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Positioning Techniques in Long-Term Care

Self-Directed Learning Package for Health Care Providers



Supporting Implementation of the RNAO BPGs
Assessment and Management of Stage I to IV Pressure Ulcers and
Risk Assessment and Prevention of Pressure Ulcers



Registered Nurses' Association of Ontario
L'Association des infirmières et infirmiers
autorisés de l'Ontario

NURSING BEST PRACTICE GUIDELINES PROGRAM

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The RNAO Nursing Best Practice Guidelines *Assessment and Prevention of Pressure Ulcers* and *Assessment and Management of Stage I – IV Pressure Ulcers* are available for download from the RNAO website at <http://www.rnao.org/bestpractices>.

TABLE OF CONTENTS

	Pages
INTRODUCTION TO THE SELF-DIRECTED LEARNING PACKAGE	3
Purpose of the Self-Directed Learning Package	3
Target Audience	3
Instructions for using the Self-Directed Learning Package	4
PRE-LEARNING KNOWLEDGE ASSESSMENT	5
SECTION I: POSITIONING	
Learning Objectives	7
Why is Positioning Important?	7
Key Principles of Positioning	8
SECTION II: BASIC BODY POSITIONS AND VARIATIONS	
Learning Objectives	17
Supine	18
Supine Variation: Semi-Fowler's	20
Supine Variation: Fowler's	23
Lateral	25
Lateral Variation: Sim's	27
Chair	28
Section II: Recap	29
POST-LEARNING KNOWLEDGE ASSESSMENT	32
APPENDIX A – HOW TO MAKE A TROCHANTER ROLL	34
APPENDIX B – GLOSSARY	35
APPENDIX C – ANSWERS TO PRE and POST ASSESSMENT and Recaps	36
APPENDIX D – REPOSITIONING SCHEDULE	39
REFERENCES	40

INTRODUCTION TO THE SELF-DIRECTED LEARNING PACKAGE

Purpose of the Self-Directed Learning Package

This self-directed learning package incorporates the positioning recommendations from the RNAO best practice guidelines, *Assessment and Prevention of Pressure Ulcers* and *Assessment and Management of Stage I – IV Pressure Ulcers*. The purpose of this learning package is to assist health care providers in long-term care facilities to gain the knowledge and skill required to manage the unique challenges inherent in the positioning of residents with varying degrees of dependency.

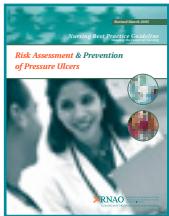
The learner will gain knowledge to enable them to position a resident in good body alignment, taking into consideration typical scenarios that may occur in a long-term care setting.

The package will highlight the ways that correct and frequent positioning will contribute to the resident's comfort and greatly assist in the prevention of pressure ulcers and contractures.

Educators may want to use sections of this package to incorporate into a teaching plan, and may also visit the RNAO website to view additional workshop materials related to skin and wound guidelines, available for free download.

Target Audience

This educational resource has been developed for nurses and other professionals in long-term care who are responsible for the ongoing supervision and education of the unregulated members of the health care team. It is recognized that in many cases it is the unregulated caregivers who provide at-the-bedside care to residents in long-term care homes.



View an educational workshop for RNs and RPNs on the Assessment and Management of Pressure Ulcers at www.rnao.org/bestpractice

INSTRUCTIONS FOR USING THE SELF-DIRECTED LEARNING PACKAGE

This self-directed learning package enables you to proceed through educational content at an independent pace. Each section of the package will take approximately 1-2 hours to complete, and may be put aside for breaks at any time.

1. At the outset of the Self-Directed Learning Package, you will be given the opportunity to complete a short Pre-Learning Knowledge Assessment. The purpose of this assessment is to allow you to evaluate your present knowledge of basic positioning techniques for long-term care residents.
2. Upon completion of the Pre-Learning Knowledge Assessment, proceed with one section of the Self-Directed Learning Package at a time, making sure to complete the following steps:
 - a) Review the learning objectives.
 - b) Read all the information in the section.
 - c) Complete the review questions/case study at the end of the section.
 - d) Compare with the section content or answer sheet at the back of the package and review content related to any incorrect answers.
 - e) Review the section objectives again to confirm that you have gained knowledge and skill in this area.

***Repeat these steps as often as you feel necessary.
Remember this is your learning and you are evaluating
and increasing your knowledge.***

3. Once you have completed the Learning Package:
 - a) Take the opportunity to evaluate your new knowledge by completing a Post-Learning Knowledge Assessment.
 - b) Continue to refer the learning package to reinforce the knowledge that you have gained.

GOOD LUCK!

Pre-Learning Knowledge Assessment

This questionnaire is meant to evaluate your existing knowledge of correct positioning. The assessment is made up of six questions. Answers to these questions can be found on page 36.

1. What is wrong with this picture?



Circle the six parts of the body that are not aligned correctly. Explain the impact this would have on the resident's well being.

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

6

2. The force called "pressure" is the result of:
- a) Congestion with redness of the skin
 - b) Having bony prominences
 - c) Weight of one object pressing down on another
 - d) Lack of friction on moving
3. Prolonged pressure on the sacrum causes the skin and underlying tissue to:
- a) Become compact and flattened out
 - b) Swell up and become larger
 - c) Turn pale in color
 - d) Receive too much oxygen and nutrients
4. The nurse should ensure that the position of the resident in bed is changed at least:
- a) Once every shift
 - b) Every 2 hours
 - c) Every hour
 - d) Every half hour
5. All but one of the following are reasons for using aids in positioning the resident:
- a) To provide support of a body part
 - b) To assist with ambulation
 - c) To relieve pressure
 - d) To maintain the body in good alignment
6. One organ of the body that is quickly affected by pressure from lying in a lateral position for a long period of time is:
- a) The kidney
 - b) The stomach
 - c) The brain
 - d) The lung

SECTION I: POSITIONING

LEARNING OBJECTIVES

Upon completion of this section, learners will be able to:

1. Discuss the importance of positioning as it relates to the comfort of the resident and the prevention of pressure ulcers and contractures.
2. Describe the key principles of positioning.
3. Describe the steps to ensure a resident is maintained in correct body alignment at all times.
4. Provide support for various parts of the body with the use of aids such as pillows, towels, hand rolls, foot boards and trochanter rolls.

Note

Some of the words used in this section of the package may be new, unfamiliar or you may need a review. You may wish to turn to the Glossary in Appendix B before starting the section.

WHY IS POSITIONING IMPORTANT?

One of the basic procedures health care providers in long-term care facilities perform most frequently is that of changing the resident's position. Any position, after a period of time becomes uncomfortable and then painful. Whereas the independent person has the ability to assume a great variety of positions, the dependent person may be limited. The resident who is unable to move limbs freely to change positions or who is partially or totally dependant on the nursing staff because of injury or disease must be moved at regular intervals. Changing the dependant resident's position at least every 2 hours accomplishes four things:

- a) Contributes to the comfort of the resident;
- b) Relieves pressure on affected areas;
- c) Helps prevent formation of contractures or deformities; and
- d) Improves circulation.

It is important to remember the amount of support required for positioning depends on the individual resident. When creating a care plan and positioning schedule for the resident, the nurse must look at the individual needs of that resident.

Note

Alignment and correct positioning is only effective if the resident is comfortable and safe.

When positioning, it is important to look at the resident as an individual and take into consideration all factors of the resident's care plan.

KEY PRINCIPLES OF POSITIONING

1. Resident must be positioned in correct body alignment at all times.
2. The resident's body should be supported with positioning aids to maintain good alignment.
3. The position of the resident in bed must be changed at least every 2 hours.

PRINCIPLE # 1

Resident must be positioned in correct body alignment at all times.

The goal of good body alignment is to position the resident so that the movable segments of the body are aligned in such a way that there is no undue stress placed on the muscles or skeleton.

Good body alignment should be maintained from side to side (laterally) as well as front to back (anterior-posterior).

Diagram #1
Good body alignment

Check Points of Good Body Alignment

- Head up, eyes straight ahead
- Neck and back straight
- Arms relaxed at side
- Chest up and out
- Abdomen tucked in
- Knees slightly flexed
- Feet slightly apart, toes pointing forward

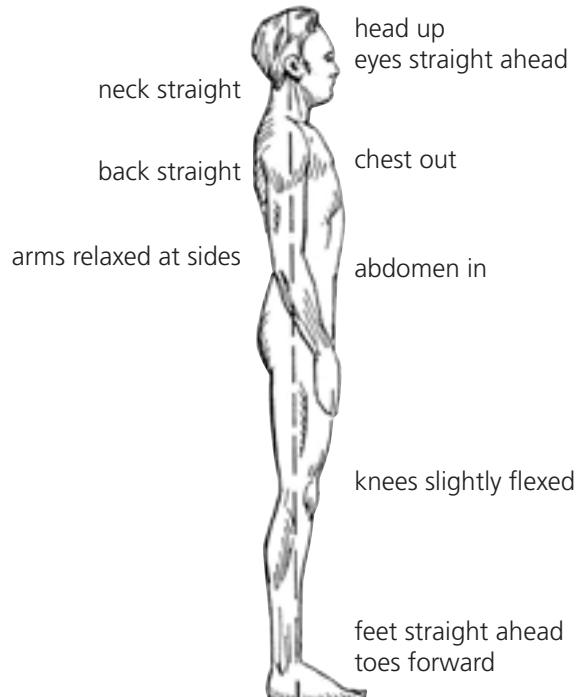


Diagram #2 Poor body alignment (anterior-posterior)



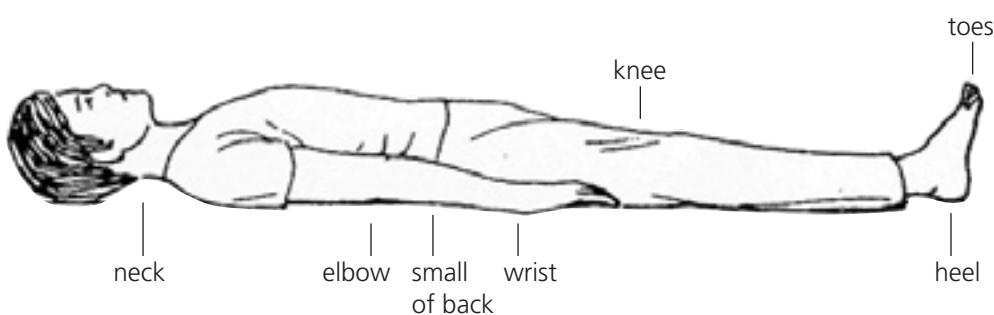
Poor body alignment: neck and back flexed, feet hyperextended.

Poor body alignment can be seen in the above diagram.

1. The resident's neck and chest is flexed so that chest expansion for breathing is reduced. This increases the risk of respiratory infections. The resident's ability to swallow may also be affected.
2. The arms are curled on the chest causing strain to the shoulder muscles and flexion of the wrists.
3. There is no support in the lower back which can cause hyper-extension of the back. This hyper-extension can cause strain on the abdominal and back muscles.
4. Pressure on the coccyx increases the risk of pressure ulcers in this area of the body.
5. Muscle strain in the knees can occur as the knees are not supported.
6. The feet are hyper-extended. This may lead to problems with ambulation later due to foot drop.

When the resident is in the supine position (lying on the back) and there is poor body alignment (as can be seen in Diagram # 2), muscle strain can easily occur. Common areas where muscle strain is felt when the resident is in the supine position are: neck, lower back, elbow, wrist, knee and foot.

Diagram #3 Points of muscle strain in supine position



10

Diagram #4 Poor body alignment (laterally)
Lying on arm, other arm not supported.



If the resident is lying on his/her side, care must be taken to ensure the resident is not lying on one arm and that the other arm is supported. The circulation will be impaired in the arm that is under the resident. In this diagram the other arm falling and lying unsupported behind the resident will cause strain to the shoulder joint. The upper leg is not supported which could result in an inward rotation of the hip joint.

The resident can be made more comfortable in bed by flexing (bending) the elbows, hips, and knees while the alignment of the rest of the body is maintained. Those parts that are flexed may need to be supported to keep them in good alignment as well.

Although the flexed position may be comfortable for the resident, the flexed body segment must be straightened after no more than 2 hours. A position of prolonged flexion may result in contractures. The joints of the upper and lower extremities are the most likely to be affected by contractures. Failure to prevent contractures contributes to even more immobility and pain.



Activity

Find a bed and lay flat with all of your extremities straight for 5-10 minutes and feel the points in your body that are uncomfortable. Now imagine how you would feel if you could not move and you were in the same position for 2 hours.

You may want to capture your thoughts from this activity in the space below, to reflect on the experience in the future.

Principle #1: Recap

1. Four reasons for changing the position of the resident are:

a) _____ b) _____

c) _____ d) _____

2. If the feet in bed are not supported in good alignment, this can lead to _____.

3. A position of prolonged flexion may result in _____.

4. The goal of good alignment is not to put stress on the _____ and
_____.

PRINCIPLE #2

The resident's body should be supported with positioning aids to maintain good alignment.

It is important to remember that the amount of support required for positioning depends on the individual resident. When creating a care plan and positioning schedule for a resident, the nurse must look at the individual needs of that resident.

In a long-term care 'home', resources are often a challenge. As a result, it is important that the caregiver understands the concept of correct body alignment and correct positioning so he/she is able to think "outside the box", be creative and utilize resources that are readily available.

Positioning Aids

POSITIONING AID	RATIONALE
Pillows	<ul style="list-style-type: none"> • Most commonly used to support various parts of the body. • They are soft and thus help to reduce pressure. • They are light, flexible and can be rolled, folded and tucked firmly under the body to maintain a position.
Towels	<ul style="list-style-type: none"> • May be used to support the resident's forearm and hand to prevent pulling strain on the shoulder and wrist muscles. • Towels are easy to obtain and can be folded for many purposes. • They can be easily washed to maintain good hygiene. <p>Note: Towels should preferably be soft so as not to cause additional trauma to the skin.</p>
Face cloths	<ul style="list-style-type: none"> • May be used to make hand rolls. Hand rolls are used for residents who are not able to move their hands. The hand roll should fit into the palm of the hand, with the thumb curved in a grasp position. A gauze strip looped around the hand can help keep the roll in position, if needed. • Hand rolls are used to prevent the fingers of the hand from being in a tight fist which could cause flexion contracture. This provides some extension for the fingers and keeps the hand in position to reduce skin breakdown. • Hand rolls made from face cloths can be easily washed to maintain good hygiene. The face cloths should be soft so as not to cause additional trauma to the skin.
Trochanter Roll	<ul style="list-style-type: none"> • Trochanter Rolls are sometimes used to prevent external rotation of the legs in supine position. <p><i>See Appendix A for directions on how to make a trochanter roll.</i></p>

Principle #2: Recap

1. The resident's body is maintained in good alignment by using _____.
2. Face cloths are often used to make _____.
3. Trochanter rolls are sometimes used to prevent _____ of the legs in supine position.
4. The purpose of the hand roll is
 - a) To encourage exercise to the hands and fingers
 - b) To keep the palm of the hand warm and dry
 - c) To keep the fingers and thumb flexed
 - d) To provide some extension to the fingers and keep the thumb in opposition

PRINCIPLE #3

The position of the resident in bed must be changed at least every two hours.

If the resident's position is not changed at least every two hours, the individual will be at risk for pain from muscle discomfort, pressure ulcers, contractures and damage to superficial nerves and blood vessels.

**Note**

Little research exists to provide nurses with guidelines on optimal turning schedules. In the absence of strong evidence, RNAO's BPG *Risk Assessment and Prevention of Pressure Ulcers* supports a written re-positioning schedule that is determined by the results of a skin assessment and the resident's needs and not by a predetermined schedule.

It is not enough to just position the resident on a turning schedule and expect that the resident will stay in that position for the duration of the time. In between times, the resident should be checked to ensure proper alignment has been sustained.

Pressure on the Skin

Perhaps the most important of all the reasons for changing the position of the resident is to reduce pressure on the various body parts and to prevent the formation of pressure areas.

The longer the resident is in the same position the more pressure from the supporting surface is on the skin, blood vessels and underlying tissues. These structures are not rigid, so pressure causes them to flatten and become more compact. The end result, if the pressure continues is pressure ulcers.

Skin is most commonly affected in areas located over bony prominences (where there is less fat protecting the skin from the bone).

Areas of bony prominence include:

- Occiput
- Scapulae
- Shoulders
- Spine
- Elbows
- Greater trochanters
- Ischial tuberosities
- Knees
- Sacrum
- Coccyx
- Malleoli
- Heels

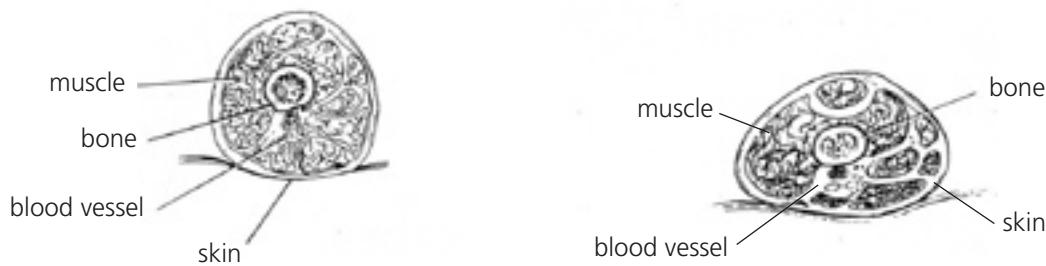
Pressure ulcers may develop in a period of a few hours in an elderly, undernourished and/or dehydrated resident.

Proper positioning is crucial in the prevention of pressure ulcers in the elderly resident.

With continuing pressure, the skin and muscle tissues are deprived of oxygen and essential nutrients. Tissue trauma can develop in matter of hours. Redness of the skin can occur in 30 minutes with sustained pressure. This redness can take about 36 hours to dissipate once the pressure is removed. Tissue ischemia begins within 2-6 hours, often the tissue does not return to normal and permanent damage is done (Lubisch, 2006).

Most often pressure ulcers are the result of not enough attention and care given to turning and positioning of the resident.

Diagram #5 Pressure on blood vessel



Initial Contact:
muscle, blood vessels, skin.

Continued Pressure:
muscles, skin, blood vessels.

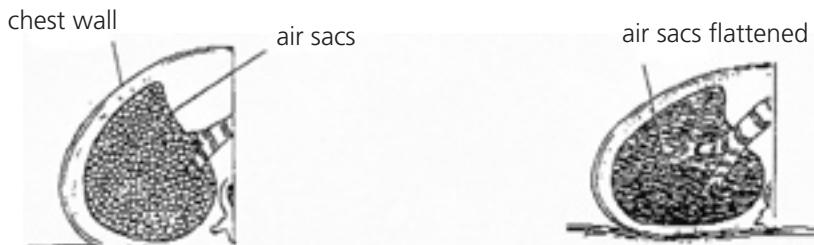


DO NOT use a donut or ring type cushions! Such devices cause venous congestion and increase pressure to the area of concern (RNAO, 2005, Recommendation 3.8).

Pressure on other organs of the body

Although we can see the affect of pressure on the skin, other organs of the body can also be affected by the force of pressure. The lungs are extremely susceptible to pressure (especially when lying on the side). As the resident's body remains in one position, the weight of the upper lung presses down on the lung beneath and makes it more dense and compact. This is compounded by the pressure of the supporting surface (bed) pushing on the lung from beneath. The result is that air is squeezed out of the alveoli. When the resident is lying still, he/she tends to take very shallow breaths and less air which means less oxygen. With less air to expand the lungs and the alveoli flattened, this becomes a breeding ground for infection. Pneumonia is a common complication of bed rest when the person is not repositioned on a regular basis.

Diagram #6 Pressure on lungs.



Initial Contact: lungs.

Continued Pressure: lungs.



Activity

Reflect back to the last time you sat on your hand or a limb and it caused it to go numb, and on relieving the pressure you had the feeling of "Pins and Needles." Reflect how you would feel if you experienced that numbness but were not able to move to relieve the pressure.

You may want to capture your thoughts from this activity in the space below, to reflect on the experience in the future.

Principle #3: Recap

1. Prolonged pressure causes the skin, blood vessels and muscles to become _____.
2. The effects of pressure on the lungs can lead to the complication of _____.
3. Pressure areas most often develop over _____, _____.
4. Donuts and 'ring type' cushions can cause _____ and _____.

SECTION II: BASIC BODY POSITIONS AND VARIATIONS

LEARNING OBJECTIVES

Upon completion of this section, learners will be able to:

1. Demonstrate correct positioning of residents in supine position, including variations of the Fowler's position.
2. Demonstrate correct positioning of residents in lateral position, including Sim's position.
3. Demonstrate correct positioning of a resident in a chair.
4. Identify elements of poor positioning (in supine position and in a chair) and advise on support aids that will promote correct positioning.

In the last section, you learned about the three key principles of positioning. Keeping them in mind, the photos in the following section will demonstrate correct positioning for the basic positions in bed; supine, variations of supine, lateral, Sims' and in a chair. Instructions will be given for each basic position.

When positioning a resident, it is assumed that caregivers will use the correct body mechanics when moving a resident.

It should also be noted when positioning, the resident may have different needs from the resident in the photos. Conditions, such as osteoarthritis, swallowing difficulties, hearing, vision, respiratory problems, contractures etc. must all be considered when creating a care plan for the resident around correct positioning.

Note

Check the resident several times during the two hour period after positioning to ensure he or she is not experiencing pain, numbness or discomfort.



Supine Position: has many variations of degrees from flat to 60 degrees.



This position is used for short periods of time, for example a short rest. The head of the bed may be raised 15 degrees for added comfort.

Steps	Rationale	Other comments
1. Place one pillow under the head and shoulders.	Hyperextension of the neck is prevented and alignment is maintained.	Older adults often suffer from kyphosis or have limited neck extension. The pillow helps support the neck in good alignment.
2. One pillow is placed under the thigh to flex the knee slightly.	This decreases knee and hip extension and relaxes the lower back.	
3. The heels are resting on the bed.	This can be tolerated for short periods of time without causing tissue damage.	Prolonged pressure on the heel is not recommended for periods over 30 minutes.

Supine Position Variation: pillow under the head - 2 pillows under the legs.



Steps	Rationale	Other comments
1. Place one pillow under the head and shoulders.	Hyperextension of the neck is prevented and alignment is maintained.	Older adults often suffer from kyphosis or have limited neck extension. The pillow helps support the neck in good alignment.
2. Two pillows are placed lengthwise starting at the ankles and continuing to the bottom of the buttocks.	This decreases knee and hip extension as well as relaxes the lower back.	
3. The heels are off the bed -floated by using pillows.	The heel is a very small surface for weight distribution and at high risk for skin breakdown.	Pillows should not be placed directly under the heels but under the calf and knee, so that the heel is completely off the bed and the weight of the lower leg is distributed evenly across the pillow.
4. Arms are at the resident's side (parallel) to the body and supported in good alignment with folded towels.		Arms may also be slightly flexed and placed on the chest if the resident prefers.

Supine Position Variation: Semi Fowler's: head of the bed elevated 15 degrees. This position is often used for sleeping.



Steps	Rationale	Other comments
1. Place one pillow under the head and shoulders.	Hyperextension of the neck is prevented and alignment is maintained.	Older adults often suffer from kyphosis or have limited neck extension. The pillow helps support the neck in good alignment
2. Raise the foot of the bed slightly.	This prevents the resident from sliding down the bed and causing shearing. The slight flexion of the knees when the foot of the bed is elevated slightly, gives more comfort by reducing strain on the abdominal muscle and lower back.	<i>Shearing occurs when the skeleton and deep fascia slides downward with gravity, while the skin and upper fascia remains in the original position. Deep necrosis can occur when the shearing between the two layers of tissue leads to stretching, kinking and tearing of vessels in the subcutaneous tissues.</i> <i>Shearing most often occurs when individuals slide down, or are dragged up, a bed or chair.</i>

Supine Position Variation: Semi-Fowlers:

bed is raised 30 degrees.

Residents are often placed in this position for 30-60 minutes following feeding as it aids in digestion.



Steps	Rationale	Other comments
1. Bed is elevated 30 degrees and one pillow is placed under the head and shoulders.	Hyperextension of the neck is prevented and alignment is maintained.	Older adults often suffer from kyphosis or have limited neck extension. The pillow helps support the neck in good alignment.
2. Arms and wrists are supported on the bed parallel to the body.	The arms are supported in good alignment - slightly flexed to reduce strain on shoulder muscles.	
3. Raise the foot of the bed slightly.	This prevents the resident from sliding down the bed and causing shearing. The slight flexion of the knees when the foot of the bed is elevated slightly, gives more comfort by reducing strain on the abdominal muscle and lower back.	<i>Shearing occurs when the skeleton and deep fascia slides downward with gravity, while the skin and upper fascia remains in the original position. Deep necrosis can occur when the shearing between the two layers of tissue leads to stretching, kinking and tearing of vessels in the subcutaneous tissues.</i> <i>Shearing most often occurs when individuals slide down, or are dragged up, a bed or chair.</i>
4. The heels are resting on the bed.	This can be tolerated for short periods of time without causing tissue damage.	Prolonged pressure on the heel is not recommended for periods over 30 minutes.



Note

Raising the head of the bed more than 30 degrees increases shearing forces over the lower back and coccyx. When a resident is at the top of the bed with the head elevated and begins to slide down towards the foot of the bed, a shear effect is created on the buttocks. As the resident slides, the deep tissues over the sacrum and coccyx are forced in one direction while the superficial tissues move in the opposite direction. Shear causes ischemia by compressing blood vessels and impeding the flow of blood.

Discourage the resident in bed from sitting with head elevated more than 30 degrees except for short periods of time (e.g. meal times, enteral feeds) (RNAO, 2005 – Recommendation 3.7).

Supine Position Variation: Fowlers: bed is raised approximately 45 degrees (up to 60 and 90 degrees)
– semi-sitting position.

Fowler's position is the position of choice for residents who have difficulty breathing or experiencing heart problems. In this position, gravity pulls the diagram downward, allowing greater chest expansion and lung ventilation. It is not the position of choice if the resident is at risk for developing pressure ulcers (pressure on the coccyx).



Steps	Rationale	Other comments
1. Place one pillow under the head and shoulders.	Hyperextension of the neck is prevented and alignment is maintained.	Older adults often suffer from kyphosis or have limited neck extension. The pillow helps support the neck in good alignment.
2. Arms and wrists are supported on the bed parallel to the body or can be flexed and placed on the resident's lap.	Both positions prevent muscle strain on the shoulders.	
3. One pillow is placed under the thigh to flex the knee slightly.	This decreases knee and hip extension and relaxes the lower back. Helps maintain a sitting position without sliding down the bed. Relieves some of the pressure on the heels.	

4. Elevate bed slightly at the feet.	Avoids pressure on lower back and prevents resident from slipping down the bed which can cause shearing.	<i>Shearing occurs when the skeleton and deep fascia slides downward with gravity, while the skin and upper fascia remains in the original position. Deep necrosis can occur when the shearing between the two layers of tissue leads to stretching, kinking and tearing of vessels in the subcutaneous tissues.</i>
5. The heels are resting on the bed. **You may notice that the feet are not supported in good alignment.	This can be tolerated for short periods of time without causing tissue damage. Prevents hyper-flexion of the feet.	<i>Prolonged pressure on the heel is not recommended for periods over 30 minutes.</i> <i>A foot board or other supporting device is advisable to keep the foot in good alignment and prevent foot drop.</i>



Note

The head of the bed should not be brought to the full upright position (90 degrees) for individuals who are unable to maintain their balance.

Lateral Position

The lateral position is a side-lying position. The person can lie on one side or the other. In the side lying position, the resident can be positioned with the upper trunk rotated forward or backward.

Turn the resident onto the side toward you. A **30 degree turn to either side is recommended** (RNAO, 2005 – Recommendation 3.7).

When a resident is positioned forward, the pillow is positioned in front of the individual. The uppermost extremity is brought forward to rest on the pillow.

When a resident is rotated backward, the pillow is placed behind the patient (as in the photo).

The lateral positioning is good for resting and sleeping. This position helps relieve pressure on the sacrum and heels in residents who spend a great deal of time sitting and who are confined to bed in dorsal and Semi-Fowler's positions.



Steps	Rationale	Other comments
1. Place one pillow under the head and shoulders.	<p>Hyperextension of the neck is prevented and alignment is maintained.</p> <p>If the head rests on the bed surface; weight is borne by lateral aspects of cranial and facial bones.</p>	Older adults often suffer from kyphosis or have limited neck extension. The pillow helps support the neck in good alignment.
2. One pillow is placed under the upper arm, slightly flexed with wrist supported and comfortable on the pillow at the back (or across the abdomen).	<p>Prevents internal rotation of the shoulder.</p> <p>Internal rotation of shoulder and arm can cause pressure on chest, restricting expansion during breathing.</p>	
3. A second pillow is placed lengthwise and tucked in at the back. The resident is encouraged to lean back into the pillow.	This supports alignment and maintains the position.	
<p>4. The resident's lower arm is supported, slightly flexed with wrist supported and comfortable on a pillow in the front.</p> <p>Several towels have been folded and can be seen under the resident's wrist.</p> <p>Please note: The resident in the photograph has arthritic deformities of the wrist.</p>	Gives support and prevents internal rotation.	Make sure the resident is not lying on his/her arm.
<p>5. The lower limbs are outstretched with knees slightly flexed - upper leg slightly forward of the lower leg.</p> <p>The uppermost lower extremity is supported by a sufficient number of pillows to support the lower extremity in proper alignment with the trunk.</p>	<p>Minimum extension of the legs minimizes pressure on the trochanter to avoid excessive pull on the lower trunk.</p> <p>This also prevents pressure on the knees and ankles.</p>	

Lateral Position Variation: Sims' Position

Sims' position is a variation of the lateral position - usually a left side-lying position used for the administration of enemas and other procedures. This position may be used for resting if the resident finds it comfortable.

The resident is placed on the left side with the upper trunk forward.



Steps	Rationale	Other comments
1. Place one pillow under the head and shoulders.	Hyperextension of the neck is prevented and alignment is maintained.	Older adults often suffer from kyphosis or have limited neck extension. The pillow helps support the neck in good alignment
2. The left shoulder is pulled forward and the upper body, head, neck and torso are aligned properly. The left wrist is supported with a rolled towel.	Promotes good circulation to the extremity. Prevents lateral flexion and fatigue of the sternocleidomastoid muscles and internal rotation/adduction of the shoulder.	
3. A pillow is placed under the upper arm to place it in good alignment; arm should be flexed comfortably.		
4. A pillow is placed laterally under leg and thigh. The right leg is sharply flexed so that it does not rest on the lower leg. A pillow is positioned between the legs to maintain the position.	This ensures good alignment with the shoulders and hips. Maintains the position.	

Positioning in a chair or wheelchair



The resident is seated in a chair that promotes good positioning.

Foot support is essential for maintaining a stable base of support. This resident's feet are firmly on the floor. A foot stool could be used if the resident could not reach the floor.

Chair/Wheelchair Position Checklist

- Is the resident sitting in midline or are they slouched to one side?
- Are the resident's knees higher than the hips, causing increased pressure on the sacrum?
- Are the chair arms or foot rests causing pressure marks on the resident's skin?
- FEET FLAT 90°/90°/90°

- The knees (at a 90 ° angle with the hips) are slightly separated to provide relaxation and promote further alignment.
- Hips are positioned at midline of the chair seat with the pelvis stable.
- The back is supported forward in the chair so the back meets the hips at a 90° angle.
- The arms are flexed and supported by the arms on the chair.
- The head is positioned in midline of the body and is supported by the back of the chair.
- While sitting, the best posture to use is '**feet flat and a 90°/90°/90° position**'.

Reposition residents **hourly** if in a chair or wheelchair. If the resident is able, ask him/her to shift weight every 15 minutes (RNAO, 2005 – Recommendation 3.8).

**Note**

Refer to an Occupational Therapist or Physiotherapist for seating assessment and adaptations for special needs (RNAO, 2005 – Recommendation 3.8).

To increase the effectiveness of positioning, it is imperative that the resident be provided with a chair that is suitable for his/her needs. If an appropriate chair is used, the resident is likely to be more comfortable, and thus tolerate sitting for a longer period of time.

Check the resident often to make sure he or she is not experiencing pain, numbness or discomfort in this position.

**Activity**

Shearing can be illustrated by placing the index finger of one hand on the back of the other hand and pushing the skin towards the elbow without sliding the fingers across the skin surface.

If this activity was prolonged, what affect would this have on your hand and fingers.

You may want to capture your thoughts and reflections below.

SECTION II: RECAP

1. Match the following definitions to the basic positions of the resident in bed.

Definitions

- (a) Head elevated (15°), hips and knees flexed
- (b) Lying on one side with one leg resting on another
- (c) Lying with face and feet upward
- (d) Lying with foot of bed slightly elevated and head raised (45°)

Positions

- Fowler's
- Semi Fowler's
- Lateral
- Supine

2. Posture or body alignment, affects cardiovascular, respiratory, and gastrointestinal function.

True _____ False _____

3. When a resident is in a chair or wheel chair the position should be changed every _____.

4. Circle the correct answer in the following statement:

A pillow placed between the knees of a resident lying on his side will *increase/decrease* the pressure on the knee joint and prevent the hip joint from turning *inward/outward*.

5. What is wrong with this Picture?



6. Complete the following tables using the principles of positioning.

Supine Position

Unsupported position	Problem to be Prevented	Corrective Measure
Head is flat on bed surface	Hyperextension of neck	
Legs are externally rotated	External rotation of legs	
Legs are extended	Hyperextension of knees	
Feet assume planter flexion position	Plantar flexion (foot drop)	
Heels on bed surface	Pressure on heels	

Fowler's Position - 45 degrees

Unsupported Position	Problem to Be Prevented	Corrective Measure
Head rests on bed surface	Hyperextension or hyperflexion of neck	
Arms fall at sides	Shoulder muscle strain, possible dislocation of shoulders, edema of hands and arms with flaccid paralysis, flexion contracture of the wrist	
Legs lie flat and straight on lower bed surface	Hyperextension of knees	
Legs are externally rotated	External rotation of hips	
Heels rest on bed surface	Pressure on heels	
Feet are in Plantar flexion	Plantar flexion of feet (foot drop)	

Post-Learning Knowledge Assessment

This questionnaire is meant to test your knowledge of correct positioning following the completion of the learning package. The test is made up of 6 questions. Answers can be found on page 36.

1. What is wrong with this picture?



Circle the six parts of the body that are not aligned correctly. Explain the impact this would have on the resident's well being.

1.) _____

2.) _____

3.) _____

4.) _____

5.) _____

6.) _____

2. The force called pressure is the result of:
- a) Congestion with redness of the skin
 - b) Having bony prominences
 - c) Weight of one object pressing down on another
 - d) Lack of friction on moving
3. Prolonged pressure on the sacrum causes the skin and underlying tissue to:
- a) Become compact and flattened out
 - b) Swell up and become larger
 - c) Turn pale in color
 - d) Receive too much oxygen and nutrients
4. The nurse should see that the position of the resident in bed be changed at least:
- a) Once every shift
 - b) Every two hours
 - c) Every hour
 - d) Every half hour
5. All but one of the following are reasons for using aids in positioning the resident:
- a) To provide support of a body part
 - b) To assist with ambulation
 - c) To relieve pressure
 - d) To maintain the body in good alignment
6. One organ of the body that is quickly affected by pressure from lying in a lateral position for a long period of time is:
- a) The kidney
 - b) The stomach
 - c) The brain
 - d) The lung

APPENDIX A: HOW TO MAKE A TROCHANTER ROLL

To make a trochanter roll:



a. Fold in thirds.



b. Roll up.



c. Roll in place.



d. Place flap under patient.

APPENDIX B: GLOSSARY

ALVEOLI – air sacs in the lung.

BODY ALIGNMENT – refers to the relationship of the moveable segments of the body to one another. Good alignment is achieved when there is no undue stress placed on the muscles or skeleton.

CONTRACTURE – is the permanent contraction of a muscle due to spasms or paralysis that leads to 'freezing', or immobilization, of the affected joint(s).

FOOT DROP – is hyperextension of the foot with permanent contracture of the calf muscles and tendons.

LATERAL POSITION – side position.

SIMS' POSITION (variation of lateral) – usually on the left side with the uppermost leg moderately flexed so that it does not rest on the lower leg.

PRESSURE – the force caused by the weight of one object in contact with another.

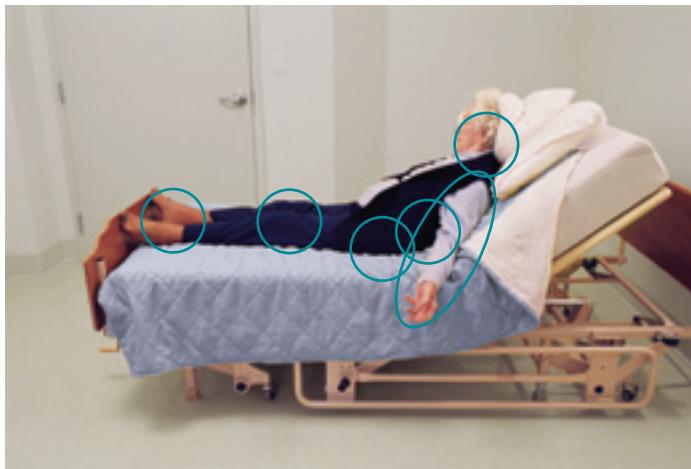
SHEARING – results from the sliding and displacement of two opposing forces. Shearing causes ischemia by compressing blood vessels and impeding the flow of blood. Shearing is more likely to affect deeper structures.

SUPINE POSITION – lying on the back with face upward; also referred to as a dorsal recumbent position.

FOWLER'S POSITION (variation of supine position) – head of bed elevated usually to an angle of between 45 to 60 degrees, but maybe as elevated as low as 15 degrees or as great as 90 degrees.

APPENDIX C: ANSWERS TO PRE AND POST ASSESSMENT AND RECAPS

WHAT IS WRONG WITH THIS PICTURE?



1. Circle the six parts of the body that are not aligned correctly. Explain the impact this would have on the resident's well being.
 - The resident's neck is flexed so that puts strain on the neck and shoulders. Chest expansion for breathing is reduced and this increases the risk of respiratory infections.
 - The arms are extended and not supported which can lead to strain of the joints, especially the shoulder, elbow and wrist.
 - There is no support in the lower back which can cause hyperextending of the back. This hyperextention can cause strain on the abdominal muscles and some compression in the large blood vessels in the torso.
 - Pressure on the coccyx increases the risk of pressure ulcers.
 - Muscle strain in the knees can occur as they are not supported.
 - The feet are hyper extended. This may lead to problems with ambulation later due to foot drop.

- 2.c)
3. a)
4. b)
5. b)
6. d)

PRINCIPLE #1: RECAP

1. a) comfort b) relieve pressure c) prevent contractures d) improve circulation
2. Foot drop
3. Contractures
4. Muscles and skeleton

PRINCIPLE #2: RECAP

1. Positioning aids
2. Hand rolls
3. External rotation
4. d)

PRINCIPLE #3: RECAP

1. Flattened/more compact
2. Pneumonia
3. Bony prominences
4. venous congestion and increase

SECTION II: RECAP

1. a) semi-Fowler's b) lateral c) supine d) Fowler's
2. True
3. Every hour
4. (increase), (inward)
5. not demonstrating 90° 90° 90° positioning

6. Supine Position

Unsupported position	Problem to be Prevented	Corrective Measure
Head is flat on bed surface	Hyperextension of neck.	Pillow of suitable thickness under head and shoulders, if necessary for alignment
Legs may be externally rotated	External rotation of legs	Roll or sandbag placed laterally to trochanter of femur
Legs are extended	Hyperextension of knees	Small pillow under thigh to flex knee slightly
Feet assume planter flexion Heels on bed surface	Plantar flexion (foot drop)	Footboard or rolled pillow to support feet in dorsal flexion
Heels on bed surface	Pressure on heels	Small pillow under ankles

Fowler's Position - 45 degrees

Unsupported position	Problem to be Prevented	Corrective Measure
Head rests on bed surface	Hyperextension or hyperflexion of neck	Pillows to support head, neck and upper back
Arms fall at sides	Shoulder muscle strain, possible dislocation of shoulders, edema of hands and arms with flaccid paralysis, flexion contracture of the wrist	Pillow under forearms to eliminated pull on shoulder and assist venous blood flow form hands and lower arms. <i>Low Fowler's 30 degree or 15 degree–Supported arm support is omitted in this instance</i>
Legs lie flat and straight on lower bed surface	Hyperextension of knees	Small pillow under thighs to flex knees
Legs are externally rotated	External rotation of hips	Trochanter roll lateral to femur
Heels rest on bed surface	Pressure on heels	Small pillow under ankle
Feet are in Plantar flexion	Plantar flexion of feet (foot drop)	Footboard or rolled pillow to provide support for dorsal flexion

APPENDIX D: REPOSITIONING SCHEDULE

TIME	BED CARE	COMMENTS
Night Shift		
23:30	Back – flat	
01:30	Left side – 30 ° degree turn	* Avoid positioning directly on the trochanter
03:30	Right side – 30 ° degree turn	* Avoid positioning directly on the trochanter
05:30	Back - flat	
Day Shift		
08:30	Fowler's position for breakfast – foot of bed slightly elevated	
09:30	After breakfast – 30 ° upright back lying	
10:30	Right side – 30 ° degree turn	*Avoid positioning directly on the trochanter
12:00	Fowler's position for lunch - foot of bed slightly elevated	
13:00	After lunch – 30 ° upright back lying	
15:00	Left side – 30 ° degree turn	*Avoid positioning directly on the trochanter
Evening Shift		
17:00	Fowler's position for dinner – foot of bed slightly elevated (knee gatch)	
18:00	After dinner – 30° upright back lying	
19:30	Right side – 30 ° degree turn	*Avoid positioning directly on the trochanter
21:30	Left side – 30 ° degree turn	*Avoid positioning directly on the trochanter

BIBLIOGRAPHY

Kozier, B., Erb, G., Berman, A., Burke, K., Bouchal, D., & Hirst, S. (2004). *Fundamentals of Nursing: The nature of nursing practice in Canada*. (Canadian Ed.). Toronto, Ontario: Prentice Hall.

Lubisch, K. (2006). *Managing pressure ulcers: Basics of positioning and pressure relief*. [online].

Available: <http://www.nursingceu.com/courses/82/index>

Rambo, B. & Wood, L. (1982). *Nursing Skills for Clinical Practice*, 3rd edition. Saunders, Philadelphia.

Registered Nurses' Association of Ontario. (2005). *Risk Assessment and Prevention of Pressure Ulcers*. Toronto, Canada: Registered Nurses' Association of Ontario.

Registered Nurses' Association of Ontario. (2007). *Assessment and Management of Stage I to IV Pressure Ulcers*. Toronto, Canada: Registered Nurses' Association of Ontario.

Sorrentino, S. (2004). *Mosby's Canadian Text book for the Support Worker*. (First Canadian Ed.). Toronto, Canada: Elesvier.