

THE UNIVERSITY OF TEXAS AT ARLINGTON
EDUCATIONAL SUPPORT SERVICES OFFICE

LIVE-IN ATTENDANT
CARE MANUAL
1977

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Foreward

The Live-in Attendant program is perhaps one of the boldest programs that The University of Texas at Arlington has been involved with in several years. The intent of the program in essence is to say that the severely-impaired student can live in a partial independent environment, away from home or medical facilities, with their able-bodied peers and be provided assistance with normal daily routines by students. Initially, many felt that it couldn't be done. After a year of trial and error programming, we can honestly say the program has worked.

The concept of the Live-in Attendant program is not unique to handicapped individuals, since many community-based programs and residence centers have used the system for years. However, the concept is relatively new to college campuses. As a result of our program, many other colleges and universities are contacting the Educational Support Services Office daily for information to assist them in providing the same service. Consequently, the concepts of attendant care provided on campus will become commonplace.

The success of the program is largely the result of good attendant care. Good attendant care is contingent upon conscientious attendants, communication between the ESSO staff members and the student attendant, and communication between the student attendant and the handicapped student. However, a basic knowledge of the handicapped students' disability and associated needs is critical to good attendant care.

The following attendant care manual is designed to provide the basic knowledge needed by the student attendant. It is not intended to be a total synopsis of handicapped individuals or to answer all needs of handicapped individuals. It is not complete, since it will be constantly up-dated in accordance with the needs of particular students and advances in the fields of medical technology and attendant care. The manual provides a good framework to guide you while providing good attendant care.

Read it carefully. Keep it in a handy place in your room for easy reference. If some portion is not clear or if you need additional information, call me before you attempt doing something that may create problems.

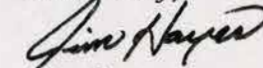
As a student attendant, it is important for you to realize that you are hired to do a job. I expect you to do it. If you require assistance in completing a portion of your job, you only have to ask. Don't ever ask anyone else to do your work simply because you don't want to do it.

It is also important for you to understand that you work for me; you only provide a service to the handicapped student. If medical situations arise of which the ESSO Staff Nurse needs to be aware, then your responsibility is to call her, whether the handicapped student agrees or not. For legal implications, this is a University Policy. Failure to inform the proper ESSO personnel is grounds for dismissal.

I think you will find your work both challenging and rewarding. You are the link between a handicapped student living on campus or not living on campus.

Finally, welcome aboard. I am looking forward to working with you throughout the coming year. Remember, call me on any situation that I need to know about. I'm here to help in any way I can.

Sincerely,



Jim Hayes,
Coordinator

Educational Support Service Office

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Live-In Attendant

Job Description

The Live-In Attendant Program at UTA is designed to allow the severely impaired student to live on campus and be provided the care necessary to function in a residence hall setting.

The duties and responsibilities of the attendants are to assist in activities such as:

Showering

Dressing & undressing

Bowel & bladder programs

Transferring

Changing & caring for urinary devices

Emptying & cleaning leg bags and bed bags

Assisting with meals when necessary

Assisting with laundry when necessary

Bed making

Straightening of personal articles in room

SKIN CARE

As a student attendant, one of your most important functions will be to assist the student you are assigned to with proper skin care. Unless properly cared for, the quadriplegic individual could develop pressure sores. A pressure sore can begin in as little as three hours and can take up to six months to heal. Many times, corrective surgery is required if the sore is allowed to go unattended. Pressure sores can kill.

Proper skin care takes only a few minutes each day. However, daily skin care is the best preventative medicine for pressure sores. Only you and the individual you are assisting can prevent pressure sores.

For your information, the following narrative will give you a good working outline for the prevention of pressure sores. Please read it carefully, then discuss the routines with your roommate. He or she should have an established routine to assist in the prevention of pressure sores that he or she is comfortable with.

WHAT ARE PRESSURE SORES?

Pressure sores are sometimes called "bed sores" or decubitus ulcers. A quadriplegic individual can get a pressure sore from many different things. Basically a pressure sore will occur if the position of the body's weight is not periodically changed. Additionally, certain trauma can accelerate the development of pressure sores. Some examples would be:

1. Bruises caused by rough treatment in the transferring process.
2. Excessive sun.
3. Puncture or scrapes.
4. Pimples or irritations.

If the body's weight is not periodically shifted, the following occurs.

1. The skin is pinched between the bone and the surface on which the bone is resting.

2. When the skin is pinched, the blood that feeds the skin and tissue underneath cannot get to it.

3. When blood doesn't get to the skin, the skin and the tissue underneath dies. The result is a pressure sore.

PROGRESSION OF A PRESSURE SORE

When a pressure sore begins developing, it looks like this:

1. Red area on the skin. This reddened area may feel hard. At this stage, the spread of the pressure sore is reversible. All pressure must be removed from this area until the skin returns to its normal color.

2. A blister, a pimple, or a scab may quickly form over the red, hard area of the skin. The red, hard area of the skin means that tissue underneath is dying.

3. A hole or ulcer forms in dead tissue. This ulcer is only the "tip of the iceberg". Most of the damaged tissue lies underneath the ulcer, sometimes going all the way to the bone.

4. Infection and decay of underlying bone.

PREVENTION OF PRESSURE SORES

Pressure sores don't have to happen. They can be prevented from developing by:

1. Inspecting the skin (particularly the buttocks and lower back areas) every morning and every night.

2. Take measures to relieve skin pressure often.

3. Contact the Staff Nurse if unusual redness is apparent for more than four hours.

Shifting the individuals weight while in the wheelchair or bed is essential to relieving skin pressure.

HOW TO AND WHERE TO INSPECT SKIN

Pressure sores are likely to develop at any one area as shown on Figure 1. You should inspect these areas twice daily once in the morning before the individual is dressed and then in the evening when the individual is undressed.

HOW TO RELIEVE SKIN PRESSURE

IN BED:

Generally all quadriplegic individuals have learned a turning schedule at some point during the rehabilitation process. Try to keep to that prescribed schedule, if at all possible.

Additionally, it is safe for the individual to lie prone for up to eight hours by using plump, firm pillows and a small foam pad for the forehead. This allows:

1. Both you and the handicapped student you are assisting can have a restful eight hours sleep without interruption.
2. Lying prone straightens hips and helps prevent tightness of the hips and knees. For those who have spasms, it is the most effective way to decrease spasms of the legs.

(See Figures 2,3, and 4).

IN A WHEELCHAIR:

The best method of preventing pressure sores caused by sitting is to reduce pressure on the bottom at least every 15 minutes while the student is sitting. This is important because the weight of the body above the hips increases the pressure on the skin and muscle over each ischium.

(See Figure 5.) Relieve pressure by:

1. Assist the student in leaning from side to side. This relieves pressure over one ischium at a time.
2. If this does not completely relieve the pressure on reddened areas, encourage the individual to go to bed.

HELPFUL HINTS FOR SKIN CARE (When sitting in a wheelchair)

1. Cushions for wheelchair seats are essential for a person restricted to a wheelchair. The cushion provides pressure relief and some weight distribution and thus aids in the prevention of pressure sores on body parts which have no sensation.
2. Many types of cushions exist, but there is no "ideal" cushion for everyone. Positional changes are essential. The cushion alone will not prevent sores.
3. Use only the cushion recommended for the student. If air is used in the cushion, check often to see that it is filled correctly. If you are going to a different altitude, there will be changes in your cushion. It may need more air or less so you must watch this.
4. Foam is also frequently used for a cushion. Check to see that it is firm and in good condition. If it gets dry, powdery, and loses its firmness, it must be replaced. Only a good quality foam should be used.
5. Never use rubber air rings or rubber doughnuts. They are dangerous. They create a lot of pressure where you do not want it. These devices block the flow of blood to the skin inside of the ring, acting as a tourniquet.
6. Make sure the foot pedals of the wheelchair are adjusted to the right height for the individual. If in doubt, too low is better than too high. Have the individual check with his therapist if he has a question.
7. The individual should sit up straight in his chair. Slumping or slouching leads quickly to early skin breakdown over the end of the tailbone. Slumping or poor sitting posture over a number of years may cause a severe curvature of the spine.

EQUIPMENT MAINTENANCE

WHEELCHAIRS

The following suggestions may help prevent breakdowns and extend the life of the wheelchair.

1. Do not try to make repairs or adjustments on the wheelchair that may decrease the safe function and possibly lead to accidents. The local vendor is the best source for repair work.
2. Clean and oil the wheelchair frequently to protect against rusting.
3. Maintain the proper and suggested air pressure in the tires.

CARE OF SKIN BREAKDOWN

What should you do if skin does start to show signs of breakdown?

1. Report all pressure areas immediately to the Staff Nurse.
2. Keep all pressure (weight bearing) off the area. If this means he must be in bed to avoid sitting on a pressure spot, then he should go to bed until the skin looks normal color. Remember, to keep using the turning schedule and sleep prone at night.
3. If the skin has broken, you may cleanse the sore with soap and water. Do not use anything else on it unless ordered by medical personnel. Leave it open to air as much as possible and cover with a plain dry sterile dressing if the sore is draining. Change the dressing as prescribed. Clean the sore only as prescribed.
4. If it is a burn and blisters develop, DO NOT open them. Remember, the broken skin will allow harmful germs to enter the body. Leaving the blister unopened will prevent infection. The immediate treatment of minor burns (within 30 minutes) is to soak the burned area in cold water for 20 minutes. Do not apply any medicine or ointment. Cover any blister with a dry, sterile dressing in case it should break. You should gently wash blister and surrounding area with soap and water twice each day. Keep all pressure off the area and report the burn to the Staff Nurse as soon as possible.

ACCIDENTS WILL ALSO CAUSE SKIN SORES

Bathing, smoking, cooking, drinking hot drinks, heaters, and transferring can be dangerous.

1. Bathing- Always test the temperature of the water in the bath or shower area ahead of time. Most of the shower controls in the residence halls are tricky and require good dexterity which the quadriplegic individual doesn't have.
2. Smoking- Quadriplegics should not smoke for health reasons. However, some do and it is important that the individual not allow ashes to fall in his lap or rest a thin ash tray in his lap. The quadriplegic student should never smoke in bed.
3. Cooking- The quadriplegic individual should never try to lift boiling pots from the stove or set hot liquids nearby where they might spill on the person.
4. Heaters- While riding in a car, be careful that the individuals feet are not too close to the car heater. A safe distance from the heating units in the residence halls is essential. Some experts recommend the wearing of braces while riding in cars to:

1. Help keep the feet where they are placed and assist with good balance.
2. Always know where the feet are.

Car seats retain heat. If the car is parked in the sun, the heat can burn the skin. When traveling, it is recommended that the quadriplegic position is completely changed every 100 miles.

VAN TRAVEL

If transported by van, it is imperative that the wheelchair be properly secured to the floor of the van. At least one safety belt should be used at all times.

TRANSFER

Be cautious when transferring. Avoid dragging or scraping the buttocks when transferring to and from the wheelchair. If a slide board is used, be sure the buttocks area is properly covered. A pillow case is not enough protection. Lift the person up as much as possible in all transferences. It would be helpful if the bed and the shower chair are the same height as the wheelchair.

Prolonged pressure on certain parts of the body will cause sores in these places: (See Figure 1.)

ELBOW- From leaning on it or using it as a prop on the arm rest of the wheelchair or mattress. An elbow protector may be needed.

COCCYX- (Over the tailbone or tip of the spine). A sitting sore. It is caused by poor posture (slumping) in the wheelchair or by sitting in a semi-reclining position in wheelchair or bed.

SACRUM- (A lying sore). Caused by long periods of lying flat on the back. Pad above and below the sacrum may be needed. Watch the time in any position.

ISCHIUM- (Over the bones that support the weight of the body when sitting). Caused by not shifting the weight often enough while sitting or by foot pedals on the wheelchair being set too high. Too high foot pedals will tilt the weight of your legs onto the bones in your seat. Even with frequent weight shifting, a pressure sore over these bones will occur. Sitting upright in bed will also cause pressure on the ischium.

TROCHANTER- (Side of hip). A side lying sore. To prevent, pad above and below the trochanter.

KNEE- Caused by spasm that draw the knees together while sitting. Or caused by side lying with knees lying one of top of the other. Pad between legs and have one leg behind the other.

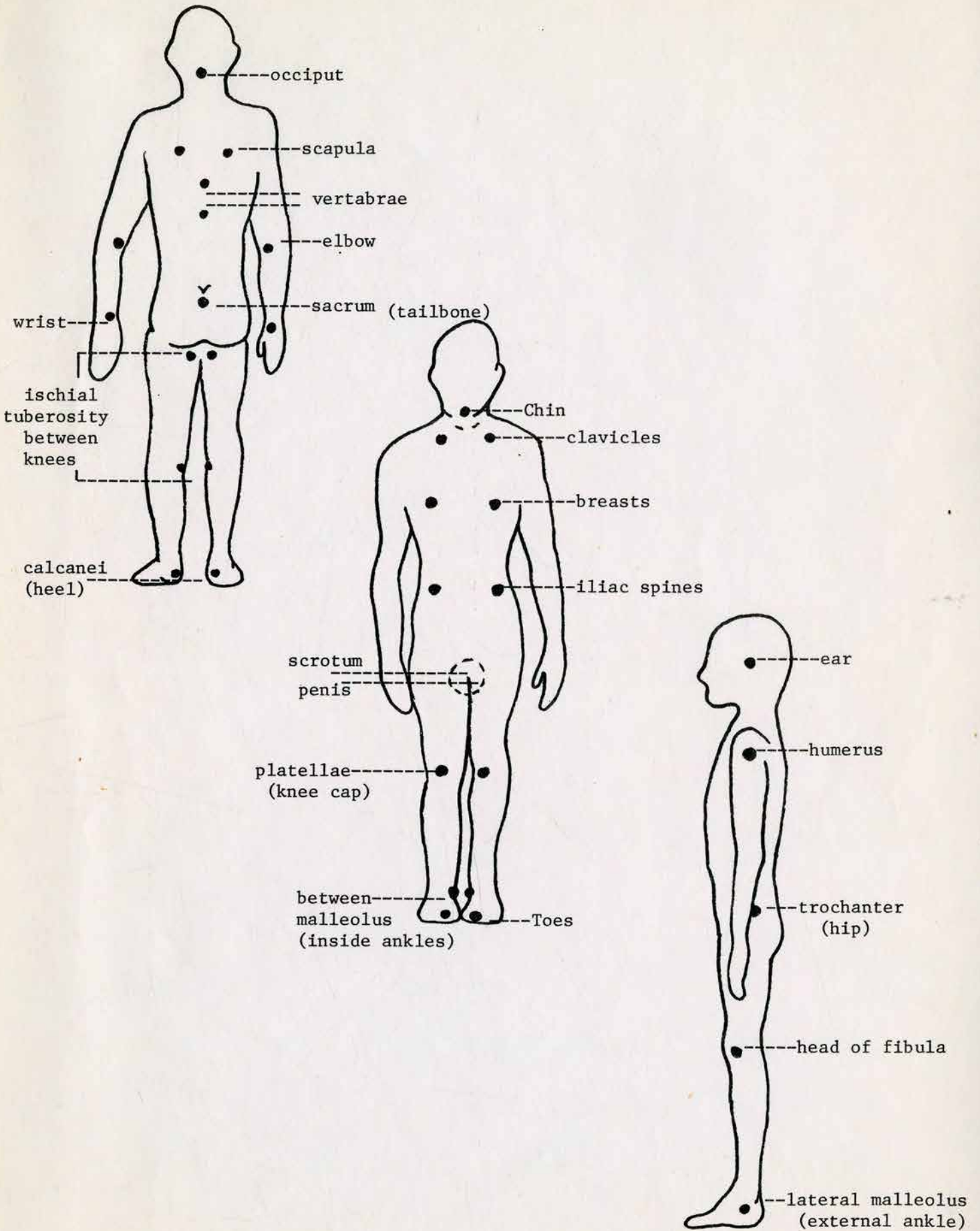
ANKLE- (Outside part). A side lying sore.

HEEL- (Back part). A sore often caused by spasms that pull the heels against the foot-rest of wheelchair or by spasms that rub the heels against the bed sheets. Heel protectors may be needed or a pad above the heels when in bed.

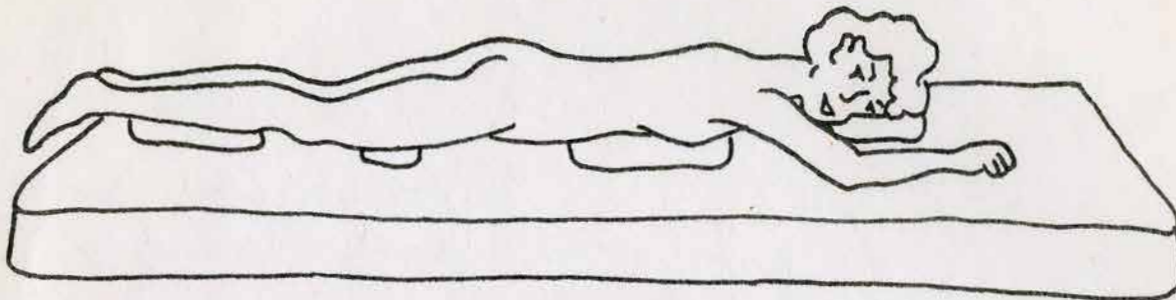
TOES- Frequently caused by tight fitting shoes or elastic hose.

In addition to considerable inconveniences and costly healing processes, a pressure sore will jeopardize the students opportunity for an education.

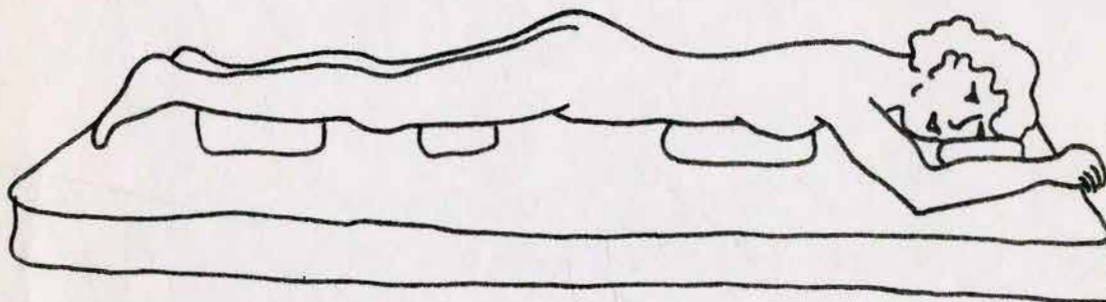
Figure #1



Figure# 2

Good Prone Position

With pillow under chest and small foam rubber support under forehead. Toes hang over mattress edge. Foam pad between legs separating knees and ankles. Foam pad above knees. Pillow under chins.



With pillows under chest, thighs, and chins. Leave hips, knees, and feet free from pressure. Foam pad between legs separating knees and ankles.

Figure#3

Good Side-Lying Position

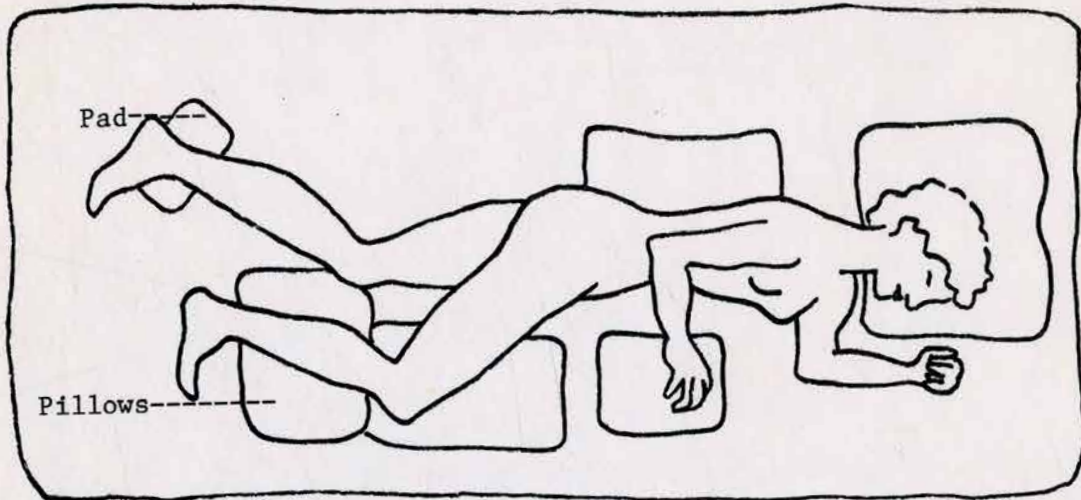
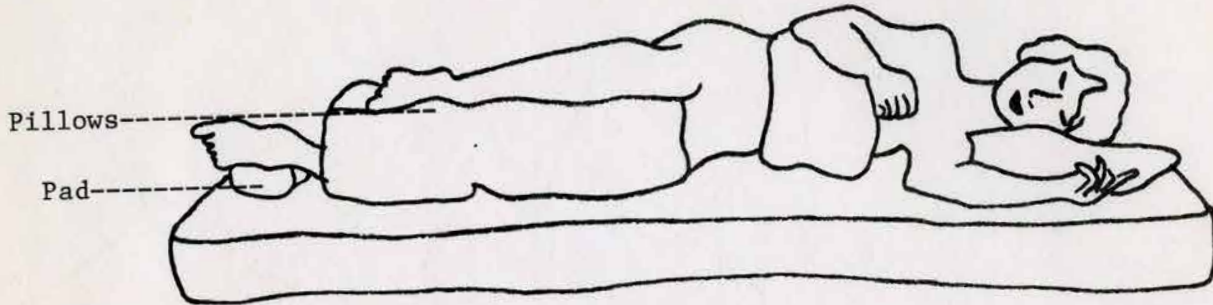
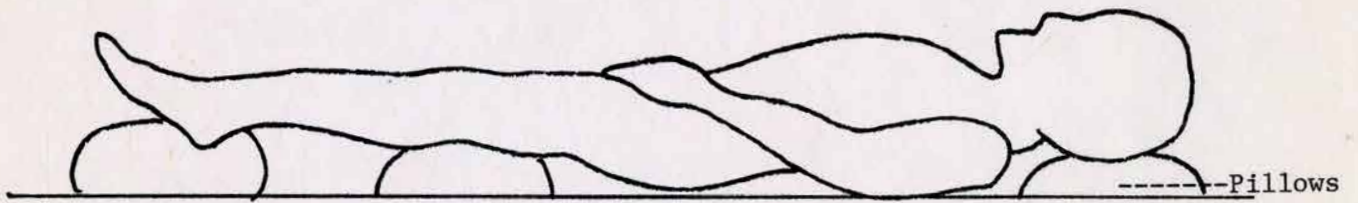


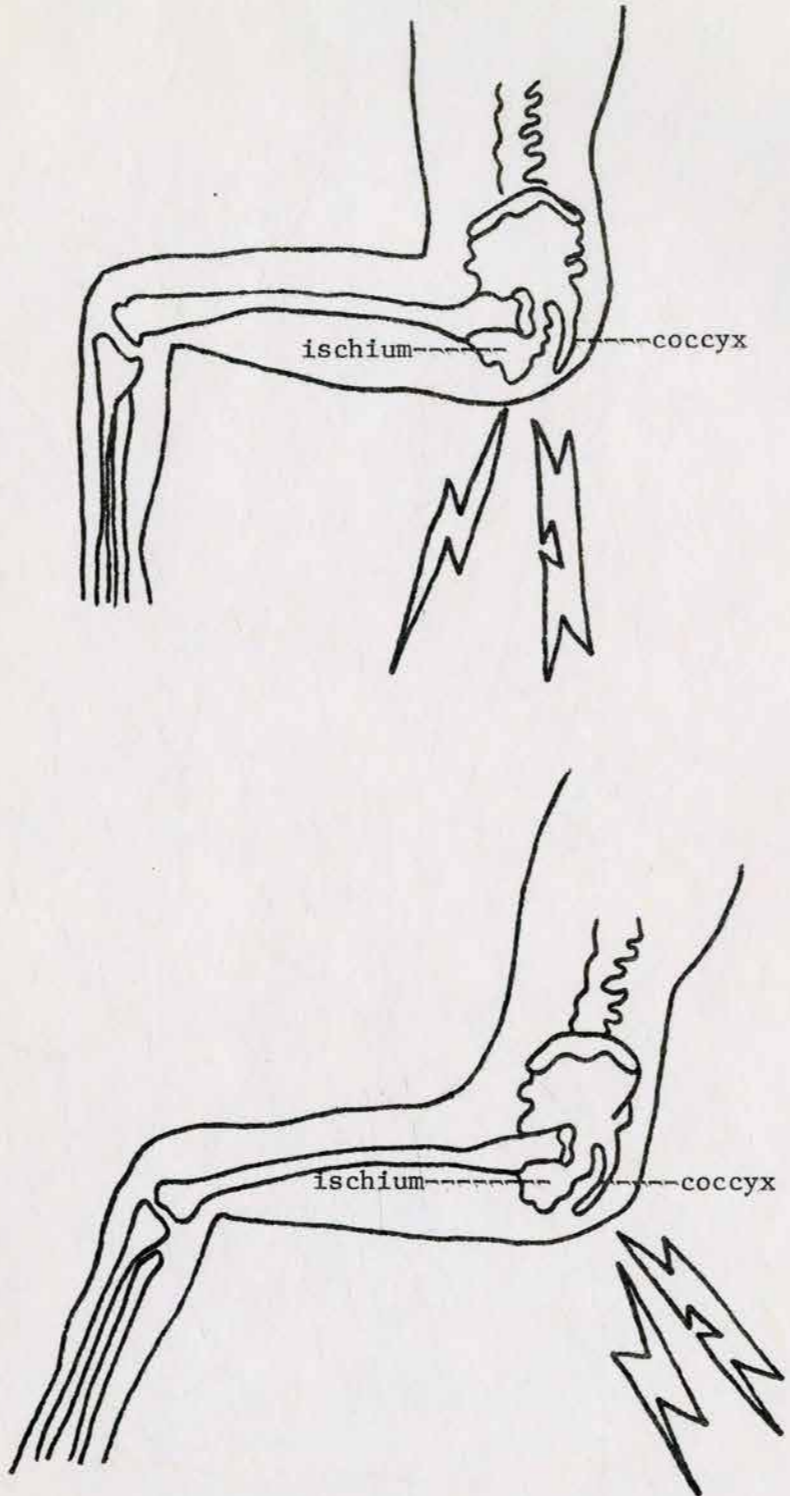
Figure #4

Good Suppine Position



Figure# 5

Common Pressure Sore Areas
Caused by sitting



FEET AND NAIL CARE

The information contained in this section is primarily designed to give the student attendant an understanding of the necessity for feet and nail care among quadriplegic students.

Because the feet are located farthest from the heart and because circulation is an accepted problem among quadriplegics, regular care is necessary. This includes prevention of dry and cracked skin on the feet, proper trimming of both toe nails and fingernails to prevent ingrown nails which could result in infection, care of infected areas, and proper cleaning.

PREVENTION OF DRY AND CRACKED SKIN

Baby oil, Vaseline Intensive Care Lotion, and LOC (a product of Amway) can be rubbed into the feet about once a week to prevent "cracking dryness". These measures will help keep the feet in "good condition".

TRIMMING NAILS

Nail care should be included with the bath or shower routine when possible because warm water serves as a softening agent which retards splintering or splitting of the nails. If nails are not trimmed on a regular basis they will curl under as they grow and get thick and will be more difficult to care for. More importantly, non-trimmed nails will rub against the shoes and could lead to ingrown toe nails.

In regular caring for the nails, always trim or cut them straight across, not too close to the quick. This will help prevent ingrown nails. (See Figure 6) Carelessness in trimming nails can create a serious problem if the nail is cut too short. It is better to leave the nail long than to cut it too short, and in so doing cut the tissue around the nail.

Be alert to spasms, because the associated jerking motion could cause an unintended cut or scratch that could lead to infection.

PROCEDURE FOR TRIMMING

Use a clipper to trim the nail to the desired length. There is a small curved nail clipper that can be used for the finger nails and the small toe nails, and a heavy straight clipper that can be used for large toe nails.

Cut the nail straight across. Start at the side of the nail and work across the nail in a straight line.

Smooth off the rough edges of the nail with an emory board. Do not use a nail file as the metal surface can cause the nail to splinter, crack, or chip.

Thick toe nails are cut in short snips to prevent splintering. These must be softened before cutting. Do not trim the cuticle as it is necessary to keep the nails healthy.

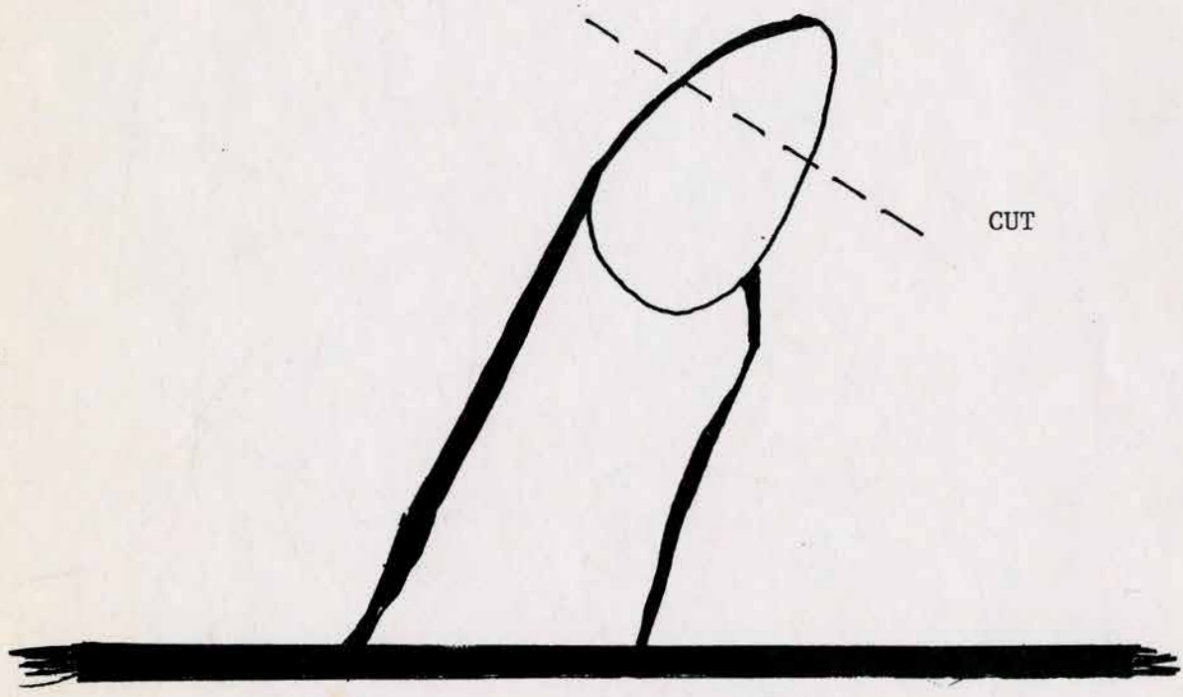
CARE OF INFECTED AREA

Redness and/or swelling around the nail can mean the beginning of ingrown nails. If redness or swelling occurs follow this procedure:

1. Notify the Staff Nurse.
2. Keep the pressure off toes by:
 - a. Checking the shoe size,
 - b. Remove linens and other articles from feet,
3. Prevent further trauma such as bumping the feet.
4. Follow all treatment instructions.

Figure# 6

Proper Nail Clipping



CARE OF THE HAIR

The condition of the hair for every individual reflects general health. Because the quadriplegic individual spends more time in bed and is generally less active his scalp is more scaly. The visible part is nourished by the roots of hair embedded in the scalp which is constantly shedding dead cells.

Separation of fragments or parts is rarely noticeable on the body but when the hair is neglected these cells produce a granular "scruff", or scale which is caught and held by unwashed, unbrushed hair. As a result visible white flakes will be evident on the face and clothing.

It is interesting to note that if the scalp is not properly cared for, the flakes that came from the scalp will irritate the facial skin and cause a dry, scaly-like rash thus creating a facial skin problem. This condition should not be confused with dandruff, which is a common but abnormal condition.

Certain disease conditions, fever, and bedrest for prolonged periods of time can affect the condition of the scalp and hair. Also, emotional stress can cause seborrhea dermatitis (flaky scalp). The scalp and hair needs attention especially at these times.

In emphasizing the importance of general health, the beneficial effect of local treatment on the scalp and hair shaft cannot be overlooked. Cleanliness and stimulation of the scalp make the oil glands function more normally. Prevention of dryness and scaliness of the scalp is achieved by:

1. Stimulating the circulation of the scalp by vigorously massaging and brushing the scalp and hair.
2. Brushing with a stiff-bristled brush stimulates the circulation and removes dirt particles and dead cells from the scalp.

3. Washing the Hair- This should be done every week or more depending upon your individual needs. Oily hair should be washed more often than dry hair.

TIPS ON WASHING PROBLEM HAIR

Some shampoos that are suggested for use with problem scalps that do not require a prescription and can be purchased at nearly any drug counter are: Sebulex, Sebutone, Ionil T, Ioneil and Meted. If problem scalp persists, a shampoo such as these may be necessary. These shampoos should be used by persons needing treatment for dandruff and mild and/or moderately severe cases of seborrhea dermatitis which is an excessive discharge from the sebaceous glands, forming greasy scales on the scalp or skin.

For rinsing the hair after washing it, you can use vinegar or lemon juice mixed in with some water to help remove soap scum if necessary. Also, this may improve the hair texture.

DRY HAIR

Dry hair can be treated by applying small amounts of oil such as baby or mineral oil to scalp and hair. This can be done weekly or as often as necessary. After rubbing the oil into the scalp and hair, wrap a towel or something comparable around the head and let it stay on for approximately 30 minutes. Then brush the hair vigorously. This should be done at other than a shampoo time or before shampooing hair depending upon the hair condition and needs.

REMEMBER

Good hygiene plays an important role in the prevention and cure of any dry, or scaly scalp condition such as dandruff. When treated as prescribed dandruff or other scalp conditions can be cured. Persons susceptible to dandruff must maintain a watchful hygienic program and use antiseptic lotions or salves at regular intervals.

General maintenance of healthy scalp and hair is important. Do this by:

1. Keeping physically fit, especially by eating an adequate diet and getting adequate rest.
2. Massaging scalp daily.
3. Brushing scalp and hair daily.
4. Washing hair as necessary and oil treatment if necessary.
5. Avoid scratching or scraping the scalp.
6. Preventing worry or tension.
7. Exposing the scalp to air and sunlight, moderately.

BLADDER CARE

One portion of your job as a student attendant is to assist the quadriplegic individual with proper bladder care. In very general terms, this requires proper installation and maintenance of collective devices on a daily basis.

The following pages will be beneficial in helping you understand the intricacies involved in daily bladder care. Some of the information will not pertain to the person you will be attending. However, I highly recommend that you study all of the material carefully.

As in all areas of attendant care, the individual you are attending know the best method of bladder care for him or her. Communication, therefore, is essential for your understanding, for his or her confidence in your abilities, and to overcome any embarrassment associated with this portion of your work.

One note of caution. Improper or sloppy work on your part could cause a costly and inconvenient bladder and/or kidney infection. Be careful.

GENERAL INFORMATION (See Figure 7).

The Neurogenic Bladder

The care of the bladder and kidneys is of utmost importance to any one dealing with quadriplegics. It is obvious that most quadriplegics are unable to control their bladder, but there are other things that should be understood in anatomy and physiology.

There are two kidneys, one on each side of the flank, which serve as filters. The blood travels through the kidneys and impurities are filtered out, along with a certain amount of water. The urine, thus formed, travels down the ureters, small tubes which lead to the bladder. The point at which the ureters join the bladder is called the ureter vesical junction. This junction is frequently referred to as a valve; however, in the true sense of the word, it is not a valve, but

layers of muscle which interlace to form an orifice which will not allow urine to go back into the kidneys. Should this orifice fail to function properly and allow urine to flow backward, the resulting condition is called reflux.

The bladder is primarily a reservoir where urine is stored until it is convenient to urinate. As the bladder fills, one ordinarily becomes aware of it. When ready to void, the sphincter at the neck of the bladder, relaxes. At the same time, the bladder muscle contracts and expels the urine through the urethra to the outside. The kidney being an organ, not a muscle, is not directly affected by a spinal cord injury; however the bladder is composed of muscular tissue and a spinal cord injury will have a direct effect on the sensation and/or function of the bladder.

The bladder is the most important muscle which may be affected by a spinal cord injury, as evidenced by the fact that the number one killer of people with spinal cord injuries is urinary tract disease.

Therefore, the drainage and management of the bladder should be an integral part of any rehabilitation program, calling for regular maintenance and observance of the urinary tract and being familiar with its function.

The normal bladder function, as mentioned previously, should be understood in order to appreciate the abnormalities caused by a spinal cord or central nervous system injury.

In spinal cord injuries, depending on the level of injury or disease, two main types of bladder are demonstrated. The upper motor neuron bladder is generally found in quadriplegics or paraplegics with a last preserved segment above T-12. Paraplegics with a level below T-12 will probably have a lower motor neuron bladder.

Upper motor neuron bladders are commonly called spastic or hypertonic. As the bladder fills, the muscle will contract either continuously or periodically, and the pressure inside the bladder may rise to 100cm. Hg with only one to two ounces of urine in it. If the sphincter is not spastic at the same time the bladder tightens, this spasm will be advantageous to the student by keeping the bladder empty. Males will probably require the use of an external collector to prevent incontinence. Since there is no satisfactory external collector for females, they will probably need an indwelling catheter.

The lower motor neuron bladder will usually be flaccid or hypotonic. The patient probably will be able to increase the pressures in his bladder very little, if at all. This type of bladder will continue to stretch and may hold up to one quart of urine. Because the sphincter is probably flaccid also, the student often will be able to empty his bladder by pressing on his lower abdomen with his hands. This pushes the urine out and may effectively empty his bladder.

Another condition which is not found as often in spinal cord injuries as it is in brain injury or stroke, is referred to as "uninhibited neurogenic contractions". This is comparable to the infant who is unable to control his urine, but as the bladder fills, a contraction occurs which the person is unable to inhibit. This spasm will cause the bladder to empty partially or completely, but totally uncontrolled. In treating this condition, anticholinergic drugs are used. This drug will knock out the neurogenic contractions allowing the student to control his voiding.

DO'S AND DON'TS FOR GOOD CATHETER AND BLADDER CARE

- | | |
|---|--|
| DO: Keep on hand extra catheters of the prescribed size and style. | DON'T: Change the size and type of catheter unless you have doctors' orders. |
| DO: Use sterile techniques for all catheter procedures. | DON'T Use sloppy techniques or unsterile equipment or touch catheter with your bare hands. |
| DO: Force fluids on any student with an indwelling Foley catheter. Offer juice, iced tea or other liquid if student does not like to drink water. | DON'T: Leave water out of reach of student. |
| DO: Catheter irrigations only as ordered. | DON'T: Irrigate a catheter unless it is ordered by medical personnel. |
| DO: Use sterile equipment and solution when irrigating catheters. | DON'T: Leave irrigating equipment or solution at bedside and use again without being resterilized. |
| DO: Clean around catheter and the entire perineum daily. | DON'T: Allow drainage to build up on or around catheter. |
| DO: Be sure drainage bag is lower than the bladder. | DON'T: Have drainage bag or leg bag above the bladder or sitting on the floor. |
| DO: Place tubing so that it is level or downhill. | DON'T: Coil the tubing so the urine must be pushed uphill. |
| DO: Keep tubing and drainage unit cleaned and disinfected. | DON'T: Leave bag without washing it at least daily. (Use 2 bags and alternate daily). |
| DO: Empty the drainage unit frequently. | DON'T: Let the drainage unit become overfilled. |
| DO: Report unusual symptoms to Staff Nurse. | |

GENERAL PRECAUTIONS WHEN PERFORMING A STERILE PROCEDURE

The proper procedure as follows is essential to an infection free semester. Follow these closely.

1. Time the boiling of any article exactly.
2. Do not touch the following with hands!
 - a. Sterile utensils.
 - b. Irrigation solution.
 - c. Inside of bottle cap - place it upside down while you are pouring. This means the inside of cap is visible.
 - d. Rim of the bottle.
 - e. The tip of the irrigating syringe (Asepto).
 - f. Any part of the syringe below the finger hold.
 - g. Inside opening of the catheter.
 - h. Connection of leg bag or bedside bag to catheter.
3. Handwashing.
 - a. Hands to be washed thoroughly under tepid running water and heavy suds before beginning any procedure.
 - b. Repeat handwashing after handling any part of the catheter and leg bag or bedside drainage bag before irrigation of the catheter.
 - c. Repeat handwashing after procedure is completed.

BLADDER IRRIGATION

EQUIPMENT

1. Sterile irrigating set (basin, measuring pitcher, and syringe).
2. Sterile irrigating solution as directed by doctor.

PROCEDURE

1. Wash hands thoroughly.
2. Remove cap from irrigating solution, turn upside down on a clean towel.
3. Fill syringe with the directed amount of solution.
4. Insert syringe tip into catheter tube. (Do not touch syringe below the finger hold).
5. Allow a syringe full of solution to flow into the bladder and pinch off the end of the catheter with fingers. Then follow the routine as directed by the student relative to irrigation and/or retention of irrigation solution.
6. After completion of the irrigation procedure, pinch catheter between thumb and first finger. Connect catheter to leg bag or bedside drainage bag for normal drainage.

CLEANING LEG BAG OR BEDSIDE DRAINAGE BAG

EQUIPMENT

1. Plastic tub - (i.e. dish pan).
2. Funnel - (should fit inside leg bag drainage tube).
3. Clorox solution - (1oz. liquid clorox - 1 quart of water).

PROCEDURE

1. Empty contents into toilet.
2. Rinse out urine, allowing water from tap to flow freely through leg bag.
3. Fill bedside bag with water repeatedly until rinsed.
4. Wash with hot soapy solution - (dish pan).
 - a. Fill leg bag (or bedside drainage bag) with soapy water and shake for 1 minute.
 - b. Rinse thoroughly with water.
5. Fill interior of bag with clorox solution.
 - a. Remove drainage tube and cap.
 - b. Soak tubing and cap separately.
 - c. Use the funnel and fill through bottom of leg bag. Seal both the top and bottom openings with leg bag caps.
6. Immerse bag and tubing in solution of clorox for 10 minutes.
7. Open lower drain and empty leg bag. Rinse thoroughly. Hang to dry.
8. To attach leg bag or bedside bag to catheter.
 - a. Clean outside end of catheter and top opening of leg bag or bed bag with a piece of cotton wet with rubbing alcohol.
 - b. Attach open end of catheter to top opening (flutter valves) on leg bag.

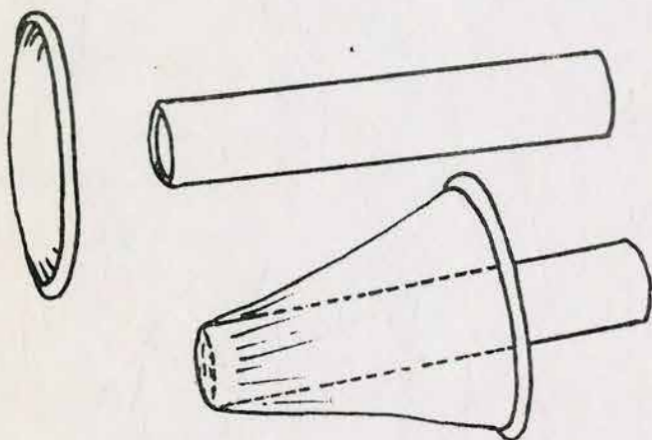
ASSEMBLY FOR CONDOM APPLIANCE

(Prophylactic)

PURPOSE: To allow urine to be collected without using a catheter.

EQUIPMENT NECESSARY

1. 3/8" Rubber tubing - 5 inches long
2. Condom.
3. 9/32" Plastic tubing - 1/2" long.
4. Scissor.

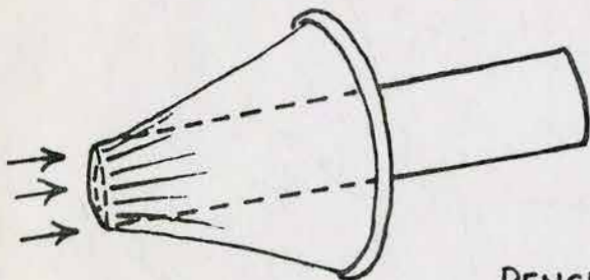
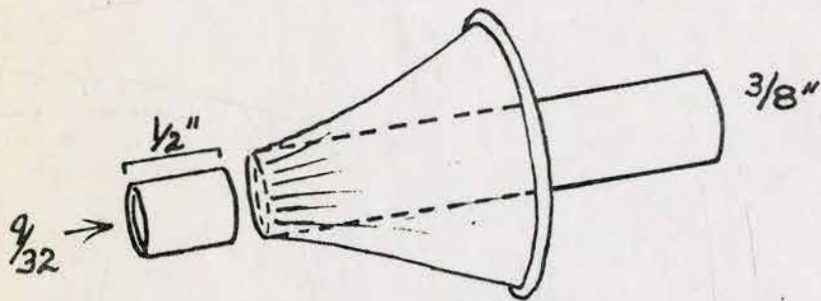


I. Roll condom 2 or 3 rolls. With the cuff on the inside, place the condom over long rubber tubing.

II. Take the piece of plastic tubing which is 9/32" wide and put inside the long tubing, forcing the condom into the long tubing. Have plastic even with rubber tubing.

III. Make a hole in the condom as the end of the tubing.

IV. The condom is now ready to be applied to the penis.



GENERAL CONSIDERATIONS FOR MEN USING EXTERNAL COLLECTORS

1. Watch carefully for leakage as damp clothing will cause skin problems.
2. Soft cotton underwear is preferable for students wearing external collectors, so that tubing does not kink off and cause pooling of urine in the collector.
3. When using skin glue to attach externals, do not mix two different chemicals (such as skin prep and Hollister glue).
4. When removing a collector which has been cemented on, roll the external off, don't just pull it off, as you may rip the skin.
5. Each time an external collector is removed, the skin of the penis and surrounding area should be washed well with soap and water, and thoroughly dried. Before applying a new collector, wipe the penis with an alcohol sponge to remove any excess skin oils which may cause the external to "pop off" prematurely.
6. A leg bag with an external collector should be worn below the knee. This will help prevent urine standing in the bottom of the external and causing excoriation of the tip of the penis.
7. The tubing attached to a collector can be, but does not necessarily have to be sterile.
8. When a student goes to bed for the night, he should be connected to a closed drainage unit and have his leg bag removed, the same as with an indwelling catheter.

MALE EXTERNAL CATHETER APPLICATION

EQUIPMENT

1. Skin adhesive.
2. Rubbing alcohol 70%.
3. External collector.
4. Paper towell.
5. Scissors.
6. One-inch elastoplast tape.

PROCEDURE

1. The shaft of the penis is cleansed using the 70% rubbing alcohol.
2. A small hole can be cut or torn in a paper towel and placed around the penis to protect pubic hair from the spray.
3. The shaft of the penis is sprayed with the medical adhesive or painted with skin glue until a thin layer is formed and this is allowed to become tacky.
4. The external collector is rolled on down to the base of the penis, leaving $\frac{1}{4}$ to $\frac{1}{2}$ inches from the rubber insert of the collector to the glans of the student's penis.

5. A strip of the one-inch elastoplast is placed around the base of the external collector above the ring. This should spiral around the penis but not overlap.
6. The ring of the collector is clipped with the scissors. The external can then be attached to a leg bag or bedside drainage bag.

PERINEAL CARE

Perineal care is best taken care of by the quadriplegic during the shower. If this is not possible, the student attendant should follow these directions.

PRECAUTION

Be gentle. The quadriplegic and paraplegic above the level of T-6 may have a hyperreflexic response. Protect the privacy of the student at all times.

EQUIPMENT

Bath towel
Disposable wash cloth (3)
Soap and water
Gloves

PROCEDURE - FEMALE (See Figure 8)

1. Wash outer perineum and area between thighs and labia with soap. Rinse well and dry thoroughly.
2. Separate labia, using disposable wash cloths, from clitoris over vaginal opening. Wash toward rectum, not reverse direction. Rinse well and dry thoroughly.
3. Turn to side. Separate buttocks, wash posterior area and around anus. Rinse well and dry thoroughly.

PROCEDURE - MALE (See Figure 9)

1. Place the bath towel under student.
2. Wash the penis first.
 - a. In the uncircumcised male, pull the foreskin back, wash, rinse and dry the area thoroughly.
 - b. Push the foreskin back over the head of the penis.
3. Wash outside of the penis including the posterior side. Rinse and dry thoroughly.

4. Lift the scrotum up and forward, wash thoroughly, rinse and dry thoroughly. (erection may occur).
5. Turn student to side, spread buttocks. Wash posterior area and around anus. Rinse and dry thoroughly.

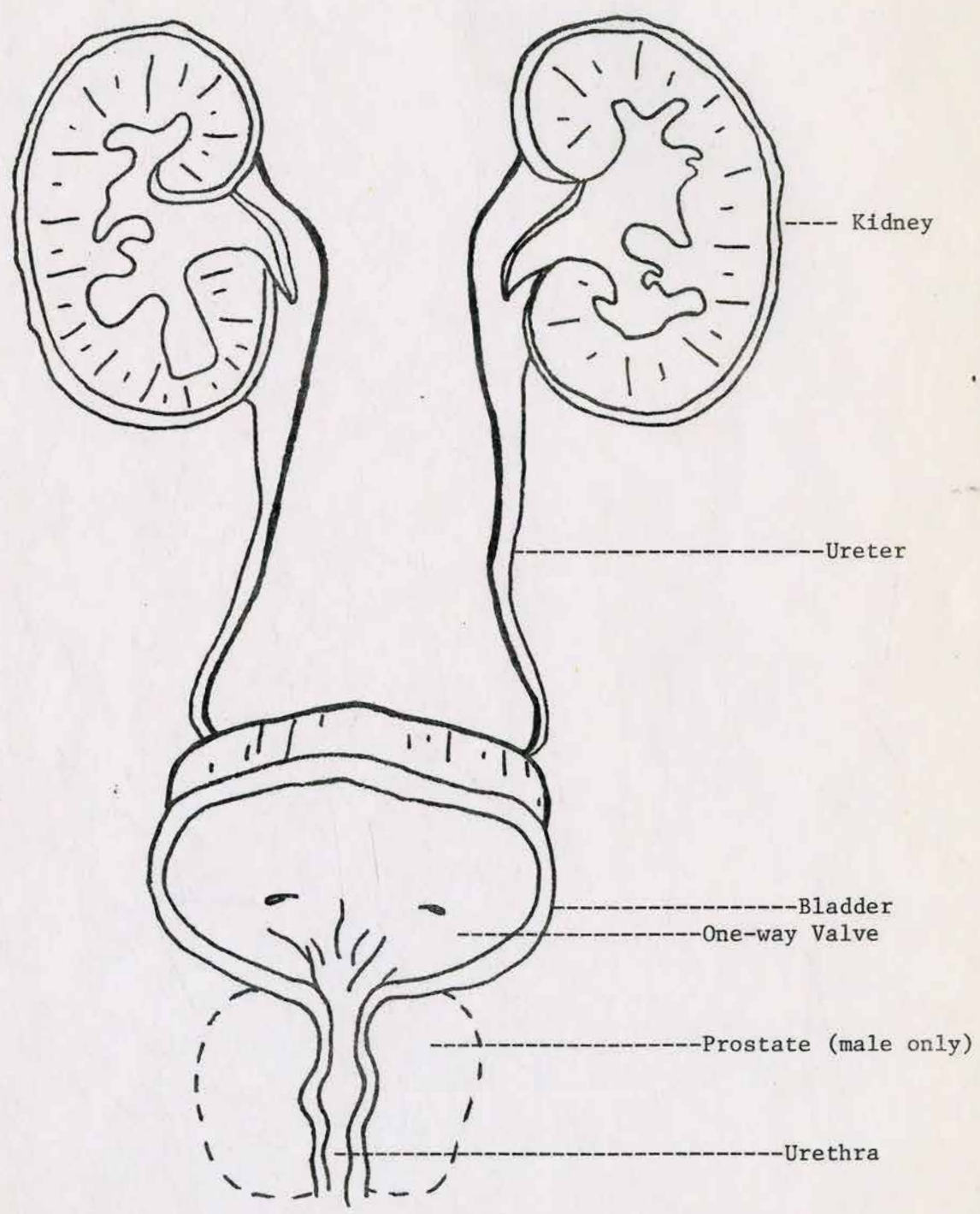
VAGINAL HYGIENE

Vaginal hygiene is to be practiced for all female quadriplegics. The student probably has an established routine for necessary vaginal hygiene (i.e..... after menstrual cycle completed, following intercourse, odor presence, (drainage). If the student uses a douching routine, follow the procedure as outlined by the student. If a vaginal suppository is to be used for hygiene or medical purposes, consult the following procedure.

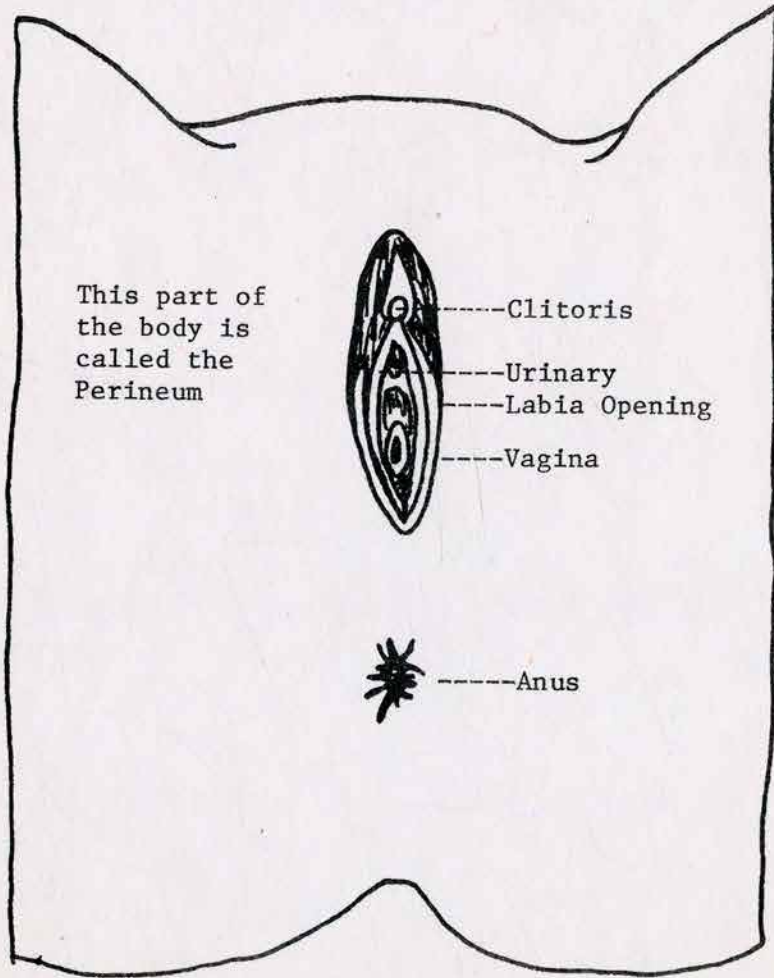
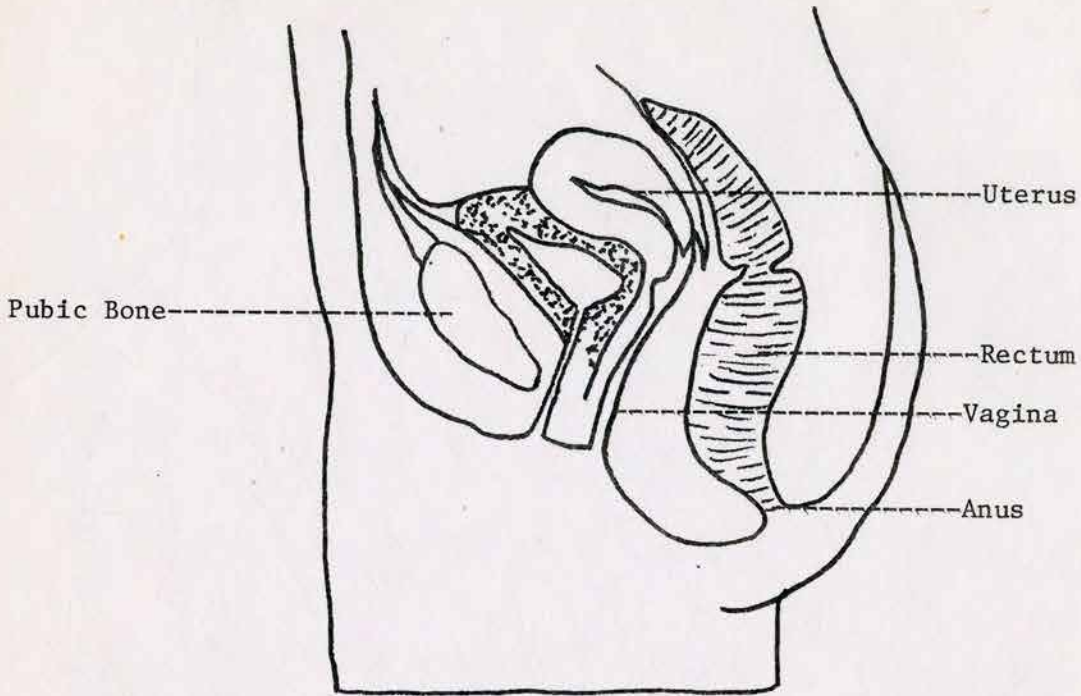
PROCEDURE

1. Insert suppositories after perineal care.
2. Remain in position for 3 - 5 minutes after insertion.
3. Inspect perineum - cleanse when going to bed that evening.
4. Use suppositories only as recommended.
5. Use only vaginal tampons or sanitary napkins that adhere to panties during menstrual cycle. Do not use a pad with belt. Caution: Be sure the vaginal tampon is properly placed. Improperly placed vaginal tampons can cause infections and severe damage to the bladder and/or rectal structure.

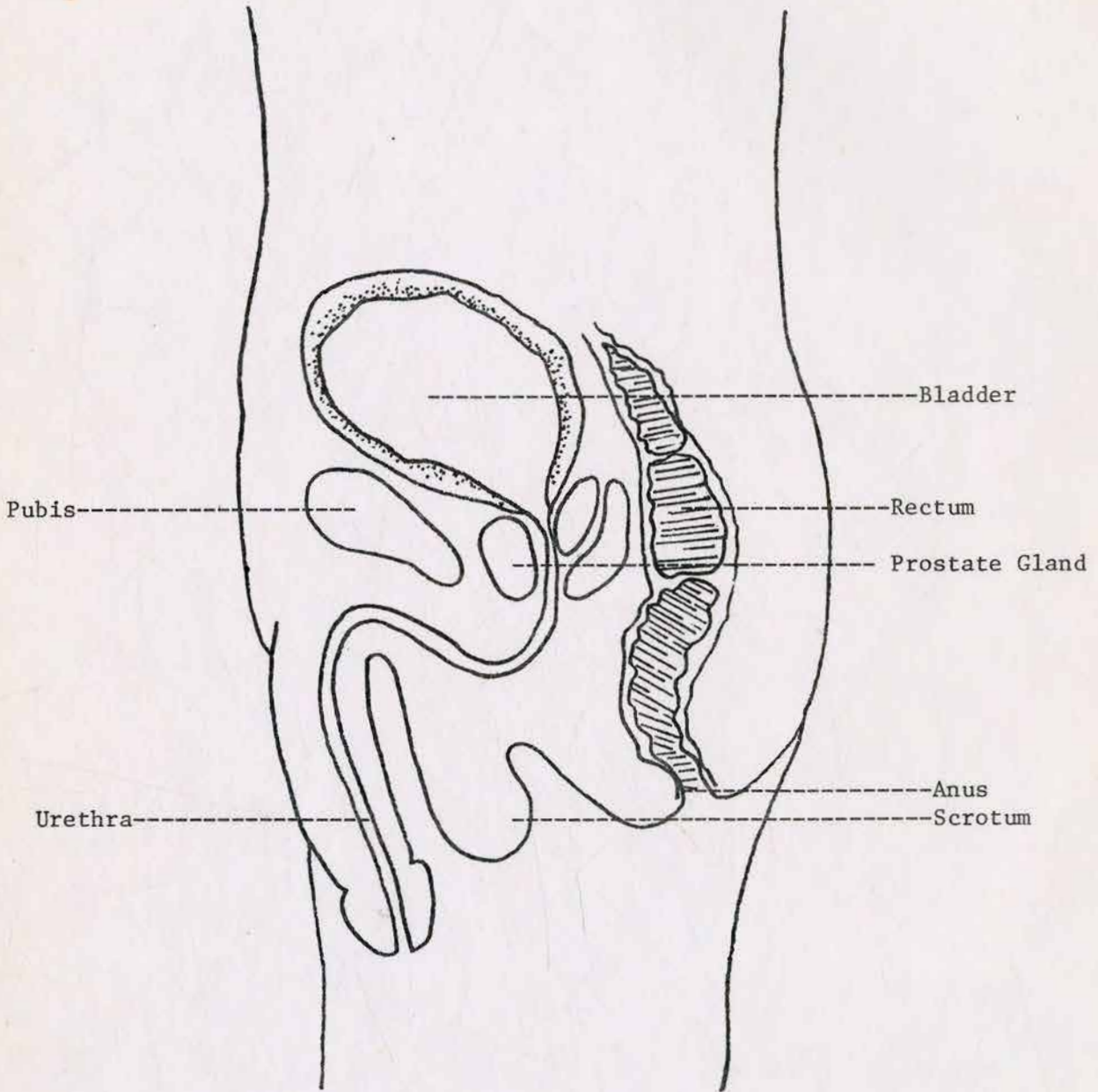
Figure# 7



Figure# 8



Figure# 9



BOWEL CARE

Every spinal cord injured quadriplegic student needs assistance with bowel care. Most of the students are on a prescribed bowel program whereby a suppository is inserted at a prescribed time, generally every other day. You will be assisting the student with his or her bowel program.

Consequently, you will need some basic information and a great deal of communication with the handicapped student. Keep in mind that the bowel care program is a small but necessary portion of your job description. Also, keep in mind that it is important to preserve as much dignity for the handicapped student as possible.

I hope the following information will be helpful.

HELPFUL INFORMATION (See Figure 10)

1. The individuals' bowel program should be consistent for it to be successful. Choose a time for elimination that will fit in with your daily schedule. Many persons find the time after the evening or morning meal convenient. In this way, advantage is taken of the body's reflex stimulation of the bowel which normally takes place after eating.
2. A well-balanced diet and drinking plenty of liquids will help to make the bowel program a success.
3. Do not use enemas, routinely, unless ordered by a physician.
4. Stool softeners are often prescribed for regular use. They keep the stool soft and help avoid constipation. The stool softeners are generally to be taken one capsule three times a day with meals. If the stool becomes too soft, the number of capsules taken should be reduced to one or two daily. This varies from person to person and from one week to the next. The student should take the responsibility for knowing how his bowels are working and his need for increasing or reducing his daily dosage.
5. Constipation can set off the reflex known as "hyperreflexia". This condition is common to persons who have cord injuries above the level of T-6. A variety of stimuli will set off this reflex. Constipation or too vigorous rectal stimulation can produce this reflex. "Pounding" headache, blotching of the skin and slowing of the pulse are the symptoms and signs to watch for. If they occur, stop the stimulation. (See Section on General Consideration).

6. Suppositories- The type of suppositories often prescribed are Vacuettes or Ducalox. Remember to follow package directions with the Vacuettes. Vacuette suppositories should be dipped in tap water before insertion. They are ready for use after being dipped in water for at least 10 seconds. Do not use lubricant to insert Vacuette suppositories. They are self lubricating.

GENERAL

A well established bowel program is an important part of the total daily schedule. This will decrease to a minimum the possibility of embarrassing accidents.

Essentially, what happens is the bowel is trained to empty at a specified time by setting up a reflex which is stimulated with the suppository. It is therefore important to use the same method at the same interval each time. For the best results and to decrease frequency of accidents, issue the suppository during the same hour on each suppository day.

While bowel habits can be trained on a specific schedule, they can also be upset, occasionally. Bowel habits can be altered by any of the following.

1. Time change in bowel program.
2. Medications
3. A change in amount or kind of medication.
4. Illness.
5. Inadequate fluid intake.
6. Travel or change in locations.
7. Emotions.
8. Food (ie. spicy or greasy ect...)
9. Beverage (ie. beer, excessive coffee, tea or soft drinks).
10. Change in activities.

Remember these two points.

1. If sudden diarrhea occurs for no apparent reason, check to see if there is fecal impaction. If so, call the Staff Nurse for instructions for removal.
2. No more than three days should elapse between bowel movements. If this occurs, it could be indicative of a larger problem and you should contact the Staff Nurse.

INSERTION OF RECTAL SUPPOSITORIES (Refer to Figure 10)

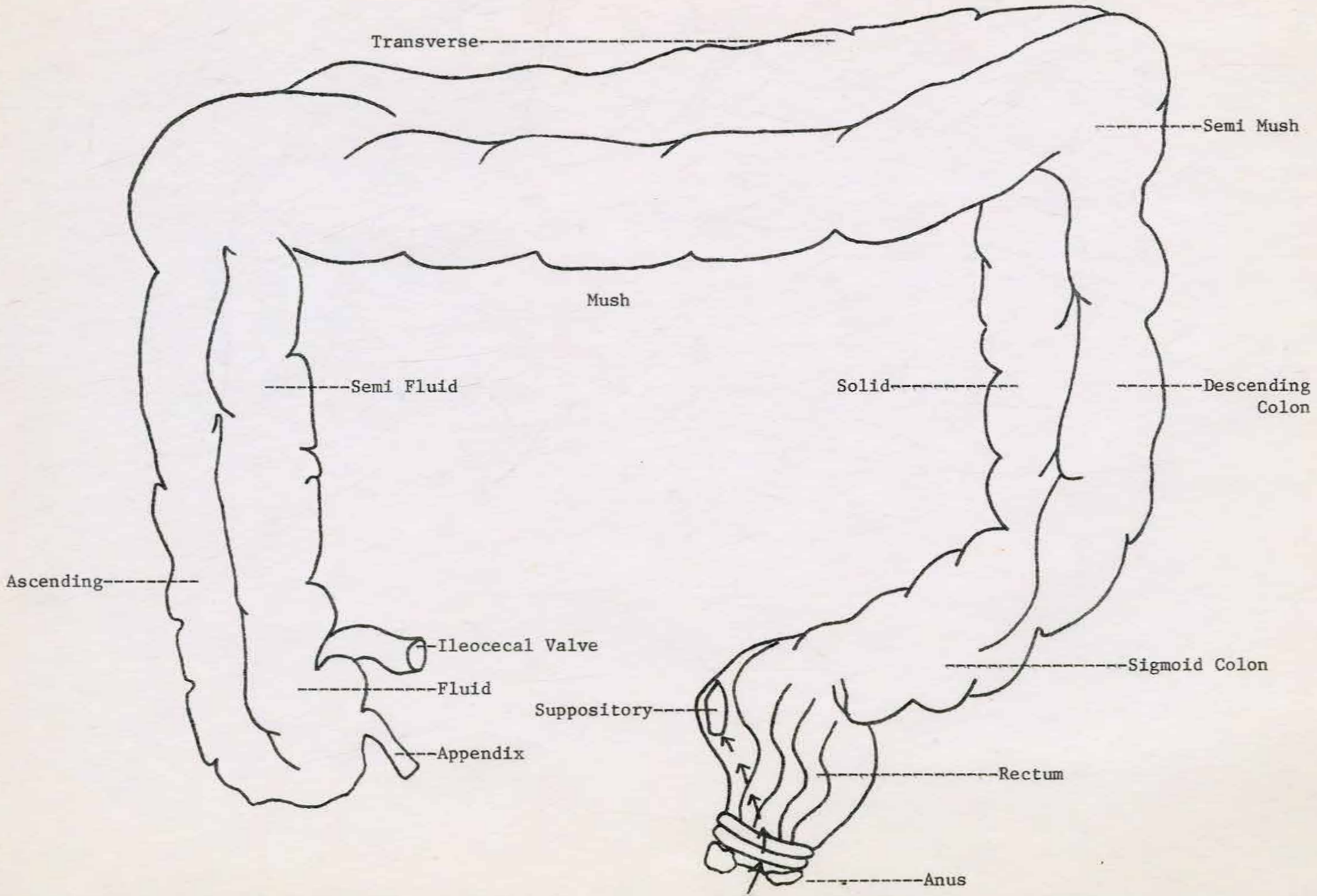
EQUIPMENT:

1. Suppository
2. Finger cot or glove and lubricant (if required)
3. Suppository Inserter (only as directed)

ESSENTIAL STEPS IN PROCEDURE:

1. Prepare student:
 - a. Communicate.
 - b. Assist into normal position for him or her.
(In shower chair or side lying).
2. Prepare equipment:
 - a. Remove wrapper from suppository.
 - b. Lubricate suppository if required.
3. Method:
 - a. Put finger cot on index finger or place glove on hand.
 - b. Separate buttocks.
 - c. Check and remove any fecal material.
 - d. Insert suppository gently into rectum as far as possible.
Be sure the suppository is lying next to the rectal wall.
 - e. Cleanse anal area with toilet tissue and discard in bathroom.
 - f. Most students use shower chairs. Transfer student into the shower chair and roll it into the toilet area.

Figure #10



RESPIRATORY CARE

The quadriplegic individual is no more susceptible to colds than any other individual. But because of their paralysis they can develop life threatening complications rather quickly and easily. Anyone with an injury at a level of T-12 or above has impaired respiratory function. The command for muscle contraction that is sent by the brain cannot reach the diaphragm or abdomen to produce an effective cough. Coughing pushes secretions out of the lungs. Those individuals with a higher level injury are unable to breathe deeply to force air into the lower portions of the lungs. Therefore, when a quadriplegic "catches" a cold he or she can develop pneumonia or bronchitis quickly because they can't breathe deeply or cough adequately.

At the first sign of a cold treatment must be started quickly and requires complete diligence of the student attendant. As the student attendant, much of the care will be your responsibility.

1. Call the Staff Nurse immediately if a cold is suspected.
2. Assist the student by encouraging adequate rest.
3. Increase fluid intake - The increased fluids will liquify the nose, throat, and lung secretions making it easier for them to be coughed up. Since the student should be in bed for rest, make water pitcher and glass easily accessible to the student. Offer other fluids frequently. It is important for you to remind the student to drink frequently, as the student will not be feeling well and will have a tendency to forget.
4. High protein, high carbohydrate diet - A high protein diet is needed to replace the protein lost during fever or illness. A high carbohydrate diet is needed for increased energy requirements during fever or illness.
5. The student may need assistance in transportation to medical facilities.
6. The Staff Nurse will instruct you in the following as needed:
 - a. The use of a vaporizer.
 - b. Fever treatment.
 - c. Recommended medications.
 - d. Assisted cough.
 - e. Percussion
 - f. Postural drainage.

The student should have on hand at all times the following:

- a. Aspirin and/or Tylenol, preferably both.
- b. Thermometer: Oral or multi-use.
- c. Vaporizer, if possible.

Of course, the best treatment for colds, pneumonia, or other respiratory infections is prevention. This is accomplished by adequate rest, diet or protein and carbohydrates, and vitamins, especially Vitamin C. Respiratory infections cause missed classes and impaired study habits for both the student and the student attendant. Since colds are communicable, it is important that you take care of yourself also.

BODY TEMPERATURE

Perhaps the single most important tool that you as a student attendant can have is knowledge of body temperature. How it relates to your work, and what the temperature could indicate are essential elements in determining the immediate and sometimes long range needs of the handicapped student. The specifics to be dealt with in this section are designed to acquaint you with how body temperature behaves in the quadriplegic and paraplegic student.

WHAT IS BODY TEMPERATURE?

Body temperature can best be described as the amount of heat generated and held by the body. Measured by degrees, an individual's temperature will vary according to specific body functions. For example, the body produces heat in the food digestion process yet loses heat in the breathing process. As a result, a balance is achieved in the body which is consistent at a certain level, which does not vary with climatic degree changes, and which does not vary with seasonal changes.

For healthy individuals, the temperature is constant within a range of 98° to 99°. Always remember that there are exceptions to every general rule, thus, it is conceivable that degree variations from the accepted norm may be absolutely normal for a given individual. Because of this, it is essential that you and the person you will be attending know their normal temperature. Obviously, if the normal temperature is 97°, then a 99° temperature would probably show itself by the person feeling "bad".

The human body is an intricate and delicately balanced mechanism and as such any considerable change in body functioning can produce a change in temperature. Some of the more common reasons for temperature variance are:

1. Age- A middle aged person may have a temperature of 1° lower than a child or older person.
2. Food- The amount and kind of foods you eat can cause a temperature variation.

3. Time of Day- Temperature is generally lower in the mornings and highest in the late afternoons or evenings.

A change, whether up or down, from the normal could indicate an infection or other abnormal situation that the student attendant must know about. The more severe the degree of change in an individuals temperature, the greater likelihood of a severe problem that demands your immediate attention.

The following are factors which can result in an elevation or decrease in body temperature.

INCREASE

Infection or illness
 Pain
 Exercise
 Shivering
 Excessive eating
 Strong emotions
 a. Nervousness
 b. Excitement
 Environment
 a. Room temperature
 b. Outdoor temperature
 c. Hot water bath
 d. Brief exposure of cold
 Body injury

DECREASE

Illness
 Lack of proper diet
 Lowered vitality, or resistance
 Sleep
 Depression of the nervous system

All of these things either increase the body's activity and therefore increase temperature or decrease the body's activity and therefore decrease the body's temperature. To maintain the delicate balance necessary for the body to function properly, body heat must be lost as well as generated. Some ways that heat loss occurs are:

Perspiration (sweating)
 Respiration (breathing)
 Excretion (urine, stool, saliva)

It is important that body temperature be measured periodically to determine the need for medical and/or preventative measures. Each student requiring attendant care should have a personal thermometer which is easily locatable in the dormitory room. If the student does not have a thermometer, one can be obtained at any pharmacy or some larger supermarkets for a nominal fee. This is an

essential tool... Be sure there is one in the room at all times.

Body temperature can be measured in three ways.

1. Orally- This is the usual way for determining temperature and the average temperature is between 98° and 99°. To measure temperature orally, place the thermometer under the tongue with the mouth closed for no less than three (3) minutes. Temperature should not be measured orally if the individual has:

- a. a head cold.
- b. difficulty breathing.
- c. has a cough.

2. Axillary- This is the next reliable method of determining temperature for spinal cord injured individuals. The thermometer should be placed in the armpit with the arm held close to the side for not less than ten (10) minutes. The average temperature is about 98° with this method of evaluation.

3. Rectally- This is the least desirable method of taking temperature. The spinal cord injured individual frequently has a lower or abnormal rectal temperature because of poor circulation. Taking a rectal temperature can also cause bowel evacuation at an inopportune time. The average temperature range for rectal evaluation is about a degree higher than oral evaluation; that is, about 99° to 100°. The thermometer should be placed about an inch past the bulb into the rectum and held in position no less than two (2) minutes. Never leave the thermometer unattended as muscle spasm etc... could cause it to break. A rectal temperature should not be taken if the bowel is swollen with stool.

BEFORE TAKING TEMPERATURE, REMEMBER:

1. Shake the thermometer down. Expanded mercury will render an inaccurate measurement.
2. Wait at least 5 minutes from the time the individual had anything to drink - either hot or cold.
3. If the individual had smoked, wait at least 5 minutes to take the temperature.

WHAT TO DO IF A DEFINITE TEMPERATURE VARIENCE IS DETECTED:

Call the Staff Nurse immediately. She will ask you several questions in which your observations are important in determining the proper course of action.

A typical list of questions are as follows:

1. Does the individual have a flushed face?
2. Is dry or hot skin apparent?

3. Is the individual breathing rapidly, shallow, or is there an increased pulse?
4. Does the individual have a loss of appetite or unusual thirst?
5. Does the person have a headache?
6. What is the amount of urine output?
7. Is diarrhea or constipation apparent?
8. Is delirium apparent?
9. What is the room temperature?
10. How much clothing does the individual have on?
11. Has the individual been outdoors where it is hot?

The Staff Nurse will instruct you as to your role based on the answers given.

It is wise to check the students temperature every 12 hours for the following 48 hours after a catheter change. If the temperature is elevated during this period, notify the Staff Nurse.

REMEMBER:

The key to a problem free semester depends largely on how soon you as a student attendant can convey information relative to temperature change to the Staff Nurse.

CLEANING THE THERMOMETER:

Be sure to thoroughly clean the thermometer after every use. Using a rotary motion, wash the thermometer away from the tip in warm soap and water. Rubbing alcohol is not sufficient.

After shaking the thermometer down for later use, store it in a safe but easily locatable place in the dorm room.

FEET & LEGS ELEVATION

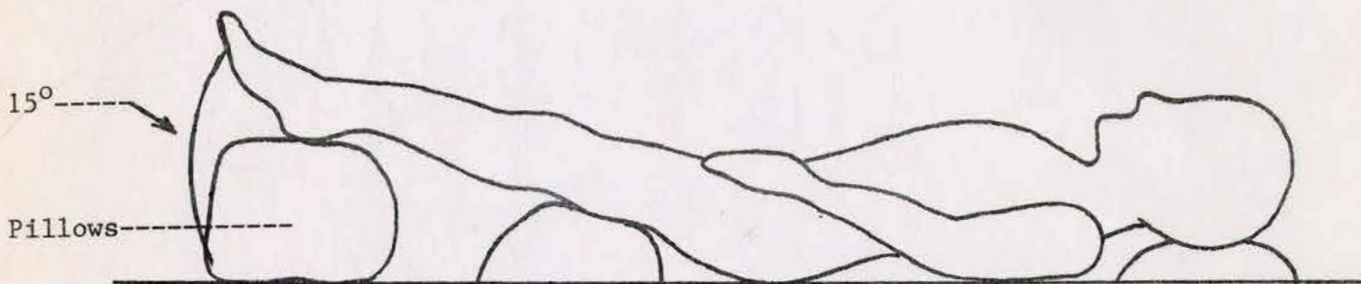
Common among most spinal cord injured individuals is occasional swelling of the feet and legs. The proper medical terminology for the swelling is edema. Edema of the face, abdomen, hands, and other parts of the body should be reported to the Staff Nurse, immediately as this generally signifies serious problems. Basically stated, edema of the legs and feet is caused by decreased circulation to the lower extremities due to changes in the muscle tone and circulation. Edema should never be ignored because sluggish circulation is conducive to the formation of blood clots (thrombosis). Elimination of edema is generally easily accomplished by 3 methods.

1. Increased Fluids- Increasing the fluid intake will assist in regaining normal circulation flow.
2. Elevation of Legs and Feet- By elevating the legs and feet approximately 15° from the hip of the individual when he or she is in bed or a little higher than the seat of the wheelchair if the individual is in the sitting position. (See Figure 11). CAUTION: When elevating the feet, never place them in a manner where injury may occur such as feet falling off a bed.
3. Elastic Stockings- Only as prescribed by a physician, elastic stockings are occasionally used to retard edema. Elastic stockings can assist in proper blood flow based on the constriction of the blood veins principle. Elastic stockings can cause damage if not put on properly: Check with the Staff Nurse before putting them on.

All suspected cases of edema should be reported to the Staff Nurse by you, the student attendant. In the meantime; 1. elevate the feet and legs as described earlier in this section, preferable while in bed; 2. Be sure the leg bag stop is loosened; 3. Begin forcing liquids.

It is possible that an increased amount of muscle spasm will be associated with the edema. While being an indicator that edema might exist, the muscle spasms actually assist in circulation ie... constriction of the muscle help pump the blood back up to the heart.

Figure# 11



NUTRITION AND DIET

A large majority of students whether they are handicapped or able-bodied tend to take proper dietary needs for granted. Many times it is easier and quicker to purchase "convenience" foods such as found on Cooper Street. There is very little nutritional value in this type of food.

Additionally, the normal student schedule does not encompass the recommended three meals a day. Indeed, snacking on convenience foods becomes the norm.

The residence halls do not have cafeteria services in the buildings proper. However, basic nutritional meals can be obtained in the Student Center at a reasonable cost. Please use the food services for proper nutrition and encourage the handicapped student to go with you and assist him or her with the tray. Many times, eating in the food service area, thus gaining proper nutritional needs, can be facilitated if the student has a companion.

In the next few pages are proper nutritional needs for handicapped individuals. They should be used as a guide to your selection of foods.

A GUIDE TO GOOD EATING

Each day our bodies need many nutrients: vitamins, minerals, protein, fats, and carbohydrates. Most foods contain more than one nutrient. But no single food can give all the nutrients in the amounts you need. To aid you in selecting your meals, foods are divided into four groups:

MILK, MEAT, VEGETABLES AND FRUITS, AND BREAD AND CEREALS.

I. MILK

Two or more glasses for adults.

Four or more glasses for teenagers.

Cheese, ice-cream and cottage cheese can supply part of the milk.

The milk group is especially important in providing protein and calcium. Calcium is used in building bones and teeth. Milk provides a wide variety of other nutrients, as well as a high quality protein at a relatively low cost.

Cheese, ice cream, and cottage cheese can supply part of the milk. Each

slice of American cheese counts as 3/4 cup milk, 1 cup of ice cream as 1/2 cup milk and 1 cup cottage cheese as 2/3 cup milk. Calcium is found scattered in other foods, but without milk and milk products, it is difficult to get enough.

An adult needs two or more cups of milk daily, teenagers four or more. If your doctor does not want you to drink milk or use milk products, be sure to eat an extra serving from the meat group to get adequate protein. But for many spinal cord injured persons, a low calcium diet is recommended.

LOW CALCIUM

A regular low calcium diet is sometimes prescribed. In this instance, milk is usually limited to one eight ounce carton or glass per day (or its equivalent) during periods of immobilization, because milk is high in calcium and calcium can cause bladder stones, and when immobilized, calcium is not used by the body as it should be, therefore it leads to stones forming in the bladder. Milk is limited, too, even if the individual is active because milk can make the urine alkaline.

Foods that are high in calcium and should be limited, but not necessarily eliminated are:

Milk

All cheeses, such as cottage cheese, Swiss, American

Ice cream

If the individual especially likes some calcium product, something else that contains calcium can be left off to enable the inclusion of the "treat".

II. MEAT

Two or more large servings.

Beef, liver, veal, pork, frankfurters, lamb, mutton, goat, poultry (chicken, turkey), eggs, cheese, fish, shellfish, sweetbreads, tripe, brains, heart, kidney, and wild game.

Dried beans (pinto, navy, kidney or pink), dried peas, nuts and peanut butter may be used as alternates.

The meat group provides protein and fat. Muscle, body tissues, and skin are all made from protein. In addition, this group gives Iron and B vitamins, too.

Dried beans, dried peas, nuts, and peanut butter may be used as substitutes for meat. All of the meat substitutes come from plants. When animal protein such as milk, cheese, or meat is eaten at the same meal as plant protein such as beans or nuts, the protein is utilized more efficiently in building body tissues, muscles, and skin. One or more foods from either the meat or milk group should be eaten at each of the three daily meals.

Eat two or more large servings daily. That's a piece of meat about the size, shape and thickness of the palm of your hand. Or use meat substitutes such as:

two or more slices of luncheon meat .
 four or more tablespoons of peanut butter.
 1/2 cup or more of dried beans or peas.
 1/2 cup or more of tuna fish.
 two or more eggs.

HIGH PROTEIN

Protein is used for growth and maintenance of body tissue and in the prevention of pressure sores. Some foods are "good" because they make the urine acid and are high in protein. If the student has an open pressure sore, he needs even greater amounts of protein to make up for the protein-rich fluid leaking from the sore.

III VEGETABLES & FRUITS

four or more servings.
 Include *dark green* or yellow vegetables, citrus fruit or tomatoes.

All vegetables and fruits are included in this group. This group gives vitamin A and vitamin C. Vitamin A is utilized for normal vision and healthy skin and body surfaces.

Four or more servings are needed from this group daily. Here's how to choose your food to make sure you get your vitamin A and C.

For vitamin A, choose one serving at least every other day, of fruits and vegetables a deep yellow or dark green color. Examples of these are:

apricots, broccoli, cantaloupe, carrots, chard, collards, persimmon, pumpkin, spinach, sweet potatoes, turnip greens and other dark green vegetables.

Foods rich in vitamin C aren't as easy to identify. Citrus fruits or juices are rich in vitamin C such as: oranges, grapefruit, or lemons. Other foods

containing large amounts of vitamin C are: tomatoes, tomato juice, cantaloupe, raw cabbage, green chillies, strawberries, greens, spinach, asparagus, broccoli, brussel sprouts, cauliflower, white and sweet potatoes. Choose one or more servings of these daily.

IV BREAD AND CEREALS

Four or more servings

Check the label to see that they are fortified, enriched or whole grain.

The breads and cereals groups gives Iron, B vitamins and food energy. Small amounts of protein are also found here.

Foods in this group include: breads, cooked cereals, cornmeal, crackers, flour, grits, macaroni, and spaghetti, noodles, rice, oats, and quick breads or baked goods made with whole grain or enriched flour.

When buying foods from this group, be sure that it is whole grain, enriched, or restored. Whole grain breads such as whole wheat bread, do not have the outer grain covering removed in the processing, thereby keeping in all of the vitamins. Enriched bread and enriched noodles have had the covering removed in the processing, but some of the vitamins have been added to the bread. Enriched bread has a composition similar to whole wheat bread.

Four or more servings are needed daily. Count as one serving:

- a. 1 slice of bread.
- b. 1 ounce of ready-to-eat "cold" cereal.
- c. 1/2 to 3/4 cup cooked cereal, grits, cornmeal, macaroni, noodles, rice, or spaghetti.

OTHER FOODS

To round out meals and energy needs, one may use foods not specified in the four food groups. Such foods include sugars, butter, margarine, or other fats. These are often ingredients in a recipe or are added to other foods during preparation or at the table. Try to include some vegetable oil among the fats used.

IMPORTANT

Some medicines to prevent urinary tract infections work best in acid urine. The spinal cord injured student will be instructed if he takes a medicine that acts best in alkaline urine. Keeping acid in the urine can help prevent bladder stones and infection.

Vitamin C helps to acidify the urine, because the excess is spilled by the body into the urine. Some foods that help to keep and increase the urine acid are:

1. Fruits and their juices, such as
 - a. Cranberries (10 ounces of cranberry juice 3 times a day is needed to keep urine acid)
 - b. Plums
 - c. Prunes
 - d. Apples
 - e. Pineapple

2. Meat, fish, eggs, gelatin products, cereals. Some foods and fluids which make the urine alkaline are:
 1. Milk and milk products.
 2. Most vegetables
 3. Oranges and other citrus fruits (lemons, limes, grapefruits, grapes) and their juices.

Although citrus fruits are acid when you eat them, body metabolism will cause them to make urine alkaline. Sometimes, these foods may be prescribed for special problems. There must be a balance between acid and alkaline foods in your body. The spinal cord injured student should avoid a lot of things that cause alkaline urine.

SPECIAL PROBLEMS

1. Constipation or irregularity may be related to diet. Some foods are low in roughage or fiber. These are completely broken down and utilized by the body. Therefore, there is little or no residue for the body to excrete. Examples of such low roughage foods are milk, white bread, meat and cheese.

Fecal matter consists of food which has not been completely broken down and digested by the body. These foods provide bulk or roughage in the diet.

Which Foods Provide Bulk?

As a general rule, foods in the vegetable and fruit group and bread and cereals group provide the bulk in the diet.

Does the Handicapped Student have Constipation Problems?

Examine the diet. Does he or she eat four or more servings from the vegetable and fruit group? Does he eat four or more servings daily of whole grain breads and cereals? This could be the problem.

Juices do not provide bulk. However, for some people, prune juice or prunes may aid constipation problems. All fruits and vegetables provide bulk (except juices). But some fruits and vegetables are higher in bulk than others. The following are especially high in bulk.

apples, avocados, beans. (green beans, wax beans), any berries, broccoli, brussel sprouts, carrots, cauliflower, eggplant, okra, parsnips, green peas, green chili, prickly pear cactus, pumpkin, winter squash (acorn, banana, hubbard, butternut), sweet potatoes, yams, raisins, and watermelon.

Whole grain breads and cereals provide bulk because the grain covering is not easily digested by the body. These breads and cereals are particularly high in bulk:

100% whole wheat bread, corn tortillas, bran flakes, oatmeal, shredded wheat, wheat flakes, (such as Wheaties), and wheat chex. All bran cereal, ounce for ounce, has more bulk than any other food, and should be used daily if constipation is a chronic problem.

WEIGHT REDUCTION

Adults are likely to start gaining weight slowly beginning around age 25. As a quadriplegic or paraplegic, any weight gain may inhibit the ability to move and to make transfers. Because most spinal cord injured individuals are not as active as in the past, it is also more difficult for them to lose weight.

First of all, if the student has a few pounds to lose, he should check with the proper medical personnel. Only they can determine if the student needs to lose weight and how much.

Secondly, the handicapped student should look at his eating habits. What does he usually eat at breakfast? at lunch? at dinner? in between? How much food does

he eat? Does he add empty calories to his food such as lard or sugar? What does he eat between meals and what does he drink during the day?

There are no magic pills or shots to help you lose weight. The only way to lose weight is to cut down on food intake. Is the handicapped student willing to wheel himself 8 miles at 4 miles per hour for a piece of chocolate cake? This is how much exercise it take to burn up that cake?

The best way to cut down on calories is to cut down on the intake of fats and sweets, such as:

sugar, candy, syrup, molasses, jelly, jam, preserves, cakes, cookies, pies, pastry, sweet rolls, doughnuts, sweetened soft drinks, koolaid, alcohol, gravy, rich sauces, oil, salad dressing, mayonnaise, cream, whipped topping, olives, nuts, popcorn, pretzels, potato chips.

Starchy foods, such as those in the bread and cereal group should not be eliminated from the diet. As mentioned earlier, these foods provide B vitamins, iron, and fiber. Just make sure you don't eat excessive amounts of these foods.

Other ways to cut down on calories without cutting down on good nutrition:

MEAT GROUP

Trim off all fat from the meat. Prepare meat without adding fat. Broil, bake, roast or stew the meat. Do not fry it. When preparing beans, do not add lard. Whenever possible, place meat on a rack when cooking. This will allow the meat fats to drip into the bottom of the pan and will not resoak the meat.

VEGETABLES AND FRUITS

Most fruit and vegetables are low in calories and are excellent snacks. Fresh fruits have fewer calories than canned, but if canned fruits are preferable, the syrup should be drained off before eating. Omit sauces, gravies, salad dressings or margarine when preparing vegetables.

MILK GROUP

Switch to skim milk, buttermilk, or powdered nonfat dry milk rather than whole milk or chocolate milk and cut the calories in half.

WHAT DO YOU DRINK?

Coffee and tea without added sugar or cream provides few calories. Soft drinks, Koolaid or alcoholic beverages are high in calories and do not offer any vitamins, minerals, or protein!

GENERAL CONSIDERATIONS

The following considerations should be reviewed by the student to better understand the handicapped student.

RANGE OF MOTION

Passive range of motion will not restore function to the limbs. It can help to prevent stiffening or "contracture" of the joints. The normal activities of daily living; bathing, dressing, eating, getting out of bed, usually provides enough motion to the joints to prevent contractures. Unless done correctly, passive range of motion can cause injury to the joints. The student attendant should never do any range of motion exercises unless properly instructed by appropriate medical authorities.

SPASMS

Sometimes, even though the arms and/or legs are paralyzed, the muscles will contract. These contractions or movements are not controlled by the individual, they are involuntary movements. Here is an example of what happens.

1. A pin pricks the foot.
2. The nerve tries to send a message to the brain.
3. The message goes up to the spinal cord (along a sensory nerve path).
4. This message is stopped at the point where the cord is injured.
5. The message turns around and goes back down the spinal cord (along a motor pathway) to the foot.
6. The foot muscles move or jerk.
7. This spinal cord reflex is called a spasm.

This happens because the spinal cord below the injury is still working, up to the point of injury. Because a message can not pass the injured part of the spinal cord, the message can't get to the brain. Since the brain doesn't get the message, it can't control the force with which the muscles react to a stimulus. So, in a person with a spinal cord injury, unintentional and often repetitive movements occur. This is a result of some form of stimulation. Because the person cannot feel as before, he often does not know what is causing the spasm.

An increase in the severity or frequency of spasms may be a warning that there is something wrong. Constipation, urinary infection or stones, burns, and pressure sores are some of the more common causes of an increase in the severity of muscle spasms. Contact the Staff Nurse if you notice a marked increase in the spasms.

Spasms can be useful to help the student perform certain tasks but the student has to know how to take advantage of triggering off a spasm at the right time. These spinal cord reflexes are sometimes confusing to paralyzed persons and their companions. They are often mistaken for a return of function to the limbs. It is important for both the student attendant and the handicapped student to know that spasms are not voluntary responses, they are involuntary reflexes.

AUTONOMIC HYPERREFLEXIA (DYSREFLEXIA)

Every person with a spinal cord injury above T4-6, and everyone who works with such a person, must be aware of autonomic hyperreflexia. The acute emergency, if not treated immediately, may lead to bleeding in or near the brain. The acute phase will show any or all of the following signs.

1. Pounding headache, caused by a severe rise in blood pressure.
2. Sweating above the level of injury.
3. Goose flesh.
4. Blotching of the skin.
5. Nasal obstruction.

A variety of stimuli will set off this reaction. The most common are irritation to the bladder caused by over-distention (overfilling), severe spasms, infection, stones, or instrumentation. Distention of the bowel by hard stool or rectal examination is the next most common factor, although various other stimuli, such as an ingrown toenail or a pressure sore may be the culprit. Since bladder distention is the usual cause, it will be discussed in more detail.

The overfilling of the bladder stimulates nerve endings in the bladder wall to send impulses through nerves to the spinal cord and upward to the brain. On their way up the spinal cord, these impulses activate a reflex which causes tiny blood vessels in the skin and some internal organs to constrict and become very narrow. Since it takes more force from the heart to push blood through the narrowed blood vessels, the blood pressure rises. Normally, the increased blood pressure would cause nerve endings along the aorta (the large artery leading from the heart) and the carotid sinus (a large blood vessel in the neck) to send signals to the brain to slow down the heart and dilate the tiny blood vessels. But in injuries above T-4-6, the only response is the slowing of the heart rate. In high cervical injuries, even this might not be accomplished and a rapid heart beat will be noted. In either case, the brain cannot communicate with the nerves below the level of injury which would dilate the narrowed blood vessels. Consequences are a severe high blood pressure, as well as the other signs of hyperreflexia. It has often been noted that persons with higher spinal cord injuries experience a drop in blood pressure when they raise from a lying to a sitting position. This is recognized as a feeling of light-headedness, or as a black-out. This can be very useful in emergency treatment of a person suffering from autonomic hyperreflexia. If the signs of this reflex develop and the person is in a horizontal position, elevate his head if it can be done quickly and easily. Immediately check the bladder drainage system to detect possible obstruction, i.e., clamps which have not been removed, kinks in the catheter or drainage tubing, corroded inlets to the leg bag, or an overfull bag. If none of these are evident, determine if the catheter is plugged or sluggish by irrigating gently with 30-60cc of solution. Call the Staff Nurse immediately so that the catheter can be changed. If acute hyperreflexia is caused by rectal stimulation, the evacuation of the of the bowel should NOT be attempted until symptoms

If postural hypotension (blackout) occurs in the wheelchair, the attendant should firmly grab the handles of the wheelchair and tilt the student backward and lower him until the head and neck are nearly horizontal with the floor. This will increase the blood pressure and the "blackout" will quickly disappear. The student is then gradually raised and dropped until he is stabilized. If stabilization is difficult, the student is placed in bed in the horizontal position.

All high level quadriplegics with continuing postural hypotension should have a safety belt attached to the wheelchair. Then if postural hypotension occurs while an attendant is not present, the student may bend forward in his chair in order to increase the blood pressure without taking the chance and sustaining injuries.

SHOWERING

As a student attendant, you will be involved every week in providing assistance with showering. Generally, showering is scheduled to follow the bowel program for most spinal cord injured individuals.

Because of the physical structure of the residence halls at UTA, shower chairs are used to facilitate this function. In essence, a shower chair is a toilet seat on small wheels allowing easy movement in a confined area. Shower chairs are provided by the Educational Support Services Office and are located in the shower/toilet area in the residence hall. It is important for the student attendant to notify ESSO if maintenance on the chairs is required. Some quadriplegic students will bring their own shower chairs. Consider the following during the shower routine:

1. When transferring the student into the shower chair be sure that you do not bump the student or allow the chair to roll. Shower chairs generally do not have brake assemblies.
2. Most shower chairs do not have foot rests. Be certain that the individual's legs and feet do not get tangled up with the chair or surrounding fixtures when moving.

3. Always check the water temperature before rolling the student into the shower. Additionally, it is possible for the water temperature to change during the shower. Check the water temperature frequently.
4. Assist the student with washing and drying those areas which he cannot reach. (See sections on Feet and Nail Care.)

WHEELCHAIRS

Most quadriplegic individuals use an electric wheelchair to carry out their daily routines. Their wheelchair is their mobility. It is important that the student attendant know the condition of the wheelchair at all times.

If you suspect something is wrong with the wheelchair, call the Coordinator of ESSO immediately. Minor wheelchair repair can be accomplished on campus. Major problems with a wheelchair may require taking it in to an authorized dealer.

The following list should be checked frequently:

1. Charging the Battery - Most quadriplegic students, as all other students, have busy routines. Because of this and because UTA is a sizeable institution, it is imperative that you charge the battery every night, all night long.
 - A. Always plug the battery charger into the connector on the battery before you plug the battery charger into the wall socket. When batteries are charging they give off a hydrogen gas and any spark could cause a minor explosion. Plugging the charger into the wall last will prevent this from happening.
 - B. Check to be sure that the water in every cylinder of the battery is at the proper level.
 - C. Be certain that the battery terminals are tight and free of corrosion.
2. Belts - The electric wheelchair cannot function without belts. As a student attendant, you should check the belts weekly for tightness, frays, or cracks. If any of these are noticed, call the ESSO office; do not attempt to tighten the belts yourself.
3. Tires - More and more students are using wheelchairs which have pneumatic-type (air) tires. While these tires are not as easily punctured as you would initially think, they do lose air frequently. See that proper air pressure is maintained at all times. The appropriate amount of air pressure is stenciled on the tire. If abnormal leakage is noticed, or if the tires appear substantially worn, call the ESSO office. Never allow the wheelchair to run on low or flat tires.
4. Lubrication - Like all vehicles, proper lubrication is important. If removable parts become hard to move, or if squeaks or other abnormal noises are apparent, call the ESSO office.

Remember, the wheelchair is the person's mobility. Never allow it to be abused.

TRANSFERRING

As a student attendant, you may be involved daily with transferances. While some spinal cord injured quadriplegics have developed their remaining abilities to allow themselves to independently attend to this important function, most need some degree of assistance. Assistance is needed primarily for these reasons:

1. The quadriplegic individual more often than not does not have the arm strength to move their body freely.
2. The quadriplegic individual does not have trunk balance which allows the body to remain in a firm position while transferring.
3. Because of these physical limitations, it is not always safe for the spinal cord injured individual to attempt completely independent transfers.

The chances are good that you will be assisting the individual with transfers:

1. In and out of bed.
2. In and out of the wheelchair.
3. In and out of a shower chair.
4. Occasionally in and out of a vehicle.

When so doing, remember the following:

1. The spinal cord injured individual has been transferred by one method or another since the injury occurred. As a result, the individual knows basically the techniques of transfer that will and will not work for him or her. One of your first duties as a student attendant will be to discuss transfer techniques with your roommate. Do not assume that you can simply muscle the person around.
2. If the individual has learned to use a transfer board, do not attempt to institute another method of transfer. It has possibly taken a long time to learn this technique and if not used, the refined skills involved could be lost. Assist only when instructed, as it is best for the individual to transfer himself if at all possible.
3. When transferring to and from a wheelchair or a shower chair, be certain that the chair does not roll away from you. It could easily cause you to trip and injure both the handicapped student and you.

4. In all transferring procedures, never allow parts of the individual's body to be scraped by exposed edges or to be bumped. Remember, bruises or scrapes can easily result in pressure sores.
5. Protect yourself. Learn to lift in a manner which will not result in bodily injury to you. Never try to lift more than you can safely lift.

Important Telephone Numbers

Educational Support Services Office

273-3364

Evening Emergency

277-0070

Educational Support Services Office Staff Nurse/Health Center

273-2271

Evening Emergencies

261-1510

Dr. Barna Richards

277-2671

United Rent All (Mike McCann)

274-5501

Texas Rehabilitation Commission (UTA)

277-5256

Gibson's Pharmacy

277-9147

Ambulance

282-9133

UTA Police Department

273-3003