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[TIRR] Patient Care Booklet for Lex Montgomery Frieden [1985]

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PATIENT CARE BOOKLET FOR
LEX MONTGOMERY FRIEDEN

GUIDE TO YOUR CARE

INTRODUCTION

Because of your paralysis, you and those assisting you need to know as much as possible about your care. This booklet is to help you to know about your care and to guide you in doing your own care or directing others who help you.

Naturally, the best way to deal with problems is to prevent them in the first place. In addition to teaching you how to do your daily, more routine care, it is our aim to help you preserve your health by recognizing when you need help and what steps to take to get it. We believe this can be done through educational programs for you and those who care for you and through providing you with this instruction booklet to take home with you.

Each time something is taught to you or your family you will get written instructions about it which will be put into your booklet. These instructions will cover just about everything--from head to toe. Special changes will be written into the instructions to meet your particular needs.

Of course, you may have questions not covered in the booklet. We encourage you to ask your nurse specialist, clinician, or the staff--if you do have questions, because it is through your learning that many problems can be prevented.

Take this booklet of instructions home with you and keep it where you can refer to it as often as necessary. Bring it to the clinic when you come and/or when you return for a "check up" so that changes or additions can be made in it as your care needs change.

This booklet was written by the staff with help of a group of parents who have a spinal cord injured son or daughter. It is dedicated by them to you and your family.

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DEPARTMENT OF NURSING

SKIN CARE
GENERAL PRINCIPLES

Purposes for Teaching Skin Care:

1. To PREVENT PRESSURE SORES, and skin irritations.
2. To know how to care for your skin.
3. To become aware of kinds of external heat (to avoid) that can cause pressure sores.
4. To know that you are responsible for the care of your skin. After the acute phase of paralysis has passed, the responsibility for observing the principles of skin care must pass to the patient himself.

The PREVENTION OF PRESSURE SORES must be based on two principles:

1. The avoidance of prolonged pressure on the skin, particularly over bony prominences.

2. The maintenance of good general health and good general nutrition. (A low protein intake and then application of pressure is sure to mean development of a pressure sore.)

Skin Inspection is Looking at Your Skin for the following reasons:

1. To alert you to any change in the appearance of your skin, because if you can catch a pressure area before the skin is broken, you are ahead of the game. Once the skin is broken and fluid is leaking from it, you are losing the very proteins that you need for healing it.

   Sores can develop quickly on many pressure areas, especially in "run down" people whose skin is sensitive and who may be in poor nutritional state.

2. To note any changes in your skin color, such as:
   - -increased paleness (whiteness)
   - -redness

   At the first sign of redness find out what is causing the pressure. DO NOT DELAY. Wishing will not help!

3. To note changes in any area where two skin surfaces rub together, such as groin and buttocks.

4. To observe for signs of blisters, burns, rashes, swelling, pimples, bruises, and breaks in your skin.

General Information:

The skin below your "level" is not as tough as above it, so it is more easily damaged by pressure.

Because (skin) circulation is reduced you are more likely to get burns and other skin problems. We strive to prevent these problems. (Unrelieved) pressure is the chief cause of pressure sores.

Sunburn can occur if you are outside and it is hot. Also, your temperature will increase because your body cannot put off heat. If you like the out-doors, especially in the hot months, then start off with 20 minutes and gradually add 30 minutes at a time. Check your skin carefully, and if you get an increased temperature stay in-doors until all is well. Do not over-do it!

Low pressure maintained for long periods of time produces more tissue damage than high pressure for short periods. So, there may be more problems at night (if you do not sleep prone).

The sore results because of no sensation which lets you stay in one position without moving for long periods of time. The numbness and pins-and-needles feeling that would normally cause you to move without thinking, is gone.

Pressure slows down the necessary blood supply to the skin and surrounding tissue and cuts off the oxygen in the tissue. Lack of blood supply will cause injury and death of the tissue.

When this occurs it is called a pressure sore. You may also hear it called a bed sore, decubitus ulcer, pressure ulcer, or skin breakdown.

If you press on your fingernail, the nail bed becomes pale. This happens because the blood is pressed out of the tiny vessels under the nail. When your body weight rests on one of the bony points, the same thing happens. If this spot remains without blood for too long, this area of skin will die.

If any change, or alteration of the skin, such as allergy, rash, or any irritation that affects the nutrition of the skin occurs, it should be treated as though it were a pressure sore.

Fever (from any source) changes, or alters your general (body) nutrition and body functioning, therefore you cannot tolerate your regular schedule. You must cut down, or reduce your activities. Watch closely and do not resume your regularly scheduled activities until you have completely recovered. (For example, you may need to decrease your sitting and turning times when your skin nutrition is affected, such as when you have a fever.)

If you have no feeling, there are other ways (external heat) that you may get a sore. Some of these are:

- -hot liquids - spilled on you
- -bath water
- -chemicals (such as whisk and zephiran)
- -hot water bottles
- -heating pads
- -radiators or stoves
- -hot water pipes
- -automobile heaters and floor board not well padded
- -cigarette ashes - dropped on you
- -sunburn (your skin is very sensitive and likely to get sunburned!)
- -bruises and scrapes - may be caused by bumping parts of your body - (Be careful in moving your legs [and arms] in transferring.)

Rashes are common. It must be determined whether a rash is allergic, infectious, or the result of inadequate cleaning.

Poorly fitted shoes can cause pressure; and spasms can cause feet to rub in the shoes and cause sores.

Preventive measures for pressure sores are necessary when appliances are needed, such as braces. (Braces can rub your skin.)

Clothing that is too tight fitting can cause pressure sores.

A corset that fits improperly can lead to skin irritation.

Extremes of heat and cold may lead to skin irritation.

Any source of friction or pressure, such as rubbing against your wheel chair or tight leg bag straps, can lead to skin irritation.

AVOID ALL THESE POSSIBLE CAUSES OF PRESSURE SORES.

Fat people are just as likely to get pressure sores as are thin people. In a thin person there is a thin layer of skin close to the bones that can easily "fall off." Overlapping skin is thin, soft, and moist. The subcutaneous tissue (right under the outer skin we see) is a loose collection of large fat globes containing little or no fibrous (firm) tissue, and some of the bony points are irregular and sharp. (That is why the layer of skin close to the bones can "fall off.")

Whereas, with a fat person you may think that the fat would be a good protection cushion. This is not true. In the first place, the extra weight of the fat man increases the pressure that weight bearing areas must support. Secondly, fat by itself cannot support high pressures. Without a close-knit collection of firm tissue to hold it together it gets smashed and displaced, leaving the skin close to the bone.

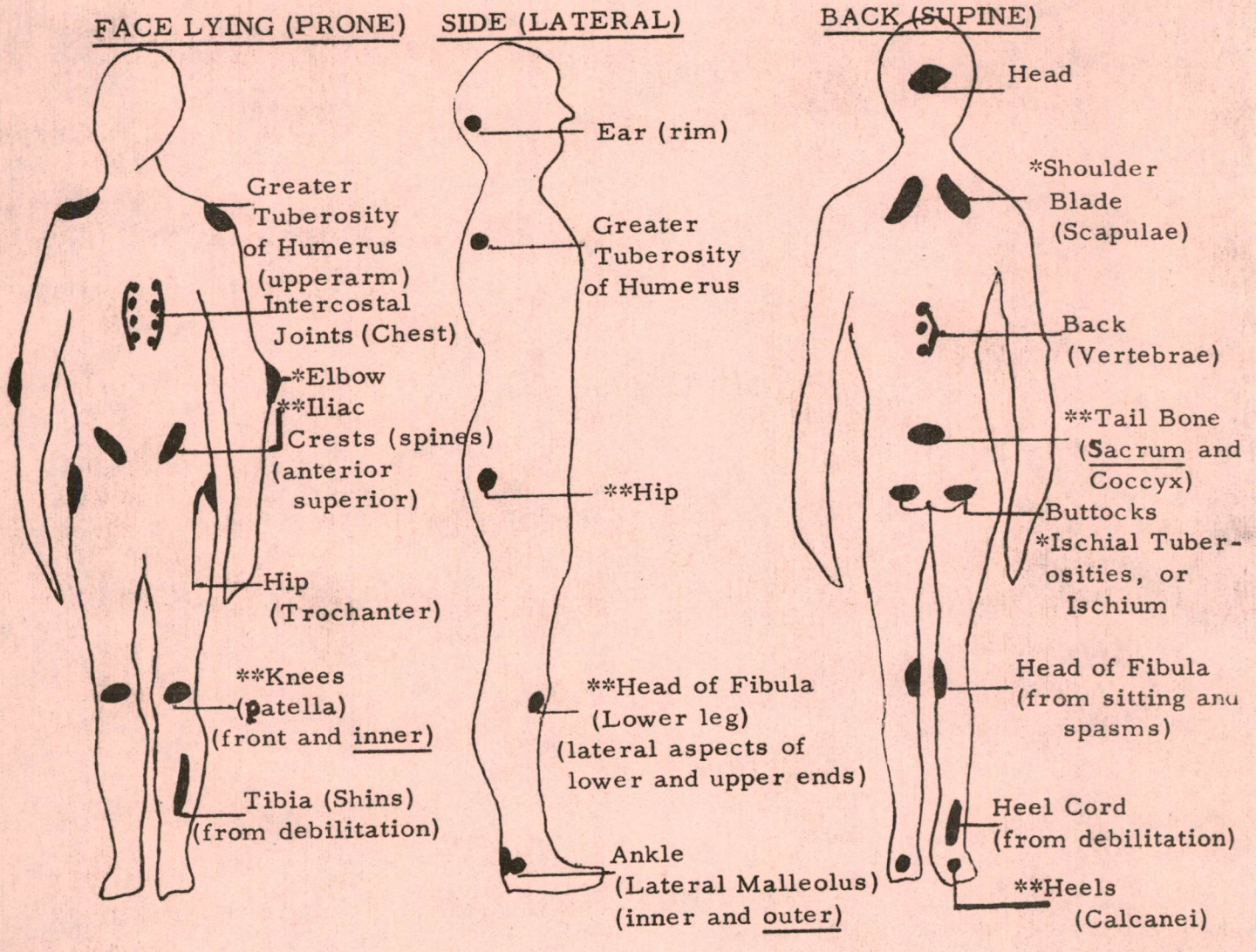
* -Skin is more resistant to the effects of pressure than either subcutaneous fat or muscle.
Muscle damage may have occurred at a stage when over-lying skin merely shows redness.
That is why we stress checking skin and getting off a reddened area immediately. Turning and sitting schedules are adjusted to your skin tolerance. Protect the bony prominent areas to reduce the possibility of a pressure sore developing. Various tissues and areas tolerate pressure in differing degrees. Redistribution (changing) of pressure points will safeguard against pressure sores.

-Skin health is related to your nutrition. Good teeth are necessary for nutrition! Routine dental care is a must, as before.

PRESSURE AREAS

Certain spots are particularly likely to develop pressure sores. These are places where a sharp edge of bone comes close to the surface without much padding (bony prominences).

Bony prominent areas most likely to get skin breakdown when lying in the following positions:



** The most commonly involved areas

* Also involved

When **SITTING** the greatest area for pressure is the Ischial Tuberosities. The sacrum and coccyx also get some pressure when sitting. It is nearly impossible to relieve all pressure when sitting. If nothing else, the clothes will cause pressure.

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SKIN CARE
INSPECTION OF SKIN

Because you have poor or no sensation (feeling), your skin is especially likely to develop pressure sores if not cared for properly.

You have to depend on using your eyes to check and protect your skin.

How to Look at Your Skin:

Look at all parts of your body, paying special attention to bony parts.

Have a good light and use a long-handled mirror for the "hard to see" parts.

If you are unable to use a mirror get someone to help you, such as the nurse, attendant, or a member of your family.

You can use a mirror that attaches around your neck to check skin.

Feel the area if it looks puffy.

What Parts to Especially Look at:

Tail bone
Buttocks
Crease at top of your leg where it joins the body at your buttocks
Groin (between your legs, especially if you are fat and the legs fall close together)
(If the skin where it folds over onto other areas, such as the groin area, would stay moist, which it can if not dried and aired properly, skin irritation will develop.)
Under breasts (especially for fat ladies)
Under heels
Shoulders
Elbows
Around any urinary device (such as S/P, Vesicostomy, Ileal Loop)
INSPECT HEAD TO TOE!

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When to Inspect Your Skin:

Inspect your skin three minutes after sitting and after turning - or after getting off pressure.

At a regular time each day, such as in the morning before you get up and at night right after you have undressed for bed. Doing that daily you will know from day to day how your skin looks ⟶ the best way to prevent skin problems.

What to Look for When Inspecting Your Skin:

*Redness
Whiteness (paleness)
Swelling, Puffy spot (may not be pink)
Tenderness
Coldness
Reactions of the skin following pressure:

1. Cold
2. Flushing - skin temperature increased above normal
3. Return to normal skin temperature

A pinkness, redness, or any color change that is different from your usual skin color and that lingers is a DANGER SIGN. This is usually the beginning of a pressure sore.

What to Do if Anything Unusual is Noted:

If any redness, puffiness, or other symptom is noted, remove and avoid the cause of this pressure and all pressure immediately, and keep off the area until it is completely cleared up.

GET OFF THAT SPOT!

Remember, if skin is red, subcutaneous tissue and muscle is worse!
See how long it takes for the redness to go away.
If the tissue injury is bad enough for the second stage (see stages of pressure sores) of redness to last longer than 15 - 20 minutes, then tissue damage may have occurred. (Refer back to general principles *page 4.)
If you wait, a pressure sore will probably develop and may be slow to heal.
Position - to remove all pressure until healing can occur, or until all redness or other symptoms go away.
Decrease turning to that area.
Discontinue sitting, if necessary.

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SKIN CARE

PRACTICAL SUGGESTIONS FOR SKIN HYGIENE AND TO PREVENT PRESSURE SORES

1. Keep clean! Give good skin care. (Cleanliness and dryness are very important in the prevention and in healing of pressure sores.) Bath -- not necessary daily; every other day is fine. Also, since with aging the sebaceous glands (glands which put out a greasy substance which lubricates the skin and scalp) become less active one does not require a daily bath. Use mild soap and water. You can put alpha keri or any bath oil in the water to soften the skin. (Try to reach a "happy medium" of softening-up your skin and toughening-up your skin.) Even though you may not take a complete daily bath, it is important to wash your groin and perineal (area around genitals) daily and dry well. This area, as mentioned, is most likely to develop rashes. If you are not using a Foley catheter, or if there is leakage around the catheter, especially check! Bath time is a good time to check your skin. If you ever use Whisk (a chemical) or any other chemical for removing tape, on cleaning skin be sure to wash and rinse it off well, as it can be irritating to skin and cause blisters and sores!

2. LIQUID ORGANIC CONCENTRATE (or LOC). LOC is a concentrated soap (without fillers) which is low in phosphate content and which acts as a wetting agent. It is used undiluted. WHAT DOES IT DO? The soap has many uses and should not be irritating to the skin: As shampoo -- If your scalp is very dry and scaly, shampoo with LOC twice a week. Use a few teaspoons or squirts -- enough to saturate an area on the hair. For removal of heavy stains on the skin made by grease, dirt, Tincture of Benzoin, tar, shoe polish, etc. -- Put a capful of LOC over the skin. Leave for 10 - 15 minutes, then rub thoroughly and rinse or bathe. For removal of tape marks, skin bond and plaster marks -- Apply LOC over the area; let set for a few minutes, then rub thoroughly and rinse. Repeat the procedure if necessary -- especially for skin bond and glue for ileostomy or vesicostomy bags.

For bath -- Put LOC on washcloth and rub on skin surfaces. Rinse. LOC is also good for use on heavy-dirt areas such as elbows, knees, feet and hands -- let set for a few minutes, then rinse. For tub bath, you may want to add three or four capfuls of LOC to the tub before running the water. WHY LOC? LOC's big plus is that it can cleanse the skin without your having to rub and scrub as you would have to do to get the same job done with regular soap. If you want to try LOC you can contact an AMWAY Representative in your area or you can contact the T.I.R.R. Pharmacy.

3. Dry well and keep dry. Change your wet clothing and/or linen when necessary. This means wet from any cause: perspiration, spilled food or liquids, urine or stool, bath water, or rain. Chux can be used to protect the bed linen. They can be removed when soiled and replaced with clean ones. (Can often save you from having to change all the bed linens. You can make chux by using paper towels to cover newspapers or use the plastic covers off clothes (from the cleaners) to cover the bed and put a towel, old cloth, such as a sheet, or something over it.)

4. Prevent dry, cracked, scaly skin, such as callouses on feet. (Callouses should not be peeled off.) Can use any lotion, cream or oil product that is on the market, such as keri or nivea lotion. Baby oil is good and fairly inexpensive. After bathing, rub your skin gently, especially over bony points, with some oil, lotion, or cream. (Some persons like nivea lotion best for softening-up the skin. They tell us that alpha keri makes the bath water too oily; and therefore they would rather just apply something, like nivea, to the skin after the bath, instead of putting something, like alpha keri, into the bath water.) You will have to decide what is best for you. Use whatever you like.

5. Toughen-up skin. Alcohol may be rubbed on the skin to "toughen it up," especially over bony points, then powder it well [after alcohol absorbs (dries)]. Be careful though, because even though alcohol may toughen up the skin, it has a disadvantage in that it is drying, and therefore may cause skin to crack or peel if used too much! This is not recommended as a daily practice!

You can apply Covicone to toughen skin and protect it from irritation. It should be applied two times a day for one week,

and then one time a day thereafter. Can apply Kerodex for skin protection, especially to hands. Follow instructions that come with it. Using the skin will toughen it up, for example, the elbows become tough eventually because of contact on the lap board. Callouses may develop, and these are an advantage for you, as they can act as cushions and protect your skin. Actually, using the skin is the best way to toughen it up.

6. Pad the bony prominent areas, but do not use doughnuts or rubber rings, because these things just cut off circulation all around the area, even though pressure may be relieved directly over a bony part.

   You can use small pieces of rubber foam, especially cut for an area of your body, or can use soft foam of any kind to lift up a bony part and remove pressure from it.

7. Turn frequently. Change your position regularly to relieve pressure on all sensitive, possible places for sores (whether you are in bed or wheel chair). Change position at least every two hours, or depending on your individual needs. Be sure to position correctly. There is a critical time interval of one to two hours at which tissue changes occur in both normal and paralyzed muscles following the application of pressure. That is why we stress turning at least every two hours, usually (until gradually increased). Sheepskin, or any aid in preventing pressure sores, is not a substitute for regular turning.

   In the hospital turning time intervals is progressively increased, as is prone lying, and as is your sitting time. These times are planned according to your skin tolerance. If you have not successfully achieved building up your turning time to all night in one position before you are discharged, then at home you can add one-half hour every week until you have achieved lying all night in one position (then alternate positions nightly -- one side or the other or back), unless you sleep prone. Prone lying can be done according to your comfort tolerance. You do not have to limit it like when building up sides and back lying, because there are less pressure points affected when lying prone.

8. Avoid rubbing or scraping your skin across the bed. This is friction (a shearing force -- force at an angle) and can

cause a pressure sore to develop. Avoid rubbing or scraping your buttocks on wheel chair rim or something when transferring.

9. Spend as much time as possible, or as you were instructed, on your feet (such as on standing board, or tilt table). You are not likely to develop pressure sores that way, and it will give the other parts of your skin a good rest.

10. Because you have no sensation in your feet, you will need soft leather shoes.

Avoid shoes with a hard toe.

Be sure that your shoes are neither too small nor too large. Spasms may be a problem, and if the toes rub in the shoes (if shoes are too small, for example) this can lead to rubbing of the toes and feet, which can lead to in-grown toenails, blisters and sores of the toes and/or feet. (If the shoes are a bit large, this may be alright, because then if spasms occur, the feet will not rub in the shoes.)

Some tennis shoes will permit a slight amount of swelling when the toes are spastic. The type of tennis shoe that laces all the way to the toe is best.

If you wear braces, be sure that the soles of your shoes are thick enough to hold the brace.

A change of shoes and sox sometime during the day is good and relieves pressure on the feet.

11. If you wear braces, check regularly to be sure they are not too tight and rubbing. They should fit properly -- without padding.

12. Clothing should not be too tight. Can take off back pockets on your pants. (This may relieve a little tightness of your pants.) Some pants zip up the side. It is good to get clothing a little bit big. (It doesn't have to be baggy!)

13. Be sure not to get your corset or abdominal binder on too tight or on wrong. This could cause skin irritation, especially if the corset stays rub on the back bone. Be sure the corset is straight.

14. Can use velcro straps for leg bag, which are less constricting and pressure causing, than are the rubber straps.

15. Keep your clothing and bed linens smooth and free of wrinkles.

16. Make sure there are no food crumbs or other objects in your bed or chair.

17. Avoid burns, such as from cigarettes or cigars to your hands and fingers. Also, avoid hot water baths and hot water bottles.

18. Have a thick foam rubber cushion (or a cushion as prescribed) in your wheel chair or in any chair that you regularly use.

    There is more pressure on your bony prominences (ischial tuberosities) than anywhere else, when you are sitting, as mentioned before.

19. Because of this you may relieve pressure for 1 - 2 seconds when first beginning and later for 3 - 5 seconds out of every 15 - 20 minutes. This is done to permit the blood to recirculate in the skin under the bony points of your buttocks (refer to general information pages 1, 2).

    This is done by:

    - Shoulder depression (sinking down), trunk elevation (lifting up).
    - Bending forward while in the sitting position, elevating your buttocks if possible. (Tilt your body side to side.)
    - Having your chair tilted backward.

    This shifting your weight from side to side and back to front and by "depressing and lifting," while in your chair is important (if you are able to do it). Another name for "depressing and lifting" is "push-ups."

    If you are unable to relieve pressure unassisted while sitting, it is your responsibility to follow-through by getting someone to assist you.

20. If you are resuming sitting or turning after a pressure sore has healed, start slowly and gradually lengthen the period of sitting or turning. You can increase your sitting and/or turning 20 minutes every time every four to five days. Some

people may have a cut-out cushion and a special sitting-board. This is not a guarantee (for preventing pressure sores), but if you have one, use it to protect your buttocks and/or sacrum.

21. There are some aids, or devices, that can be used to reduce the development of pressure sores, such as a sheepskin (mentioned before).

When any pad is used, it is to provide a smooth, soft surface and a comfortable, firm support that gives. It will help maintain circulation by distributing weight evenly. Constant air flow is permitted. Air and fluids pass freely through the pad helping to maintain the pressure sore (if present) in a dry environment.

Pads, etc. will have instructions as to their care. Follow these instructions when washing, etc. pads.

We do not recommend pads, or devices, for everyone all the time. The less "equipment," the better. Also, if your skin becomes used to and dependent upon an aid to prevent pressure sores you will most likely develop one if it should happen that you do not use this aid at all times!

If pads such as sheepskin, compad, or floatation pad are used, these should not be placed under the sheet, as this removes the benefit of the pad. Aids do not reduce the need for care to pressure areas and for turning, even though they do help to relieve pressure.

There are many different devices, such as water and air mattresses or beds that may be used for people who have pressure sores. Instructions will come with the device - for care and use. Follow the instructions carefully.

A heavy canvas (water) float can be purchased and used if you have troublesome pressure sores or areas. Instead of filling this float with air (as usual) fill it with water (about 3/4 full). When filling this water float - put a small bottle of phisohex into the float. (This is to prevent bacteria from growing inside the water float.) This float provides for relief of pressure and distribution of weight evenly over the body and bony parts. Place this float on your bed under the sheet (in this case) and lay directly on it.

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DEPARTMENT OF NURSING

SKIN CARE

CARE AND TREATMENT OF SKIN LESIONS -- MINOR IRRITATIONS, RASHES, BURNS

For Minor Skin Abrasions, Cuts, or Irritation:

-Clean area with a good soap that will get rid of bugs. Use water with the soap. Can use gauze pads for cleaning, or anything, such as a clean cloth.

-Can clean with hydrogen peroxide. This will "boil out" the bugs and germs.

-Paint the area with a drying substance, such as tincture of merthiolate (solution 1:1,000) or Betadine solution after cleaning. (Be sure to let dry before covering or dressing.)

-Clean and paint daily, until healed.

For a Groin Irritation or Rash:

-The KEY to preventing and relieving a groin irritation is keeping the groin area clean and dry. Wash this area well daily and pat dry -- do not rub. Moisture collects in this area and can cause skin irritation. If the area is kept clean and dry, you may not need anything else on it for treatment. If the irritation does not clear up, you may try some of the following hints to relieve it.

-Always be sure all soap is rinsed off well every time after washing. Always wash and dry well before applying a new coat of anything used on the skin.

-Can apply a thin coat of vaseline over the irritation after washing and drying.

-Can apply cornstarch or Desinex powder or ointment to soothe the irritation. Always be sure that the area is clean and dry before applying anything on it.

-Can apply Cruex powder spray for treatment of itch, prickly heat, chafing. Stops odor, too.
Spray it on, let stay on for a few minutes, then lightly brush off excess. Too m uch powder or cornstarch, especially if not used properly, will cause more irritation and do more harm than good.

Rashes and Skin Irritations:

-Face Problems: can be treated with soaps, creams, or any of the products that are on the market for cleansing facial problem skin (acne), such as Fostex. You may have to try different brands before you find the best suited treatment for your special needs, as one soap, cream, or whatever will not be effective for all individuals and their special problems.

-Athlete's Foot:
Can use Desinex ointment or powder.
Always be sure feet are clean and dry before applying anything on them.
Let feet air once in a while, too!

Burns:

-Apply some soothing ointment or lotion on area. (There are many different products available on the market.)

Fever Blisters and Mouth Sores:

Prevention is best! (good mouth care, adequate diet)

-Can use warm salt water gargle a couple of times a day or as needed if sores develop.

-If sores persist, then can try Xylocaine mouth rinse or gargle a couple of times a day.

-After using Xylocaine, then apply Glyoxide drops to sore directly or use it as a gargle.
(Follow instructions that come with these things.)

For a lot of this, you can rely on "good ole" first aid treatment that you already know or can look up, but if a problem persists, always contact someone who can advise you as to what to do.

October, 1972

DEPARTMENT OF NURSING

SKIN CARE

STAGES OF PRESSURE SORES — CARE AND TREATMENT

- Pressure area Pressure Sore Tissue Breakdown
- The clinical course (development) of pressure sores
- and their treatment is usually as follows (4 stages):

STAGE I	STAGE II	STAGE III	STAGE IV
Redness (Passing)	Redness (Persists)	Blue	Black

STAGE I

Redness

This is a reactive hyperemia, or a stage of transient (passing) circulatory disturbance.

In other words, there is reddening of the skin, which normally disappears within 5- 10 minutes if pressure is relieved.

No treatment is necessary.

STAGE II

Redness, or reactive hyperemia

This is a red spot that persists for 20 minutes or longer after pressure has been removed.

In other words it is a Stage I pressure sore, but may persist for several hours, days, or weeks.

Treatment:

1. GET OFF THE AREA.
   Avoid the source of pressure.

2. Confinement to bed for "rest" of the pressure area (stay off) until redness disappears!

3. Turn regularly.

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STAGE III

Blue

Stage of definite, superficial (right beneath outside skin) circulatory and tissue damage.

There is reddening and congestion of the area which does not disappear on decompression (relieving pressure) and leads to induration (thickening, or swelling) of underlying tissue. The superficial layers of skin may be broken if deeper layers are involved.

This may progress to a dark discoloration and sloughing (falling off) of the skin.

Treatment:

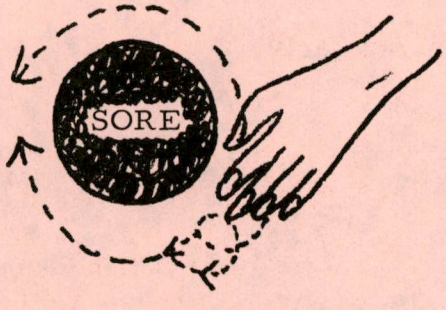
1. Promote healing and prevent infection.

2. Numbers 1, 2, and 3 -- same as for Stage II.

3. High protein diet to maintain an adequate nutritional status (including vitamins) and to increase the hemoglobin of the blood (the part of the blood that carries oxygen to tissues). (This is a prerequisite for healing of any pressure sore!)

4. Keep pressure off the sore. This may mean being confined to bed on your abdomen all of the time until the sore is healed!

5. Massage gently -- using circular motion -- around the sore -- to stimulate, or encourage fresh blood to circulate into the sore area. Always work toward the sore area.



Stage III (continued)

For Shallow Ulcers in Absence of Drainage:

1. Keep clean and dry. Clean daily with Ivory soap and lukewarm water. Or, clean with hydrogen peroxide daily.

2. Expose to air and sunlight.

3. Paint daily with tincture of Merthiolate (solution 1:1000) or Betadine solution (or any "drying" medicine). Then, cover with Adaptic, a soft gauze, or telfa dressing only if dressed (to be up and about), otherwise, leave sore open to air. Adaptic does not stick. Do not use any rough dressing, such as a rough 4" x 4" gauze, because this will just irritate the sore and make it worse. You may not need to cover the sore at all. It depends on how dry it is (if it is completely dry -- do not cover), location (if it is in a spot where it gets no pressure - it does not need covering).

4. Position -- to be sure that all pressure is off the sore area.

For Simple Skin Breaks (or Shallow Ulcers) with Some Drainage:

1. Clean -- then apply prescribed dressing and a sterile gauze dressing over the sore (will need to consult physician).

2. Amount of gauze over sore will depend on how much sore is draining.

If Sore is Worse than a Simple Skin Break:

Debridement (removing) of necrotic (dead) tissue may be necessary. When sores are large and deep any dead tissue will need to be loosened and removed before sore can be kept dry and dressed.

This removes food for bacteria and shortens lag phase of sore healing. It also permits the underlying normal tissues to begin growing phase. This debridement should be done in consultation with your physician. (This treatment is usually handled by a physician.)

Stage III (continued)

1. Can use normal saline-soaked kerlix gauze to cause spontaneous debridement and cleansing of secretions.
   - Put the kerlix over sore and soak it with normal saline.
   - Let it dry on sore, then pull off.
   - Change four times a day, or as instructed.
   - As the dry kerlix is pulled off it will pull off some of the dead tissue with it. This is debridement.

   To make Normal Saline (NaCl, or sodium chloride) solution:
   a. Mix one quart (1,000 cc) of clean or distilled water with two teaspoonsful of salt.
   b. To make one gallon add four quarts (4,000 cc) of clean or distilled water and eight teaspoonsful of salt. (This is for a 1% solution, which is what you need.)

2. Acetic acid (vinegar) solution may also be used for debriding (in place of the NaCl).
   a. Mix two tablespoons white vinegar with one quart water or
   b. Eight tablespoons with one gallon water.
   c. Apply the same as with the NaCl.

Usually if a sore is inflamed, infected and draining, it should be treated according to specific instructions of your physician.

If a sore gets worse, or does not heal despite avoidance of further pressure, consult your physician.

You must consult your physician for follow-up and needed care, such as for medicines and treatment for "bad" pressure sores.

The important point is to PREVENT PRESSURE SORES, as there is no single easy route to their healing!

STAGE IV
Black

This is the stage of destruction that involves subcutaneous tissue (tissue right beneath the skin) and includes fascia (covering), muscles and bone.

Stage IV (continued)

It is the stage of deep, penetrating necrosis (death of skin and tissue).

It may reach a very large size, especially over the sacrum and trochanters.

Necrosis of deeper tissues is often extensive; it may be more than that of skin.

There is a sharp outlined margin⟶dry gangrene (death of skin and tissue)⟶piece of dead skin separates.

Treatment:

1. Prevent infection. Infection slows down healing and may even lead to systemic (blood) infection and death.

2. This stage's treatment is usually handled by a physician.

3. Plastic surgery may be necessary! If plastic surgery and/or skin grafts are done, be very careful with the skin grafts and the surgical area, as there may be no more healthy skin available to do another graft if you permit the first one to break down, or it may not be possible to do other skin surgery on you.

SKIN CARE

CONCLUSION TO SKIN CARE

-Remember that pressure sores can be prevented by intelligent, conscientious effort to KEEP MOVING.

-The development of a pressure sore is an unnecessary complication.

-Things that can cause skin breakdown are:

- -lying
- -sitting
- -bruises, scrapes, bumps, insect bites
- -external kinds of heat
- -"run down" physical state
- -improper nutrition
- -dehydration
- -infection
- -chemicals on the skin
- -illness - especially with elevated temperature, skin is more likely to break down, and your turning schedule should be adjusted accordingly. (Turn at least every two hours. You may need to be in bed if you are sick, as your body will not have "what it takes" -- energy -- to keep on the go. The body normally works harder, anyway, when temperature is up.

You may wonder why we have not mentioned using tincture of benzoin for toughening-up the skin, or applying it for other reasons. We do not recommend using tincture of benzoin, because if it is applied and does not dry well, it will stick to the bed linens, your clothing, or other things, and then when skin is pulled loose (from whatever it is stuck to) this will cause skin irritation and abrasion to the skin. Also, when you perspire the tincture of benzoin would not be effective. It is rather messy, and you can best do without using tincture of benzoin.

The discussion on skin care has been based on certain "rules," but you must realize that no two people are alike. Therefore, you must learn for yourself how much care it takes to prevent pressure sores in your case -- with your skin -- and guide yourself accordingly.

- If your skin is a problem, such as easily breaks down or is very sensitive, then pay all the more attention to it. Consult your physician for guidance in care and follow-up, when necessary.

- It is important to be on the look-out and prevent skin problems, before "trouble" gets a head start. Remember that as long as your sensation is not normal you are likely to get pressure sores. By following the daily rules of skin care, pressure sores can be prevented.

- A little extra care will keep you on the safe side of being "grounded" for long periods of time because of stubborn sores.

Take your responsibility for checking your skin and keeping it healthy seriously. IT'S YOUR SKIN!

DEPARTMENT OF NURSING

CARE OF THE HAIR

The hair is affected by the general health.

Being in bed and inactive makes the scalp more scaly.

The visible part, or shaft, is nourished (fed) by the root embedded in the scalp.

The body surface, including the scalp, is constantly shedding dead cells.

Exfoliation (separation of fragments, or parts) is rarely noticeable on the body (skin), but when the hair is neglected these cells produce a granular "scurf," or scale, which is caught and held by unwashed, unbrushed hair--you will see it flake off--white flakes will be evident on the face and clothing.

If your scalp is not properly cared for, then you will probably have a facial skin problem, as these flakes that come from the scalp will irritate the facial skin and cause a dry, scaly-like rash.

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 seborrheic 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.

Prevent dryness and scaliness of the scalp by:

Stimulating the circulation of the scalp.

You can do this by: vigorously massaging and brushing the scalp and hair.

Brushing with a stiff-bristled brush stimulates the circulation and removes dirt particles and dead cells from the scalp.

Washing of your hair should be done every week or two, or depending upon your individual needs. Oily hair should be washed more often than dry hair. The general rule regarding hair washing is: wash every five (5) days for "normal" scalp and hair and every two (2) days or every day if you have very oily conditions of the scalp.

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Shampoos may be liquid, paste, or cream. The (detergent) liquid form of shampoo is more easily rinsed from the hair than are the other types of shampoos. Also, detergent shampoos are suggested, since plain soap shampoos cause a chemical reaction that leaves a scum, or film, on the scalp and hair. Also, detergent shampoos are most effective for removing bacteria, or germs, from the scalp and hair. (This is due to their chemical action.)

There are many different kinds of detergent shampoos, such as: Head and Shoulders, Drene, Prell and Halo.

Some detergent shampoos that are suggested for use with problem scalp that do not require a prescription and can be purchased at nearly any drug counter are: Sebulex, Sebutone, Ionil T, Ionil and Meted. If problem scalp persists a shampoo such as one of these may be indicated. Detergent suspensions, such as these mentioned, should be used by persons needing treatment for dandruff and mild and/or moderately severe cases of seborrheic dermatitis (excessive discharge from the sebaceous glands, forming greasy scales on the scalp or skin).

Some (soap) shampoos that are not detergent shampoos are: Castille and Ivory.

Some shampoos are made into a mixture of both soap and detergent. Actually, most shampoos with the exception of the completely non-detergent are a mixture. These may be better than a complete detergent shampoo, because they are not as strong as the detergent shampoos.

You could, also, make shampoo solutions from flakes or grains of detergent soap.

If you purchase one of the detergent shampoos for problem scalp, always follow the directions that come with it.

You may have to experiment with different kinds (brands) of shampoos before you find the one (or the combination) that is best suited for your scalp and hair. There is not any one that is most effective or best suited for everyone.

For Rinsing the hair after washing it, you can use an acid, such as vinegar or lemon juice (mixed in some water) to help remove soap scum if necessary. Also, this may improve the hair texture.

It would be ideal if you could shampoo your hair while you are taking a shower or a tub bath. However, if this is not possible, here are some suggestions of other ways that you can shampoo your hair:

When up in your wheelchair:
Get very near the sink, bath tub, or just a movable tub or basin -- next to a water faucet. Connect an extension hose that has a

spray nozzle on it to the water faucet. Lean your head as far over the sink, or whatever, as possible. Then, shampoo your hair and rinse -- using the spray hose.

When in bed:
If possible, remove the head of the bed and move the bed over to the sink (with a hi-lo bed this may be possible and if you have a convenient sink at bed level). Then support head over sink. You will still need the spray hose, or something like a pitcher for pouring water over hair.

When in bed:
If you are not able to remove the head of the bed and/or move over to a sink, then arrange yourself so that your head is way over to the side of the bed. Cover the bed with a rubber sheet or plastic covering of some kind (the plastic covers that come from the cleaners may serve the purpose). Arrange some of the plastic covering or another rubber sheet so that it is like a funnel, or trough. Then pour water from a pitcher or jar over your hair. The water should run off -- down the trough. You will need a pan or something for the water to drain into as it runs off.

When in bed:
Can use a little plastic baby bath tub. Support head on edge of tub. Water can be poured over hair and should run into this tub.

When in bed:
Use a plastic shallow basin and put a small amount of water into it. Raise head over basin. Push down on the back of the basin (into the bed) so that the water does not spill out. Empty basin after sudsing hair. Put in fresh water and rinse.

Pouring water over the hair in this instance probably will not be necessary. Just "splash" it up over the hair.

When in bed:
A hi-lo bed (and possibly some other beds) has a space between the mattress and the headboard. A basin can be placed on the floor in this (space) area.

Move down to where your head is over this space (and basin on the floor). Then pour water over your hair. The water should drain down into the basin on the floor.

You may want to protect your clothing and your eyes when washing your hair.

Remember to dry the bed (frame or whatever) and change linens when necessary. Leave both you and the bed dry!

If you have dry hair:

Treat - 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.

You can rub the oil into your scalp and hair, then wrap a warm towel or something around your head and let it stay on for about 30 minutes. Then, brush your hair vigorously.

You can do this at other than a shampoo time or before shampooing hair depending upon your hair condition and needs.

With age the sebaceous glands, which are glands that put out a greasy substance that lubricates the scalp and skin, become less active, and the hair does not require as many shampoos.

Good hygiene plays an important role in the prevention and cure of any dry, or scaly scalp condition, such as dandruff.

When treated early a complete cure can be obtained of dandruff or other scalp condition. Persons susceptible to dandruff must maintain a watchful hygienic program and use antiseptic lotions or salves at regular intervals.

Your hair care should be based on your individual needs.

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

- Keeping "physically fit," especially by eating an adequate (well-rounded) diet and getting adequate rest.
- Massaging your scalp and hair daily.
- Brushing your scalp and hair daily.
- Washing hair as necessary and oil treatment if necessary.
- Avoiding injury (scratching and scraping) of your scalp. (Avoid wire and metal brushes and combs.)
- Preventing worry and tension if possible.
- Exposing your scalp to air and sunlight, sometimes.

The responsibility is yours -- to PREVENT UNHEALTHY (SCALY) SCALP.

DEPARTMENT OF NURSING

PRINCIPLES OF FOOT CARE/NAIL CARE

PURPOSES:

Prevent dry and cracked skin on feet.

PREVENT INFECTION from occurring around finger and toe nails; (toes, especially).

Trim the nails safely and PREVENT IN-GROWN TOE NAILS.

GENERAL INFORMATION:

When speaking of nail care--we are primarily interested in toe nail care.

The feet require extra care because they are farthest from the heart and the circulation is less efficient.

Massage of dry feet helps the circulation and nutrition of the skin.

The feet must be kept very clean.

Swelling of the feet and sometimes of the forelegs (lower legs) results from the lack of muscle action in the legs and the effect of gravity. Ordinarily, the contraction of the muscles squeezes the blood upwards and helps to return it to the heart, but with paralysis this does not occur.

If your feet are swollen, elevate your entire lower legs (to the ankles).

When you are in bed, you can do this by elevating the lower part of the bed or use foam (about 4" thick) cut to fit under the lower legs. Pillows are not recommended, usually, because they can cause more pressure to the legs if not placed properly, and this pressure could be harmful. If you use pillows for leg elevation, be sure they are in a straight line from about mid-thigh to lower legs--just above ankles. This should keep

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pressure off of the back leg veins (especially the veins behind the knee). Also, support feet so that your heels are free. (This is like 15° leg elevation when back-lying.)

When you are up in your wheel chair you can elevate the lower legs on the wheel chair leg extensions if you have these on your chair, or prop (and support) the legs up on a chair or something at intervals (instead of letting your feet hang down all the time).

You may be instructed to wear elastic hose (stockings) to help control your feet swelling, or to wear elastic ace bandages for this. If you wear elastic hose be sure they are pulled all the way up over the knee - and stay there. If they should slip down and roll up they can act as a tourniquet and cut off circulation. If you use ace bandage leg wraps they should be wrapped evenly up the leg -- beginning on the foot and going up over the knee to about mid thigh.

Leg elevation will help the blood to return to the heart by gravity.

Mineral oil rubbed into the feet about once a week prevents "cracking dryness." "Pretty Feet" lotion can be used, also, to rub on the feet and remove old, dry skin. It only takes a dab to rub off a lot of old dry skin. LOC is also used for this. These measures will help keep the feet in "good" condition.

Include nail care with your bath or shower, when possible.

Nail care should be given at least once each week, and more often depending upon your individual needs.

In regular caring for the nails, always trim or cut them straight across (not too close to the quick) -- to prevent in-grown nails.

This keeps the corner of the nail from becoming imbedded (buried) into the toe. If the nail does become imbedded into the toe, then in-grown nail and infection will result.

Warm water and soap softens the cuticle and loosens dirt under the nails, making cleaning with an orange stick easier. (An orange stick is a little wooden stick that is round with a point at one end and a slant at the other end. It can be purchased at most any dime store.)

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 to cut the tissue around the nail.

Be very careful when trimming the toe nails!

Be alert to spasms, because if you would spasm while the toe nails are being trimmed, it could cause you to get a cut or scratch that could lead to infection.

*Prevent injury and rubbing of the toes - (as when shoes are too small).

*Keep bed linens off the toes and keep clothing from pushing on or rubbing the toe nails, as this could cause in-grown toe nails.

*Trauma (injury) can be caused by nail pressure on the contacted skin surfaces, such as bed linen, or by a bump to the end of the nail to injure the nail bed.

You can use a box or some other device to hold linens up and off of the nails when in bed, as this pressure on the nails, if not relieved, can be harmful.

If you wear elastic stockings pull (stretch) the toes out periodically while you are wearing them. This also will help prevent pressure, or pushing,on the toe nails.

Redness and/or swelling around the nail can mean the beginning of in-grown nail.

Observe for this and begin treatment immediately if it occurs:

Keep pressure off toe.
Clean.
Follow other instructions regarding care of in-grown toe nail.

PREVENT IN-GROWN NAIL and INFECTION OF NAIL and TOE - is the main thing!

Fungus around the nails may occur. The nails look whitish (like the growth on rocks in a fish bowl). The nails become very thick and may fall off if the fungus is severe. Usually the nail will grow back, but since the feet are at the "end of the line" and circulation is slower, the nail may be slower to grow back, or it may not grow back. It is nothing to be concerned about if it does not grow back.

Fungus can usually be prevented with weekly nail care.
If fungus develops: keep feet and toes dry! Can put cotton between toes.
If crusts are present do not remove until it is very dry and nearly falls off.

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DEPARTMENT OF NURSING

PRINCIPLES OF ELEVATION OF THE FEET (LEGS)

PURPOSE:

Increase the venous return from the lower extremities and thereby reduce edema and/or pooling of blood which will contribute to the formation of blood clots. In other words, the legs are elevated to help the blood get pumped to the heart and not stay in the legs and cause clots.

This makes use of the gravity mechanism in speeding up the venous return from the lower extremities, which elevates the foot of the bed higher than the heart level. This will reduce venous stagnation in the lower extremities, especially when you are in bed for long periods of time.

GENERAL INFORMATION:

Because of loss of nervous system control over the blood vessels in the extremities some problems can occur. It is these problems we are attempting to prevent by elevating the legs.

Decreased venous pressure in the extremities decreases the venous return from the extremities. Edema (swelling) of legs and feet may occur.

A thrombosis is a clot.

Venous thrombosis (clot) of the left leg is greater than the occurrence of clotting in the right leg. This is thought to be because a main vein on the right side is straighter and shorter than the same vein on the left side. Therefore, the left leg's venous return is slower than on the right -- because of the difference in distance the blood must travel.

Blood clots are more likely to occur above the knee and deep thigh than in the calf of the leg.

Bedrest can change (slow) the venous return from the legs enough for clots to occur.

In the presence of dehydration thrombosis is even more frequent. (This is one reason why we encourage you to drink a lot of fluid.)

Observation of signs of thrombosis is made easier with thigh measurements.

That is why we measure thighs (to note any swelling).

(You will not have to continue measuring your thighs at home, unless you have a special problem.)

Prevention of back-knee problem (by using a knee-binder) will help to prevent compression of the leg veins at the knees. If these veins are compressed this will slow the blood flow to the heart and will cause clots in the legs.

Elastic hose will help to prevent venous pooling when you are upright. Also, elastic ace bandages can be used for this, but they are not as effective as the hose, because they slip down and loosen easily, and therefore, they lose their effectiveness.

The leg bag is worn on the right leg, unless there is a vein problem in that leg.

The leg bag straps should be secure, but should not be too tight! This is also to prevent vein constriction and slowing down of the blood flow in the legs.

Leg elevation is done to help the blood flow better. The most efficient leg elevation is believed to be 15 degrees.

This elevation is from the hips -- at a straight angle to the ankles, allowing for about 5 degrees of knee flexion (bending) -- when you are supine (back-lying).

PROCEDURE:

Stryker Frame:

A special appliance, called an "elevated foot board," is to be placed if and when you are on a stryker frame -- supine (back-lying position).

The feet should be positioned in alignment using a knee binder and heel pads or shoes-on-board.

Bed:

Hi-Lo Gatch Bed - * refer to Picture A (page 4).

Lift the frame of the bed and fix the supporting brace at the foot of the bed in about the middle notch. (This is approximately 15 degrees of elevation.)

Then, crank up, or elevate the knee gatch about 3 inches (to allow for the 5 degrees of knee flexion).

This will assist flow of blood in the veins from the feet to the pelvis and will prevent a back-knee deformity.

Do not over-elevate the legs, because this could cause vein constriction at the groin area.

If there is not a gatch on the bed, or if the bed is not adjustable, then you may place something, such as some big wooden blocks, between the bed springs and the bed frame to lift and support the lower part of the bed frame.

Also, you may use 4 inch soft foam, placed in a straight line from mid-thigh to your lower legs (ankles), to elevate the legs 15 degrees. This foam will have to be individually measured and cut.

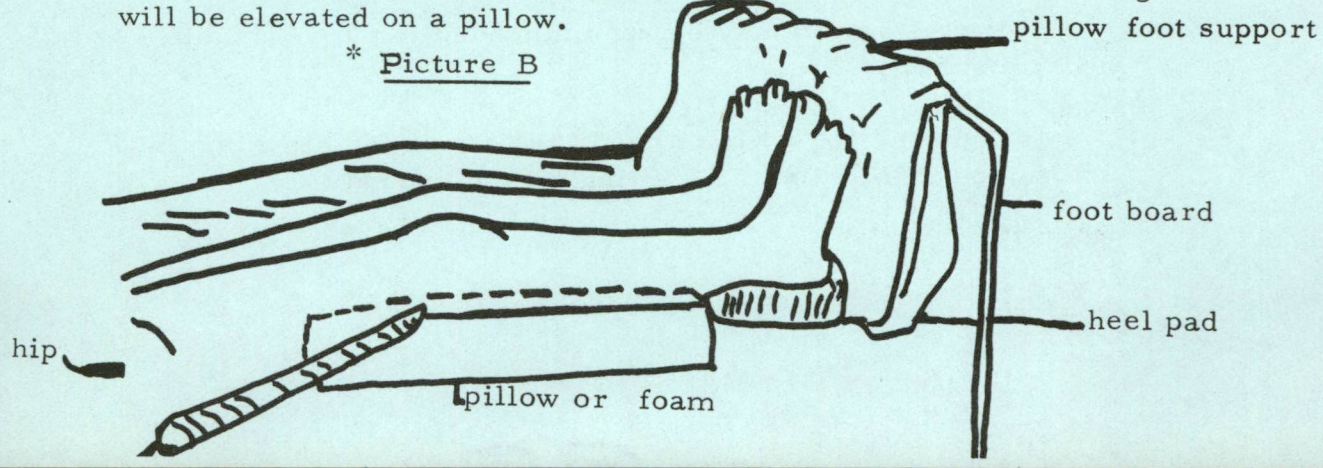
Pillows may be used, but if they are not placed properly, they will cause pressure on the legs and veins and will cause more harm than good (as can the foam).

If you use pillows for leg elevation use soft flat ones and place them lengthwise from mid-thigh to your lower legs (ankles). Avoid putting pressure right behind the knees (such as when a pillow is placed crossways under the knees).
*Refer to Picture B (below).
Also, be sure that the heels are supported and are free of pressure.

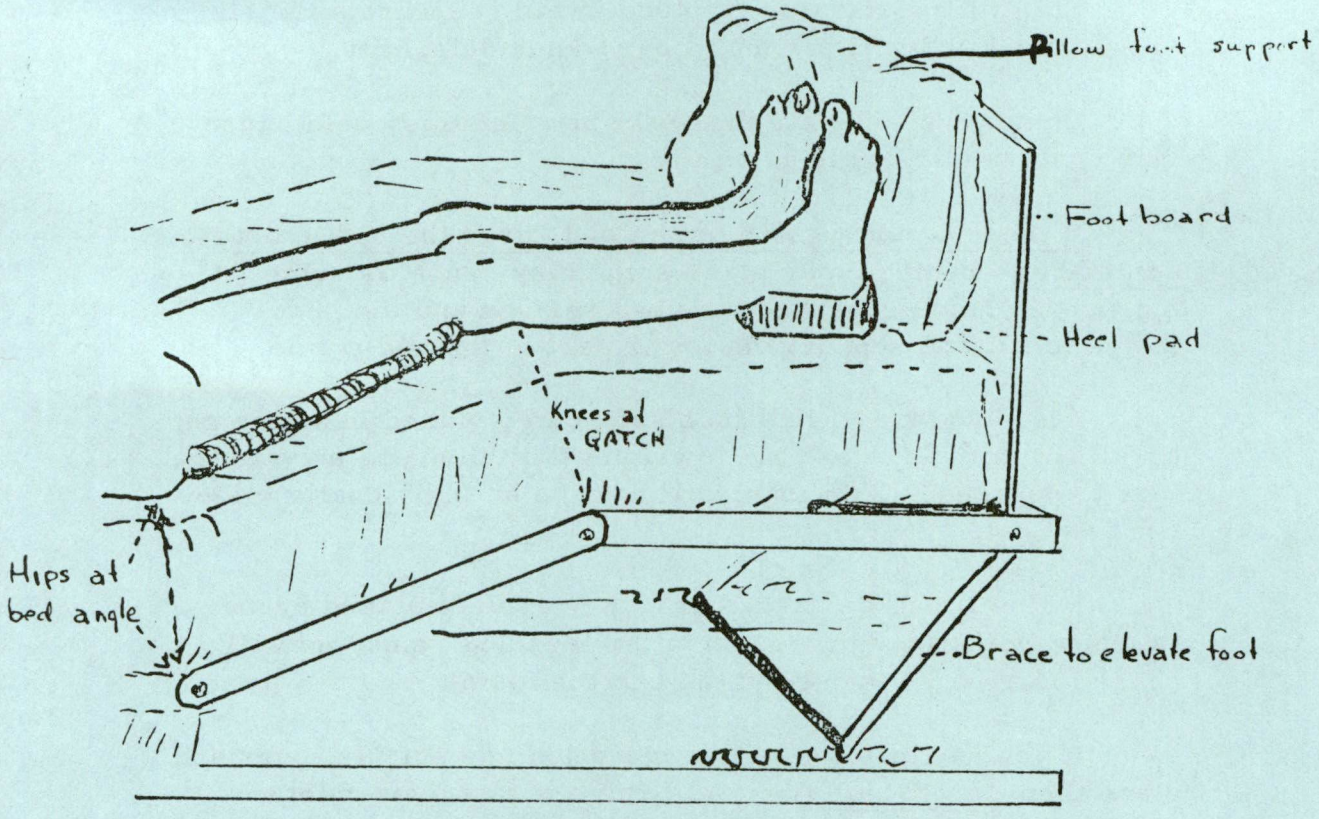
Caution should be used in adjusting the bed when you are prone.
The knee should be rolled down level, and the foot of the bed should also be level.
Care should be taken to be sure that the foot of the bed is not lower than the knee when you are prone.

When you are side-lying the bed can be flat, since one leg will be elevated on a pillow.

* Picture B



*Picture A



Since the main reason for elevating the legs is to help blood flow to the heart from the lower extremities because the leg muscles cannot exert force on the veins and cause the blood to be pumped up to the heart efficiently and because of inactivity (being in bed) we will be stressing the importance of leg elevation when you are in bed -- especially for long periods of time.

<u>After You Are Mobilized -- Being Up and Around and/or at Home (After Discharge):</u>

Leg elevation <u>may</u> be recommended for 3 - 4 months after discharge.

Usually, you will not need to continue leg elevation because you will be mobile (getting up and around).

Once you are being up and around, we do not stress the leg elevation as much as we did when you were in bed for long periods of time, especially when you have reached the point of being up more than you are in bed.

If, for any reason, you have to be confined to bed for any length of time it is a good idea to elevate your legs when you are on your back.

You can use hose if needed for swelling of the feet.

Spasms can help in pumping the blood up to the heart. In this case spasms are an advantage.

Another problem with circulation is feeling faint or dizzy when first getting up out of bed.

To prevent feeling dizzy and "passing out" raise the head of the bed about 30 degrees for at least 15 minutes before getting up.

(If you do not have a gatch bed, then get propped up with pillows or something before getting up.)

This problem varies in individuals. It may or may not be a problem for you, but it is a good idea anyway to get elevated up in bed before getting up -- to get your body ready to get up!

DEPARTMENT OF NURSING

PRINCIPLES OF NUTRITION AND FLUID

PROVIDE ADEQUATE NUTRITION:

Nutrition is more than just eating -- it is the process by which plants and animals take in and utilize food materials.

Adequate nutrients (foods and fluids) are necessary to meet your needs for energy, building and repairing tissues, regulating your body processes (your body's functioning) maintaining your body and growth.

GENERAL INFORMATION:

There are four basic food groups:

1. Milk - dairy products - You drink milk to give you strong bones and teeth, but don't drink too much milk or you can get bladder stones.
2. Meat - You eat meat, eggs, beans, fish, and poultry to build your muscles and blood.
3. Vegetables and Fruits - You eat vegetables and fruits to give you healthy skin and hair and to get your vitamins.
4. Bread and Cereal - You eat bread and cereal to give you energy to get through the day.

Hints:

Eat plenty of protein. It helps build and repair tissue.

Be sparing of sweets, which fill you up and satisfy your hunger temporarily, but cannot contribute much in the way of vitamins and minerals. Sweets are good for a "quick energy boost." They will, however, add pounds and inches.

Adequate nutrition can be provided in many different ways by varied choices of foods. You may eat a "normal" diet, but maintain a low-calcium diet, since calcium can cause bladder stones.

Different foods supply different nutrients. A specific food may or may not be a nutritionally sound substitute for another food.

Food nutrients have varying functions in the body. One nutrient cannot usually be substituted for another nutrient.

*Individuals have different nutritional needs.

*Nutritional needs of an individual vary from time to time. Being aware of these needs can help you regulate some body functions, such as maintaining bowel and bladder control. If you are sick and have fever, cut down on "heavy" or oily foods; try to eat smaller, lighter meals and eat them more frequently.

A basic, well-planned diet can be modified to meet the needs of most individuals.

Adequate nutrition is essential to maintain the highest state of health and homeostasis (stability of body function) or to enable you to return to your best state of health.

Try to see that your energy input (food) is balanced with your energy output (activity).

If you must eat snacks, choose them carefully. Again, protein foods and foods that contain vitamins are best.

Vitamin pills may be prescribed for you to take once or twice a day.

WHY IS DIET IMPORTANT IN SPINAL CORD INJURY?

Selection of good balanced meals is important for your overall state of health.

Immobilization (being inactive) can cause pressure sores to develop.

Protein is especially important in preventing and/or clearing up pressure sores.

Much energy and strength is used up for therapies and your total rehabilitation program.

Diet can help in the regulation of bowel and bladder control.

Stabilization of weight at a desired level is achieved by watching your dietary intake.

Weight is related to diet.

Mobilization (getting up and around) increases your body's need for protein.

You will select foods on a menu when you are on a "regular low calcium diet." Unless for some reason you are on a special diet, you will be on a "regular low calcium diet." It is low calcium because lots of milk or dairy products are limited. You may have one glass of milk (or its equivalent) per day. You are instructed about which foods to avoid and which to stress. If you are on a special diet, it will be explained to you.

If you are under a desired weight level you will be encouraged to eat larger amounts of high protein foods.

Your body must be stable enough to tolerate the increased output of energy needed for your therapies and thereby work toward your rehabilitation.

We plan your diet with you, so that you will get plenty of protein, but it does you no good unless you eat it!

SOME IMPORTANT DIETARY FACTORS RELATED TO SPINAL CORD INJURY:

Low Calcium

A regular low calcium diet is prescribed [high protein, high carbohydrate (starches, sweets), low calcium].

Usually milk is limited to one (8 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 you are immobilized the 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 when you are active, because milk can make the urine alkaline.

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

Milk
All cheeses, such as cottage, Swiss, American
Ice cream

If you especially like some calcium product, you can leave off something else that contains calcium to enable you to have your "special treat."

Acidification of Urine

Remember that some medicines to prevent urinary tract infection work best in acid urine. You will be instructed if you ever are taking a medicine that acts best in alkaline urine. Also, 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 your body into the urine.

Some foods that help to keep and increase the urine acid are:

Fruits and their juices, such as

*Cranberries
Plums
Prunes
Apples
Pineapple
Since cranberry juice contains Vitamin C, it may be used in place of citrus fruits.

*You need 300 cc cranberry juice three times a day to keep your urine acid.

Meat
Fish
Eggs
Gelatin products
Cereals

Some foods and fluids which make the urine <u>alkaline</u> are:

Milk and milk products
Most vegetables
Oranges and other citrus fruits (lemons, limes, grapefruits, grapes) and their juices. Although citrus fruits are acid when you eat them, body metabolism (using energy) will cause them to make urine alkaline.

Sometimes, these foods may be prescribed for special reasons.

There must be a balance between acid and alkaline foods in your body. Avoid a lot of things that cause alkaline urine.

<u>High Protein</u>

Protein is used for growth and maintenance of body tissue and in the prevention of pressure sores.

Foods containing protein in large amounts are:

Eggs
Dried beans: pintos, lentils, limas
Meat
Any fish (tuna, salmon)
Spanish peanuts, raw nuts
Poultry
Peanut butter
Gelatin products
Some candies, such as chocolate bars
Chow mein noodles

As you see, some foods are "good" because they make the urine acid and are high in protein. Avoid milk products, even though they are high in protein. As you know, milk can cause calcium stones in the bladder, and it makes the urine alkaline. Eat a lot of meat, since milk is limited.

If you have an open pressure sore you need even greater amounts of protein to make up for the protein-rich fluid leaking from the sore.

You also need enough carbohydrate and fat to give you energy so that protein can be used as much as possible for building tissues.

PROBLEMS THAT MAY DEVELOP AND THEIR TREATMENT:

Loss of Appetite

If you do not eat, then the fat that is stored in your body is used to supply the needed energy. Fat is normally stored and is not "broken down" by the body for energy. The body uses carbohydrate for energy. If fat is broken down this will eventually lead to your loss of appetite, because it offsets the body's functioning.

To prevent this from occurring you must eat!

Weight Loss

Increase your dietary intake. You may need to eat frequent small meals (six or so a day), instead of the regular three meals. Or, have smaller servings of foods and gradually build up to regular servings. This is also good for treatment of loss of appetite, because digestion is made easier.

A high protein evening or bedtime snack may be needed.

You can take in-between meal supplements to add to your food intake and increase your weight. (In the hospital these things may be prescribed for you.)

In addition to eating foods that are high in protein you may be taking a protein concentrate powder which may not be too tasty, but it is very rich in the proteins you need.

A teaspoon of orange juice prior to meals may stimulate the gastric juices to start the digestive juices working. This may work for increasing your appetite.

Electrolyte Imbalance

Electrolytes are chemicals in your body - needed for body functioning.

If you have vomiting or diarrhea, take a liquid diet until the problem has stopped.

Broth, such as tomato, beef, or chicken bouillon, is "rich" in electrolytes.

Jello, hot tea and toast, or something "light" can be taken. Regulate what you eat or drink with the severity of the problem.

Keeping active, such as standing or just being up helps to prevent electrolyte problems.

Constipation

When no muscle tone is present in the intestinal tract, try to stimulate the bowel by eating roughage, such as celery, lettuce, or any green leafy vegetables and fresh fruits.

Try to manage by diet. Eat a big breakfast, a "light" lunch, a "light" supper and a snack at bedtime.

When the large intestine goes into spasm ("gas pains"), eat a low roughage diet, or a bland (smooth, non-irritating) diet.

Drink warm prune juice. Prune juice acts as a laxative. It is a concentrated sugar, and any concentrated sugar or concentrated food will act as a laxative.

Force fluids, and take medications if prescribed.

Fluids help to prevent constipation.

Obesity (overweight)

Try to lose weight!

Increase your body metabolism by work, activity, or exercise!

Diuretic pills may be prescribed to decrease the water content in your body, but these pills are not the answer for obesity!

Decrease your intake of (calories) food! The best exercise for obesity is to push yourself away from the table!

A reducing diet may be prescribed by your physician.

If you become fat your general health will suffer. Weighing more you will find it more difficult to get around. Also, it is good to keep your weight down a little below your usual (pre-paralysis) weight, so that you will not be so heavy that it would be difficult for someone to transfer you, or for you to transfer. Your A. D. L. will not be up to par. If you have a brace or corset it will need constant adjustments or replacement to grow with you; so may your wheel chair.

If you would have any of these problems and if they persist, notify your physician or someone who can give you advice, because other measures may be necessary to get rid of the problem.

AIM: PREVENT THE PROBLEMS!

Conclusion

Food, water, air, circulation, elimination of wastes and prevention of infection are all important factors in maintaining good nutrition and your body's functioning at its best.

Developing and maintaining good eating habits becomes easy. When your body is functioning at its best, you will look and feel your best.

Hope this has been "Food for Thought!"

DRINK PLENTY OF WATER AND JUICE:

*To "flush out" the kidneys and urinary system

For fluid replacement

To prevent concentrated urine

To prevent infection

To prevent kidney and bladder stones (Sodium and calcium losses from bone and muscle tissue during immobilization can cause urine calcium stones.)

To reduce the chance of blood clots forming in the veins

GENERAL INFORMATION REGARDING FLUID INTAKE:

The goal and your need for fluid is to drink at least 3,000 cc (three quarts or two large pitchers) per day (24 hours) - unless otherwise specified. If for some reason your intake is ever restricted you will be informed. Also, if you need to drink more than 3,000 cc you will be instructed about this. A child's intake varies, but it is usually less than an adult's.

3,000 cc is equal to about 13 regular size (eight ounce) glasses.

There are different sized glasses and containers, so inquire as to how much they contain - or measure them yourself. If ice is included this will increase the amount of fluid.

If you drink liquor (wine, beer, whiskey, or whatever) you must drink an equal amount of water or other fluid following drinking the liquor. In other words, if you drink eight ounces of beer you must then drink eight ounces of water or some other clear fluid. This is because liquor is dehydrating. (It draws fluid out of the body's cells and tissues, and this makes your body's

cells and skin dry.) You may be thirsty after drinking any liquor, but even if you are not thirsty, you should drink other fluids. (You may be very thirsty the day after drinking liquor.) Liquor concentrates urine.

Your body needs the fluid replaced, so drink plenty of water, juice, or whatever (not more liquor).

As mentioned previously, you should avoid milk.

Other fluids that concentrate urine·

Carbonated beverages (soft drinks), such as Cokes
Coffee
Tea

You may drink these things, but do not "over-do" them; avoid large quantities of things that cause alkaline urine; since this can lead to stone formation.

You can drink distilled water to help decrease the calcium and other chemicals in the urine. This may help decrease sediment in the urine and plugging up of your catheter. Some people find that distilled water is best for these reasons.

Here at T.I.R.R. we measure your daily intake and output, usually. You should eventually be responsible for keeping track of your intake and output. You may want to keep a record of your intake and output for a couple of weeks after you go home -- just so that you will know if it is adequate. Also, output can give you a "picture" of your kidney function. Even if you do not keep (written) track of your intake - you can get a good idea if it is enough by keeping track of your output.

Your urinary output will depend upon many things - such as if you perspire, but in general your output should be in comparison to your intake.

TYPES OF FLUIDS THAT YOU MAY DRINK TO PROVIDE FOR FORMING LOTS OF DILUTE AND ACID URINE:

Water
Soup or Broth
Kool-Aid
Jello
Juices: especially cranberry, plum, apple, cranberry-apple punch

If you need special fluids or should omit some fluids, you will be instructed about this.

In the meantime, eat -- drink -- and drink some more!

Milk Group

2 Servings/Adults
4 Servings/Teenagers
3 Servings/Children

Foods made from milk contribute part of the nutrients supplied by a serving of milk.

Calcium
Riboflavin (B_2)
Protein

Meat Group

2 Servings

Dry beans and peas, soy extenders, and nuts combined with animal protein (meat, fish, poultry, eggs, milk, cheese) or grain protein can be substituted for a serving of meat.

Protein
Niacin
Iron
Thiamin (B_1)

Fruit-Vegetable Group

4 Servings

Dark green, leafy, or orange vegetables and fruit are recommended 3 or 4 times weekly for vitamin A. Citrus fruit is recommended daily for vitamin C.

Vitamins A and C

Grain Group

4 Servings

Whole grain, fortified, or enriched grain products are recommended.

Carbohydrate
Thiamin (B_1)
Iron
Niacin











Foods and condiments such as these complement but do not replace foods from the four groups.

Amounts should be determined by individual caloric needs.

Others

Carbohydrate
Fats

Guide to Good Eating

A Recommended Daily Pattern

Guide to Good Eating...

A Recommended Daily Pattern

The recommended daily pattern provides the foundation for a nutritious, healthful diet.

The recommended servings from the Four Food Groups for adults supply about 1200 Calories. The chart below gives recommendations for the number and size of servings for several categories of people.

Food Group	Recommended Number of Servings				
	Child	Teenager	Adult	Pregnant Woman	Lactating Woman
Milk 1 cup milk, yogurt, OR **Calcium Equivalent:** 1½ slices (1½ oz) cheddar cheese* 1 cup pudding 1¾ cups ice cream 2 cups cottage cheese*	3	4	2	4	4
Meat 2 ounces cooked, lean meat, fish, poultry, OR **Protein Equivalent:** 2 eggs 2 slices (2 oz) cheddar cheese* ½ cup cottage cheese* 1 cup dried beans, peas 4 tbsp peanut butter	2	2	2	3	2
Fruit-Vegetable ½ cup cooked or juice 1 cup raw Portion commonly served such as a medium-size apple or banana	4	4	4	4	4
Grain, whole grain, fortified, enriched 1 slice bread ½ cup ready-to-eat cereal ½ cup cooked cereal, pasta, grits	4	4	4	4	4

*Count cheese as serving of milk OR meat, not both simultaneously

"Others" complement but do not replace foods from the Four Food Groups. Amounts should be determined by individual caloric needs.

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Nutrients for Health

Nutrients are chemical substances obtained from foods during digestion. They are needed to build and maintain body cells, regulate body processes, and supply energy.

About 50 nutrients, including water, are needed daily for optimum health. If one obtains the proper amount of the 10 "leader" nutrients in the daily diet, the other 40 or so nutrients will likely be consumed in amounts sufficient to meet body needs.

One's diet should include a variety of foods because no *single* food supplies all the 50 nutrients, and because many nutrients work together.

When a nutrient is added or a nutritional claim is made, nutrition labeling regulations require listing the 10 leader nutrients on food packages. These nutrients appear in the chart below with food sources and some major physiological functions.

Nutrient	Important Sources of Nutrient	Some major physiological functions		
		Provide energy	Build and maintain body cells	Regulate body processes
Protein	Meat, Poultry, Fish Dried Beans and Peas Egg Cheese Milk	Supplies 4 Calories per gram.	Constitutes part of the structure of every cell, such as muscle, blood, and bone; supports growth and maintains healthy body cells.	Constitutes part of enzymes, some hormones and body fluids, and antibodies that increase resistance to infection.
Carbohydrate	Cereal Potatoes Dried Beans Corn Bread Sugar	Supplies 4 Calories per gram. Major source of energy for central nervous system.	Supplies energy so protein can be used for growth and maintenance of body cells.	Unrefined products supply fiber – complex carbohydrates in fruits, vegetables, and whole grains – for regular elimination. Assists in fat utilization.
Fat	Shortening, Oil Butter, Margarine Salad Dressing Sausages	Supplies 9 Calories per gram.	Constitutes part of the structure of every cell. Supplies essential fatty acids.	Provides and carries fat-soluble vitamins (A, D, E, and K).
Vitamin A (Retinol)	Liver Carrots Sweet Potatoes Greens Butter, Margarine		Assists formation and maintenance of skin and mucous membranes that line body cavities and tracts, such as nasal passages and intestinal tract, thus increasing resistance to infection.	Functions in visual processes and forms visual purple, thus promoting healthy eye tissues and eye adaptation in dim light.
Vitamin C (Ascorbic Acid)	Broccoli Orange Grapefruit Papaya Mango Strawberries		Forms cementing substances, such as collagen, that hold body cells together, thus strengthening blood vessels, hastening healing of wounds and bones, and increasing resistance to infection.	Aids utilization of iron.
Thiamin (B_1)	Lean Pork Nuts Fortified Cereal Products	Aids in utilization of energy.		Functions as part of a coenzyme to promote the utilization of carbohydrate. Promotes normal appetite. Contributes to normal functioning of nervous system.
Riboflavin (B_2)	Liver Milk Yogurt Cottage Cheese	Aids in utilization of energy.		Functions as part of a coenzyme in the production of energy within body cells. Promotes healthy skin, eyes, and clear vision.
Niacin	Liver Meat, Poultry, Fish Peanuts Fortified Cereal Products	Aids in utilization of energy.		Functions as part of a coenzyme in fat synthesis, tissue respiration, and utilization of carbohydrate. Promotes healthy skin, nerves, and digestive tract. Aids digestion and fosters normal appetite.
Calcium	Milk, Yogurt Cheese Sardines and Salmon with Bones Collard, Kale, Mustard, and Turnip Greens		Combines with other minerals within a protein framework to give structure and strength to bones and teeth.	Assists in blood clotting. Functions in normal muscle contraction and relaxation, and normal nerve transmission.
Iron	Enriched Farina Prune Juice Liver Dried Beans and Peas Red Meat	Aids in utilization of energy.	Combines with protein to form hemoglobin, the red substance in blood that carries oxygen to and carbon dioxide from the cells. Prevents nutritional anemia and its accompanying fatigue. Increases resistance to infection.	Functions as part of enzymes involved in tissue respiration.

DEPARTMENT OF NURSING

GENERAL PRINCIPLES OF URINARY CARE

The care of the bladder and kidneys is a most important subject for you to understand. You are well aware that you cannot control your bladder, but there are other things you should know about your urinary system that are very important to your health.

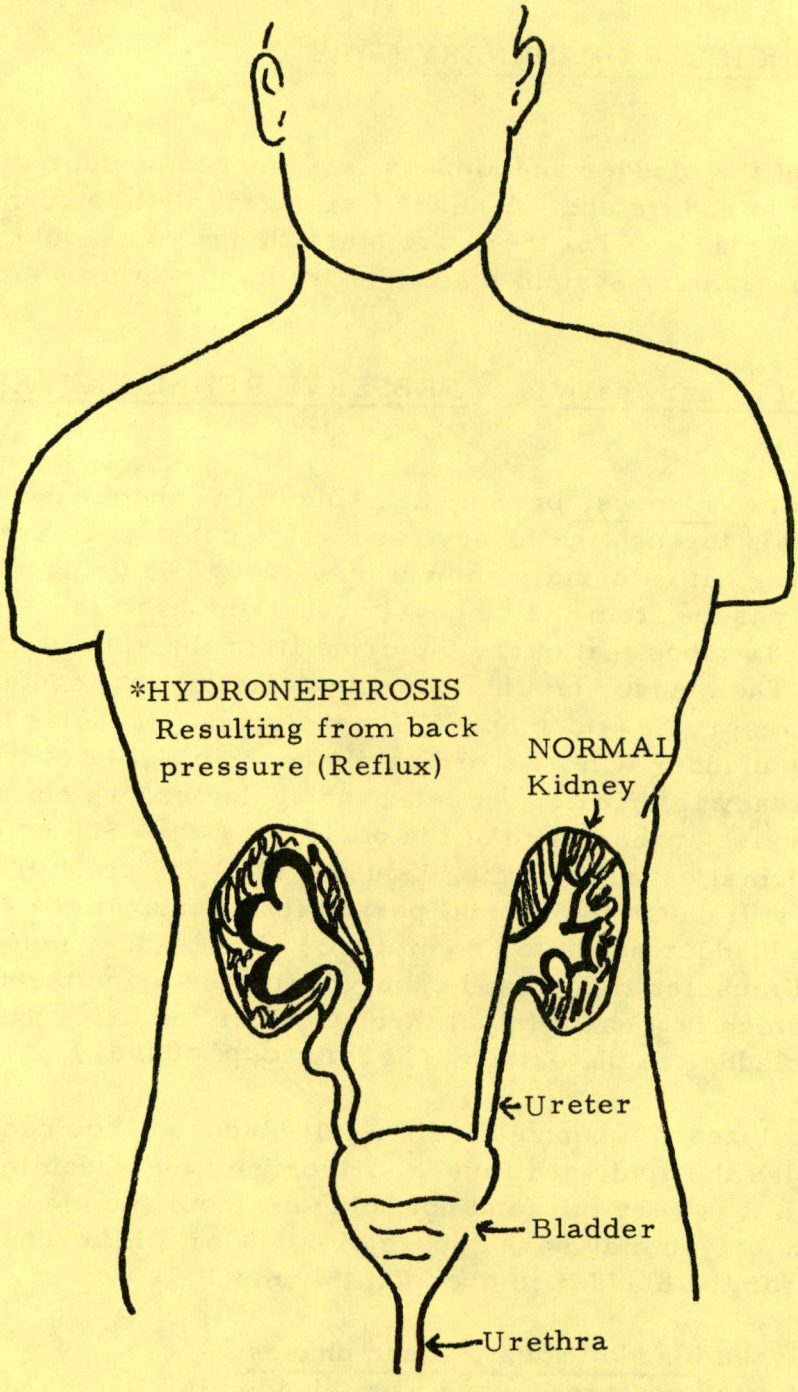
The goal of urinary care is to PRESERVE RENAL (URINARY) FUNCTION.

There are two kidneys, one on each side of the abdomen. The blood travels through the kidneys, and waste substances are filtered out along with a certain amount of water. The urine that is formed passes from the kidneys through the ureters, which are narrow tubes that carry the urine from the kidneys into the bladder. The bladder is a balloon-like (elastic) sac (container) that acts as a reservoir (store house) for the urine. (It holds the urine.) As the bladder fills, we ordinarily become aware of it. When we are ready to urinate, we relax the sphincter, which is the muscular valve at the mouth of the bladder. (400 - 500 cc of urine is the normal capacity of the bladder. 100 - 150 cc of urine in the bladder will cause the normal person to experience the sensation that the bladder needs to be emptied.) The bladder muscle and abdominal muscles tighten and expel (drain) the urine through the urethra, which is a canal (tube) through which the urine passes from the bladder to the outside. (Refer to picture.)

Being paralyzed you cannot "feel" a full bladder. You cannot voluntarily relax the sphincter muscle or contract the abdominal muscle. When it is very full (and not being drained) you may perspire a lot, or you may have "goose pimples" or a headache. It is not good for the bladder to ever fill this much.

The paralyzed bladder goes through phases.

I. Right after you are injured your bladder is "flaccid" (limp), or asleep. This is also called "autonomous," "atonia," or "non-reflex." It has a tight sphincter. This phase varies in length of time in individuals. This bladder cannot develop enough pressure to overcome the resistance of the sphincter, so it becomes stretched to far beyond its normal capacity, and the urine may back up into the



*Hydronephrosis is the stretched kidney that results from the back-pressure of reflux. When it is present you will probably continue to use a catheter to prevent continued reflux and pressure which might further damage the kidney. Sometimes a surgical procedure may be necessary if there is reflux and kidney damage. We aim to prevent this problem.

ureters and kidneys ("reflux"). Refer to picture on page 2A. With prolonged use of a catheter the tone may return to the bladder muscle, but the catheter is necessary until then to keep the bladder empty and prevent this reflux. If the bladder gets too full (and you do not have a catheter) you may have what we call overflow incontinence and dribble urine.

After this, the bladder will probably go through other stages, and it may remain one of these bladder types.

II. "Automatic" or "reflex" bladder. This type of bladder may also be referred to as "spastic." When the bladder is full the sphincter automatically relaxes, and the bladder empties itself. Just as the muscles of the legs may have spasms, the muscle of the bladder may respond to any mild stimulation. In fact, spasms of the leg muscles may stimulate spasms of the bladder or vice versa. The presence of a small amount of urine in the bladder, small stones, or mild infection may cause it to tighten and spasm. This type of bladder is unreliable, though, and urination is frequent in small amounts. If we can be sure that the spasm is not forcing urine under pressure back into the ureters and kidneys, the male can usually wear a rubber urinal (external catheter) and remain dry. For females, a catheter may need to be used in order to keep dry, since there is no satisfactory external catheter for women. Sometimes the use of absorbent pads and waterproofed pants is satisfactory. The skin on the groins can be kept coated with vaseline -- to prevent irritation from urine. (This can also be done if you leak around the catheter - from spasms.) Fortunately, the prolonged use of a catheter by women is less troublesome than in men because the urethra is shorter and straighter in women.

III. If you have good "reflex," it may be possible to "train" your bladder to empty at the commode at regular intervals and remain dry in between. This "training" requires a lot of your cooperation. If you have a "reflex" bladder and are to do bladder "training," we will teach you the details of bladder "training."

When a catheter is not used, we have to measure the "residual" urine occasionally. To do this we insert a catheter to see how much urine remains in the bladder after you have urinated and the urine has stopped flowing. If the residual exceeds a certain amount of urine, the bladder is not emptying adequately and the catheter may have to remain in. This is a very individual thing -- regarding the decision as to when to leave the catheter in place. When there is constantly a high residual you are more apt to have infection in

the bladder because stagnant urine encourages the growth of bacteria, and there is a greater tendency to form stones. A large residual may lead to reflux. This is why a catheter is usually left in.

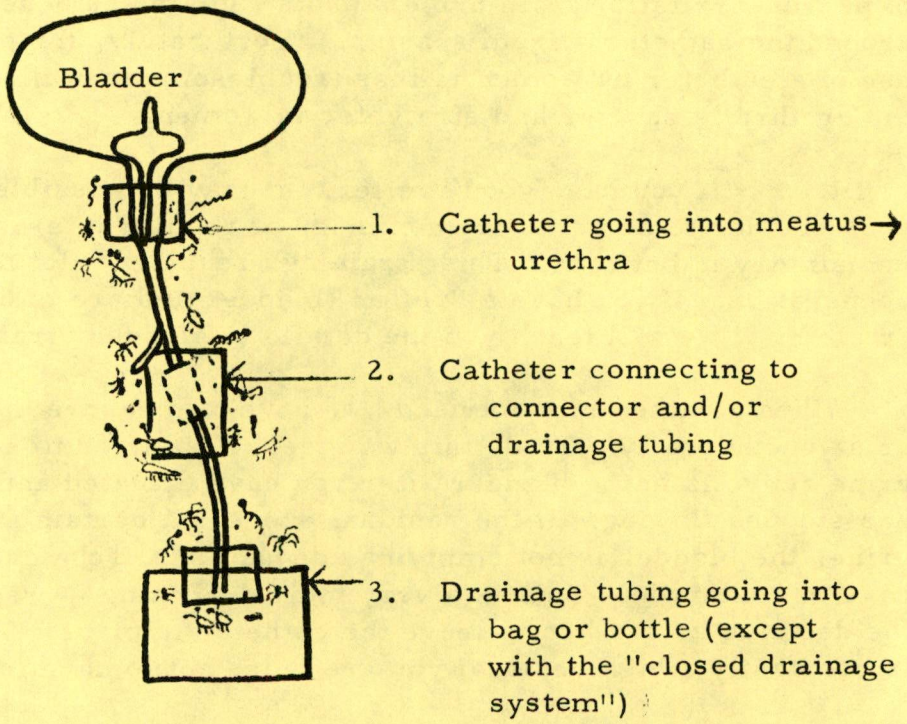
Patients with spinal cord injuries may have catheter drainage or some type of urinary drainage because of loss of bladder control.

There are three points of entrance into the urinary tract by bacteria when you have a catheter (Foley). To prevent the entrance of germs or bacteria into the bladder, be very careful to follow directions for cleanliness in these three areas.

1) At the junction of the catheter and urethra by means of the mucus sheath between the catheter and urethra skin lining (where the catheter goes into the meatus).

2) At the point connecting the catheter to the drainage system.

3) At the end of the drainage set (except with the "closed drainage system" -- bag and tubing all connected in one piece). The areas with the bugs show where you must be especially careful to not get germs into the bladder.



*Regarding S. P. Tube:

1) At the opening in the abdomen into the bladder (where S. P. tube is put into the bladder).

2) + 3) Same as for Foley.

*Regarding VE and Ileal Loop -- there should be no chance of infection by input of bugs, unless you poke an object (other than finger with sterile glove for dilating) down into the opening. As long as there is outflow of urine the chance of bugs going into the urinary system is absent.

The catheter, as you already know, is a small "sterile" rubber tube. The type that we usually use is called a Foley catheter and has a small balloon (bag) at the end that is inflated with water to keep it from sliding out.

The catheter has a hole in the tip for urine to run out. Use only the size which we prescribe for you. If it is too small it may become clogged, slip out or leak around it; if it is too large it may cause a pressure sore in the urethra (because of being too tight -- like a tight shoe causes a blister.

The S. P. catheter is a larger rubber "sterile" tube and has a mushroom-like balloon with holes in the tip. This holds it in place in the bladder and allows urine to run out. Again, use only the size that is prescribed for you.

Foley catheters should be changed routinely every 10 - 14 days, or two weeks, unless you have a problem with it, such as a lot of crust forming on the tip, and then we will instruct you to change it more often. The change really depends on your individual needs.

*Silastic catheters (Foley) -- are usually changed less frequently -- about every four weeks, or depending upon your individual needs.

S. P. tubes are changed usually every six weeks, unless problems occur; same as discussed regarding the Foley catheter.

*Silastic catheters (S. P.) are usually changed less frequently -- every three months, or depending upon your individual needs.

*Silastic tubes - are made of a different kind of rubber that is supposed to reduce formation of crusts on the catheter tips. (This may vary in individuals. (You will use a Silastic catheter only if instructed to do so.)

-The local tissue response to the catheter can be decreased by changing the catheter routinely.
-The collection of sediment on the Foley balloon or within the catheter makes it necessary to change the catheter.
-Efficiency of bladder drainage is not preserved when sediment reduces the space inside the catheter.
-As mentioned, the catheter may need to be changed more often than "routine" in some individuals. For example, if it becomes plugged, or blocked, or if stones form around the end of the catheter, you would not want to leave it in. Stones can become too large to come out by themselves, and you would need to come into the hospital to have them removed.

If the catheter has to be replaced it is better to do it at a convenient time rather than take a chance that it will become plugged in the middle of the night. Irrigation can help spot "trouble."

Other Principles of Urinary Care → Prevent: Urinary Infection

1) Organisms can enter into the urinary tract at the following times:
   a) During catheter insertion.
   b) Opening the closed system:
      Irrigating.
      Emptying.
      Opening connection.
   c) Backflow (reflux) -- empty bags before they get too full to prevent this.
   d) During meatus care.

2) The end of the male urethra contains lots of bacteria, which could be pushed into the bladder during catheterization. This is why we stress cleansing well before catheterization.

3) When the inside of the drainage tube contains bacteria, the bugs reach the bladder in a few hours. This is why we stress preventing the urine from backing up into the catheter and bladder.

4) Cleanliness of the meatus and entire genital area (including perineum) is important in preventing and fighting urinary infections, which are commonly caused by bacteria in this area.

Most important, after bowel elimination women should wipe away from the urinary meatus (from front to back). Proper wiping avoids bringing the ever-present intestinal bacteria forward from the rectum to the opening of the urinary tract.

5) Drink lots of fluids -- at least 3,000 cc every day (about thirteen 8 ounce glasses). You can regulate when you drink according to your needs. For example, some individuals cannot drink a lot at certain times during the day because of attending school, or whatever. Others may want to decrease fluid intake after supper. When to drink does not matter as much as does How Much you drink! How Much fluid intake is the important thing!

6) Some positions may aid in emptying the bladder (especially when Foley catheter or S.P. tube is in place), also turning and changing positions may aid in emptying the bladder. This seems to be an individual thing -- which position is best for your bladder emptying may not be the best position for someone else's.

7) Characteristics of your urine: (making note of these can help prevent infection):

*a) Is it clear or cloudy (color) -- the concentration -- how much sediment is in the urine? This is the amount of waste products to water in the urine and can indicate the adequacy of fluid intake. You can tell by looking at your urine if it is thick with a lot of whitish sediment or clear ("pale") like normal urine.
* Some medicines may change the urine's color.

b) Is it blood tinged?

c) Is there an unusual odor? This may come from the urine itself. Some foods, such as asparagus, give the urine a different odor. If fluid intake is poor, the urine may smell very strong, like ammonia. Also, odor can come from the urinary drainage bag and/or the tubing. Consider: Is proper cleaning of the bag and tubing being done? Odor may be caused by bacteria in the urine or bags.

d) Is your urine acid (below 7) or alkaline (above 7)? This is called the urine pH. The urine is normally slightly cloudy, and pH is increased about one to two hours after meals, so it would be important if you check it to do so at times other than this. Also, to check the urine pH - you must get the urine directly out of your catheter, or whatever. It must be fresh urine.

The pH of the urine is a factor in the development of urinary infection. (Acid urine prevents infection.) Alkaline urine is milky in appearance and is a good place for bugs to grow, since bugs thrive in non-acid urine. Also, many of the urinary tract drugs are effective only in acid urine, so acid urine makes some urinary antibiotics act effectively. The formation of bladder stones is thought to be reduced when the urine is acid. You will get individual instructions regarding urine pH.

Urinary stones (calculi) may be found in the kidneys, ureters or bladder. They are most common in the bladder. These stones may block the urinary passages and cause damage to the kidneys. They increase bladder spasm when present in the bladder. The stones are made up of minerals which leave the bones when you are off your feet for long periods. The stones can be removed, but it is better to prevent them by getting on your feet for at least an hour a day (on your standing table or braces). Also, sitting and just being out of bed helps! This will help keep the minerals in the bones where they belong, instead of in the urine where they will form stones. Also, reducing your calcium intake decreases the chance of stones forming.

Since infection and a concentrated urine lead to stone formation too, you would be wise to drink a lot of fluids to flush out the urinary system. Keep the urine "pale."

Drinking cranberry juice is one popular way to keep the urine acid. Some drugs may be ordered to help keep the urine acid. Ascorbic

acid is one such drug (and you can get it without a prescription). Usually, if you are taking a medicine such as ascorbic acid or drinking cranberry juice and eating a well-rounded diet (many foods contain ascorbic acid), you will not have to worry about the urine acidity. It will be acid.

e) Is there sediment in the drainage tubing? Take care in cleaning this. You may need to increase your fluid intake if the sediment is from not drinking enough.

8) Maintaining and insuring proper drainage:

a) The bedside urinary drainage tubing should be looped, or coiled, on the bed to aid in urine drainage. The drainage tube should not loop below the drainage bag inlet. Do not run the catheter up over your trouser top or belt, as water will not run upward!

b) Catheters should be drained with a 9/32" plastic drainage tubing (children can use a 3/16" plastic drainage tubing for catheter drainage).

c) Always keep the urine bag and tube below the level of the bladder.

d) Always pinch off the catheter (right above inlet) before lifting up the urinary drainage bag (above the level of the bladder), as in moving from one side of the bed to the other when turning, or any time when lifting the bag above the level of the bladder. Instead of pinching off you can disconnect the catheter from the drainage bag and tubing (cap catheter end and tubing until ready to reconnect). This prevents backflow of stagnant urine into the bladder from the tubing.

e) Be sure that the catheter and tubing is not pinched, kinked, or clamped (unless -- as discussed above, or unless clamping is ordered and you have specific instructions for it). Also, be sure it is not tucked under a brace. The catheter should not become blocked. Be sure that it is draining all the time rather than wait for the signs of an overfull bladder to occur. As mentioned previously, some of these signs are:

-"goose pimples"
-headache
-leakage around the catheter

9) Cleanse (rub), using an *alcohol cotton ball, the connections (such as the tip of the catheter and/or tubing) before reconnecting after irrigation, or anytime after having disconnected catheter from drainage system.

Drainage tubes and bags should be capped when not in use.

*To prepare alcohol sponges put some cotton balls in a container and pour 70% alcohol over them. (Replace every other day. Alcohol becomes ineffective because it evaporates.)

10) When the catheter is open (constant drainage) it is attached to a rubber collecting bag that is strapped to the leg (when you are up) and to a tubing leading to a collecting bag or bottle (when you are in bed). *The bag must be emptied before it becomes too full, remember.

Drainage bags, when you are out of bed, should not restrict your activity. Disposable leg bags are used. The leg bag comes in three sizes and should be large enough to collect urine for 1 1/2 hours before requiring to be emptied. As a general rule the following limits can be used in selecting a leg bag size:

a) Small -- holds 250 cc.
b) Medium -- holds 500 cc.
c) Large -- holds 850 cc.

*It must be remembered that when a leg bag is full the urine has no place to go but to go back up and distend the bladder. In the hospital the bags should be emptied before and after therapy sessions and whenever else necessary.

Pressure on a leg bag with urine can also be a problem. Although the leg bags have "check," or flutter valves, pressure can cause a failure in the valve. Thus, the placement of the leg bag (except when connected to external catheter) should be on the front thigh so that middle or side placement does not squeeze the leg bag. There should be <u>no weight</u> on the bag.

The leg bag is placed on the right leg, unless there is vein problem in that leg; then it is placed on the left leg - (you will be instructed according to your needs).

Remember, too, that the best safeguard against vein constriction (cutting off circulation) from the leg bag straps is to be sure they are not placed so tight as to act as a tourniquet. Velcro straps may be used. They seem to be less constricting than the rubber straps. If rubber straps are used, place the plastic button (flat side down) over the leg bag, instead of next to the skin. Also, check rubber straps at times because they roll up and may constrict circulation.

Leg bags attached to the leg should not place tension, or pull, on the catheter. Proper taping of catheters helps to avoid this tension.

Leg bags are never to be worn when in bed for any length of time if you have a Foley or S.P. catheter (one hour or more). This decreases the urinary drainage from the bladder. The catheter should be connected to the bedside drainage bag or bottle. If a closed bag system is used, be sure that it remains hanging straight down (after part of the tubing is coiled on the bed).

Extension tubes to connect between the catheter and the leg bag are essential and even helpful for the appearance under clothing.

Some extension tubes that can be used are:

a) 5-in-1 connector (white plastic).
b) The end of some of the urinary drainage bag's tubing can be cut off that tubing and cleaned.
c) A few inches of hard rubber or clear plastic tubing.

Emptying the leg bag can be done by some patients with a specially made clamp device (designed for the individual). If the leg bag is emptied while still connected to the catheter pinch off the catheter right above the leg bag, so that reflux is prevented. Then you may press on the bag to empty it quicker. Also, the leg bag can be connected up to the bedside bag for draining.

11) Clamping of catheters -- catheters are not to be clamped unless ordered by the doctor and then only as instructed! The only exception to this is that a Foley catheter or S.P. tube may be clamped for 20 to 30 minutes for a shower or tub bath.

If you are likely to get dysreflexia (symptoms of headache, high blood pressure ....., usually due to an over-full bladder), do not clamp. Use much caution according to your individual reactions and needs.

-Nephrostomy tubes are never to be clamped. (These tubes are usually changed every six weeks, unless otherwise instructed, or unless problems occur before that time.)
-Urethral catheters are never to be clamped.

12) A clamping program (for bladder training) -- the catheter may be open for constant drainage, as discussed previously, or it may be kept clamped and opened at regular intervals. Do not fail to open it on schedule if you are allowed to clamp it. If it is clamped and there is leakage around it, then the catheter must be opened at more frequent intervals, or perhaps kept open all the time. This is a very individual thing, and the clamping program will be worked out with you. There are times when the catheter must be kept open. (The doctor will, first of all, tell you if you are to clamp. If he does not say to clamp, then do not clamp as in a clamping program.)

13) If there is leakage around your catheter, seek attention and find out the cause. Also, moisture can lead to skin irritation. Leakage may be due to spasms and reflex.

14) Checking your skin around the stoma (opening) if you have a vesicostomy or ileal loop is important. Do this when you change the device. The skin must be clean and dry or a skin irritation will develop. The device must be changed every few days, because bugs can collect around the inside of the device (in the urine sediments) and can cause infection.

15) At home you build up resistance to your own bugs.

16) Your bladder function is considered with you as an individual, because everyone is different and plans for urinary care must be based on your specific bladder function.

17) Time is sometimes the only answer to determine how your bladder will function in the future. It takes different people different amounts of time for developing a "reflex" bladder and then more time to evaluate its efficiency of function.

Instructions for your specific urinary needs will be given to you before you leave T.I.R.R.

Some methods that we use to study the urinary system are:

Examination of urine is simple. We do it frequently, particularly under the microscope, to recognize infections before they cause trouble.

Sometimes a 24 hour urine study may be done. If you are to collect one at home, you will be given instructions on how to collect it and anything else about it that you would need to know.

A simple X-ray of your abdomen, called a "flat plate," may reveal stones in the urinary tract.

An "intravenous pyelogram" (I.V.P.) is an X-ray taken after injecting some dye into a vein to outline the kidneys. It tells us how well the kidneys are doing their job, and it may show urinary system problems, such as a stretched kidney from reflux. It also outlines stones in the kidneys, ureters, or bladder.

A "cystogram" is an X-ray after injecting dye into the bladder to show its size and shape, reflux if present, and stones.

The "cystometric" examination ("cystometrogram") is a measurement of the pressures in the bladder, to see whether it is "reflex" or "spastic" or "flaccid."

"Cystoscopy" is done by passing a lighted instrument through the urethra into the bladder in order to look inside. In addition to providing information, certain procedures can be performed through the cystoscope, such as removing small stones. Larger stones must be removed by making a small opening in the bladder, a "suprapubic cystostomy." The same opening is made for an S.P. catheter.

There are other procedures that can be done to keep your "waterworks" in good operating condition, but they will be discussed with each one of you individually, according to your own specific bladder function and needs.

Some X-rays and tests, such as the I.V.P., need specific preparation before they can be done. The preparation instructions will be given to you regarding the specific test when necessary (especially when you are preparing at home and then coming in to X-ray.)

Be sure to have your X-rays and other studies when they are due, generally every 6 - 12 months. Don't forget! Many problems can occur without symptoms and can be corrected if detected at an early stage. Don't wait for symptoms to occur to have your routine check-up since by then some problems may be too bad to correct. (Check-ups are also an individual thing -- how often, kind, etc.)

Too much cannot be said about the importance of PREVENTING URINARY TRACT INFECTION.

Urinary tract infection is one of the principal threats to the life of the patient with spinal cord injury, therefore, very clean technic is important in procedures relating to drainage and irrigation of the bladder.

The onset of infection can be influenced by:

- Bladder being too full
- Catheter being blocked
- Your being "run down" physically
- Outside contamination

(To reduce the possibility of infection from outside contamination, it is important that your skin and bladder equipment are kept very clean and that everything going into the catheter and bladder is "sterile" - that is, free of germs.)

The urinary system functions properly only when urine flows freely from the kidneys to the outside. Blocking this flow can cause a pooling ("stasis") of urine, which encourages bacteria to grow and increase in these pools of urine like insects thrive in stagnant water. Prevent pooling of urine where bacteria can thrive, and thereby prevent urinary tract infection.

Urinary infection can occur when bacteria get into the ureters (urethritis), bladder, or kidneys.

There are germs in the air, on your skin, and everything exposed to air. Most germs are harmless on outer surfaces, but all germs that find their way into the bladder grow rapidly, because the dark, moist, warm area in the canal leading to the bladder, and in the bladder, provides a good place for germs to grow. This condition can cause a serious bladder infection. Bacteria are carried to these organs:

1) By entering the bladder through or around the urethra (as through a Foley catheter). These bacteria may then go up the ureters until they reach the kidneys.
2) Bacteria may enter the bladder directly as through an S.P. tube.
3) Through the bloodstream from sources elsewhere in the body.

With a catheter there is always a mild infection in the bladder which causes no trouble. However, there are some symptoms that you should note that may mean that there has been an increase in the amount of infection. Some symptoms may be:

1) Elevation in your body temperature.
   (High) fever -- 101° or above. Ask yourself the following questions:
   How long was it elevated? Is the fever constant or does it come and go?
   Fever is usually sudden.
   Fever will usually precede scrotal swelling.
   Fever leads to dehydration!
   a) Headache -- usually due to the fever.
   b) Chills (and shivering) -- occur as a result of the fever.
   c) A general feeling of tiredness and "not feeling good" -- usually due to the fever. (malaise)
   d) Sweating

2) An increase in bladder spasms.

3) An increase in the frequency of urination.

4) Thick or cloudy urine.

5) Nausea and/or vomiting.

6) No urine output.

Some other symptoms that you should watch for and thereby prevent urinary infection are:

1) Meatus discharge -- yellowish or whitish, usually. This may mean that there is some infection in the urethra, which must be stopped before it goes up into other urinary organs. Urethritis may cause fever, and the infection can spread to other parts of the urinary system and cause more infection → fever.

2) A chocolate red tinged urethral discharge. This is a typical clue to abscess formation in the urinary system. Foley catheter not taped correctly can cause this.

3) Local signs of genitalia infection -- check for these whenever fever occurs following urethritis:
   a) Redness.
   b) Swelling.
   c) Heat -- skin (area) feels warm.

4) Nausea and vomiting.

5) Blood tinged urine.
Blood may be found in the urine. There is occasional bleeding with a bladder infection, or it may result from the irritation of a stone or from passing a catheter. It may mean that the urinary tract lining is inflamed. It is nothing to be alarmed about, for a drop of blood can color a bowl full of urine, however if it occurs increase your fluid intake. Contact physician if it continues to be a problem.

6) A decreased urine output.

7) Anything very different from your usual urinary program.

PREVENTION OF URINARY INFECTION IS THE IMPORTANT THING!

However, if an infection does occur here are some suggestions for your care - until you can reach the doctor. Prompt treatment of acute infection is important.

1) Go to bed and rest.
Remember that anytime a fever develops your activity should be stopped until the fever is gone. You will need to turn more frequently. The body is busy fighting bugs that are causing the fever and cannot also handle other activity.

2) Drink lots of fluids -- to decrease sediment in urine. This helps to prevent infection, too! Avoid coffee, tea, alcohol and highly seasoned foods, as they are irritating to the bladder. Choice of foods may be important in the treatment of urinary tract infection. The doctor may suggest diet changes which will make the urine acid or alkaline. If diet changes are necessary for you, then you will be given specific instructions about which foods you may eat and which foods you should avoid. Diet for you then becomes an important part of your treatment and should be followed carefully.

3) You may take aspirin (10 grains) every four hours as needed for temperature elevation. (Be sure that you are not allergic to aspirin.)

4) Sponge bath with tepid (tap) water to bring down temperature.

5) Can add some alcohol (70%) to the water for sponge bath if temperature is very high.

6) Apply ice bags or cold towels under arms and next to legs (cover these with plastic [like a bag from the cleaners] and another dry towel or wrap before putting next to your skin.) Remove these at intervals (as cold next to the skin for long periods of time can cause a skin burn).

7) If you are having chills, do not apply cold. *Do not pile covers on. This may increase your temperature!

8) *Sweating may occur - but it controls the temperature, and if you have a fever and are sweating, you may also be cold (at the same time), but------do not pile covers on. The sweating gets rid of body temperature. So, even if you are shaking like mad and are chilly and want covers on, covers should not be put on, as they would increase the body temperature.

In some cases we give pills to prevent infection. The pills help, but it is possible to develop an infection in spite of them.

Any symptom of urinary infection should be reported to your doctor and you should be checked by him. Do not delay, as infection can usually be treated successfully if it is "caught" early. You must follow the doctor's orders and take the prescribed medicines. (Take all of the medicine prescribed.)

It is very important to have a doctor to follow-up with you regarding your urinary system and care. Usually, the doctor will set up routine check-ups for you and at that time do certain laboratory tests and in this way prevent urinary tract infection. We stress getting an M.D., who is a urological specialist, to follow you after you leave T.I.R.R., if you will not be returning to Clinic here.

Always notify your doctor when you develop any symptom of urinary tract infection or any problem in relation to your urinary system and its function. The doctor will need to know about this, so that he can decide what is best to do regarding your care. Since your urinary care is planned with you and takes continued follow-up to evaluate your urinary status - we really stress your getting a urologist, especially if you leave here with a Foley catheter or an S.P. tube or with an external catheter. It is important that you follow your doctor's instructions carefully.

Let us once again consider: What can be done to decrease the hazards of urinary drainage and prevent urinary infection. The answers to this are:

- Your attention to details when caring for catheters and equipment should decrease chance for complications (infection, pinched off catheters, etc.).

- Being careful to maintain very clean catheter care and technic.

-Irrigation of your bladder, if prescribed.

-Use "sterile" equipment when irrigating.

-Drinking plenty of fluid -- 3,000 to 4,000 cc daily.

-Maintaining a free flow of urine drainage.

-Taking your prescribed medicine.

-Catheter tube or device change as directed or as needed, using scrupulous technic.

-Maintain closed, "sterile" drainage system if you have indwelling catheter.

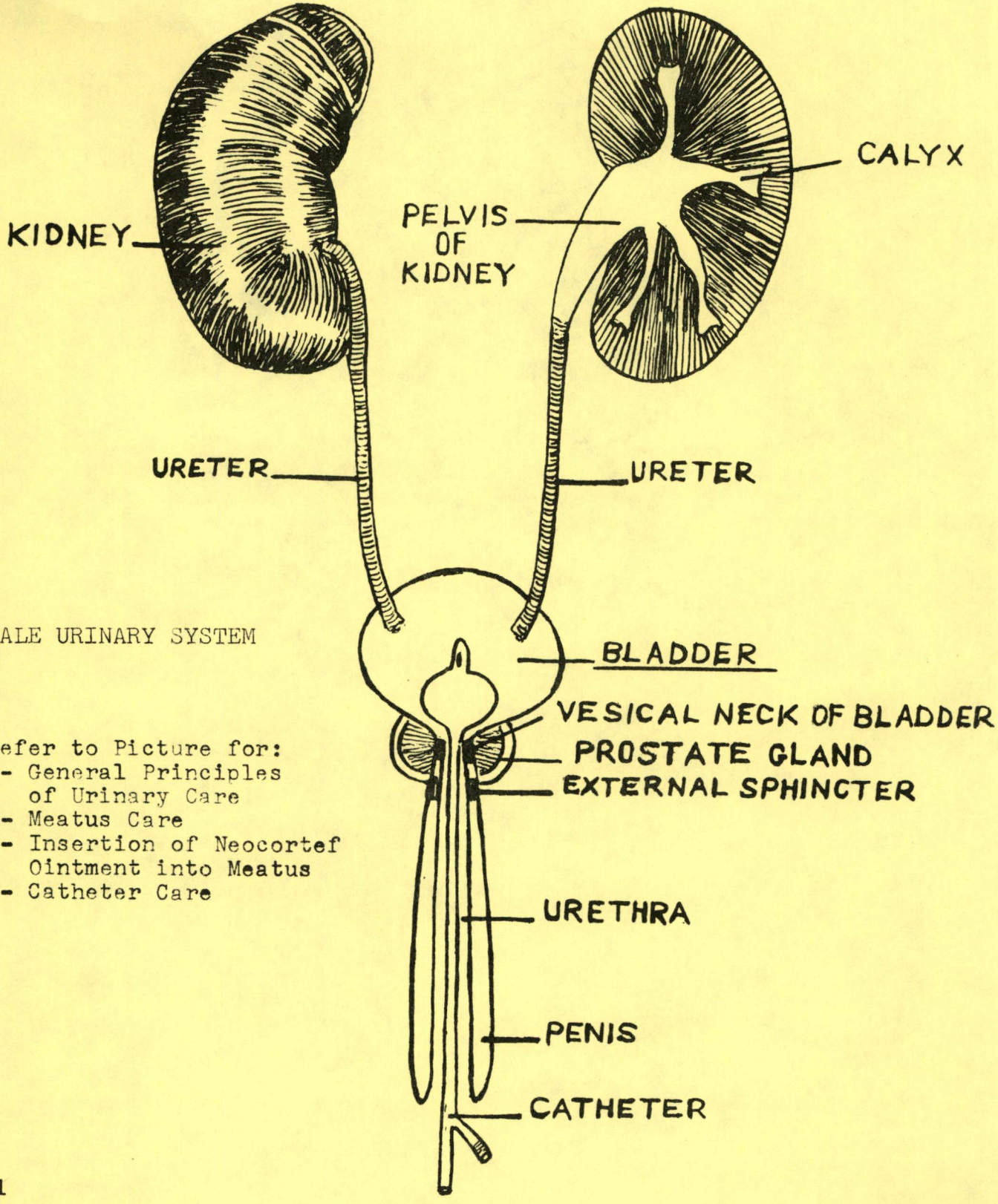
-Prevent fistula - male - by taping catheter up on middle of abdomen.

-Controlled weight bearing (such as standing) to promote good urinary drainage.

These are some of the ways that urinary tract infection can be prevented, and you will thus be PRESERVING YOUR RENAL FUNCTION.

PRINCIPLES OF URINARY CARE

THE URINARY SYSTEM-MALE



MALE URINARY SYSTEM

*Refer to Picture for:
- General Principles of Urinary Care
- Meatus Care
- Insertion of Neocortef Ointment into Meatus
- Catheter Care

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DEPARTMENT OF NURSING

IRRIGATION (WASHING OUT) OF THE URINARY CATHETER

Purposes:

1. To keep the catheter (Foley or SP) patent (open) and draining.

2. To remove sediment and mucous from the catheter.

General Information Regarding Irrigation of Your Catheter:

You should accept the responsibility for taking care of your catheter, even if you need assistance in doing the actual irrigation, or even if someone else has to do the irrigation.

The best irrigation of the catheter and bladder is by way of the mouth -- that is -- drink plenty of fluid to flush out the bladder.

Irrigate the catheter twice a day, once in the morning and once in the evening, unless you have been told otherwise. Some people may be able to tolerate irrigating only once daily or maybe no irrigations will be necessary -- if drinking plenty of fluids!

If catheter begins to get closed off or plugged with sediment, it may become difficult to irrigate.

Catheter irrigation can be a guide to know how open the catheter is.

If the urine is getting thick and irrigation becomes difficult, irrigate more often to keep the catheter open until it can be changed. Also, increase your intake.

Watch for obstruction (plugging) of the catheter. If you cannot clear it with irrigation, have it changed without unnecessary delay.

Meatus care should be given before catheter irrigation.

Care around SP tube should be done before SP irrigation.

Regarding irrigation when collecting a 24 hour urine specimen:

You should irrigate as usual, unless you are instructed not to irrigate.

When you irrigate (while collecting a 24 hour urine) you must make note of the amount of irrigating solution used, because this amount should be added to the total amount of urine. Be sure to tell someone to do this before the specimen is sent to the Laboratory.

No catheter is to be irrigated after urologic surgery, unless there are specific instructions to irrigate then.

Vesicostomies, urethral catheters, and nephrostomy tubes are not to be irrigated, unless there are specific instructions to irrigate.

Ileal loops are not irrigated.

Suby's solution or vinegar solution is the usual irrigating solution.

Suby's must be prescribed by the doctor. It is used while you are in the hospital, usually.

Vinegar solution is usually used at home and can be easily prepared at home.

*ALWAYS MAKE SURE THAT THE IRRIGATING SOLUTION IS AT ROOM TEMPERATURE BEFORE IRRIGATING.

*COLD SOLUTION MAY CAUSE BLADDER SPASMS.

Hot solution will burn the bladder wall.

If a medication, such as Neosporin, has been added to Suby's solution make sure that the solution is in date. In other words, make sure that it is not out-dated, or expired.
(You will be instructed if you should add medicine to the Suby's solution. Usually, medicine is not added.)
Also, if medicine, such as Neosporin, has been added to Suby's this requires refrigeration.

*Be sure that this solution has reached room temperature before starting your irrigation.
Sometimes irrigation may not be prescribed. If you are drinking plenty of fluids - that is the best irrigation. This will be discussed with you individually.

Irrigation Procedure:

1. Wash hands with soap and water. Always have clean hands before beginning the irrigation.

2. Have all necessary equipment ready at the work area or bedside within easy reach.

3. Get the "sterile" syringe barrel, or whatever is to be used, and the container for collecting the urine and irrigating solution.

4. Open the container of irrigating solution.

5. Be sure to untape the catheter before beginning irrigation.

6. Use LOC or Phisohex to remove old tape from the catheter tubing and/or on your skin where the catheter was taped.

Before beginning your catheter irrigation you should be lying in bed (can elevate the head of the bed).

Lying down is necessary because the catheter will not irrigate effectively when you are sitting up straight, due to not then having the gravity effect.

7. Cleanse (rub) the drainage tubing and the catheter at the connection with an alcohol cotton ball. (This removes bugs that could enter into the catheter and go up into the bladder or urinary system and cause infection.) Disconnect the tubing and catheter. Pinch end of catheter. This will prevent air influx. Cap, or cover, the end of the drainage tubing. (Keep caps in a jar containing 70% alcohol. Can use any cover that is "sterile.")

   Then, place the catheter end into the "sterile" container, which will be used to collect the urine and irrigating solution.

8. Put the syringe barrel tip, funnel, or whatever will be used to pour the irrigating solution in, into the catheter, while catheter is still pinched.

* 9. Keeping the catheter pinched off, pour the desired amount of irrigating solution into the syringe barrel, then un-pinch

catheter AND LET RUN INTO THE CATHETER BY GRAVITY.

*Do not use a syringe plunger to force the solution into the bladder.

If you have any difficulty in irrigating your catheter notify someone who can direct you as to what to do, if measures taken to irrigate are not effective.

Sometimes, if there is a lot of sediment or mucous in the bladder, or a lot of crusts around the catheter tip in the bladder, it will be difficult to irrigate, and it may be that your catheter will need changing.

If crusts are a problem -- sometimes rolling the catheter around in your fingers will break up the crusts and allow for irrigation.

*You may be given instructions to gently pull back and/or push fluid into the catheter and bladder or both in some instances when the catheter seems to be plugged up.

In other words to give a little "boost" in some instances -- like if there is a mucous plug on the catheter tip and it will not irrigate.

If you are on a pass you can always call T.I.R.R. if a problem arises and get instructions, or you can come back to the hospital if the need arises.

When Irrigating You Do the Following:

a. You can pour the irrigating solution directly from its "sterile" container into the syringe barrel, or whatever, or you can pour it into a "sterile" container and then into the syringe barrel.

   Be careful, in pouring the solution into the "sterile" cup or syringe barrel, not to let it touch you, and to replace the cap on the bottle or jar without touching it on the inside. This will help to keep it "sterile."

b. The usual amount of irrigating solution for adults is 60 cc and for children 30 cc. (1 syringe barrel is 60 cc; 60 cc is 1/4 cup.) (Follow the instructions that you have received regarding the amount of irrigating solution you should use.)

c. If you have bladder spasms, and the solution will not flow into the catheter by gravity, it may be necessary to wait for several minutes. The solution may be very slow in draining into the bladder. You will see the irrigating solution go up and down in the syringe barrel. In this case, just be patient. (Report bladder spasms to your physician.)

Try putting less than 60 cc at a time into the barrel (maybe 20 cc or 30 cc), but be sure to use a total of 60 cc each time.

Sometimes putting in less irrigating solution when you have bladder spasms will enable the solution to go in without coming back up in the syringe barrel. (This is because a lot of fluid put into the bladder will cause it to spasm, if spasms are a problem for you.)

Right after your injury the solution may be very slow to go into the catheter and bladder, because the bladder is still in shock or "sleeping." This is normal for this time. It will gradually get over this shock phase.

10. Remove the barrel from the end of the catheter, hang (lower) catheter over the edge of the collecting container and let the irrigating solution and urine drain from the catheter *BY GRAVITY.

*Avoid pushing air through catheter into bladder. Check to see that solution has returned.

a. Notice the color (cloudy, clear, or pale), consistency (how thick or thin; sediment), odor of the urine, bleeding, clogged catheter, stones, and any unusual physical reaction, such as increased blood pressure, headache, sweating, many spasms. If the urine has a lot of sediment in it, this may indicate that you need to drink more water or fluids.
Report anything unusual, or that you are not sure about, to someone who can help you.

b. Be careful not to contaminate (touch) the syringe barrel tip, or the tip of the catheter.
In the event of contamination of the syringe barrel tip, replace it with a "sterile" one, and if the catheter tip is contaminated rub it off with an alcohol cotton ball.

11. Repeat the irrigating procedure (putting in the solution and letting it run out) two more times. In other words, it is done a total of three times, each time using 60 cc (or whatever you are told) of irrigating solution.

    Pinch end of catheter every time barrel is inserted or anytime catheter is not draining during this procedure.
    Usually by the end of the third time the solution returns clear. If it does not, then you may need to continue irrigation. It would be good to consult with someone if you have this problem.

12. Remove syringe barrel, or whatever, from the end of the catheter, *cleanse end of catheter with alcohol cotton ball, and connect the urinary drainage tubing back to the catheter. The irrigation is over.

    Be sure to retape the catheter.

    *Each time before connecting the catheter to drainage tubing, clean off the tips (catheter and drainage tubing) with an alcohol cotton ball.
    This is a precaution to remove any bugs and to keep them from entering into the urinary system and causing infection.

13. Prepare supplies to have ready for your next irrigation.

PREPARATION OF VINEGAR SOLUTION

*Vinegar Solution Can Be Made By:

1. Boiling four cups, or one quart of water for 10 minutes.

2. *Add 2 tablespoons or 6 teaspoons (1 oz. = 1 jigger) of white vinegar to the water.
   *Vinegar can be added before boiling the water; or you can add the vinegar to the boiling water. Cover the container while boiling - leaving a slight crack to allow steam to escape.

3. LET THIS SOLUTION COME TO ROOM TEMPERATURE BEFORE USING IT FOR IRRIGATION.

*You may want to prepare this solution in advance, such as the night before using it the next day, or prepare it in large quantities and bottle it up to have on hand, then just prepare more as you need it.

It is a good idea to save your urologic irrigating solution bottles for this purpose, but any bottle or jar large enough can be used. (Make sure the bottle or jar is "sterile." You can clean it the same way as you do the irrigating equipment.)

*Usually when you first go home, we will send some urologic irrigating solution with you, so that you won't have to worry about making it right away when you get home.

Another way of preparing Vinegar Solution is the old "terminal sterilization" method, as used for baby formula. You will need a seven quart enamel canning kettle with rack and 12 one-quart mason jars with sealers and screw on tops.

1. Wash jars and tops. Rinse well.

2. Fill the quart jars with tap water.

3. Measure and add two tablespoons of white vinegar to each jar of water and mix well.

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4. Put sealers and caps on each, but DO NOT SCREW ON. (Loose caps allow steam to enter and escape jars for sterilization).

5. Place filled jars into rack in kettle into which three to four inches of water has been placed.

6. Start on high burner heat until steam escapes from kettle, then lower to medium-low and let cook for 20 minutes.

7. Remove from heat and ALLOW TO COOL WITHOUT REMOVING KETTLE COVER - until sides of kettle are COOL.

8. Remove jars and seal tightly.

This makes enough irrigation solution for 21 days at 60 cc three times twice a day.

If you would like a "new twist" for an old method, try this one.

DEPARTMENT OF NURSING

CLEANING AND CARE OF EQUIPMENT

At the Institute the equipment for catheter irrigation is all ready, but you will find it easy to get ready, also, at home. The basic idea in caring for the equipment used for bladder irrigation is to keep germs out of the bladder.

Equipment necessary for irrigation:

Measuring cup (or some container to collect the urine and irrigating solution). Any small container can be used for catching the irrigation solution, such as a large ash tray with an identation on the rim for holding the catheter. You will need two measuring devices if it will be necessary for you to pour the irrigation solution into a container before pouring it into the syringe barrel, or whatever.

Syringe barrel (or some type of funnel or a pastry syringe). This should be large enough to hold 60 cc, or 1/2 cup of solution.

These containers should be plastic or glass.

Cleansing the Equipment:

1. Wash equipment thoroughly with soap and water, and rinse in cold water.

2. Soak equipment for five minutes in a solution of 3/4 cup *Clorox in a gallon (4 quarts) of hot tap water. (Can use any similar bleach.)

3. Rinse with cool sterile (boiled) water.

4. Drain well-- place on a towel or rack.

This cleansing will make the equipment "sterile", but do not worry about the fact that the equipment is not kept "sterile", because once the equipment is "hit" by air it is no longer completely "sterile", but it is very clean. We do say "sterile", however.

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-*Clorox cleaning solution should not be used on metal surfaces, because discoloration and corrosion may occur from high concentration or frequent exposure to Clorox.

-Use Clorox solution only one day, then discard and make new solution for the next day, or for the next time equipment is cleaned. The Clorox solution should remain effective for several uses within the same day.

-Urinary extension tubes and connectors can be cleaned in this same way. Use a pipe cleaner or a little brush to clean out inside of the tube and connector (when washing).

Another Way for "Sterilizing" Equipment:

If equipment is boiled (instead of using Clorox cleansing solution):

-Wrap equipment, especially glass, in a soft cloth.

-Use a covered container (*metal pot) for boiling the measuring cup and syringe barrel, or whatever.

-Place this equipment in a pot of water (enough cool water to completely cover them) and bring it to a boil. Then, boil gently in covered pan for 15 minutes. Put one teaspoon vinegar in the water to cut film.
-Cool and pour off the water.

-Equipment may remain in covered pan until ready for use.

*A cloth placed on the bottom of the pot is a protection for the equipment, or
*A rack (metal) on the bottom of the pot is a protection.

This protection is especially necessary when boiling plastic equipment, because if plastic things come in contact with the metal pot when boiling, they are more likely to melt.

There are a lot of whitish deposits that stay on the metal pot after boiling. This is from the minerals in the water. These deposits do not harm the equipment, in other words, you can still use this equipment.

*Remember to handle (touch) all sterilized equipment only on the outside, since the inside must remain "sterile" for irrigating.

*Avoid touching tip of barrel when removing from pan.

Catheter Caps and Plugs:

-Rinse well in tap water; then

-Store in a small container of 70% alcohol.

-Boil this container for 10 minutes (as described previously) once a week; then refill with "fresh" alcohol.

Connectors and Tubing:

-Connectors that have become coated with sediment may be soaked 1 1/2 hours in a solution of equal parts of water and vinegar.

-Remove sediment with pipe cleaners, Q tips, or a small brush, then

-Store in alcohol (as described previously);
or
-Boil for 10 minutes (as explained previously).

CARE (CLEANING) OF URIANRY DRAINAGE BAGS--BEDSIDE AND LEG BAGS

Purposes:

1. Prevent infection:

   Remove urine that could harbor bacteria if it remained in the bag and cause urinary infection if the bacteria (bugs) traveled up into the urinary system (bladder).

2. Prevent foul odor:

   Remove "old" urine that could cause odor if it remained in the bag stagnant or from day to day by accumulation (collection) of the urine's odor.

General Information:

1. Put two Aspirin tablets in your leg bag and bedside bag when in use (daily). This keeps down odor and infection.

2. The urinary drainage bags should be cleaned at least once each day.

3. The leg bag usually will last one month (depending on kind of bag and its use).

4. The bedside bag will usually last two months, or use the bag until a leak develops. (Depends on the kind of bag and its use.)

5. These bags can be obtained through the hospital pharmacy supply or any hospital supply corporation. (Most large cities have a hospital supply house.)

6. For bedside urinary drainage a glass jug or bottle (large gallon container) could be used. This container should be as clean as possible. Therefore, clean with soap and water, then put 3/4 cup Clorox with a gallon of water (in the container)

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and let soak for five minutes. Rinse with boiled water. This will assure cleanliness of the container.

7. If a jug is used to collect the urine, be sure that the END OF THE DRAINAGE TUBING IS ALWAYS ABOVE THE LEVEL OF URINE.

Setting Up the Equipment for Cleaning Drainage Bags:

1. Prepare container of Tide (or any detergent) solution:

   One teaspoon Tide to 500 cc (one pint) water, or can make a large amount of detergent solution --
   One ounce (two tablespoons) detergent to one gallon water.

2. Prepare a container of (white) vinegar solution:

   One ounce (two tablespoons) vinegar to one quart (four cups) water, or can make more --
   Four ounces (eight tablespoons, or one-half cup) to one gallon water.

   OR Aspirin tablet solution:

   Put two aspirin tablets in one cup of water and allow to dissolve.

3. *Have three clean containers. Can be kept in bathroom, or wherever drainage bags are cleaned.
   Suggestion: (3) 500 cc, or pint sized, containers.
   Clean (wash with soap and water, rinse) containers once each day.

4. Fill the (3) containers with solutions:
   Tide solution
   *Tap water
   Vinegar solution
   Refill with solutions as needed.
   *If you are able to have this cleaning "set-up" near a water faucet, you will not necessarily need a container of tap water.

Cleaning Bags:

1. *Place a clean syringe barrel into the TOP of the urinary drainage bag tubing.
   Note: A funnel or pastry (bulb) syringe can be used in the place of a syringe barrel, or a plastic squeeze bottle

that has a plastic pointed cap (fill this bottle with the solution and squirt into bag through inlet).

Syringe (or whatever) holds 50 - 60 cc and is used as a funnel. Be sure that clamp on tubing is open before washing bag. Be sure cleansing solution runs in from TOP (each time), so that the entire inner surface of the tubing and bag is exposed to the cleansing solution.

*Use a clean syringe barrel, or whatever, each time the urinary bag is cleaned. Wash and rinse the syringe barrel, or whatever used, out after using and store in clean container (box, bag) until needed again.

2. Pour a full syringe of detergent solution (one-fourth cup) into the tubing and bag and work back and forth. Drain solution into commode through the BOTTOM outlet tube.

3. Pour a full syringe of tap water into the tubing and bag for rinsing. Work water back and forth in the bag. Drain into the commode from the BOTTOM outlet of the bag.

4. Pour full syringe of vinegar solution into tubing and bag. Work solution back and forth in the bag. Drain solution into commode through the BOTTOM outlet tube.

5. Drain the bag thoroughly. Stick a small rod up the outlet end - through the small opening in valve, until dry, so that flutter plastic does not stick together. (Use a small brush to clean down in tubing and extension piece.)

6. Cap the inlet of the urinary drainage bag (whichever bag is not being used -- after cleaning).
Caps should be kept in a container of (70%) alcohol, so that they are kept very clean and free of bacteria.

7. After cleaning urinary drainage bags and/or tubing, drain bag thoroughly. Hang it in a clean place and allow to dry (hang in sunlight for drying). If not used again soon, store in a clean towel or something (plastic or paper bag) until needed. Keep away from direct heat.

8. Clean syringe barrel, funnel, or whatever, with soap and water once each day.

DEPARTMENT OF NURSING

PRINCIPLES OF APPLICATION AND CARE OF EXTERNAL CATHETER

PURPOSE:

To permit urinary drainage where incontinence is a problem and catheterization is no longer necessary.

GENERAL INFORMATION:

Your indwelling catheter was removed partly because your residual is low. (If it is not low it will be watched carefully.) Evaluation of your urine will be done every once in a while to see if you can stay on an external catheter.

Your catheter may be reinserted temporarily if you develop a urinary infection.

Perhaps you were asked to press downward and inward over the bladder to get out the "last drop" of urine before your residual was checked.

Perhaps you had to do push-ups or bend forward. Remember to do the same thing at least four times daily to be sure the bladder is empty.

Credé (or tap) over bladder or some other technic that will cause bladder to empty is important (about every two hours during the day may be necessary).

For the "credé" of a reflex bladder, remember to press more downward than inward gently, below the level of the navel, as pressing upward may push some of the urine into the ureters by reflux. Use a flat hand.

If the bladder is flaccid "credé" should be started above the navel and be smoothly progressed down and in to the pubis in continuous fashion.

Your individual type of bladder and method of "credé" will be discussed with you--as it depends on many things, such as any urinary surgery you may have had.

The bladder is usually best emptied in the standing position. If this is not possible, sitting empties the bladder better than lying down does.

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Regarding the External Catheter (also referred to as a condom):

The external catheter leaves much to be desired, but at least it serves a good purpose when properly used.

Continue to use the size and model we have provided, unless you want to experiment with different kinds. It can be replaced when necessary at most any drug store or surgical supply house. It is wise to have two or more of them to alternate from day to day. (Keep one clean -- if reusable or the uro-sheath -- and ready for use.)

PROCEDURE:

Preparation of Skin and Condom:

Disconnect bedside drainage bag or leg bag and cap tubing.

Gently remove old elastoplast and condom from penis and discard if worn, or the condom can be cleaned and reused if not in too bad shape.

To Clean the Condom (if it is the kind to be reused):

Rinse it with cold water as soon as you take it off; then wash it with a hand brush, soap, and warm water, being sure to scrape off any hard crusts. Turn the sheath inside out while washing. After that let it soak in baking soda solution (one tablespoon to a quart of warm water) for 15 minutes. Rinse again with plain water and allow it to dry overnight. Do not place it in sunlight or near a hot radiator, as the heat may damage the rubber.

The external should be changed at least every other day and as necessary if leakage occurs before due a change. Bath time is a good time to change it.

If a rash appears on the genitals -- and you should be checking every day depending upon your needs -- do not wear the external until it heals.

Bathe the genitals with soap and water, dry well, and powder the area after you take the external off at night (if you take it off. Usually, the external will be left on all the time -- except for cleansing your skin [genitals] and changing it.) If irritation or swelling develops, you will need to leave the external off and use a urinal or some urine collecting container.

Watch for redness from being wet or from contact with the rubber equipment. If the genital area is red for this reason, get something like Covicone cream. Rub it gently into the red area until the grease is gone, twice daily for three days and then once a day or every other day. It may help to protect the skin from further redness caused by contact with urine or with the rubber of the urinal. Also, Methakote cream can be used for the treatment and prevention of skin irritation. Apply it gently to irritated skin area, especially in the skin folds. Can apply it several times a day or as necessary. Also, can use Cruex spray or Desinex powder. Use as instructed.

Wash penis and meatus (all of perineal area) well with soapy wash cloth. LOC is good to remove skin bond and tape marks from penis. (Leave undiluted LOC on penis for a few seconds to soften skin bond glue so that it will wipe off easily.)
Wipe soap off with a clean wet wash cloth.

Use care in cleaning meatus and skin folds. Observe the genital area closely -- where the rubber comes into contact with the skin.

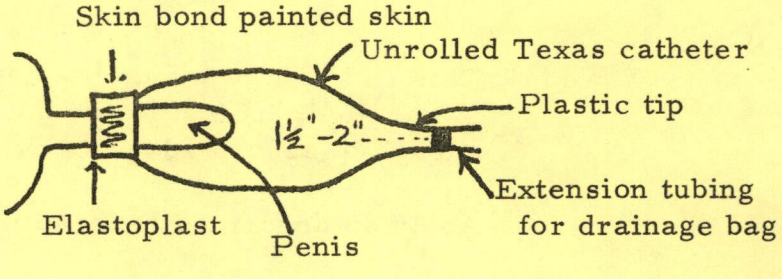
If pubic hair grows onto shaft of penis, shave -- carefully, so that skin bond and elastoplast will stick better. Gently dry with a towel and allow 10 - 15 minutes for the skin to air.

Roll a towel and place under the genitalia to absorb urine in case you urinate. (Or place penis in a small container or urinal to catch the urine.) This same thing can be done at night, as some people do not wear the external catheter at night.

Prepare a new condom for application.

The "Texas Catheter" is the most popular. It is applied as explained below, but it is already ready to apply. (It is put together.)

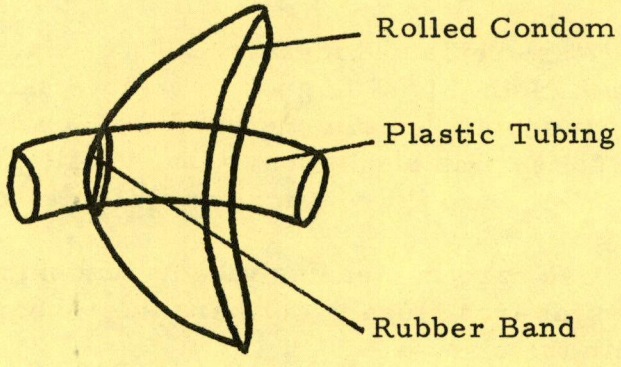
Texas Catheter:



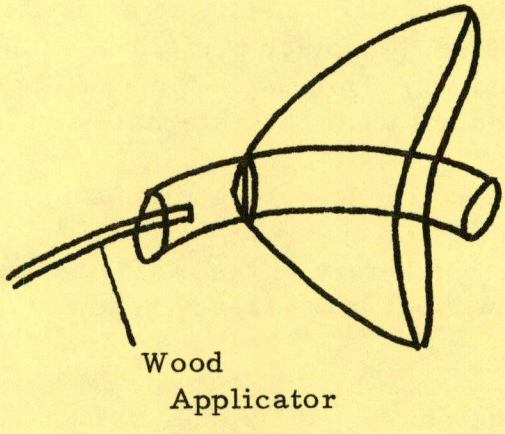
Some external catheters, similar to the "Texas Catheter," may be prepared economically and rapidly. To make your own: a couple of different ways will be explained and illustrated in items A and B to follow.

A. Insert one end of plastic connecting tube into rolled condom.

Secure approximately 1/2" of tubing in condom by tightly applying rubber band.



Puncture condom with wood end of applicator stick, or something so that tube protrudes.

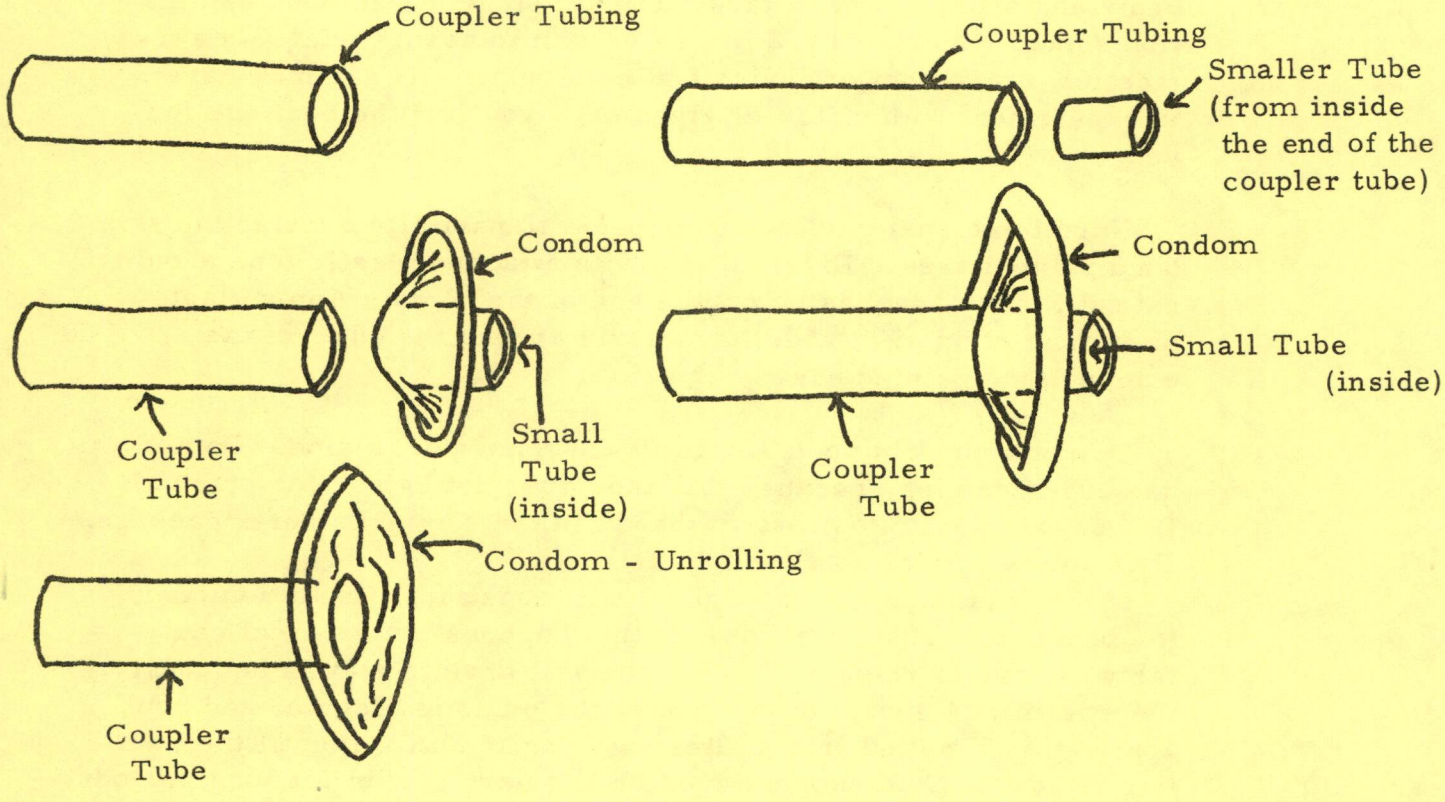


This end will be inside the device when the condom is unrolled. (Be sure the hole in the condom is large enough to assure adequate drainage.)

Apply as described in these instructions.

B. You can reuse the white plastic coupling tubing (connecting pieces or fittings) from a previously used "Texas Catheter" and a new condom. (When changing catheters, remove and wash tubing fittings from used catheter and save for reuse.)

To prepare a new external, withdraw short, smaller tube from within the end of white plastic coupler and place the fitting near the center of the inner side of a new unrolled condom. Holding the coupler against outer surface of new condom, reinsert short, smaller tube (covered by the end of condom) into place within the end of white plastic coupler -- from opposite end of coupler, then, puncture rubber covering smaller tube to permit the free-flow of urine through catheter, as shown in illustration A.



Apply as described in these instructions.

Cut one strip of elastoplast (1" wide) long enough to go around the penis without tension and slightly overlap.

Application of the Condom:

(Some people prefer to use powder, both on the sheath and on their skin, before putting the condom on, so that it slides on easily. Also, you may lubricate the sheath with K-Y or something to help it slide on easier. This may especially be needed if you use the uro-sheath external catheter.)

Do not use oil or anything irritating on the genitals when you are using the external, because the oils may injure the rubber and/or keep the condom from staying in place on the penis.

Do not use Betadine on penis, because it may react with the rubber and can cause skin irritation.

Apply a ring of *skin bond (or some glue) to midshaft skin of penis and allow to dry to tacky (sticky) stage. Skin bond application should cover 1 - 1 1/2 inches of skin to assure adequate surface for attachment of device and elastoplast. (*You may have to experiment with different glues until you find the best one for you.)

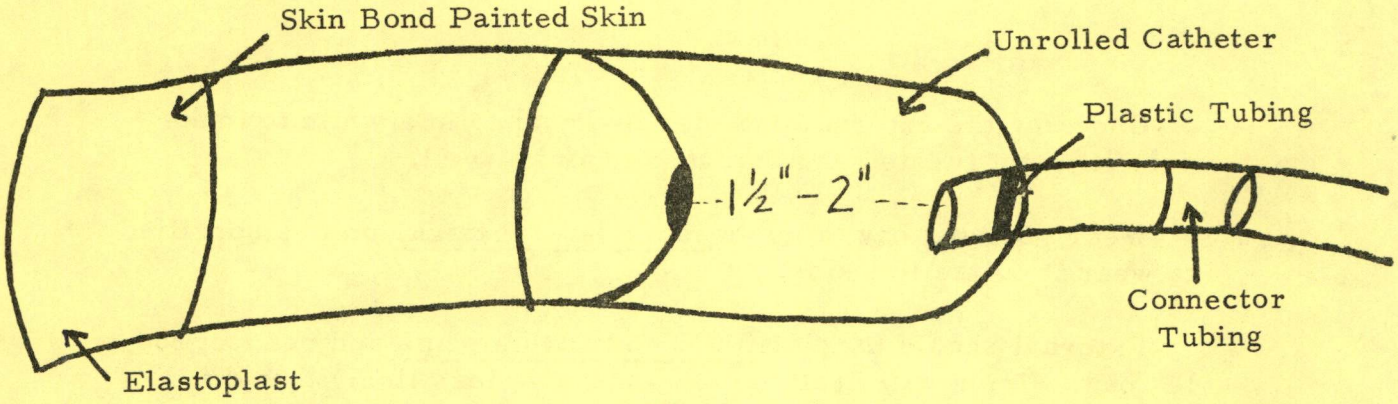
Unroll external catheter over penis to partially overlap the skin bond painted area. External end with attached plastic tube should extend 1 1/2 - 2 inches below the end of the penis. Apply elastoplast (one strip of 1" wide) circularly around the edge of the external and painted area of the skin.

Do not apply elastoplast tightly or under any tension. Do not use adhesive tape, because this tape does not "give" (or stretch). Do not use elastic foam strip that is in the Texas Catheter package. It is not as secure as elastoplast.

If the elastoplast is too tight it will constrict circulation of the penis and cause swelling! If this happens the external catheter will have to remain off, and you will have to stay in bed until the swelling is gone. (Sometimes, the penis is elevated and cool applications applied [right after swelling is noticed] until the swelling is gone. Cold should never be left next to skin for long periods of time, and always cover an ice bag or whatever, so that cold is not right next to the skin.) The urine must then be "caught" in a container, or urinal.

* Always check the condom to be sure it is not too tight, and PREVENT SWELLING OF THE PENIS.

Attach catheter to extension tubing and bedside bag or leg bag.



NOTE:

There are many different kinds of external catheters. If you use a different kind than we have taught you about here -- just follow the instructions that come with it.

If you use the kind of condom that has straps (to hold it on the penis) that go around the thighs and abdomen, be sure that the straps are not too tight, and be on the lookout for strap irritations on the thighs and abdomen. *One kind simply has a strap to secure the condom on the penis.

*Refer to special instructions that may come with external catheters (application and care).

Another kind of external is the uro-sheath (comes in different sizes -- individually fit). It can be sewn into a jockey strap specially fit to you. This holds it on and in place better.

Getting an external catheter to stay on and not to leak is sometimes a real task, so just be patient. You may have to use trial and error for awhile until a secret formula is learned for you. As mentioned, you may experiment with different glues to find the one that holds the catheter on best for you.

Also, some people find that painting the skin (same area as explained in instructions using skin bond) with Benzoin works best for them).

A few other hints regarding externals are:

-Checking the external catheter every once in a while to make sure it is not twisted and that it is draining well.

-Wear your leg bag on right inner lateral thigh, unless specified to wear it on the left side.

-External should hang straight down from penis and connect to leg bag. Urine will drain better, and it is less likely that the external will twist or kink off and leak. With the straight down urine drainage, there will be less chance of the external ballooning out and leaking.

-Wear boxer shorts, instead of jockey shorts. Boxer shorts are less binding and less likely to kink off the external at the thigh.

-It is okay to keep the leg bag on when in bed, however, urine may drain better if hooked up to bedside bag. If left hooked up to leg bag external may twist or kink → balloon out → leak.

You will find the best way for you to wear and manage your external catheter as you experiment with different things regarding external catheters.

GOOD LUCK!

AUTONOMIC DYSREFLEXIA

WHAT IS IT?

AUTONOMIC DYSREFLEXIA, referred to as **DYSREFLEXIA**, is hyperactive reflex activity which is uncontrollable and abnormal resulting from an interrupted spinal cord. (Autonomic, meaning functionally independent and dys., meaning disordered, difficult, or painful, plus reflexia or reflex.) It can occur in any patient with a complete or incomplete spinal cord lesion at a level above the 6th thoracic vertebra, any time after the stage of spinal shock ("sleeping stage") has ended.

WHAT CAUSES DYSREFLEXIA?

1. Swelling of the bladder from pinched or plugged catheter is the most common cause. Bladder becomes over-filled with urine. Tight clothing may cause the drainage tube to become pinched.

2. Bowel distention is the second most frequent cause.

3. Spasms of the muscles of the bladder and bowels can be a cause if they are frequent and severe.

4. Sensations such as heat, sharp objects, or simply touching the skin.

5. Urologic procedures, such as catherization.

6. Infection.

7. Bladder Stones.

WHAT CHANGES OCCUR IN THE BODY?

Nerve impulses begin at the bladder and travel upward to the level of the cord injury on the same nerve tracts that normally carry sensation. It is a quick response, just as it is when your brain registers that you have touched something too hot. However, since the pathway in your spinal cord is interrupted, due to your spinal cord injury, you cannot send messages to your brain from below the injury. So, as the impulses reach the level of injury in the spinal cord, a reflex outflow from nerves causes some reactions in your body. Blood vessels constrict to cause a rapid rise in blood pressure. The area of the body above the spinal injury is under control of the brain and tries to counteract the constriction below the injury. Thus blood vessels are opened (dilated) above the lesion leading to flushing of the skin, especially of the face, neck and upper chest.

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The Institute for Rehabilitation and Research
1333 Moursund Avenue Houston, Texas 77030 (713) 799-5000
In the Texas Medical Center

SYMPTOMS:

1. Sweating (sudden and profuse) may be the first sign and should not be ignored.

2. Flushing of face and chest (red splotchiness).

3. Sudden rise in blood pressure.

4. Severe headache (sudden onset) due to rise in blood pressure.

5. Slow pulse (from heart slowing).

6. Chills, especially in hands and feet.

7. Shaking.

8. Nervousness.

9. Nose congestion.

10. Ringing in the ears.

TREATMENT:

1. Elevate in bed to a sitting position.

2. Take prescribed medicine for dysreflexia, if it is available.

4. Irrigate catheter using gentle force. If you get no results, remove catheter immediately. Empty bladder slowly (not completely). Adequate drainage is the most important things.

5. If you were not using a catheter, insert one if the bladder is distended.

If Not Urinary:

6. Check for fecal impaction (first deaden the rectum with Nupercainal Ointment). Remove impaction.

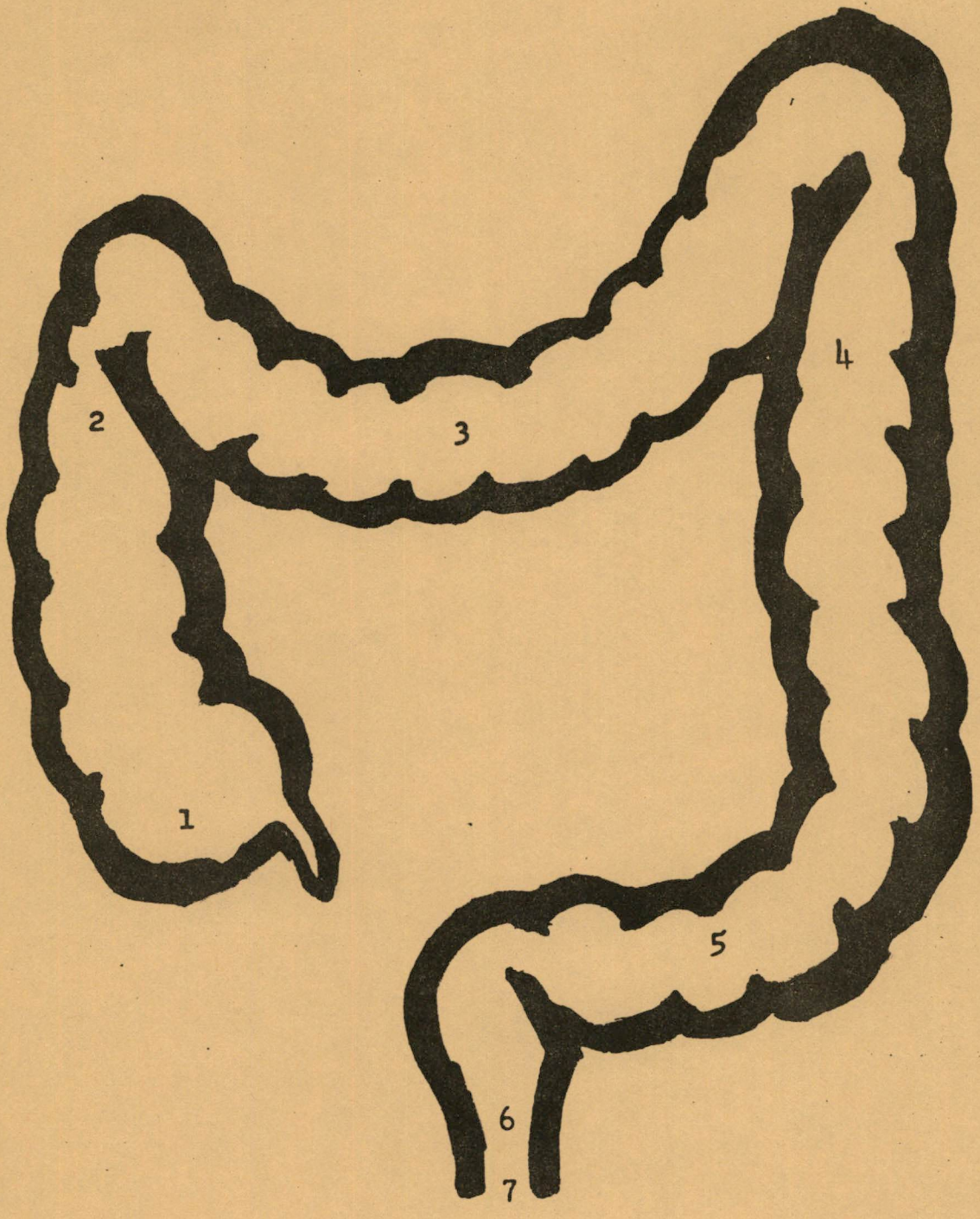
7. Call your physician.

8. As blood pressure goes down, remain quiet, since you may have a period of exhaustion following dysreflexia. Headache may linger (even though it lessens.)

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PRINCIPLES OF BOWEL CARE

1 Cecum
2 Ascending Colon
3 Transverse Colon
4 Descending Colon
5 Sigmoid Colon
6 Rectum
7 Anus



* LARGE INTESTINE

*Refer to Picture for:
-General Principles of Bowel Control
-Suppository Insertion
-Digital Stimulation

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DEPARTMENT OF NURSING

PRINCIPLES OF BOWEL CARE

Control of the bowels is lost the same way as loss of bladder control. The sensation of having to move the bowels is lost. The bowel movement, just as emptying of the bladder, is partly under voluntary control under normal conditions, and partly controlled by automatic muscles. These muscles, although not under your control, will continue to empty the bowels.

Bowel control is usually a big concern of the paralyzed person. Try not to let the bowels worry you, because we are usually successful in regulating the movement to have it at a convenient time. This may take some time and much planning, however.

A bowel program is a plan for establishing a method and a schedule for regular bowel elimination. A bowel rehabilitation program is directed toward bowel training or bowel control. Bowel training is a program planned for someone who has some awareness of the desire to defecate (move the bowels).

Bowel control, which is what you are probably concerned with, is a program planned to provide for a time for defecation when you have no awareness of an urge to defecate.

You must plan to have the movement at the same time every day or two, or the schedule will be upset (while you are in the hospital). Regularity is important.

If your bowel movements were irregular, in other words, you did not have a regular scheduled day and/or time for your bowel movement, before your paralysis, then your bowel control program here at T.I.R.R. will probably be more difficult to regulate.

Important factors that can affect your bowel program are:

Medication
Nutrition (diet)
Activity - increased abdominal activity
Exercise - causes abdominal tension, which can cause bowel evacuation (emptying)

These things can cause diarrhea or constipation or change the regularity of your bowel program.

Other factors to consider in planning a bowel program are:

-Your former bowel habits (history), prior to injury, such as necessary laxatives, frequency of bowel movements, usual time of evacuation, foods (habits) that may influence elimination, fluid intake, usual type of stool.

-Your physical impairment.

-The most desirable time to plan for bowel evacuation to prevent conflict or disruption of your other activities (such as making certain that P. T. and O. T. schedules do not conflict with the expected time for defecation while you are in the hospital).

-Intake of certain foods and fluids (diet).

-Medications which might affect your bowel program, such as antibiotics and muscle contractors or relaxers.

-Providing for privacy and comfort at times of planned defecation.

-Emotional stress can affect the bowel program. For example, if you are in school --- exam. time may cause you stress (as it does many individuals) and will cause the bowel program to be affected, such as by causing diarrhea or constipation.

Also considered when planning your bowel program, especially when it is getting regulated, is your return to your home and community and the bowel pattern that you would like to establish then, so that your bowel movement will not conflict with your other activities.

It is better to have the bowel movement while sitting, if possible, on a bed pan or commode, rather than lying down in bed. Sitting provides for gravity which aids in better elimination of the bowel.

Your participation in planning and following through with the bowel program, so that you will know the purpose of each bowel medication, is necessary. Also, you should participate in evaluating your results and needs related to your bowel program.

You can continue the same program at home that is found to work in the hospital if you desire. However, this will need adjusting and working with, as you change activity, exercise, and/or diet. You can "play around" with it until you have reached a satisfactory program.

As time goes on, you will find what is best for you, and you will be able to work the bowel program out according to your needs. You can go by your previous (before paralysis) bowel habits and plan accordingly.

Keep in mind variability of your physical condition. Changes need to be made in light of change in your condition.

The purposes of the bowel program are:

1. Plan a method and a schedule to provide regular bowel elimination. A regular bowel program will help remove emotional stress from unpredictable bowel movements and will aid in your total rehabilitation program.

2. Prevent fecal impactions.

Soon after admission to the Institute you are interviewed by a nurse to obtain information about your bowel habits, as previously mentioned. Following this discussion and determining the present status of your bowel elimination and whether or not your previous habits are satisfactory for the rehabilitation schedule, the nurse will decide with you the type of bowel program for you and begin a plan to accomplish the bowel program.

Before beginning a "new" bowel program the bowels may need to be "cleaned out," that is, before a program can be effectively started, because laxatives and softeners are not usually effective if the bowel is full. Once cleaning is accomplished, bowel peristalsis can be stimulated.

We use various laxatives, laxative foods, or enemas until we have "hit" the right combination for you. Mild medications for laxatives or bulk are not usually effective if the bowel is full. That is why "cleaning out" the bowel may be necessary.

Once cleaning is accomplished your bowel program can be started.

There are about four stages in a bowel program:

I. When you are flat in bed right after injury, you are eating but the body is breaking down foods in tissues faster than building up tissues. A lot of calcium is excreted and you get dehydrated. Even after the upper intestinal tract begins to "wake up," the lower bowel may remain in "shock" (sleeping). The bowel is flaccid (limp) and without spasms. Peristalsis is minimum. This is the

stage of "spinal shock." The primary concern at this time is bowel elimination. After the initial, or shock, phase of your injury the bowel program will need revising, since before this time no reliable bowel program can be established because you will not have the proper reflex for emptying the bowel adequately. Controls for evacuations may be effective intermittently during the recovery period.

A daily bowel program is usually planned for this stage. This is done to be sure that impaction is prevented. After this stage a daily bowel movement is not necessary.

As you progress, your bowel program may need to be changed, schedules modified, and techniques initiated for stimulating evacuation. The intestinal tract is beginning to improve in function.

II. More stabilized physically. The nutritional state begins to stabilize and food intake is regular. If bedrest is still the activity limit you will need a daily bowel evacuation, still.

III. Upright position, exercises (physical activity) begin: There is increased bowel function. The return of reflexes and/or sensation of fullness are signs that careful evaluation of the bowel program is needed.

Prevent impaction.

During this stage, the bowel program is again adjusted - according to what is most effective for bowel evacuation for you.

IV. The regulation period of finding the right combination of food's and fluid's intake with stimulation measures.

Aim: Obtain a balanced control.

This is the period that will continue even after you have gone home, and your food and eating patterns will require some adjustments. (Sometimes, you may already be discharged from the hospital before this stage of your bowel program even begins.)

HINTS FOR BOWEL CONTROL:

Oral Bowel Medications

The use of laxatives will help move stool through the bowel. The type of laxatives used will depend upon evaluation of the type of bowel activity. If the abdominal muscles are intact and there is voluntary anal sphincter control, the mild stimulants or senna compounds may be the laxatives of choice. This group stimulates the mucosal peristaltic reflex of the bowel which may be reduced by muscle relaxants or analgesics. The irritant laxatives of the Dulcolax type are effective in producing contractions of the bowel in the absence of voluntary muscle control. The Dulcolax laxative has been highly effective in obtaining a complete mass movement for bowel evacuation. Cramping, however, is a frequent complaint

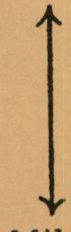
when Dulcolax is used. Softeners are given to maintain the consistency of the stool to allow for evacuation without voluntary muscle assistance, and without strain. Surfak and Colace are examples of stool softeners. Prune juice is good for this, too. Roughage: salads and fruits are good. Laxative - irritants and softeners (lubricants), such as Dulcolax tablets and Surfak capsules, serve to stimulate bowel peristalsis (moving). Dulcolax tablets work for the top part of the bowel, as do Senokot tablets, Dialose and Gentlax tablets, also Milk of Magnesia, Cascara and mineral oil, and move stool down the intestine -- through the descending and sigmoid colon. Stool softeners work so that evacuation can be initiated with an irritant - stimulation of the rectum, such as with a Dulcolax or Senokot suppository (contact - irritants). This stimulates intestinal peristalsis low in the intestine and will empty the bowel. If a suppository is inserted and you have had no results within 30 - 45 minutes, then insert another suppository or a glycerin suppository. Another way you can handle this situation if you have had a suppository and have had no results (B.M.) within 30 - 45 minutes.... is to then do digital stimulation. If this is still not effective, then insert another suppository or a glycerin suppository. If you still have no results, take a one-pint tap water enema. If there is a problem with the bowel being full and stool not moving out you may need something stronger than a tap water enema, such as a soap suds enema.

Anal Stimulation

Anal stimulation, mechanically (finger) or chemically (suppository), is used to relax the anal sphincter and to distend the internal anal sphincter enough to cause a local reflex evacuation. Timing of the evacuation stimulation to coincide with the arrival in the rectal area of the oral medication is one of the most difficult problems to solve in developing an effective bowel program. The variation in oral laxative times getting stool to lower bowel is great. This will be discussed with each individual person. The literature reports six to eight hours as the normal time, but this is not accurate for the paralyzed individual. The aim is to have effective evacuation within 30 to 60 minutes after stimulation is done. Immediately after evacuation, do digital stimulation. This will provide for a more complete evacuation.

Irritant suppositories in conjunction with oral irritant laxatives can work together to develop a reflex training bowel control program. If the pre-disability bowel pattern suggests a small amount

of stool being evacuated every two to three days, the initial anal stimulation could utilize a rectal distender such as a CO_2 releaser, or Vacuette suppository. Classification of vigorous stimulation methods in terms of effecting evacuation and physiological consequences.



Fleet enema
Dulcolax suppository
Senna stimulant suppository
Glycerin suppository
Soap suds enema
Oil retention enema
Vacuette suppository
Digital stimulation

Adjusting the Medications

Softeners should be used when the stool is a formed or hard consistency and food and fluid intake is below normal. They can usually be decreased during the second stage. Oral contact irritant-laxatives are adjusted according to two factors: frequency of evacuation and delayed evacuation after stimulation. The volume of stool may be a third consideration. If there is a small evacuation before stimulation, the laxative may be decreased to a minimum or the time of the oral medication changed from 12 hours before stimulation to 10 or 8 hours. Small frequent stools suggests the need for a less severe laxative or decreased amount. Usually laxatives are still needed during the second stage, but may be decreased during the third stage. Caution should be used, however, in modifying a bowel program too often if the oral to rectal clearance time for the oral medications is not known. There are times when suppository stimulation is delayed as long as four to six hours. When this happens, attention should be given to the technique of giving the suppository. If the suppository is not placed next to the rectal mucosa the delay may be secondary to the time required for the suppository to dissolve. The delayed evacuation may also be due to a delayed oral-rectal clearance time of the oral medication. When evacuation occurs within twenty minutes of a Dulcolax or Senokot suppository insertion, it is an indication that perhaps a glycerin suppository may be effective. When the glycerin suppository causes an evacuation in about ten minutes, then digital stimulation may be used with satisfactory results. Usually, you will be at home when your bowel program is this regulated.

If you are on a reduction diet, or your food intake is bland, or you have poor or restricted fluid intake, then usually more effective bowel movements will come from taking bulk laxatives (such as Metamucil) rather than the softener stimulant type.

Bulk laxatives provide for substance (like food) in the bowel that will help the stool move along (down) in the intestine so that defecation will occur. An older person usually needs this.

Timing of the evacuation should take advantage of the common phenomenon of the need to defecate after ingestion of food or hot liquids; like after a meal, as eating may stimulate your bowel.

Another phenomenon to initiate defecation is to drink something ice cold, such as juice; then follow that with something hot, such as coffee; then sit on the commode. Defecation should follow shortly. However, you will be better able to work out the timing after you have experimented with this. You may want to plan to do this after breakfast or supper. Also, activity is a key factor.

In the hospital your bowel program is planned and changed (timing) for giving laxative and suppository if taken if defecation occurs at a time other than that planned. Sometimes, you may be receiving too much laxative and sometimes not enough.

If you run into stubborn diarrhea or constipation, you can insert a gloved finger into the rectum and feel for impaction. If you can feel hard stool up in the rectum, you can manually remove it. (This manual removal of stool from the rectum is done to get rid of an impaction -- stool that will not come out by itself.) But if you do not feel any and the problem persists, you had best consult your physician, or someone who can give you advice about your bowel problem. Diarrhea can mean that you have a fecal impaction from severe constipation. The rectum is partly obstructed and only the liquid part of the movement can get through in this case. Diarrhea can also mean that you have some kind of dysentery.

Temporarily you might use foods to "bind" you. These foods include:

- skimmed milk
- ripe banana
- cheese
- tea
- white bread toast
- boiled rice
- lean meat

Stop your usual juices, vitamins, green vegetables, other fruits and laxatives.
The main thing, though, is to find out what is causing the problem.

Constipation can occur from not drinking enough water or fluids. Also, some foods, such as ripe banana, cheese and milk are constipating.

If constipation persists and you are not impacted, then increase fluid intake and be sure that you are getting the proper diet. Some softening foods include:

-prunes
-peaches
-apricots
-coffee
-raw vegetables (roughage)

If the problem persists, again, consult someone for advice about how to handle the problem.

In the hospital, the nurse will enter the bowel program on your care plan.

We have a bowel record sheet that is used to evaluate the bowel program. This record is for the purpose of documenting the experience for you in influencing a reliable bowel program. (you may want to continue keeping this record for a couple of weeks after you go home. This will help you to evaluate and plan your bowel program in view of the change in activity, diet, or whatever after you have gotten home.) The time, type and amount of bowel movement is recorded, as are laxative medications and position when evacuating. The more specifically and consistently these things are recorded the more helpful they will be in modifying the bowel program. This sheet is kept on your clip board chart. You can discuss the results with the nurse, and your progress should be reviewed and evaluated weekly, so that change can be made if necessary and so that a workable bowel program can be established with you. However, before a change is made (with a new bowel program) it should be evaluated for at least two weeks. If change is made too frequently, it will be impossible to really know what is or could be effective for you. You should be aware of your bowel program's success and need for changing your bowel program. You should assume responsibility for your own bowel program as time goes on.

There is one group of paralyzed individuals who do not progress through the four stages of bowel control. This is the group with flaccid paralysis, resulting from a lesion low in the spinal cord. These persons rarely regain anal sphincter tone or reflex activity. The most effective bowel control program for this group is enema. The objective in the bowel management for the flaccid bowel is to clean the descending bowel. Characteristically, for these persons, bowel peristalsis results in an almost constant or frequent evacuation which may be controlled effectively by the cleaning of the lower bowel.

A laxative may be necessary to push the stool down to the lower bowel. This also is individual, so will be planned accordingly.

A summary of factors necessary for your bowel program is as follows:

1. Regular bowel and commode schedule is necessary to avoid irregular and embarrassing bowel movements. TIMING is a key factor in bowel regulation. (Plan for a bowel movement at the same time every day.) Also, taking bowel medications (if you take them) consistently and at the same time daily or whenever is important in regulation of your bowel habits.
2. Plan and regulate your bowel program considering the effects of activity, exercise, diet (nutrition), fluids, and medications; as these all can affect your bowel program.
3. Your food and fluid intake are key factors to establishing bowel control without bowel medications. Regular eating and drinking can completely eliminate the need for any bowel medications, such as laxatives and/or softeners.
4. Continued follow-up with your bowel program is necessary.
5. Evaluation and revision of your bowel program will be necessary every once in a while, according to your individual needs. Your bowel program may need weekly review.
6. Continued modification and planning will be necessary at home. (There is much more regimentation in the hospital, as compared to home.)
7. Bowel program is a very individual thing.
8. Remember skin care after bowel elimination.

Your cooperation is very important, as bowel planning and control is a long, tedious process; a process that not only takes days to regulate but must always be kept in mind so that the control program can be maintained.

The initial objective in a rehabilitation program is to avoid disruption of the physical reconditioning program because of irregular and embarrassing bowel movements. The program will require long-term attention to maintain control with different activity levels. Heat, such as from a hot tub bath, will almost always cause bowel evacuation if stool is present. Exercise causing abdominal tension will also cause evacuation. There are times when you will think that the right balance has been found between exercise, food, fluid, laxatives and stimulation, then to suddenly experience an embarrassing accidental evacuation to everyone's frustration. When this occurs, we

will check for early signs of infection or consider whether the physician has made a change in your medications. Bladder infections and various antispasmodics or antibiotic drugs will contribute to the disruption in a bowel program.

Whatever the in-hospital bowel program becomes, it will require adjustments when you return home. With regular habits at home, the softeners and laxatives or whatever can be discontinued altogether and the evacuations can be stimulated digitally and sometimes with no stimulation (with the exception of food and fluids which are necessary for regular bowel habits).

Your bowel program is planned with you individually and revised and adjusted according to your needs. It will be reviewed with you periodically, and a plan will be made so that you can carry on with it at home after discharge.

DEPARTMENT OF NURSING

INSERTION OF SUPPOSITORY

GENERAL INFORMATION:

If you are able, you may insert the suppository yourself.

*There is a special piece of equipment that can be adapted and adjusted to your hand and wrist that will help you to insert your own suppository. If you are able to do this we will provide you with this equipment (if you want it). O. T. will help adapt it to your hand.

Provide for privacy.

*The suppository should be at room temperature before inserting it. This makes it act more rapidly.

*If the suppository has been refrigerated it should be warmed by holding the (foil wrapped) suppository under the water, if the suppository is wrapped.

*In warm weather it is advisable to hold the suppository in cold water for 1 - 2 minutes.

The instructions that come with the suppository should say if the suppository needs to be refrigerated. For example, Dulcolax suppositories melt at temperatures above 90°F. Refrigeration is not necessary, however, when temperatures are lower and will prolong the time required to cause evacuation.

Check for impaction of feces. If impaction is felt -- it should be removed before inserting the suppository.

GIVING THE SUPPOSITORY:

Some suppositories come wrapped in foil; remove the foil wrapper from the suppository.

Put on a disposable finger cot or disposable glove (a glove is not necessary, however). Instead of a finger cot or glove you could just cover your finger with a piece of plastic (like from a cleaner's clothes bag) or anything thin enough to let you feel as you insert the suppository and yet cover your finger. This is to make insertion of the suppository safer -- in that your finger flesh and nail will not come in contact with the bowel mucous membrane (lining), which could cause a scratch inside

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the rectum if your nail contacted this lining. (Nails should be kept trimmed, to prevent injury to tissues.) Also, using a finger cot, or something, provides for cleanliness of your finger. The finger cot, or whatever, should be thrown away immediately after using it (because it would have germs on it from the rectum).

The suppository may be coated at the tip with a lubricant (water-soluble) in the presence of anal fissures or hemorrhoids. This will make it easier to insert. Otherwise, it should not be lubricated.

Or, the suppository may be lubricated with tap water. (Hold the unwrapped suppository under the water faucet if necessary.)

POSITION FOR INSERTING THE SUPPOSITORY:

Side Lying Position

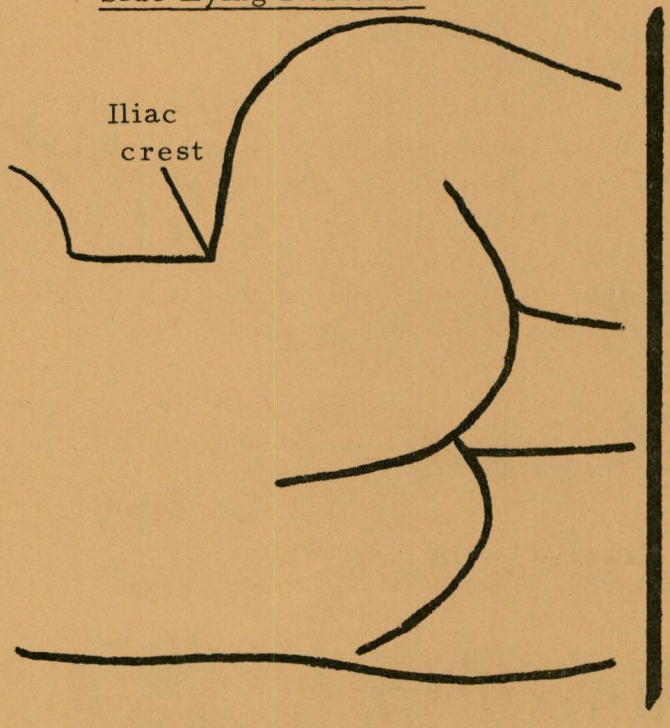


figure 1

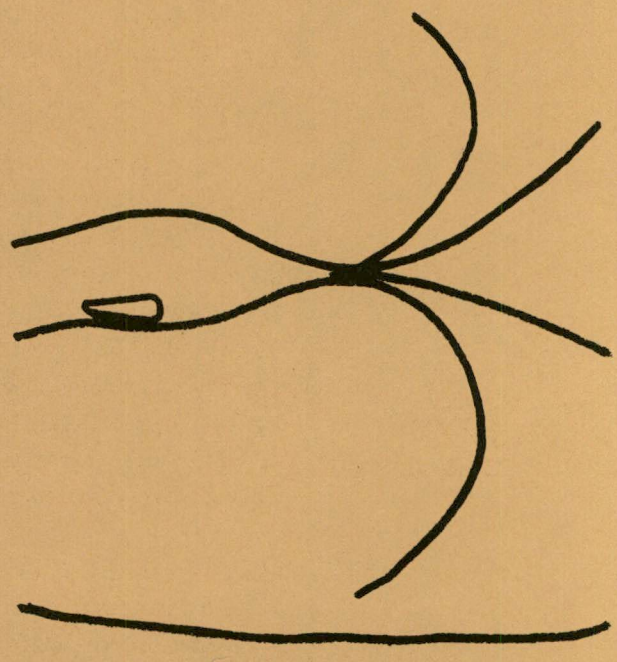


figure 2

Best results (in bed) are usually achieved by lying on the left side, with the lower (left) leg straight and the upper (right) leg flexed (raised) for balance (figure 1).

IF YOU INSERT YOUR OWN SUPPOSITORY:

The side you lie on will depend upon which is your most maneuverable arm and hand, as it is generally used to hold and

guide the suppository or the inserter. (You would lie on the opposite side of your "best," or most maneuverable, hand.)

Can use a mirror arrangement to see to get suppository into rectum, or can simply follow the body "landmarks" -- to guide the loaded suppository inserter or suppository into rectum.

Can feel the iliac crest bone, then follow it in a straight line back across buttock to crack, then downward to rectum opening.

Insert the suppository directly into the rectum -- pointed end first. It should be put high into the rectum beyond the internal and external sphincters (as far as your finger will go in the rectum) until you feel a bowel wall ledge (figure 2).

You may loose the suppository immediately upon passing the anal sphincter, so be sure when you go in you push it against a wall of the rectum.

Then, push the end of the suppository sideways, to make sure that it touches the wall. In other words, the suppository should be put next to the mucous wall in the rectum. This is so that the suppository will act effectively. *The suppository must contact this wall before it starts dissolving. (This will lead to evacuation.)

*Each suppository acts differently, and you will each receive specific instructions on the suppository you are receiving.

*If using the suppository inserter -- it will not expel the suppository until the full insertion is achieved. (Any sterilization or cleansing method may be used for cleaning the suppository inserter.)

Evacuation usually occurs within 15 - 20 minutes after suppository insertion, if the medicine is acting and you are having suitable results from the suppository.

This time element is very individual, though, as are other aspects of your bowel program. It may be more or less time than 15 - 20 minutes for you. You can regulate the time you take the suppository and the time you should transfer to the commode, or whatever, to your needs and habits. This is something that will also take time to evaluate, plan, and get regulated on a pattern.

Eventually, you should have established a pattern so that you will know how soon after taking the suppository that you can safely transfer to the commode or whatever, for your bowel movement. (Or, you will know how soon after taking the suppository that you will have a bowel movement.)

If the suppository would come out or is ineffective, this could mean that it was not inserted high enough and should be reinserted and pushed higher up in the rectum.

If someone is inserting the suppository for you, left side lying is also recommended, because of the location of the rectum (in the lower bowel on the left).

The suppository is inserted the same way as explained previously.

Commode position

This is an upright position.

You may transfer to a commode chair or the regular commode, which may or may not have some adaptation, such as an elevated seat. (This will have been discussed and reviewed with you while you are in the hospital if you are to use the commode for your bowel movement at home. You will get practice using the commode or commode chair here, also, if you are to use it.)

You will have to judge by your needs if you insert the suppository before getting on the commode, as when it takes a longer time to act (after insertion) or if you can transfer to the commode and then insert the suppository, as when it may act soon and you would not have to sit on the commode for a long while. Or, you will work out your transfer to the commode with the length of time it takes for the suppository to act -- as previously discussed.

For inserting the suppository -- tilt forward, then reach behind you and insert the suppository, or if this does not work, you can reach between your legs from the front and insert it. This is very individual.

NURSING DEPARTMENT

DIGITAL STIMULATION

DEFINITION:

Digital stimulation is a procedure used for bowel training in individuals who have lost voluntary control of the bowel because of damage to the spinal cord.

GENERAL INFORMATION:

The lower bowel terminates in the rectum, which is a hollow tubular organ about 5 inches long, and the anus has 2 bands of circular muscle (sphincters) which guard the opening.

The external sphincter muscle is a voluntary muscle that can be controlled at will in the normal individual.

In paraplegia and quadriplegia, the external sphincter muscle is relaxed, as you have lost voluntary control.

The internal sphincter muscle is controlled by a part of the nervous system that is also interrupted. Although it cannot be controlled by your voluntary will, it can be trained to have automatic control.

1 or 2 glycerin suppositories may be used with the digital stimulation, as the melting glycerin irritates the mucous membrane lining of the rectum, serving as an additional stimulus to peristalsis (wave-like motions) in the bowel. The contents of the bowel then pass to the rectum and through the anus.

The rhythmic waves in the intestine (peristalsis) which move the intestinal contents along and aid in defecation (bowel movement) are increased when the contents are large and bulky. A high residue diet containing leafy vegetables and fruits is helpful. An excess of fruits, carbohydrates (starches), or carbonated water may cause loose stools which cannot be controlled.

A regular time for bowel movements should be decided upon. It should coincide with your former habit pattern and with your schedule for after returning home.

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PROCEDURE:

Be in an erect position whenever possible -- seated on the commode, bedpan, or whatever.

The force of gravity will aid in moving the intestinal contents down.

Pressure in the rectum may also be raised by:

Holding your breath and pushing

Coughing

Pressing with your hands, if possible, over the lower abdomen.

A gloved, lubricated finger is inserted through the anal opening to stretch the sphincter muscles. Can use a disposable glove, finger cot, or cover the finger with a piece of thin plastic or something that would protect scratching of the rectal mucous lining and also keep your finger clean. Discard glove or whatever when finished to prevent spreading any germs from the rectum.

Lubricate well with vaseline.

Then, move the finger in a circular motion around the rectal wall to gently stimulate the lower bowel.

This is carried out for 1/2 minute or longer until the internal sphincter muscle relaxes.

The length of time varies, depending on how tight the sphincter muscle is, whether there is stool present in the rectum, and your individual pattern.

The passage of stool usually will take place within about 1/2 hour after digital stimulation.

If you are unable to carry out this procedure, someone can do it for you or can assist you.

NOTE:

Digital stimulation should not be confused with the manual removal of stool from the rectum.

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DEPARTMENT OF NURSING

ENEMA INSTRUCTIONS

Tap Water or Soap Suds Enema

Action: Causes pressure on the wall of the rectum. This pressure causes the rectum to push out the stool ⟶ bowel movement.

General Information:

1. The rectum is 4" to 6" long (refer to picture of colon).

2. Some bugs contained in the bowel can cause infection. Other bugs in the bowel do not cause infection. The bugs are harmless in the colon, but can cause infection if they are spread -- for example, into an open skin wound or into the urinary tract (through the urinary meatus). Ladies: this is why you must cleanse well after the enema and always wipe away from the urinary meatus. In other words, wipe from the meatus toward the rectum.

3. The rectum and bowel are lined with a mucous membrane that is sensitive and can be injured with a rough object or water that is too hot.

4. The lower colon is on the left side of the abdominal cavity and is the area before the rectum (refer to picture of colon).

5. The higher the solution is held the greater the pressure, or the force of flow into the colon.

Procedure:

1. Prepare the solution: 500 cc tap water (does not need to be sterile water, of course). Can add a little soap if more cleansing is needed or if tap water is not effective.

2. Position -

If in bed: Lie on left side so that lower colon and rectum can collect the fluid. Follow the body "landmarks" to guide the enema tubing into the rectum. Can feel the iliac crest bone, then follow it in a straight line back across buttock to crack, then downward to rectum opening.

*Can take enema sitting on commode. Can tilt forward, then reach behind you and insert the tubing (as explained in bed position), or if this does not work, you can reach between your legs from the front and insert the tubing. This is very individual. Will need support depending upon your balance and ability to manage self.

*If sitting on commode do not elevate the solution container higher than waist.

If in bed, hold the container of solution about 18" - 24" above the rectum. (Can rest elbow on hip and hold container at that level or slightly higher.)

*Remember, the higher the solution is held the greater the force of flow into the colon.

*The solution container should not be lifted more than enough to obtain a flow of solution. Otherwise, the solution will be distributed throughout the bowel and will not be effective in causing bowel evacuation (B.M.).

If you have had no results, then take another enema, holding the container higher, and see if this helps.

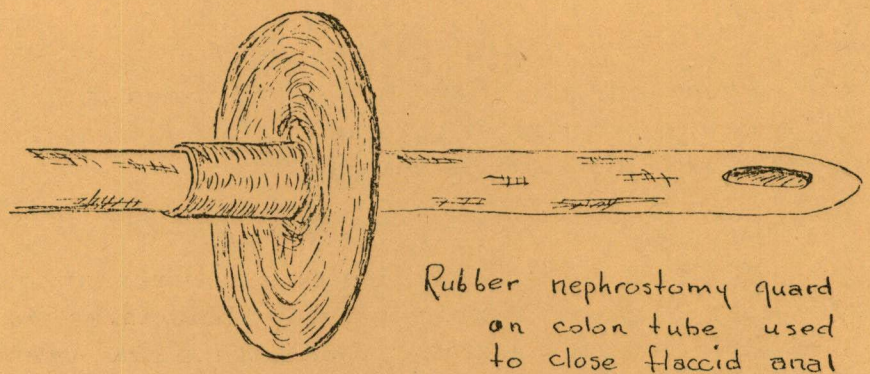
3. Lubricate tip of tubing with vaseline or some water soluble jelly.

4. Place tubing about 6" into the rectum.

5. *You may need a nephrostomy guard (a rubber shield) to prevent the fluid from running right back out. (Place the guard about 6" onto the tubing; and insert tubing into rectum up to the guard.) It acts as a "stopper" and provides for closure of a flaccid anal sphincter - to prevent the solution flowing out as fast as it is given. (A guard #7 fits the regular tubing.)

6. If no results from enema - can repeat, but never take more than three at one time.

*



Rubber nephrostomy guard on colon tube used to close flaccid anal sphinter.

PRINCIPLES OF TAKING TEMPERATURE AND READING THERMOMETER:CLEANING THERMOMETER

GENERAL INFORMATION:

Body temperature is: The degree of heat maintained by the body; it is the balance between heat produced in the body (like from digesting food) and heat lost (like through breathing).

Man's temperature is maintained at a certain level, regardless of the variations of temperature in different climates and different seasons of the year.

In health, the temperature remains constant within a normal range. The normal value is between 98.6° - 99° (degrees), for most people.

Temperature varies in individuals. You will have to know what is your normal temperature, so that you can judge from that what is elevated. For example, if you normally have about a 97° temperature, then a 99° temp. would be high for you, and you probably would feel "bad" as a result of this temp. elevation.

The body mechanisms that increase or decrease temperature are so sensitive that any considerable change in body functioning will produce a change in temperature.

Numerous things can influence body temperature and cause changes from normal. Some common things that can cause temp. to vary are:

Your age (a child or an older person may have a temp. of 1° higher than that of a middle aged person).

The amount and kind of foods you eat.

Time of the day — usually temp. is lowest in the (early) a.m. and highest in the late afternoon and/or night.

Any change from normal can mean that you have an infection or some cause that would make the temp. go up or down.

The degree of change can indicate the severity of the problem.

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An elevation in body temperature is called fever.

Some factors that can cause an elevation in the amount of heat produced by the body → temperature are:

Infection or inflammation
Pain
Exercise
Shivering
Eating a lot
Strong emotions, such as excitement or nervousness
Increased temperature of the environment (like a room, outdoors, or a hot water bath)
Brief exposure to cold
Very high external temp. (such as with sunstroke)
Body injury

All of these things cause the body to work harder, and therefore to increase body temp.

Some factors that can cause a decrease in body temperature are:

Illness
Not eating
Lowered vitality, or resistance
Sleep (also, temp. is usually low just after awakening)
Depression of the nervous system

All of these things decrease the body's activity and therefore decrease temperature.

If a temperature is to be maintained in the body, then heat must be lost as well as produced.

Some of the ways in which heat is lost from the body are:

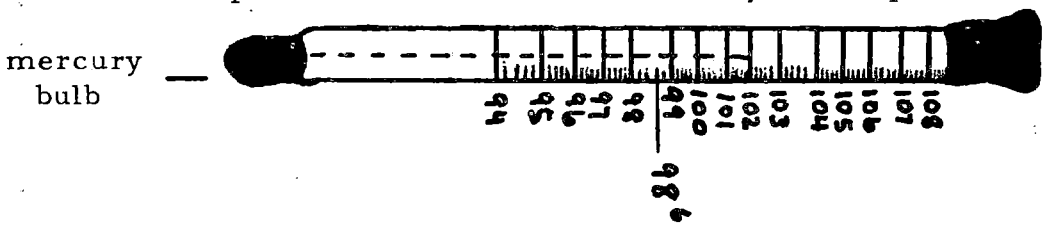
Perspiration -- sweating
Respiration -- breathing
Excretion -- urine, stool, saliva

HOW IS BODY TEMPERATURE MEASURED?

We use a thermometer, which is a slender glass rod with a mercury bulb. It is marked off with tiny lines in degrees. Every line is equal to 2/10 of a degree. (You can purchase a thermometer at most any drug store.)

The thermometer is made so that when the mercury comes in contact with the body's heat it expands. How high the mercury rises depends upon the degree of heat to which the bulb is exposed, and where this mercury stops indicates your temperature.

The mercury remains at this level until it is shaken down unless it is placed on a hotter surface than your temp.



Body temperature may be taken in three different ways:

Orally

The average is between 98.6° - 99°.
Leave the thermometer in your mouth, under tongue with mouth closed for 3 minutes.
This is the usual way for taking temp.

Rectally

The average is about 99° - 100° (notice this is about a degree higher than orally).
Insert the thermometer about one inch past the bulb into the rectum and hold it in place for about 2 minutes. (It is unsafe to just leave it in, because spasms or something could push it and break it.)

Axillary

The average is about 98° (notice this is about a degree lower than orally).
Place the thermometer under your arm (in the armpit) and hold your arm close down to your side for about 10 minutes.
Avoid taking the temp. this way, unless it is not possible to take it either orally or rectally. Usually, your temp. can be taken orally.

Some reasons why not to take temp. orally are:

If you have a head cold
If you are having difficulty breathing
If you have a cough

A rectal temp. should not be taken if your bowel is swollen with stool. Use your own judgment about which way to check your temperature.

You can tell by touch (feeling your body or forehead) if you have an elevated temp. -- by feeling body warmth without using a thermometer.

POINTS TO REMEMBER BEFORE TAKING TEMPERATURE:

Shake the thermometer down to be sure that the mercury is not expanded. (If the mercury is up this would not be an accurate temp.)

Be sure that you have not had anything (hot or cold) to drink just before taking temp.

If you have had something to drink, then wait for 5 minutes before checking your temp.

Also, if you have smoked, wait 5 minutes before checking temp.

Retake your temp. if it seems unusually low or high.

Fever is a symptom of some condition -- and treatment depends upon its cause. Some symptoms of fever are:

Flushed face
Dry, hot skin
Rapid shallow breathing, increased pulse
Unusual thirst
Loss of appetite
Headache

If you have any of these symptoms check your temp. If fever is very extreme some other symptoms may be:

Small amounts of urine output
Diarrhea or constipation
Delirium

WHEN TO CHECK YOUR TEMPERATURE:

In the hospital we may check temp. quite frequently, especially for a few days after you are admitted. After a

while we will probably decrease the number of times that we will check your temp.

We will keep a record of your temp. so that we can see at a glance if your temperature is increased or decreased over a period of time. Usually, we will check it in the late afternoon if we are not checking it a number of times during the day. Or we may check it at night at 8:00 or 12:00.

At home you do not need to check your temperature, unless you are having problems with infection, or something that would increase your temp.

If you do check it, it is a good idea to take it in the late afternoon -- 4:00 or 6:00 p.m. or at night - 12:00 midnight, as these are usually the times it will be elevated if it is not constantly elevated.

If your temp. is elevated, check it every 4 hours at least.

We check temperature every 4 hours for 48 hours after a catheter (Foley or S.P.) change. You should also do this at home so that if it goes up, which can mean infection, it will be recognized and treatment begun as soon as possible.

Ask yourself:

Does the fever remain high throughout the day and night; or does it go down, but not ever return to normal; or does it vary a lot from above to below normal.

The physician will need to know this if you are having a problem with fever. Also, tell the physician how (oral or whatever) you checked your temperature.

WHAT TO DO IF YOUR TEMPERATURE IS ELEVATED:

Check the room temperature to determine if it is within normal limits (about 72^{o}). Set it at this, if possible.

Check the amount of clothing and covering you have on. Take off some if it is a lot.

Consider if you have been outdoors where it is hot.

Restrict (cut down) your activity and use of energy.

Remember that your body is working harder because of the elevated temp., so do <u>not</u> add more work (activity) for it to do. REST.

Adjust your turning schedule. You will need frequent turning and positioning, because skin nutrition is reduced when you have fever.

Notify your physician if your temp. does not go down after a while.

In the meantime (while you wait for doctor's instructions or medicine) you may also:

Increase your oral fluid intake.
Apply ice bags or something with ice in it -- under both arms and next to your thighs. Do not leave in place all of the time. Remember, that cold can burn the skin.

Take a sponge bath with tap water, or you can add some alcohol (70%) to the water.

Change your diet, so that it is low fat and low carbohydrate (starch). (This decreases the work your body has to do to digest food.)

Try to prevent worry.

Take aspirin (10 grains) every 4 hours as long as your temp. is up. Check temp. about every 2 hours when you take aspirin to see if it is coming down. (Be sure you are not allergic to aspirin; if you are allergic to it check with your physician about what to take to bring down your temp.)

CLEANING THE THERMOMETER:

Wash with warm soap and water -- using a rotary motion away from the tip. Rinse.

Keep in a little case or in a safe place to prevent breaking the thermometer.

Be sure it is shaken down before the next time you check your temperature.

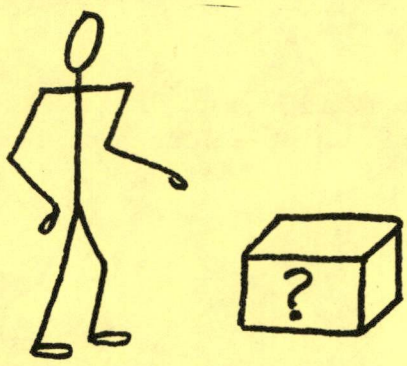
BODY MECHANICS

October 1, 1971

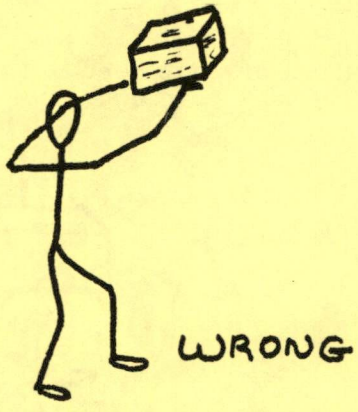
Definition:

The way body parts work together.

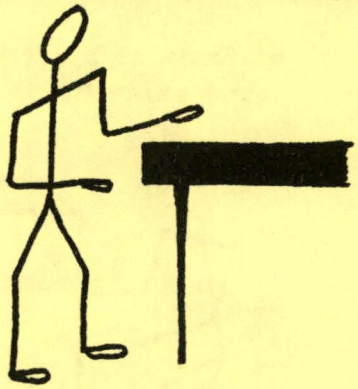
1. Size up the load to be lifted. Do not attempt to lift alone if you have any doubt about your ability to do so.



2. Get close to whatever is being lifted instead of reaching for it. Move in and hold close.

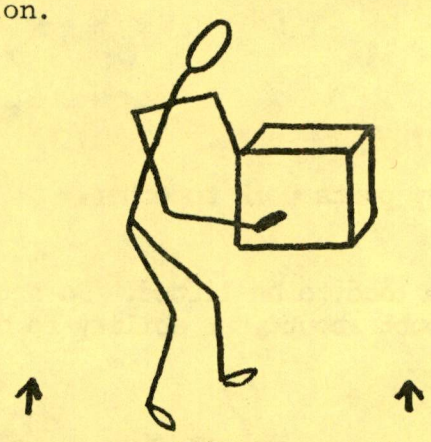


3. When possible, raise or lower the level of the bed or table to your wait.

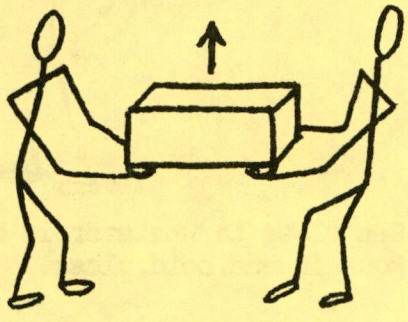


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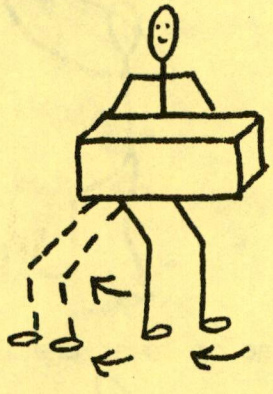
4. Straighten your legs to lift. Contract gluteal and abdominal muscles for protection.



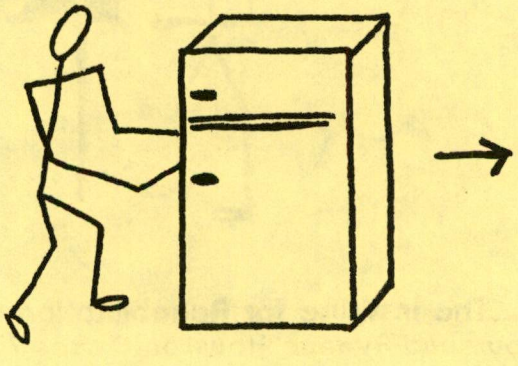
5. Lift smoothly to avoid strain. It is a good idea to count "1 - 2 - 3 - Lift" with the person or persons helping you.



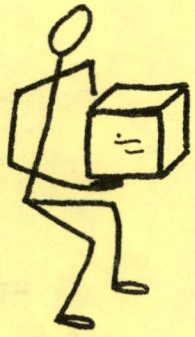
6. Shift the position of your feet to turn - never twist your body.



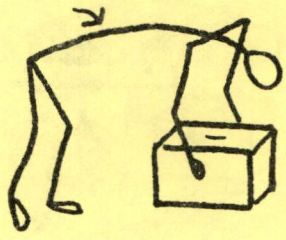
7. Push or pull an inanimate object instead of lifting whenever you can. It is easier and safer that way.



8. Get yourself "lined up" before lifting. Keep your back straight, bend at the knees and hips.



RIGHT

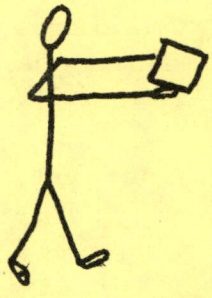


WRONG

9. Hold any object you lift or carry close to the body.



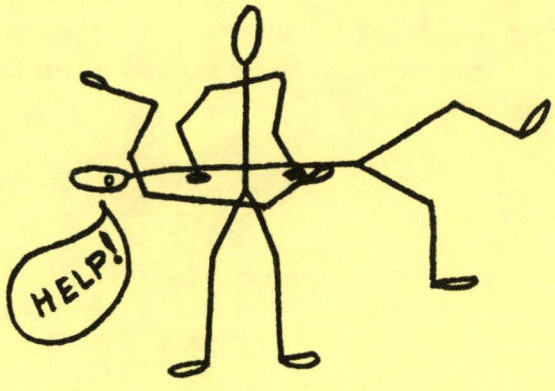
THIS



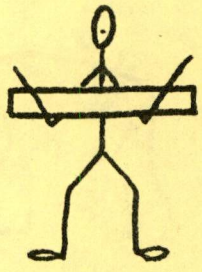
NOT THIS-

This would pull your trunk forward and pull you off balance.

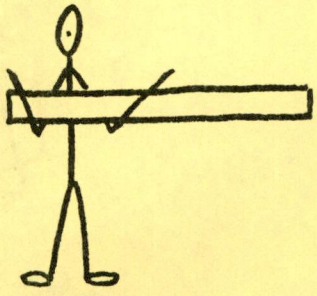
10. Be sure that the patient knows he is going to be lifted and how you plan to do it.



11. Whenever you lift or carry anything heavy, you will stay better balanced if your feet are placed far apart instead of close together.



THIS

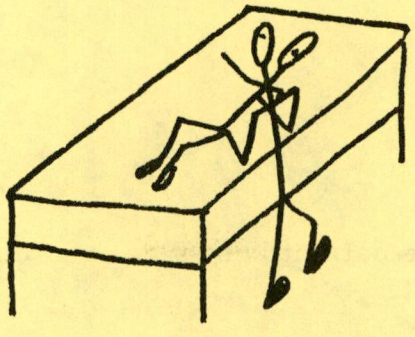


NOT THIS

You would tend to fall toward the heavy end of the object.

12. Avoid dragging the patient because it causes friction and can damage skin. e.g. - It is easier to lift a patient off the bed to move him than to pull him across the linens.

13. Your feet should face the same direction as the direction in which the object you are moving is going.
example:



In moving a patient up in bed your feet should point to the head of the bed (not toward the patient) even though your body is facing the patient.

TIRR THE INSTITUTE FOR REHABILITATION AND RESEARCH
in the Texas Medical Center / 1333 Moursund Avenue / Houston, Texas 77030 / (713) 797-1440
DEPARTMENT OF NURSING

TURNING A PATIENT TO ONE SIDE

September 30, 1971

1. Tell the patient what you are going to do.

2. Make sure the patient is not too close to the edge of the bed. If he is, move him toward the center, using the method for moving the patient to one side of the bed.

3. Turn the covers back part way, but don't expose the patient's body.

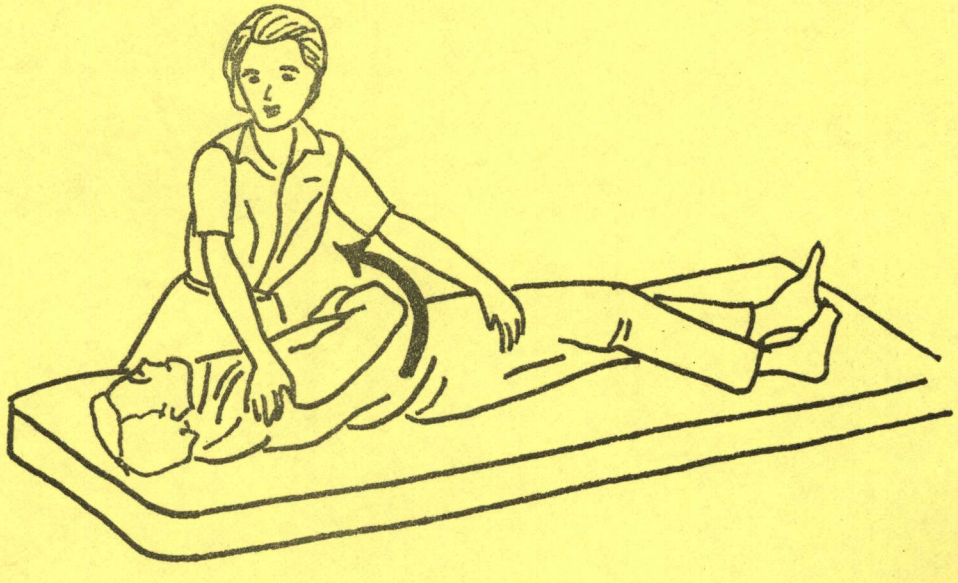
4. Go to the side of the bed toward which you want to turn him.

5. Reach across his body and put one hand behind his far shoulder. Put your other hand behind his far hip.

6. Gently roll him toward you.

7. Again, be sure he is not too close to the edge of the bed. If he is, go to the opposite side of the bed and carefully move his body back toward the center of the bed. However, never do this unless the bedside rail is raised on the side toward which you want to turn him.

8. When you have turned him to his side, place him in the proper side-lying position.



MOVING THE (STABLE) PATIENT TO ONE SIDE OF THE BED

9/30/71

1. Stand facing the side of the bed toward which you want to move the patient.

2. Tell the patient what you are going to do, and ask him to help as much as he can.

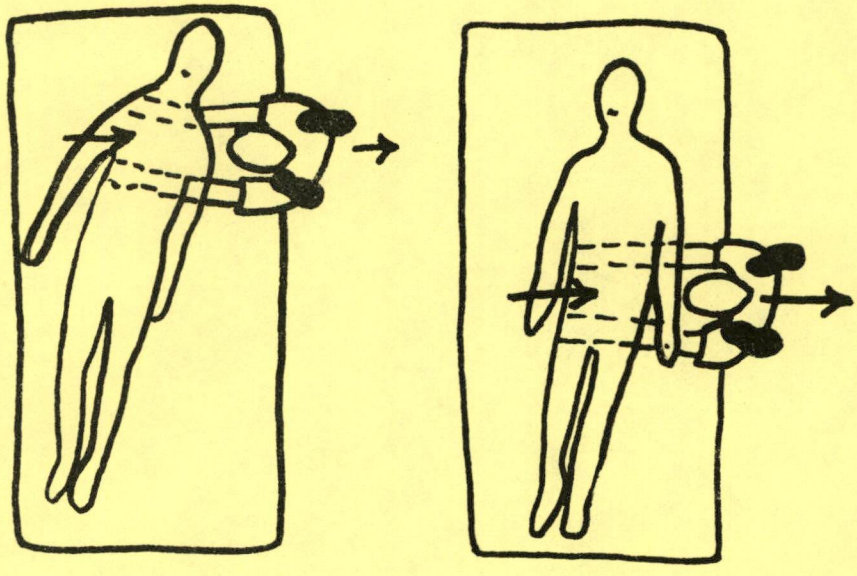
3. Loosen the top bedding, but do not expose the patient's body.

4. Move the patient toward you in the following way:

   a. Slide both hands under his back until they are under his far shoulder. Then slide his shoulders toward you on your arms. You won't injure the patient's skin by sliding him because your arms are betwen his skin and the sheet.

   b. Slide both hands as far as you can under the patient's hips and slide his hips toward you. Remember to bend your knees and keep your back straight.

   c. Lift and move the patient's legs in the same way, supporting the joints (knee and ankle).



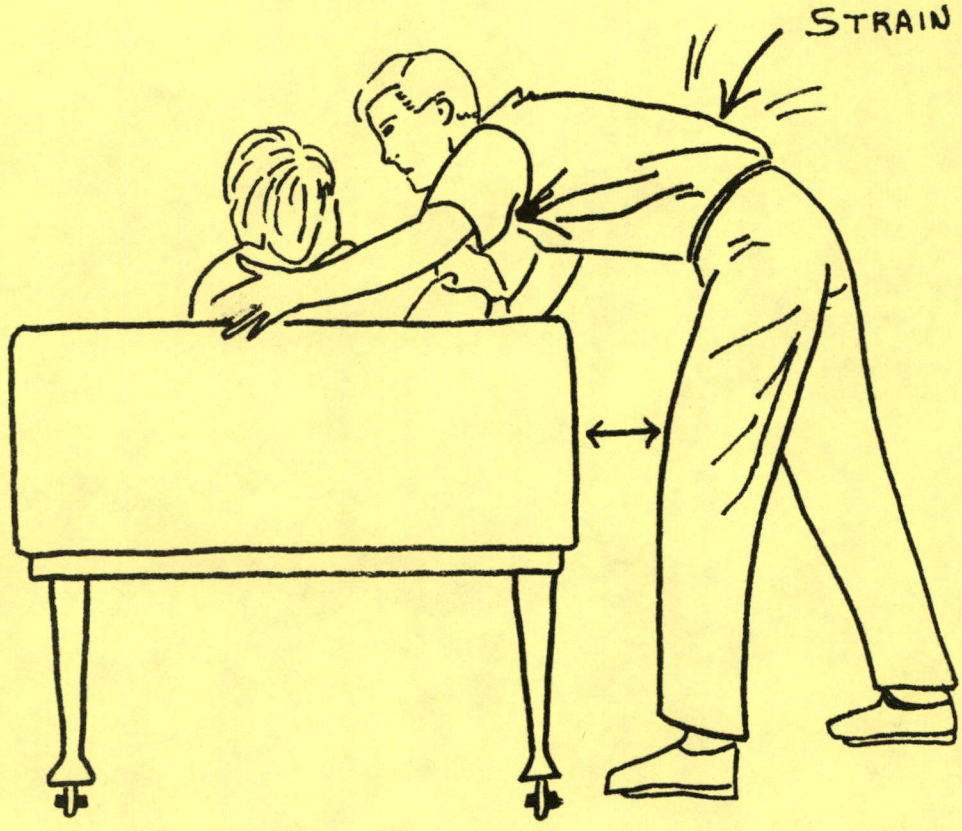
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In the Texas Medical Center

LIFTING AND MOVING THE PATIENT

9/30/71

Poor Body Alignment for Lifting the Patient:

1. Excessive strain placed on back
2. Body is too far from the bed
3. Legs too straight
4. Weight not evenly balanced on the feet



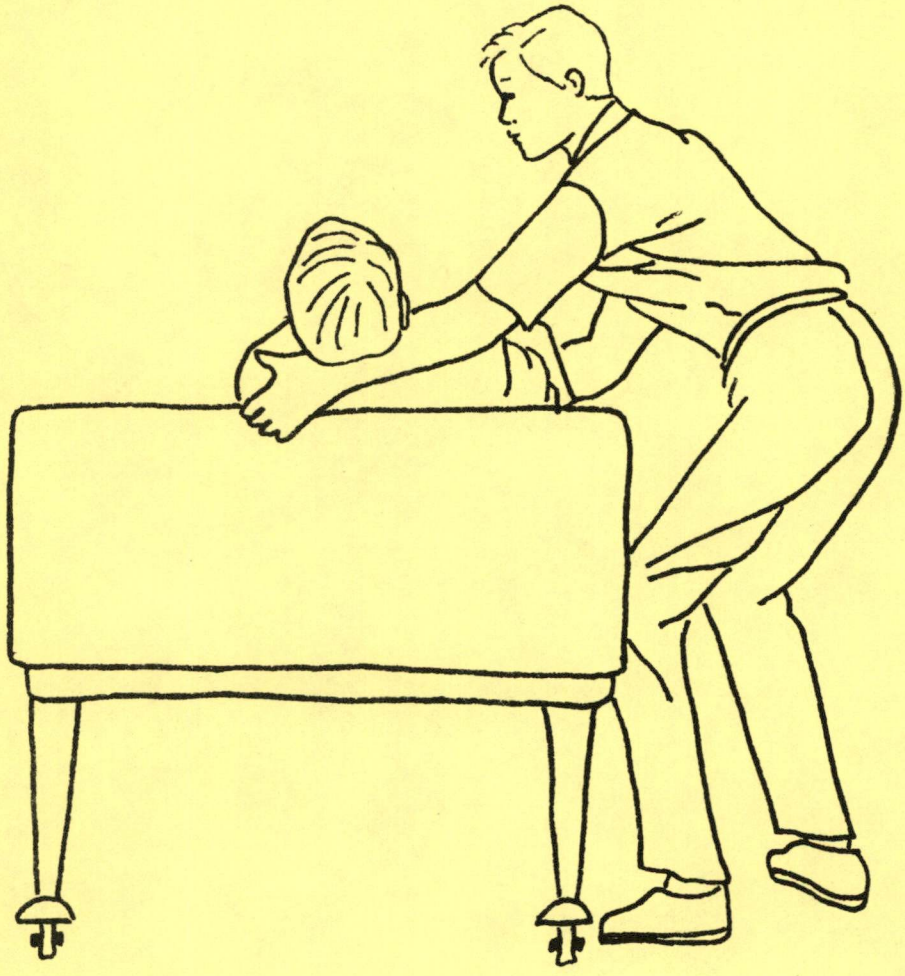
WRONG

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GOOD BODY ALIGNMENT FOR LIFTING THE PATIENT

9/39/71

1. Strain is distributed over major muscles of the body.
2. Body is close to bed.
3. Knees are flexed to assist with lifting.
4. Weight of body is balanced on the feet.
5. Remove watches or jewelry which might injure patient. Be careful not to scratch patient with your fingernails.



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SALT SOLUTION (HOW TO MAKE IT)

Sodium Chloride (NaCl): - Normal Saline, or Salt, are the same things.

To Make a 1% Solution: Mix 4 cups (1000 cc or 1 quart) of clean tap water or distilled water with 2 teaspoonsful of salt.

To make 1 gallon, mix 4 quarts of water with 8 teaspoonsful of salt.

This solution is used for such things as rinsing open skin sores, and enemas.

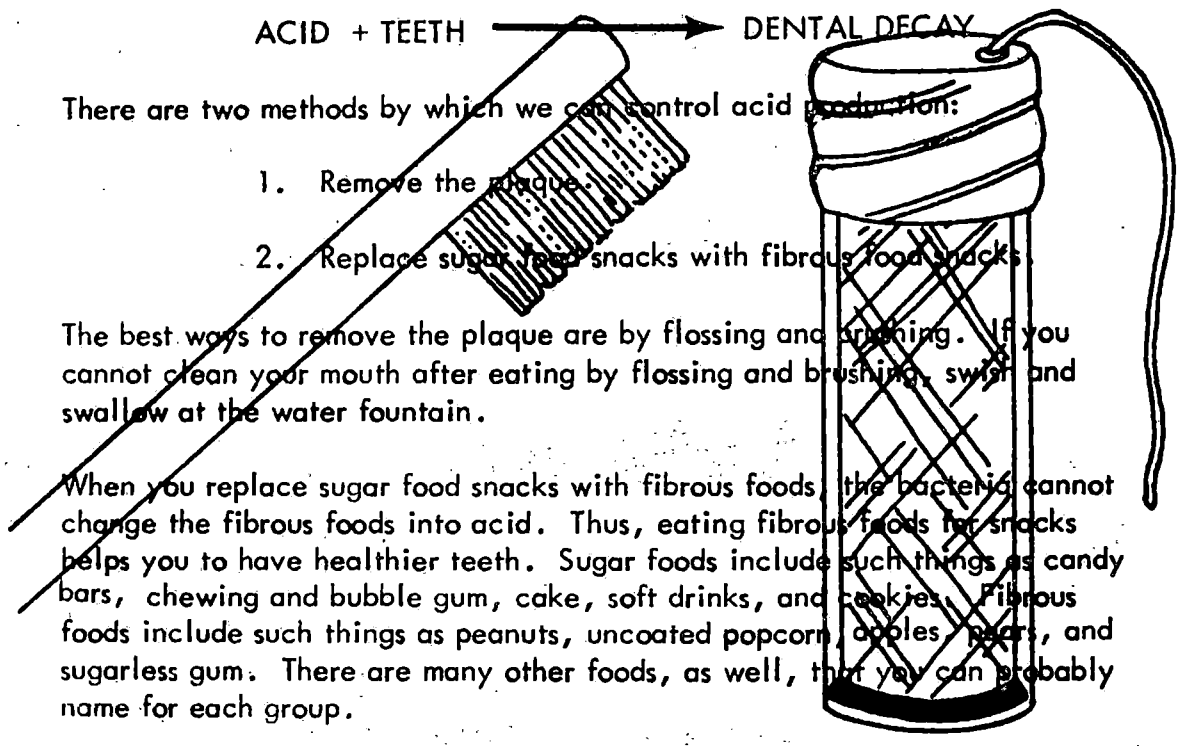
Prepared by: The University of Texas
Dental Branch at Houston

THOUGHTS TO TAKE HOME WITH YOU

Dental Plaque is "sticky stuff" on teeth, thick enough for many bacteria to live inside. When you eat sugar foods, dental plaque becomes an "acid factory", because the bacteria living inside the plaque change sugar foods into acid. This acid then dissolves the teeth, causing them to decay:

BACTERIA + SUGAR FOODS ⟶ ACID

ACID + TEETH ⟶ DENTAL DECAY



There are two methods by which we can control acid production:

1. Remove the plaque.
2. Replace sugar food snacks with fibrous food snacks.

The best ways to remove the plaque are by flossing and brushing. If you cannot clean your mouth after eating by flossing and brushing, swish and swallow at the water fountain.

When you replace sugar food snacks with fibrous foods, the bacteria cannot change the fibrous foods into acid. Thus, eating fibrous foods for snacks helps you to have healthier teeth. Sugar foods include such things as candy bars, chewing and bubble gum, cake, soft drinks, and cookies. Fibrous foods include such things as peanuts, uncoated popcorn, apples, pears, and sugarless gum. There are many other foods, as well, that you can probably name for each group.

A decayed spot on a tooth, like a bruised spot on an apple, may look small, but it can be very deep and harm a tooth.

To have good oral health and strong, pretty teeth you should:

1. Floss (with unwaxed dental floss) and brush (with fluoride toothpaste) after eating.
2. Swish and swallow after eating when you cannot floss and brush.
3. Eat fibrous foods, instead of sugar foods, for snacks.
4. Play safely to avoid accidents.
5. Visit your dentist regularly, for check ups and topical fluoride treatments.

YOUR FOLLOW UP CARE

WHAT IS "FOLLOW-UP"

Follow-up is an approach to maintaining and continuing an ongoing assessment of your total individual needs. The immediate goal of this approach is that you learn how to prevent problems that would keep you from living a full and active life, and the ultimate goal is for you to understand your RESPONSIBILITY to seek and receive ongoing care according to your needs.

Follow-up is for your benefit, and in order for TIRR to be able to provide you with comprehensive follow-up care, your cooperation and ability to ACCEPT RESPONSIBILITY FOR YOUR CARE is of utmost importance.

WHAT TO DO IN CASE AN EMERGENCY OCCURS

Although we would like to think that once you go home you will be relatively problem free, you must be aware of the things to do in case an emergency does occur. We would like for you to follow these recommendations:

1. - Prior to discharge from the Institute it is important to have a FAMILY PHYSICIAN, and that he/she sees you while you are in good health, so that it would be easier to recognize any problems you may have if you need to be seen for treatment.

2. - Provide your TIRR Physician with the name and address of your Family Doctor, so that a summary of your medical status can be sent to him, and he will be familiar with your present health care needs.

3. - Locate a hospital with emergency room services close to your home. If you live in the Houston area, St. Luke's Hospital is utilized for urological problems and Methodist Hospital for Orthopedic and Plastic surgery problems.

If you need a hospital and don't know which one fits your needs, call the FOLLOW-UP NURSE in the Outpatient Department at TIRR.

Telephone 797-1440 Extension 255 or 331

CLINIC APPOINTMENTS

Prior to discharge from TIRR your Follow-Up will be discussed with you, and an appointment to the appropriate clinic will be made. From that time on, appointments will be made at the end of each clinic visit.

The Outpatient Clinic is located in the main building of TIRR and provides multitude of medical services for outpatients including a Podiatry Clinic, Pain Clinic, Plastic Surgery Clinic, Orthopedic Clinic, Spinal Cord Injury Clinic, Urology Clinic, etc..

The Outpatient Clinic is designed to meet the medical needs of the TIRR patient, as they relate to his/her disability. However, our facility is not an Emergency Room, nor do we provide "general medical services". If you have a problem that does not relate directly to your injury, i.e., a bad cold, or a sore throat, etc., we encourage you to call your Family Physician. If you do not have a Family Physician or local medical facility accessibility, call the Follow-up nurse at TIRR and she will help you to locate one. You also need to locate a hospital near your home that you can use in case of emergency.

Any problems relating directly to your disability such as problems with spasms, skin problems, urological management, etc., would suggest a TIRR clinic appointment.

There are two ways to make a clinic appointment:

1. - Call the Follow-Up nurse and discuss your problem with her. She will direct you to the appropriate clinic.

2. - Call the clinic secretary and specify which clinic you need an appointment for.

IT IS YOUR RESPONSIBILITY TO BE ON TIME FOR YOUR CLINIC APPOINTMENT. If you are unable to attend the clinic, please make sure to call and cancel your appointment, or re-schedule for a later date.

Prior to entering clinic on your appointment day, you must see the Clinic Coordinator for FINANCIAL CLEARANCE. If you are a TRC client, you must call your TRC counselor for financial clearance prior to your visit. If you are sponsored by State Cripple Children or any Insurance Company, make sure to bring with you your card or number and present it to the Clinic Coordinator.

If you have private insurance (except for Worker's Compensation) you will be responsible for paying the costs when TIRR bills you, and it is your responsibility to file on your insurance for reimbursement to you.

When you arrive to the clinic for your appointment, you will initially see the Follow-Up nurse. She will be in all clinics that relate to SCI, i.e., urology, plastic surgery, etc., as a resource person for you. A Physician and a Social Worker will be in every clinic. Physical and Occupational therapists may also be available at the clinic or on request.

Laboratory work, monitoring of vital signs, and a nursing interview will be done as necessary.

SOME SITUATIONS THAT MAY BE CONSIDERED EMERGENCIES

a) Difficulty in breathing

b) Drug overdose

c) Any severe allergic reaction

d) Blood in the urine

e) Dysreflexia of unidentified cause

f) Elevated temperature above 101 degrees

Whenever you have to make an emergency visit to any health care facility, make sure to bring a list of all medications that you are taking, as well as a list of any other medical treatments you get.

ORDERING MEDICATIONS

Upon discharge you will usually receive a one month supply of medications. IT IS YOUR RESPONSIBILITY to replace your medications on time, so that there will be no interruption to your treatment.

Medications can be obtained directly from our Pharmacy, or by mail delivery. When ordering by mail, adequate time must be allowed. Regardless of the way you choose to order the medications from our Pharmacy, ALWAYS INCLUDE YOUR NAME AND THE PRESCRIPTION NUMBER with your request.

MEDICAID recipients are allowed three (3) prescriptions a month and must present their coupon book whenever obtaining prescriptions. If you prefer a mail delivery of your medications, the coupon must be sent by mail with the request.

TRC clients must work with their counselor prior to ordering medications.

Should you need to purchase your medications in any other Pharmacy, make sure to request the prescriptions from your Physician, for the prescription number alone would be of no value to you in any other Pharmacy.

NOTE: Medications are very expensive, and you should inform your Physician when a medication is not being effective. Always obtain your Doctor's approval before attempting to discontinue taking any medication:some medications require tappering off; stopping them suddenly could be detrimental to your health.

ORDERING SUPPLIES

Supplies can be purchased from TIRR either by mail or by directly picking them up, or from other places, e.g., discount stores, hospital supply stores, or a pharmacy. Some pharmacies will order the supplies for you if they do not have them in stock.

If you are going to have supplies mailed, please allow approximately two (2) weeks from the time you order and make sure to pay in advance or have financial clearance.

TRC clients must clear purchasing supplies with their TRC counselor and obtain form #415 to present to Central Supply at the time of purchasing.

Always provide the name and policy number of your insurance when ordering supplies.

As you begin purchasing supplies at home, you will be able to identify the cost of the items. It is important to stress the necessity of using discretion when utilizing supplies to avoid unnecessary waste. If properly cared for, supplies such as leg bags and bedside bags can be reused. Your Home Care Instructions Booklet contains information in regards to the care of some of the equipment you use. WE RECOMMEND THAT YOU READ THOSE INSTRUCTIONS!

You may call Central Supply (extension 307) to clarify any doubt regarding purchasing of supplies.

PURCHASE OF ITEMS RELATED TO YOUR DISABILITY

ARE DEDUCTIBLE...!

SAVE ALL RECEIPTS FOR INCOME TAX PURPOSES

RE-EVLAUATION AND FOLLOW-UP

As part of your follow-up at TIRR, we have a program that will re-evaluate your progress and needs, and plans for further follow-up. This program may be done yearly and consists of required medical tests such as IVP, chest X-rays, and an evaluation of your progress since the time you were discharged. This can now be done on either an IN or OUTPATIENT basis, and may take from a few days to two weeks to complete.

COMMUNITY RESOURCES

There are usually many different kinds of community resources that may be useful to you. What is available will depend on where you live. Your Social Worker will be able to tell you about these different resources.

COMMUNITY RESOURCES cont'd

If you live in Texas, you will also receive a Resource Packet from your Social Worker that will contain written information about the following kinds of resources: Financial, Educational, Transportation, Attendant, Housing, Vocational, Recreation and Travel, Organizations and Publications.

In your hometown, the Texas State Department of Human Resources may be able to help with questions about local resources. Also any local agency that works with disabled persons may have helpful information.

PARKING FACILITIES

Here at TIRR you can park at the back of the building (near entrance to clinic) free of charge. Parking passes can be obtained from the Clinic Coordinator or the Clinic Secretary.

NOTE: For any non-medical problems that may arise after your discharge, feel free to call your Social Worker.

Telephone 797-1440 Extension 341

BE ASSERTIVE...!

We have tried to provide you with the information pertinent to your care. Remember that from here on you are to assume the responsibility to take care of your health needs. We have tried to be of help, but to be effective we count on your cooperation and desire to stay healthy.

Nobody should be more concerned about your well-being than yourself. You must know how to promote good health and be ready to instruct others when you need their assistance. Be assertive: obtain information....seek assistance....if you need it to accomplish the goal of staying healthy.

Remember: IT IS YOUR BODY--IT IS YOUR HEALTH--IT IS YOUR LIFE you are taking care of.

5/26/81-LK
cjr

CONCLUSION TO SPINAL CORD INJURY
PATIENT TEACHING BOOKLET

We hope that these instructions have provided you with information that will be useful to you for continuing your care and that you will not feel overwhelmed by the care you require, but that you will feel capable to carry on with this care--either doing the care or guiding others who will do your care.

We know that as time goes on you will learn more and more about your needs and change your care accordingly. You will need to have a feeling that you can handle your decisions regarding your care needs. You may find that you have to set your own priorities, and some days you may have to omit some of your care, such as number of turning times. We want you to feel comfortable in making these decisions when you have to skip one thing or another. You may come up with other ways for doing some of your care, which are as good as anything we could have taught you. Let us know about these, as other patients may benefit from them. We can learn from you too! Keep us tuned in on you and your happenings, as you modify your care.

We have only laid the foundation onto which you will continue to build your care according to your needs. As mentioned, you may find that your care and your schedule will need revising as you progress and your needs change. Using good judgment you can make sensible changes and set priorities.

Re-read the instructions from time to time as a refresher. Keep them for reference. Use them to teach others.

We hope that the teaching program has provided you with information that will help you to keep in good health and to continue to learn!

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8/85

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