

AADO-HKSSH Conjoint Scientific Meeting 2013
Care for the Dignity
- Tetraplegia Patient -

Back to the Basic

**- Support the Daily Living Care
Of Tetraplegia Patient**

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Taking care patient is my Job,
I know how to take care
them.



A little Game

For

You

To feel what

Tetraplegia patients

BE

**DOES
TETRAPLEGIA PATIENT
SAME AS
OTHER PATIENTS ? ? ?**

What is Tetraplegia?

- Caused by damage or injury of Brain or Cervical Spine
- Usually result in four limbs paralysis

Different Levels of Cervical Spine


C1 C2	◆ Impaired functional phrenic nerves (sends signals between the brain to the diaphragm)	➤ implanted phrenic nerve pacemakers to pacing of the diaphragms ➤ +/- Tracheostomy to relief secretion
C3 C4	◆ Impaired breathing	➤ ventilator-dependent ➤ C4 lesion patient may free from ventilator after acute phase if could use diaphragm ➤ could shrug their shoulders ➤ have neck motion
	● Operating equipment through: mouth control (sip and puff), voice activation, chin control, head control, eyebrow control, or eye blink ● special adapted power wheelchairs , tape recorders, computers, telephones, page turners, automatic door openers, and other environmental control units	


<http://www.spinal-injury.net/tetraplegia.htm>

On date: 2013.5.30

C5

- **have functional deltoid and/or biceps
allow internally rotate and abduct the shoulder:**
 - ~ forearm pronation by gravity;
 - ~ wrist flexion
- **externally rotate the shoulder:**
 - ~ supination
 - ~ wrist extension
- **bend the elbow, but elbow extension can only be produced by gravity**
- **forceful horizontal abduction of the shoulder and inertia or shoulder external rotation.**

 Assist bathing ,lower body dressing , bowel and bladder care, and transfers.

 With orthoses and adaptive equipment:

~ can feed themselves,

~ perform oral facial hygienic

~ upper body dressing activities

~ participate in leisure activities

~ operate computers, tape recorders, telephone, etc.

~ manual wheelchairs for short distances on level surfaces, and for community distance with power wheelchairs

C6

- have most shoulder motion, elbow bending
- Reconstruction surgery like wrist extensor surgery to allow:
 - active wrist extension,
 - opposition of thumb to index finger
 - finger flexion
- Surgery is recommended only for patients who are neurologically stable and without spasticity

- 🌈 Equips patients by:
 - ~ Wrist-driven flexor hinge splints helped for catheterization, bowel program and work skills.
 - ~ Short opponents orthoses with utensil slots, writing splints, Velcro handles, and cuffs permit feeding, writing, and oral facial hygiene.
 - ~ Transfer board for transfer from bed to wheelchair
 - ~ Bedside rails for independently turning
 - ~ Water/ Low air mattresses can lower risk of pressure sore and decrease frequency of turning at night
 - ~ bionic glove, an electrical stimulator garment control by shoulder movement could provide controlled grasp and hand opening functions

Surgery Goals:

To restore:

- wrist & elbow extension
- key pinch
- palmar grip
 - increasing a patient's independence.



Wrist related tenodesis
effect



Wrist related tenodesis
effect

Upper-limb surgery in tetraplegia, from Wikipedia.

http://en.wikipedia.org/wiki/Upper-limb_surgery_in_tetraplegia on date: 2013.05.30

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What are Nurses Roles?

- **Assist ADLs**
- **Prevent Complications**

ADLs = BATTED

(Activities of Daily Living)

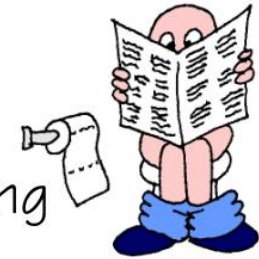


Bathing

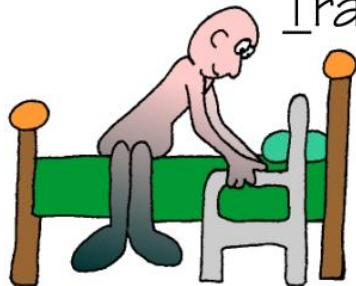
Ambulation



Toileting



Transfers



Eating



Dressing



Activities of Daily Living

Basic ADLs (skills needed in typical daily self care):

- Feeding and eating
- Bathing and showering
- Personal hygiene and grooming
- Dressing and undressing
- Functional transfers, i.e. Getting out of bed
- Bowel and bladder management
- Sexual activity
- Ambulation

Instrumental ADLs (skills for individuals function within their homes, workplaces, and social environments):

◆ **Home Management**

Care of family members, pets, child rearing
Home establishment and maintenance
Meal preparation and cleanup

◆ **Community Living Skills**

Communication management
Community mobility
Shopping
Religious observances

◆ **Health Management**

Health management and maintenance

◆ **Safety Management**

Financial management
Safety procedures and emergency responses

Eating Problem?

Helps patients in ADLs:

- Prop up, sit out
- Suitable chair to sit upright with support
- Seating tray Feeding devices

**Refer P&O or
Occupational Therapist**

Transfer Problem?

- Assess patient's mental & physical ability
- Provide suitable bed /environment to facilitate patient
- Assist patient transfer
- Refer physiotherapist to enhance upper limbs powers and transfer technique training
- Invite relatives to join the training
- Refer PT / OT for home transfer devices
- Psychological support: more listen and communication
- Refer to community resources

How do nurses assist in ADLs?



What are Nurses Roles?

Educator

Listener

Care provider

Assessor

Advocator

Referrer

Data Collector

Information provider

Collaborator

Prevention of Complications In Nursing Aspect

- Physically:
Respiratory, GI, Musculoskeletal, Cardiovascular, urinary,
Skin, DVT
- Psychologically:
Depress, Social isolation, Stress,
Nightmares, Suicidal ideas
- Socially:
Relationship crash, Financial problems,
Leisure loss, Outdated
- Spiritually:
Loss belief, Pessimism, Hostile attitude

Prevention is Best Cure!

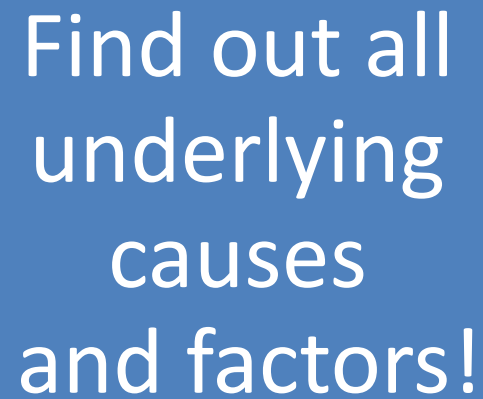


Alert & Avoid !!

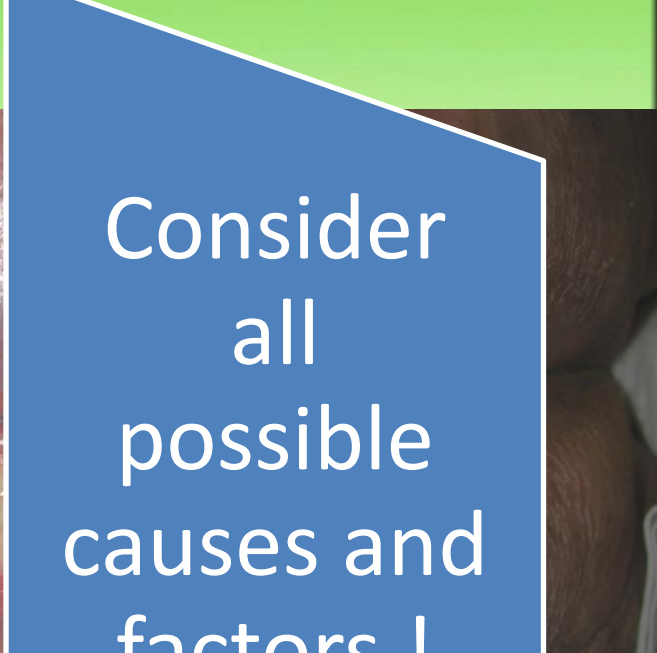
Why Do Pressure Sore Happen?



Be a good detective !



Find out all underlying causes and factors!



Consider all possible causes and factors !

How to Prevent Pressure Sore?

- Risk Assessment
- Skin Assessment
- Nutrition for Pressure Ulcer Prevention
- Positioning with support or pressure relief devices

Risk Assessment: Norton Scale

Physical condition		Mental condition		Activity		Mobility		Incontinent		Total Score
Good	4	Alert	4	Ambulant	4	Full	4	Not	4	
Fair	3	Apathetic	3	Walk-help	3	Slightly limited	3	Occasional	3	
Poor	2	Confused	2	Chair-bound	2	Very limited	2	Usually-Urine	2	
Very bad	1	Stupor	1	Stupor	1	Immobile	1	Doubly	1	

Our hospital **pressure sore assessment form** was applied
Norton Scale

Risk Factors of Pressure Sore

Intrinsic factors	External factors	Other factors
<ul style="list-style-type: none">• Reduced mobility or immobility• Sensory impairment• Acute illness• Level of consciousness• Extremes of age• Vascular disease• Severe chronic or terminal illness• Previous history of pressure damage• Malnutrition and dehydration	<ul style="list-style-type: none">• Pressure• Shearing• Friction	<ul style="list-style-type: none">• Medication• Moisture to the skin

NHS: Clinical Guideline 7 Pressure Ulcer Prevention. (2003) Cited from:

<http://guidance.nice.org.uk/CG7/Algorithm/pdf/English> On date: 2013.05.31

Skin Assessment

Pressure Sore Staging



Stage I

- Area of erythema
- Erythema does not blanch with pressure
- Skin temperature elevated
- Tissue swollen and congested
- Patient complains of discomfort
- Erythema progresses to dusky blue-gray



Stage II

- Skin breaks
- Abrasion, blister, or shallow crater
- Edema persists
- Ulcer drains
- Infection may develop



Stage III

- Ulcer extends into subcutaneous tissue
- Necrosis and drainage continue
- Infection develops



Stage IV

- Ulcer extends to underlying muscle and bone
- Deep pockets of infection develop
- Necrosis and drainage continue



Stage : NA

- Routinely perform a complete skin assessment to everyone admission
- Educate how to undertake a comprehensive skin assessment that includes the techniques for identifying blanching response, localized heat, edema, and induration (hardness).
- Inspect skin regularly
- Ask individuals to identify any areas of discomfort or pain that could be attributed to pressure damage
- Document all skin assessments, noting details of any pain possibly related to pressure damage.

Skin Care

- Avoid turning the individual onto area of previous episode of pressure loading.
- Avoid massage for pressure ulcer prevention as it may induced the possibility of damaged blood vessels or fragile skin.
- Don't vigorously rub skin that is at risk for pressure ulceration which may cause mild tissue destruction or provoke an inflammatory reaction
- Use skin emollients to hydrate dry skin in order to reduce risk of skin damage
- Protect the skin from exposure to excessive moisture with a barrier product in order to reduce the risk of pressure damage

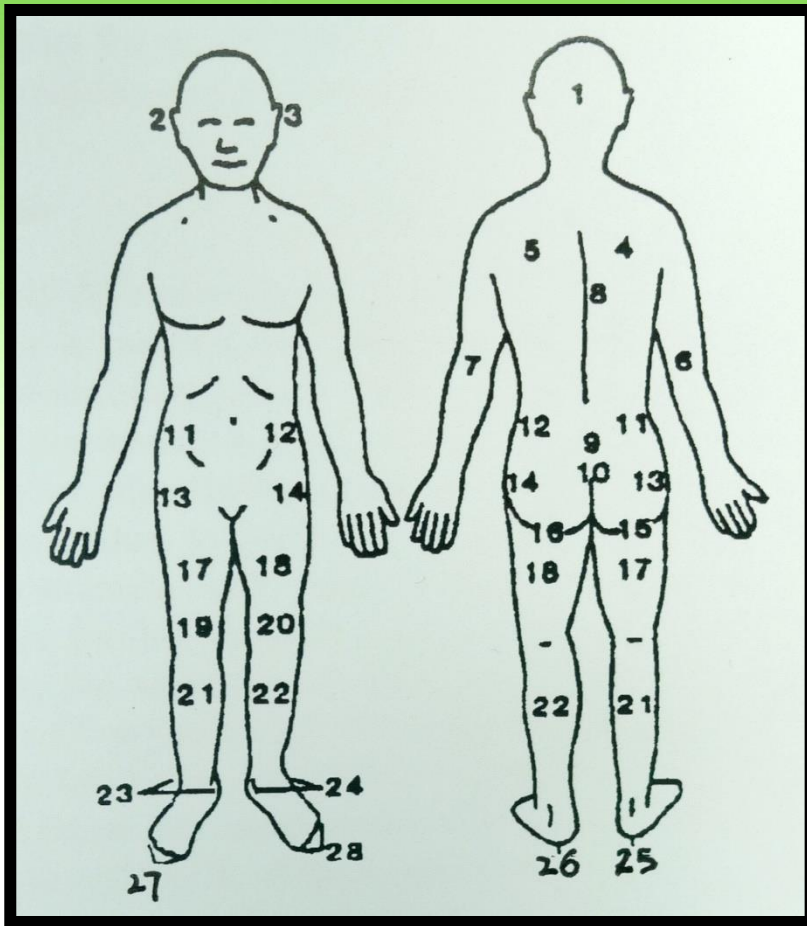
Nutrition for Pressure Ulcer Prevention

- Screen and assess the nutritional status of every individual at risk of pressure ulcers
- Refer to dietitian if needed
- Observe for diarrhea when introducing milk supplement

Positioning

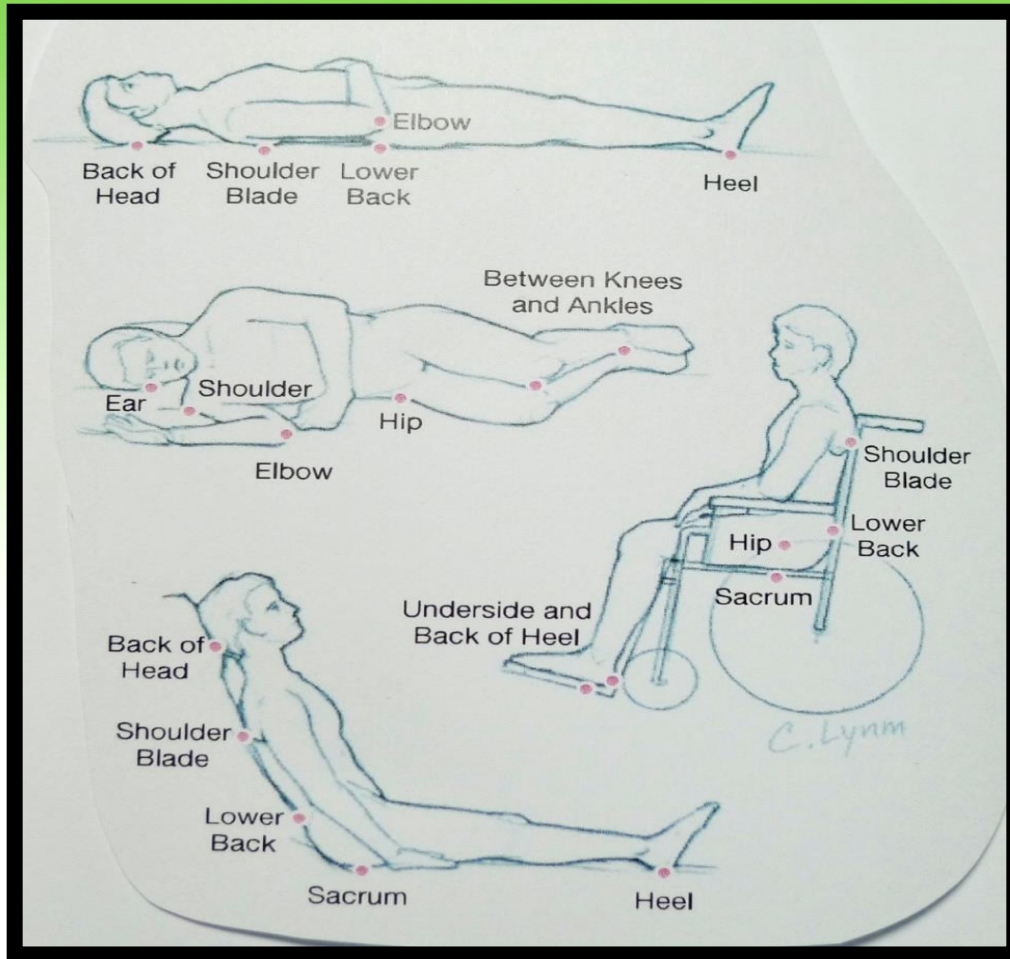
- Reposition at frequency determined by skin inspection and individual's comfort, ability and general state
- Minimise prolonged pressure on bony prominences
- Minimise friction and shear damage – ensure manual handling devices are used correctly
- Reposition regularly when a pressure-relieving device is used
- Establish and record a positioning schedule for each individual
- Teach individuals and carers (who are willing and able) how to redistribute weight

Common Locations of Pressure Ulcers



1. Occiput (Back of head)
2. Right ear
3. Left ear
4. Right scapula
5. Left scapula
6. Right elbow
7. Left elbow
8. Vertebrae (Upper-mid)
9. Sacrum
10. Coccyx
11. Right iliac crest
12. Left iliac crest
13. Right trochanter (hip)
14. Left trochanter (hip)
15. Right ischial tuberosity
16. Left ischial tuberosity
17. Right thigh
18. Left thigh
19. Right knee
20. Left knee
21. Right calf / shin (lower leg)
22. Left calf / shin (lower leg)
23. Right ankle (inner / outer)
24. Left ankle (inner / outer)
25. Right heel
26. Left heel
27. Right toes
28. Left toes

Risk body areas of Pressure Ulcers related to positioning



Most Common Sites in Bedbound Elderly

Supine:

- 23% sacrococcygeal
- 8% heels
- 1% occiput; spine

Sitting:

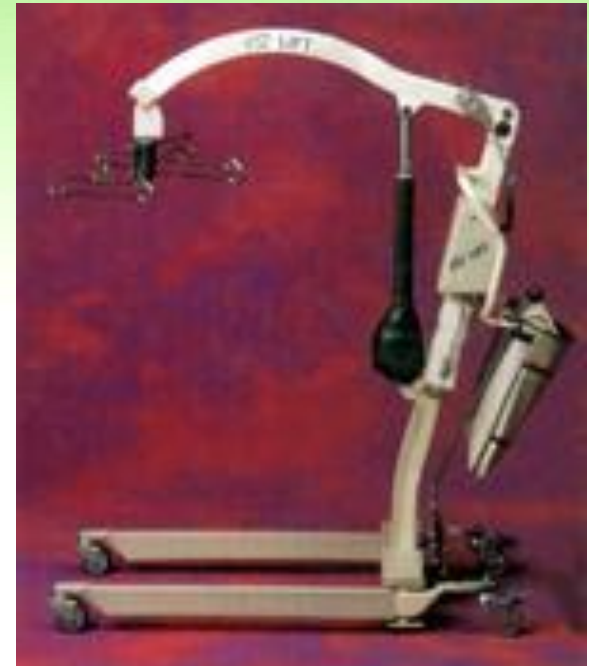
- 24% ischium
- 3% elbows

Lateral:

- 15% trochanter
- 7% malleolus
- 6% knee
- 3% heels

Pressure Reliving Devices

- **Heel Protectors**
- Foam mattress
- Silicon gel pad
- Low air loss mattress < Alternative pressure mattress < Air fluidised mattress
- Skin Care: hygiene, adequate moisture
- Lifting / transferring devices to shearing & friction force



Prevention is Best Cure!



**When Movement Stops,
Contractures develop.**

**USE IT,
OR LOST IT!**

Why Become Contracture?

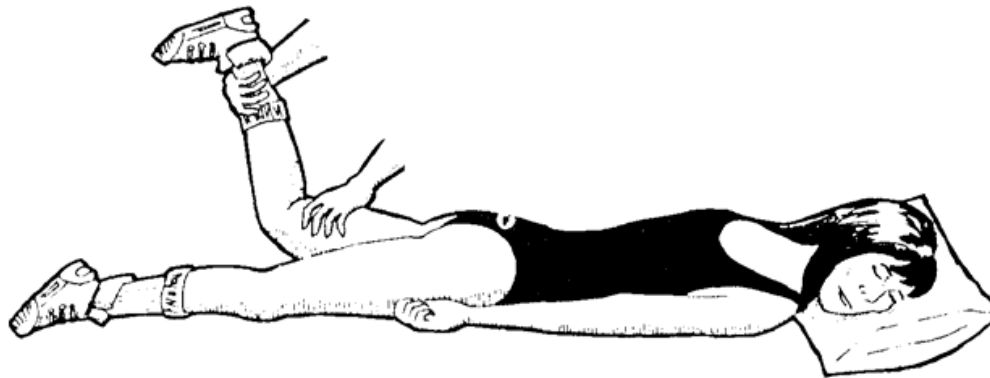
Contracture develop secondary to prolonged shortening of structures across and around the joint, resulting in limitation in motion.

Causes:

- Pain: reduce movement of joint and muscle
- Prolong Bed Rest: muscle wasting and stiffer
- Recurrent and Severe Spasticity:
 - ~ makes muscles rigid and force joints into one direction
 - ~ change the positions and shape of some muscle and joint
 - e.g. ankle joint turn in, heel cords may shorten and induced sever foot drop

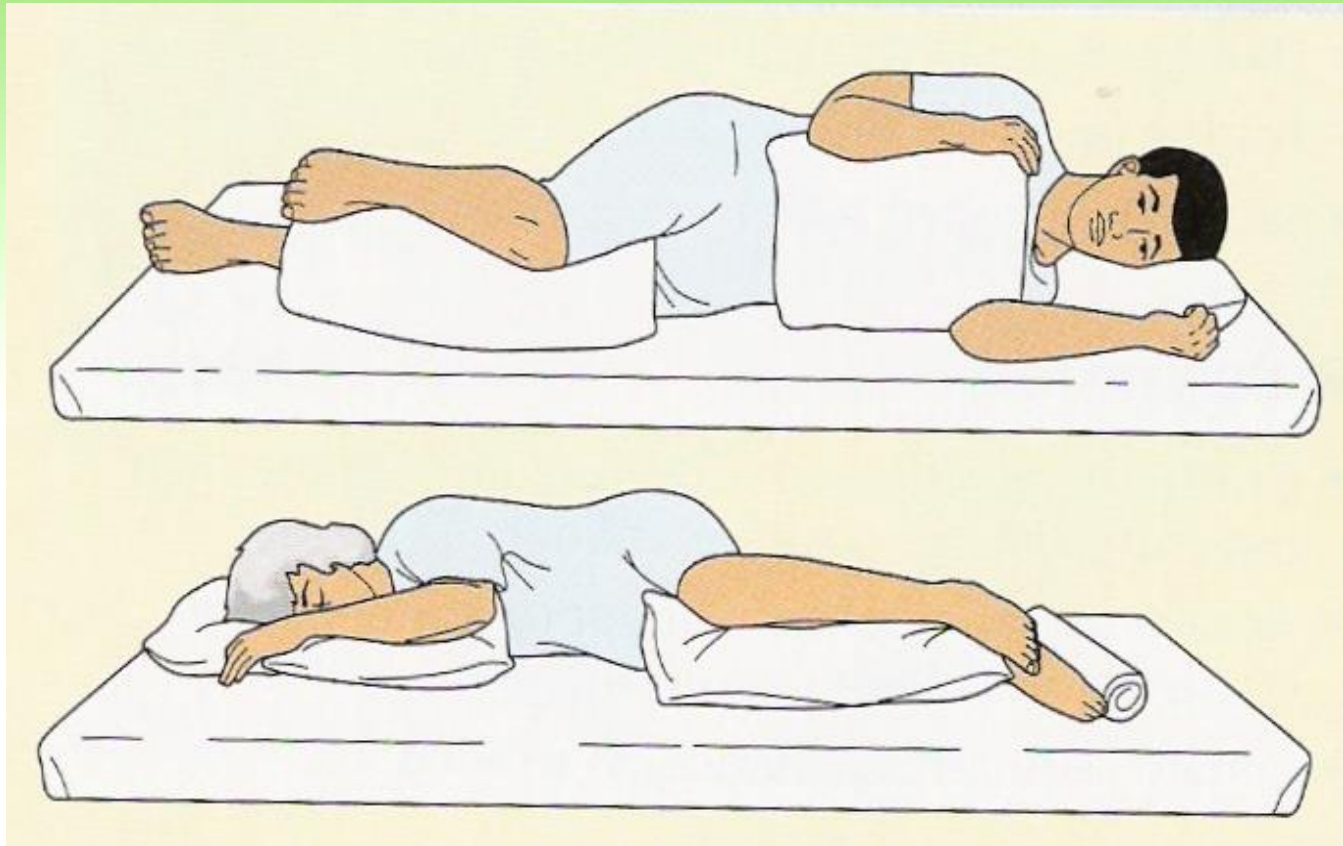
How to Prevent Contracture?

- Pain Management: Treat the source, Divisional therapy, Pray, Meditation, Medication
- Passive Range-of Motion Movement



➤ Proper positioning

- Pillow support cervical spine
- Pillow under upper arm to prevent internal rotation of shoulder and arm
- Pillow under upper leg to support it in alignment and to prevent internal rotation and adduction of hip
- Support feet to prevent foot drop



➤ Supportive devices for proper positioning

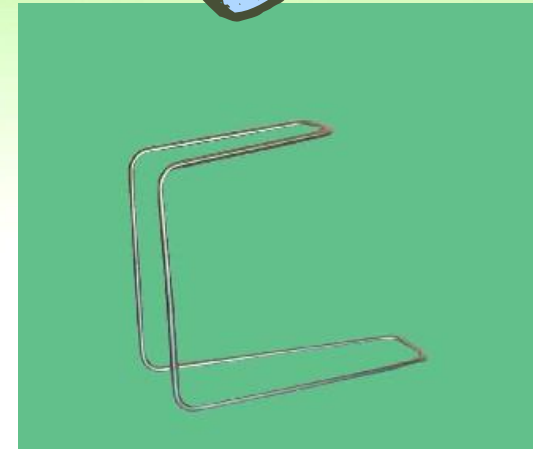
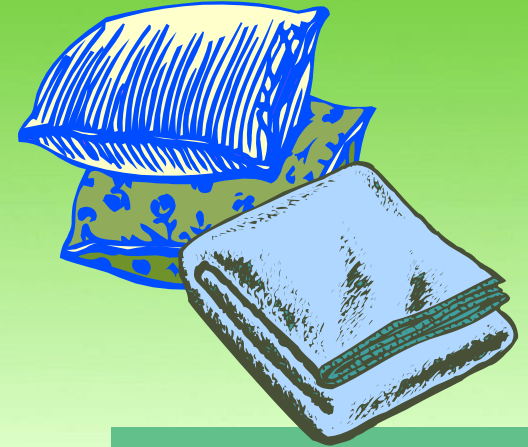
■ Pillows

■ Splints (orthotic devices)

■ Special boots/shoes

■ Bed cradles

■ footboards



➤ Passive or Active Stretching Exercise



Pictures and Contents Cited from:

Lawrence, KS, (1996). Contractures. Research and Training Center on Independent Living, University of Kansas.

<http://www.rtcil.org/products/RTCIL%20publications/Health%20Issues/SCI%20Joint%20Contractures.pdf>

on date: 2013.05.31

➤ **Functional Electrical Stimulation**

~ by placing electrodes on-or surgically implanting them under-the patient's skin close to peripheral nerves that control specific muscles or muscle groups.

~ The electrodes (self-adhesive or gel-type) are connected by leads to an FES device (i.e., portable FES electrode unit) that generates low-voltage electrical impulses.

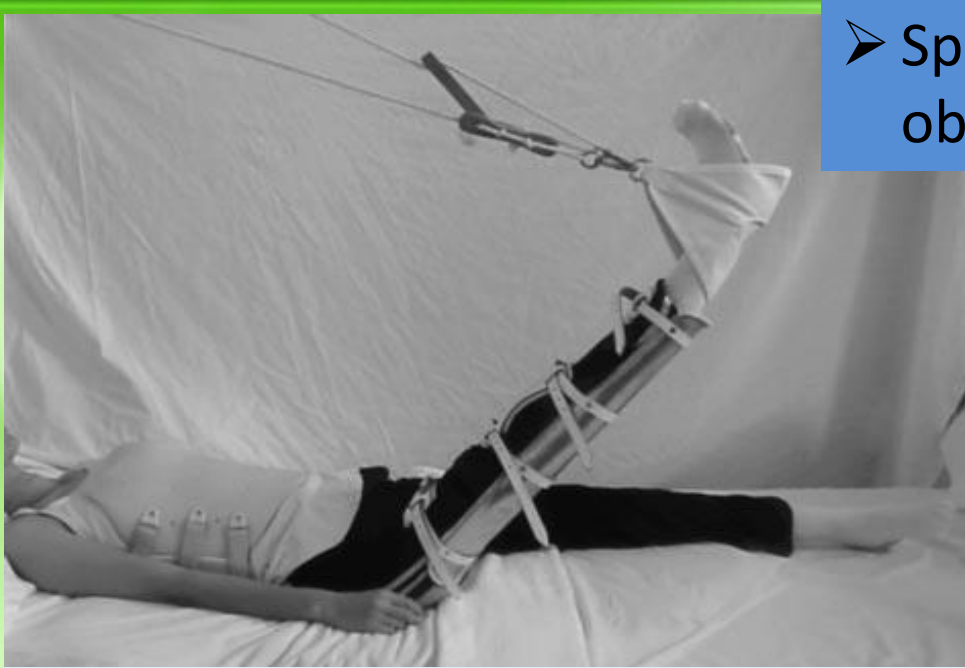
~ These impulses excite the nerves causing the paralyzed muscles to contract, thereby facilitating basic movement.

➤ **Medication**

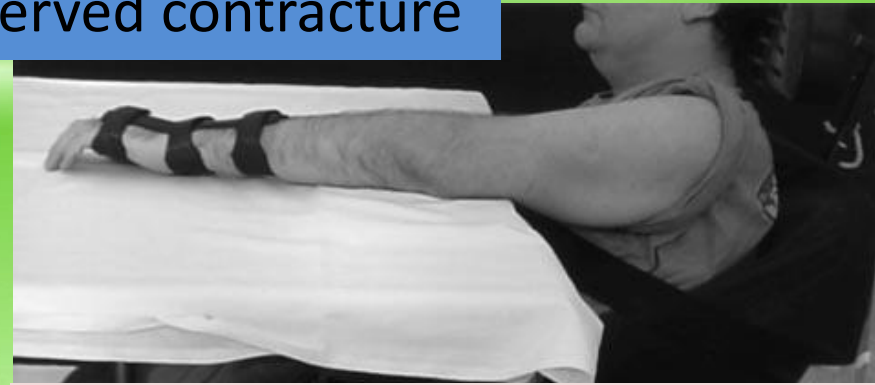
~ **Relief Pain**

~ **Control spasm**

➤ Splinting if observed contracture

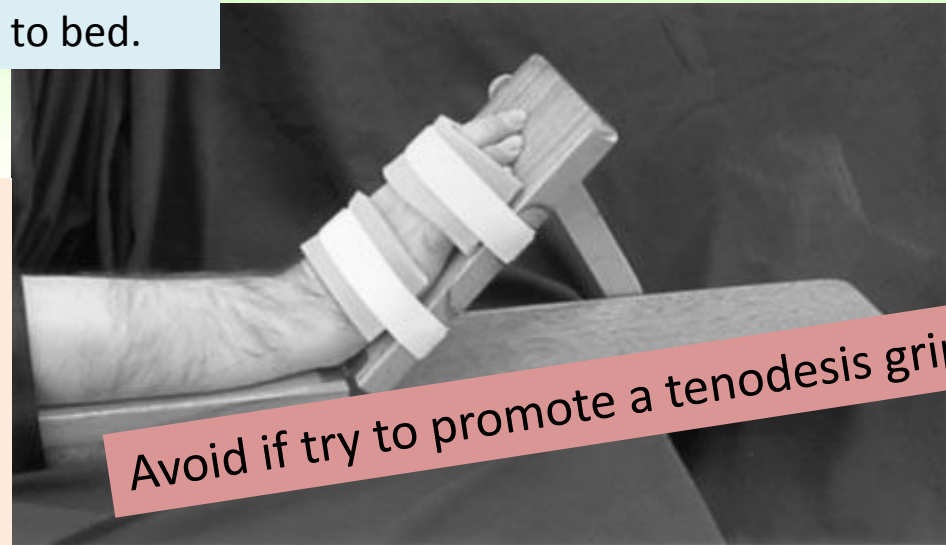


Method of positioning the hamstring muscles in a stretched position for patients confined to bed.



Method of administering a prolonged stretch to the shoulder extensor muscles. The arm is positioned on a high table with the shoulder in flexion

Stretch is applied to the extrinsic finger flexor muscles by positioning the wrist in extension while the metacarpophalangeal and interphalangeal joints are maintained in extension.



Avoid if try to promote a tenodesis grip !!!

➤ Right Mattress and Wheelchair



