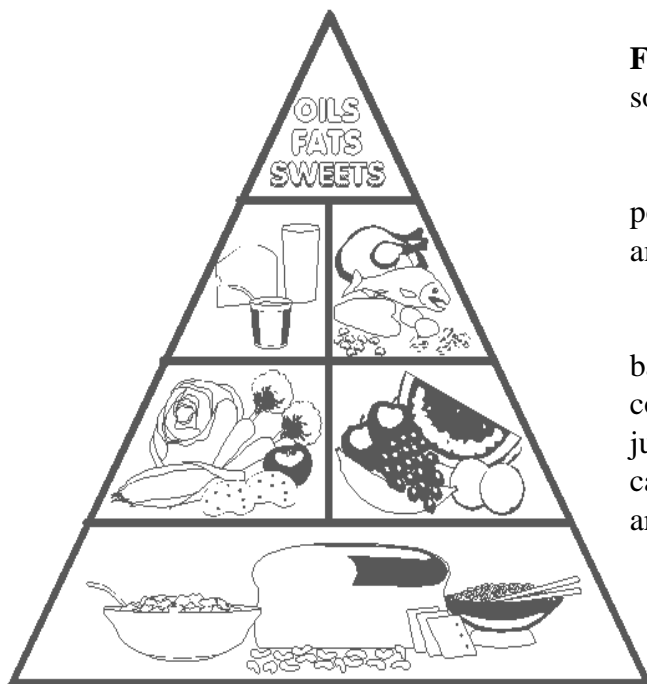
9 Diet

Your employer needs to eat a balanced diet to stay healthy. A balanced diet gives him energy and helps his body fight infection. Eating properly can help his bladder, bowels, skin and lungs stay healthy along with the rest of his body. A diet helps him maintain his ideal body weight. An ideal body weight can help prevent pressure sores.

Each person's diet may be different after a spinal cord injury. Your employer should know what kind of diet is healthy for him. He will teach you what types of foods he can or cannot eat.

It is important for you to prepare your employer's meals at certain times so his bowel program is not interrupted. Very spicy foods may taste good but may cause your employer to have bowel accidents. Do not add extra spices or cook foods that are not asked for by your employer. A diet high in fiber helps your employer's bowels move. Eating enough fiber and drinking fluids helps keep his bowel program regular. Avoid fixing foods that are rich and high in fat, such as thick sauces, gravy and heavy dressings. These may slow down the digestive system. Foods that are high in protein are good to promote tissue growth. This is especially helpful when trying to heal the skin.

Food Guide Pyramid



You should include foods from each group of the **Food Guide Pyramid** at each meal. Here are some healthy foods from each group that are good to eat.

Meat Group: 2-3 Servings Cooked meat, fish, poultry, eggs, nuts, dried peas and beans. Eat only small amounts of red meat.

Fruit Group: 2-4 Servings Fresh fruit (apples, bananas, strawberries, peaches, etc), fruit juices or cooked fruits. Limit amounts of orange and grapefruit juice to no more than one 8 ounce glass per day. Bananas can cause hard BMs in some people. Raw and dried fruits are the best.

Vegetable Group: 3-5 Servings Broccoli, carrots, celery, lettuce, greens, green beans, and salads. Most vegetables have fiber in them. Fruits and vegetables are fat free and make great snacks during munchy attacks.

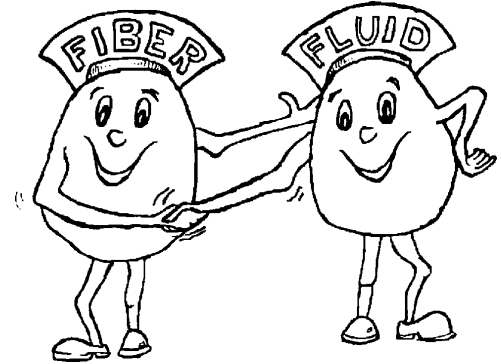
Bread, Cereal, Rice & Pasta Group: 6 - 11 Servings Dry cereals (bran and shredded wheat), cooked cereals, noodles, brown rice, popcorn and whole grain breads.

Milk, Yogurt & Cheese Group: 2 - 3 Servings Dairy products and meat substitutes. Skim and lowfat milk, yogurt, lowfat cheese and ice cream. Yogurt and buttermilk help if he gets loose BMs ("the runs"). Too much cheese can make him have hard BMs.

Fats, Oils and Sweets - Eat very, very little from this group because they are high in calories and have no nutritional value.

Your employer should eat healthy foods. Foods with fiber are important in his diet. Fried foods and "junk" food are not healthy for him. Your employer should watch his weight. The more weight he gains, the harder it will be to move around and fit into his wheelchair. His doctor can tell him how much he should weigh.

He should drink 8 - 10 glasses of fluids each day. Do not go overboard and drink too much (20 or more glasses daily) since this can lead to low body sodium and other various medical problems.



It is important to have enough fiber and fluid in one's diet.

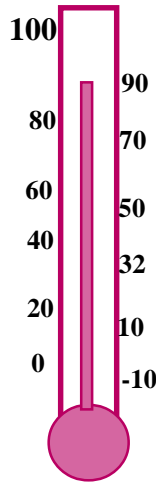


Remember, a well-balanced, healthy diet helps prevent secondary complications such as skin breakdown and helps maintain good bladder and bowel functioning.

Tips

- Watch your employer's weight. If you cannot weigh him, examine how his clothes are fitting him.
- Serve a well-balanced diet including food from all sections of the Food Guide Pyramid.
- Avoid using rich, high fat foods such as gravies, heavy dressings, and thick sauces.

10 Temperature Control



As a result of the SCI, your employer's nervous system cannot control changes in his body temperature. This affects how his body handles temperature changes in his surroundings. He can easily become overheated or very cold.

An example of this would be a day when the temperature outside is 95 degrees F. Your employer goes out in the sun. If you took his body temperature with a thermometer, it may show 101 degrees F. Your employer cannot sweat to bring his temperature down, so his body overheats.

Sweating is one way that the body cools itself when it becomes overheated. Since your employer's body no longer automatically sweats when overheated, he must be careful not to get overheated.

What can he do to keep from getting overheated?

- Use a spray bottle of cool water to spray your employer. This is like "artificial sweat" in a bottle. It helps him to cool down.
- Wear light weight clothing in warm weather.
- Drink more liquids to prevent problems like dehydration (**de-hy-dra-tion**).

Because your employer does not feel heat and cold on the parts of his body affected by his SCI, it is important to protect his skin from heat and cold. Unprotected areas of skin can become sunburned without him feeling it. In cold weather the opposite can happen. He can get frostbite and not know it.

What can your employer do to protect his skin?

- Wear proper fitting clothing and footwear to protect against sunburn, the wind, and frostbite.
- Wear a hat and gloves as needed for protection.
- Use sunscreen to help prevent sunburn.

Have your employer tell you about his clothing needs. He should wear proper clothing and footwear to protect his skin. This helps reduce the chances of illness and prevents damage to the skin.



Remember, a person with SCI may not feel some parts of his body becoming too hot or too cold.

Tips

- Your employer should dress to prevent sunburn or frostbite, depending on the weather.
- Be careful to prevent your employer from becoming overheated in hot weather.
- Your employer should use sunscreen on exposed areas of skin.
- Spray your employer with water to cool off slowly in hot weather.
- Your employer should drink extra fluids in the hot summer months to prevent dehydration.

Conclusion

You should now have a basic idea of how to perform daily care routines and why they are important to your employer. Your job of assisting your employer with his daily personal care routines can help him prevent secondary medical complications. Medical complications can severely limit your employer's freedom to live an active life. Make sure you understand what help your employer requires from you. If at any time you have any questions concerning the help he needs, **ASK him for directions** or an explanation.

There are many resources that can provide more information to you and your employer. You or your employer may want to contact them whenever you have questions.

- Local agencies
- Your local Independent Living Center
- Your local Medical Rehabilitation Center
- Your State Vocational Rehabilitation office
- Your employer's physician
- Your local Red Cross (for CPR , First Aid and other courses)
- Your local Public Health Department
- The National Spinal Cord Injury Association. 1-800-962-9629
- The Spinal Cord Injury Hotline. 1-800-526-3456
- The American Paralysis Association. 1-800-225-0292.
- Your local Easter Seals Society Chapter

Printed Materials

A book called *Spinal Network*. The book covers news, personality, resources and references and provides a way to network with the SCI population nationwide. The book costs around \$40. For details contact them at 1-800-338-5412 (ext 219).

A book by the Paralyzed Veterans of America (PVA) called *Yes, You Can!* The book gives self-care tips for people with SCI but also provides information that may help a PA as well. The book costs about \$15 and can be bought by contacting PVA headquarters at 801 18th St. NW, Washington, D.C. 20006. (202) 872-1300 or 1-800-424-8200.



Remember, ask detailed questions if you do not fully understand something. Make notes at the end of this book to write down specific care requested by your employer.

Checklist



DAILY SCHEDULE

You will need to follow a Daily Schedule for your employer's personal care needs. The tasks must follow the discharge orders given by the Rehabilitation Team at the hospital. Have your employer explain how you can help him with each task.

Below is a list of daily tasks you may need to do. On the next page is a sample of a daily schedule. You can write down your own checklist for your employer's schedule.

SCHEDULE



Morning

- ICP/change catheter
- Change and clean GU bags
- Bath and check skin
- Dress
- Respiratory Care
- Range of motion exercises
- Transfer to wheelchair
- Prepare breakfast/feed
- Give medications, fluids
- _____
- _____



Lunch

- Prepare lunch/feed
- Give medications, fluids
- ICP/check leg bag
- _____
- _____



Evening

- Prepare dinner/feed
- ICP/check leg bag
- Bowel program - 30 minutes after meal
- _____
- _____



Night

- Transfer to bed
- Undress, check skin
- Remove splints/boots
- Foot care
- ICP/change catheter
- Respiratory Care
- Give medications, fluids
- Range of motion exercises
- _____
- _____



DAILY TASKS:

- Bath and wash hair
- Check skin
- Change and clean GU bags
- ICP/change catheter
- Respiratory Care
- Dress
- Prepare meals
- Assist with eating
- Give medications
- Give fluids
- Range of Motion exercises
- Transfer from Bed to Wheelchair and back
- Put on splints and/or boots
- Bowel program
- Foot care

REMEMBER!

Help Your Employer or Remind Him to Do Weight Shifts While He Is Up!

Checklist



DAILY SCHEDULE

You will need to follow a Daily Schedule for your employer's personal care needs. The tasks must follow the discharge orders given by the Rehabilitation Team at the hospital. Your employer will teach you how to help him with each task.

Below is a form for you to complete with a list of daily tasks you may need to do. There is also a sample of a daily schedule on the opposite page.

SCHEDULE

✓ Morning

- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____

✓ Lunch

- _____
- _____
- _____
- _____
- _____

✓ Evening

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- _____
- _____
- _____
- _____

✓ Night

- _____
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- _____
- _____

DAILY TASKS:

- Bath and wash hair
- Check skin
- Change and Clean GU bags
- ICP/change catheter
- Respiratory Care
- Dress
- Prepare meals
- Assist with eating
- Give medications
- Give fluids
- Range of Motion exercises
- Transfer from Bed to Wheelchair and back
- Put on splints and/or boots
- Bowel program
- Foot care
- _____
- _____
- _____
- _____

REMEMBER!

Help Your Employer or Remind Him to Do Weight Shifts While He Is Up!

Glossary

Bed sore/Decubitus Ulcer/Pressure Ulcer - Also called pressure sore, skin and tissue breakdown caused by prolonged pressure on skin.

Catheter - a small tube used to empty a body cavity of fluid. One use is when this tube is placed in the bladder to drain the urine.

Catheterization - A small, flexible tube is inserted in the urethra to remove fluid from the bladder.

Complications - When 2 or more diseases occur in the course of the primary disease.

Dehydration - When there is an excessive loss of fluid from the body.

Digital stimulation - Placing finger, wearing a lubricated glove, into the rectum to help the rectum have the urge to empty.

GU - Genito Urinary - Refers to reproductive and urinary organs.

Heimlich maneuver - Method of first aid used to dislodge food or material from the throat of the victim.

Heterotopic - Occuring at an abnormal place.

ICP - Intermittent catheterization program. The catheter is put in and out of the bladder to empty the urine at certain times.

Leg Bag - A collection bag placed at the end of your catheter tubing. The bag stores urine that comes out of the body. The bag attaches to the person's leg. The bag is disposable and can be emptied easily into a toilet.

Mucus - A slippery secretion.

Paraplegia - A condition when you can't move or have no feeling in the lower part of your body or legs.

Quadriplegia - A condition when you can't move or do not have feeling in your legs and all or part of your arms or upper body.

Secretions - Any fluid or substance given off (produced) from the activity of a gland.

Suppository - Medicine in a solid form that melts at body temperature. It is taken by placing in the rectal or vaginal opening of the body.

Suprapubic -Area above the pelvic area.

Tetraplegia -A condition when the spinal cord is damaged so one does not have feeling or can't use their lower body, legs and all or part of their arms or upper body.

Tracheostomy - The opening of a hole in the windpipe to allow a person to breathe.

Ureters - Tubes that carry urine from each kidney to the bladder.

Urethra - The canal (tube) that carries urine from bladder to outside of the body.

UTI - Urinary Tract Infection.

Vertebrae - The 29 bones in your spinal column that protect your spinal cord.

References

Patient Handbook, 3rd ed. Beverly S. Kracke, RN, MSN, Editor: UAB Press, Birmingham, AL, 1983.

SILS (Spinal Injury Learning Series). Norris, Noble, and Strickland: Learning Systems, Jackson, Mississippi, 1978.

Yes, You Can! A Guide to Self-Care for Persons With Spinal Cord Injury. Margaret C. Hammond, MD; Robert L. Umlauf, PhD; Brenda Matteson; Sonya Perduta-Fulginiti, MSN, Editors: Paralyzed Veterans of America, 1989.

NOTES