

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES Division of Health Service Regulation

State-approved Curriculum Nurse Aide I Training Program

MODULE I Body Mechanics

Teaching Guide 2024 Version 1.1





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Module I – Body Mechanics Teaching Guide

Objectives

- 1. Describe principles of body mechanics that help prevent injury to the resident and the nurse aide.
- 2. Identify measures to assist a falling person to the floor safely.
- 3. Describe the correct positioning of residents.

Advance Preparation – In General

- Review curriculum and presentation materials.
- Add examples or comments to the Notes Section.
- Set up computer/projector.

Supplies

- 10-pound object to lift, such as a bag of potatoes (Teaching Tip #I17-1 & Activity #I36)
- Computer paper and scissors
- Mannequin in a bed (Activity **#I36**)
- Fun activity supplies for station #4 yoga position sheet, Hokey Pokey song, hula hoop, aerobics exercise DVD, stretches resource sheet (**Activity #I36**)

Handouts – Optional

Instructional Resources/Guest Speakers- Optional

Advance Preparation – Teaching Tips

- #I11 Base of Support:
 - **First,** ask students to stand up at their desks and stand on one foot Ask, how stable do you feel?
 - **Next,** have the students stand with both feet together.
 - Ask, how stable do you feel?
 - **Last**, have the students stand with both feet shoulder length apart Ask, how stable do you feel now?
 - Reinforce to the students, the feet are the base of support for a person and when feet are shoulder-width apart, the base of support is ideal.
- **#I15 Everyday Body Mechanics:** Ask students to think of ways to use body mechanics concepts in everyday life at home. Ask students to jot down a physical task they do at home, then write two ways they can use what they've learned about body mechanics to do the task with less wear and tear on their bodies. Have students share
- **#I17-1 Demonstrate Lifting a 10-pound Object:** Using good body mechanics, demonstrate how to lift a 10-pound object (for example, a bag of potatoes).
- **#I17-2 Demonstrate Handling a Resident about to Fall:** Using a student volunteer, demonstrate how to correctly handle a resident about to fall.

- **#I17-2 Poor Body Mechanics:** Ask students to provide examples of poor body mechanics that you have observed
- **#I21 Location of the Bed Angle:** After walking over to the bed, point out the area of the bed used to determine the bed angle. As you raise the head of the bed, show the students how the bed angle is increasing; as you lower the head of the bed, show the students how the bed angle is decreasing.
- #I31 Demonstrate Logrolling: Reading or hearing about logrolling is one thing, but seeing it demonstrated will give the students a visual opportunity to understand the concept. Obtain a volunteer to assist you with the procedure. Using a mannequin or a student in the bed, with a draw sheet in place, demonstrate the logroll procedure with the assistance of the volunteer student

Advance Preparation – Activities

• **#I36 Application of Body Mechanics:** Duplicate puzzles for each student. Print instruction cards using card stock paper or computer paper that you will laminate. Decide how to pair up students and think about special situations (odd number of students, whether you want to set up additional stations beyond the five specified, etc.). Think about and plan Station #4 of Activity #I36. Set up five stations in the lab, as directed in the instructor guide. Decide how you will notify students that it is time to move on to the next station.

Module I – Body Mechanics Definition List

Alignment (of the body) – how the head, shoulders, spine, hips, knees and ankles line up with each other when the back is straight; how the body works.

Angle – formed when two straight lines meet at a common endpoint.

Base of Support – foundation that supports an object.

Body Mechanics – actions that promote safe, efficient movement by using the correct muscles and movements to avoid straining muscles or joints.

Center of Gravity – point where most weight is concentrated for an object or body.

Fowler's Position – resident reclined in a sitting position at 45 to 60 degrees.

Full-sling Mechanical Lift – mechanical device that uses a sling to transfer residents who cannot assist or are too heavy for the staff to transfer themselves.

High Fowler's Position – resident sitting up almost straight at 60 to 90 degrees.

Lateral Position – resident positioned on the right or left side.

Logrolling – turning the resident as a unit while maintaining the head, back, and legs in a straight line.

Mechanical Lift – mechanical devices used to transfer residents from one area to another, such as to and from bed, to and from chairs.

Posture – the position in which someone holds their body when standing or sitting; how the body looks.

Prone Position – resident positioned on abdomen.

Protractor - a measurement device used to measure angles.

Sims Position – resident positioned in left side-lying position.

Stand-assist lift – mechanical device used to transfer residents who can bear some weight, follow directions, sit on the side of the bed, and bend hips, knees, and ankles.

Supine Position – resident positioned flat on back.

Module I – Body Mechanics

(S-1) Title Slide

(S-2) Objectives

- 1. Describe principles of body mechanics that help prevent injury to the resident and the nurse aide
- 2. Identify measures to assist a falling person to the floor safely
- 3. Describe the correct positioning of residents

Content	Notes
(S-3) Body Mechanics Body mechanics are actions that promote safe, efficient movement of the body by using the correct muscles and movements to avoid straining muscles or joints	
(S-4) Body Mechanics – Importance to Nurse Aide Due to the nature of their duties, nurse aides are subject to back and other injuries to the body, so practicing correct body mechanics is critically important	
 (S-5) Proper Body Mechanics Maximize strength, minimize fatigue, avoid muscle strain and injury, and assure nurse aide and resident safety Empower the nurse aide to fulfill the job requirements of lifting, moving, and carrying objects Reduce costs to the resident and facility Reduce employee absences due to back injuries Reduce liability for the facility due to workman's compensation By not using proper body mechanics even picking up a piece of paper from the floor can cause back injury 	
 (S-6) Body Mechanics – ABCs Follow the ABCs of correct body mechanics Alignment Base of Support Coordination 	
(S-7) Alignment and Posture of a Car <u>To the instructor</u> : the purpose of including a car in the learning content is to align a concept, alignment, and posture, that students may recognize when applied to a car	
 Remove the painted outside of the car and you will see the parts are joined together. If all the parts are in alignment, the car runs well Add the painted outside of the car to see how the car looks. Color, style, design, make, model, etc. are subjective personal preferences 	

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The same ideas can be applied when thinking about the human body	
 (S-8) ABCs of Correct Body Mechanics – Alignment Alignment is how something works and is objective and scientific Alignment of the body is how the head, shoulders, spine, hips, knees, and ankles line up with each other Alignment is the layout of all the parts that allow everything to work the way it's supposed to work with the least amount of damage 	
 (S-9) ABCs of Correct Body Mechanics – Posture The position in which someone holds their body when standing or sitting Posture is how something looks and is subjective and can be affected by cultural customs 	
 (S-10) ABCs of Correct Body Mechanics – Alignment and Posture Correct body alignment allows the body to move and function efficiently and with strength When you stand up straight, a line can be drawn straight down through the center of your body, and the two sides of your body are mirror images of each other, with body parts lined up naturally, arms at the side, palms directed forward, and feet pointed forward and slightly apart (also called anatomic position) It's important to maintain correct body alignment when sitting and lying down 	
 (S-11) ABCs of Correct Body Mechanics – Base of Support The base of support is a foundation that supports an object Good base of support needed for balance A wide base of support is more stable than a narrow base of support Instructor: students should answer the question on the slide before sharing this bullet. For a person, the feet are the base of support (legs shoulder-length apart is ideal) 	
 TEACHING TIP #I11 Base of Support First, ask students to stand up at their desks and stand on one foot Ask, how stable do you feel? Next, have the students stand with both feet together. 	

	Module I – Body Mechanics	
•	Ask, how stable do you feel? Last , have the students stand with both feet shoulder length apart Ask, how stable do you feel now? Reinforce to the students, the feet are the base of support for a person and when feet are shoulder-width apart, the base of support is ideal	
Gı • •	-12) ABCs of Correct Body Mechanics – Center of ravity Point where the most weight is concentrated for an object or body For a standing person, the pelvis is the center of gravity A low center of gravity gives you a more stable base of support, and balance is increased	
(S •	-13) Body Mechanics – Changing Linen Raise bed to about waist height when changing linen	
(S •	 -14) ABCs of Correct Body Mechanics – Bending By bending knees to lift an object, instead of at the waist Center of gravity lowered Stability increases Less likely to strain muscles When moving or transferring a resident, the center of gravity includes the resident, so the resident needs to be as close to your body as possible 	
(S • •	-15) Lifting an Object off the Floor – Preparation Face object Bend hips/knees and get close to the object before lifting Grip the object firmly with both hands	
	ACHING TIP #I15 Everyday Body Mechanics sk students: Think of ways to use body mechanics concepts in everyday life at home. Ask students to jot down a physical task they do at home, then write two ways they can use what they've learned about body mechanics to do the task with less wear and tear on their bodies. Have students share	
(S • •	-16) Lifting an Object off the Floor – Action Lift by pushing up with strong leg muscles Use a wide base of support Get help when needed	

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 Module I – Body Mechanics (S-17) ABCs of Correct Body Mechanics – Lifting and Carrying an Object Maintain correct body alignment when lifting/carrying an object Keep the object close to the body Point feet and body in the direction you are moving Do not twist at the waist 	
TEACHING TIPS	
 #I17-1 Demonstrate Lifting a 10-pound Object: Using good body mechanics, demonstrate how to lift a 10-pound object (for example, a bag of potatoes). #I17-2 Demonstrate Handling a Resident about to Fall: Using a student volunteer, demonstrate how to correctly handle a resident about to fall. #I17-2 Poor Body Mechanics: Ask students to provide examples of poor body mechanics that you have observed 	
 (S-18) Points to Remember When Lifting When given a choice, push or slide objects rather than lifting them Use large muscles of upper arms and thighs to lift Keep movements smooth when lifting Avoid quick movements with heavy objects Face object or person when moving Use both arms and hands when lifting, pushing, or carrying objects 	
 (S-19) A Resident Who Is Falling Control the direction of the fall by easing the resident to the floor while protecting the head Keep the resident still until the nurse can check them DO NOT try to hold the resident up: It can injure the nurse aide and resident Both may lose balance and sustain injuries 	
 (S-20) Angles An angle is formed when two straight lines meet at a common endpoint Angles are measured in degrees or abbreviated as ° The bed frame and head of the bed are the two lines used to determine the angle of the bed 	
 (S-21) Measuring Bed Angles Angles used to describe positions in a bed that are measured in degrees ranging from 0° – 90° 	

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 0° = supine and prone positions (or a flat bed). 45° - 60° = Fowler's position 60° - 90° = High Fowler's position As the head of the bed is being raised, the angle area is the area between the bottom of the mattress at the head end of the bed and the bed frame As the head of the bed is raised, the angle increases 	
TEACHING TIP #I21 Location of the Bed Angle After walking over to the bed, point out the area of the bed used to determine the bed angle. As you raise the head of the bed, show the students how the bed angle is increasing; as you lower the head of the bed, show the students how the bed angle is decreasing.	
 (S-22) Positioning the Resident Resident must always be properly positioned and correctly aligned 	
 (S-23) Position Changes and Correct Alignment Regular position changes and correct alignment Promote well-being and comfort, easier breathing, and circulation Prevent pressure ulcers and contractures 	
 (S-24) Repositioning the Resident Reposition in bed or chair at least every two hours and more frequently according to the care plan Use good body mechanics Ask a co-worker for assistance as needed Use pillows for support and correct positioning Recognize the correct alignment for a variety of positions while the resident is in bed 	
 (S-25) Positioning the Resident (Supine) Lies flat on back with arms and hands at the side Use pillows for support under the head and shoulders to maintain the correct body position Use pillows, rolled towels or washcloths to support arms or hands To create floating (or elevated) heels, place a pillow under the calves Place pillows or a padded board (footboard) against the feet to keep the feet positioned correctly Remember – facing UP (sUPine) 	
(S-26) Positioning the Resident (Prone)	

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 Lying on the abdomen Not a comfortable position for many people Never leave the resident in a prone position for long 	
 (S-27) Positioning the Resident (Fowler's) Reclined sitting position 45 to 60 degrees 	
 (S-28) Positioning the Resident (High Fowler's) Sitting up almost straight 60 to 90 degrees 	
 (S-29) Positioning the Resident (Lateral) Lying on the right or left side 	
(S-30) Positioning the Resident (Sims)Left side-lying position	
 (S-31) Logrolling Positioning a resident on the side with problems with the neck or back, spinal cord injury, or surgery of the back or hip requires a special technique called logrolling As the resident is turned, the resident must be turned as a unit; the head, back, and legs must remain in a straight line It is best to have two people perform the logroll together using a draw sheet and a count of three 	
Teaching Tip #I31 Demonstrate Logrolling Reading or hearing about logrolling is one thing, but seeing it demonstrated will give the students a visual opportunity to understand the concept. Obtain a volunteer to assist you with the procedure. Using a mannequin or a student in the bed, with a draw sheet in place, demonstrate the logroll procedure with the assistance of the volunteer student.	
 (S-32) Mechanical Lifts Used to transfer residents to/from beds, chairs, wheelchairs, stretchers, tubs, shower chairs, and commodes Helps prevent injury to staff and residents Use of a lift requires special training Never use a lift if you are unsure of the operation of a lift; always ask questions if further explanation is needed Never operate a lift alone if the lift requires more than one person for operation, i.e., one person to operate the lift and a second person to attend to the resident 	
(S-33) Follow Facility Policy for Mechanical Lifts	

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Different types of lifts available	
 Those used to lift dependent residents 	
 Those used with residents who have some weight- 	
bearing capability	
• Use of a mechanical lift may be mandatory if the facility	
has a "no lift" policy for staff members	
• Follow the care plan and supervisor's directive regarding	
which mechanical lift to use and how many people are	
required to use it	
 Notify the supervisor if the lift is not working right or needs repair 	
• Always explain the procedure to the resident and what is	
happening throughout the procedure	
 The nurse aide must be at least 18 years old to use the lift 	
• The nurse aide must receive instructions on how to use	
each type of lift in a facility. Just because the nurse aide	
knows how to use one type of lift does not mean the	
nurse aide knows how to use all types of lifts	
(S-34) Many Types of Mechanical Lifts	
Realize that just because the nurse aide knows how to	
use one type of lift does not mean the nurse aide knows	
how to use all types of lifts	
(S-35) Full-sling Mechanical Lift	
Used for residents who	
 Cannot assist during transfers 	
– Are heavy	
 Have physical limits that do not allow for other 	
methods of transfer	
• Before use, nurse aide needs to know the following from	
the care plan or supervisor	
 Resident's level of function or dependency 	
 What type and size of the sling to use 	
(S-36) Stand-Assist Lift	
Used when resident can	
 Bear some weight on legs, can stand, has some arm 	
strength	
 Can bend hips, knees, and ankles 	
 Can sit on the side of the bed 	
 Can follow directions 	
ACTIVITY #I36: Application of Body Mechanics (Group)	
Refer to Instructor's Guide below	

Instructor's Guide to Activity #I36 Application of Body Mechanics

Preparation

Before class begins, create instruction cards using card stock paper or laminated computer paper. Set up five (5) stations in the lab in the following manner:

Station #1 – Lifting a 10-pound Object

For station #1, have the following items available for student use: laminated/card stock instruction card #1; a 10-pound bag of potatoes or a 10-pound something that the student can lift.

Station #2 – Positioning a Resident

For station #2, have the following items available for student use: laminated/card stock instruction card #2; mannequin in a bed with side rails up.

Station #3 – Assisting Resident to the Floor if the Resident Begins to Fall

For station #3, have the following items available for student use: laminated/card stock instruction card #3.

Station #4 – Your Choice of a Fun Station [Suggestions: Basic Yoga Positions, Basic Stretches, Hula Hoop, Hokey Pokey Song)

For station #4, have the following items available for student use: laminated/card stock instruction card #4; possibly a hula hoop or resource card.

Station #5 – Body Mechanics Puzzle

For station #5, have the following items available: laminated/card stock instruction card #5 at a table with at least three (3) pencils and Body Mechanics Puzzles for each student to solve. This station is more about working as a team and how the students approach solving the puzzles than learning vocabulary.

Instructions to the Students

After putting students in groups of two or three, depending on the number of students, point out the five stations each pair will rotate through. Explain that each group of students will go to a station, read the instruction card, and follow the instructions on the card. In each pair, the students will take turns being the observer and the performer at each station. The students will rotate to the next station when the instructor rings a bell or yells, "New station."

Special Situations

If you have an odd number of students, you could place students in groups of two or three. If you have more than 10 students, you can duplicate some easier stations to accommodate more students. You can set up multiple positioning stations if you have multiple beds and mannequins (Station #2).

Activity Follow-up Discussion Questions

After students have completed all stations, bring everyone together for discussion. Suggested questions are listed below. You may want to add additional questions to facilitate discussion.

- How did it feel to do these situations in the different stations?
- Which situation was the most difficult for you to do?
- Which situation was the easiest for you to do?
- Which situation was the most fun for you to do?
- How did your group tackle Station #5 the puzzles station? Did members of your group do the two (2) puzzles together, or did the members split the work up, with one doing the first puzzle while the other did the second puzzle and then sharing answers; did all members of the group work on each puzzle at the beginning together, or did members solve the same puzzle at the same time, but start at different ends of the puzzle, meet in the middle, and then share answers? Did you use the word bank when solving the puzzles, or only use the word bank when you got stuck? Could you finish solving the puzzles quicker by yourself or as part of a team? What does this station tell you about teamwork and working as a team?
- How important are good body mechanics for a nurse aide?
- Do any of you routinely go to yoga class, do stretches, or exercise?

Station #1 – Lifting a 10-pound Object

For station #1:

Student A:

• Using correct body mechanics, lift the 10-pound object off the floor, carry it approximately 6 feet, and place it back on the floor.

Student B:

• Observe Student A and determine how closely they followed correct principles of body mechanics.

SWITCH ROLES

For station #2:

Student A and Student B:

As a team and using correct body mechanics and pillows, correctly position the mannequin in the prone, supine, Fowler's, high Fowler's, side-lying, and Sim's positions.

Station #3 – Assisting Resident to the Floor if the Resident Begins to Fall

For station #3:

Resident:

• Standing beside the nurse aide, state, "I feel dizzy," and then begin to fall

Nurse aide:

• Standing beside the resident, assist resident to the floor when resident states, "I feel dizzy."

SWITCH ROLES

For station #4:

Student A and Student B:

• Follow the directives of the instructor.

SWITCH ROLES, if directed

For station #5:

Student A and Student B:

• Working together, complete the word search and word scramble puzzles.

Station #5 Body Mechanics Puzzles

Word Search: Search for words from Module I, Body Mechanics. Words may be frontwards, backward, across, up, or down. A word bank is included below.

В	0	D	Υ	Μ	Ε	С	Н	Α	Ν	I	С	S	Χ	С	Т	R	I	G	0	I	Н	S
Ζ	Т	0	R	R	Υ	I	0	Ρ	Н	J	I	"	F	G	Ν	Ε	R	Ν	В	Ν	Μ	U
Ε	Н	0	S	Κ	Μ	Q	G	I	Т	0	Υ	R	U	Ζ	Ε	Μ	Ν	I	0	Ρ	Ρ	Ρ
Ν	Α	Т	Т	L	I	Α	Η	0	Α	S	D	Ε	Μ	0	Μ	0	Ρ	Ν	Ρ	S	D	Ι
0	W	L	Α	Т	Ε	R	Α	L	Ε	G	G	L	J	V	Ν	Μ	0	0	D	S	Υ	Ν
R	S	J	Α	0	0	G	J	U	R	R	В	W	Κ	В	G	Μ	Ρ	Ι	0	Ι	U	Ε
Ρ	D	Ι	В	Ρ	Ρ	Η	Ι	Κ	Т	Ι	F	0	L	Ι	Ι	Μ	S	Т	Ι	Μ	U	G
Ζ	F	Κ	С	Χ	Н	Μ	Κ	I	Υ	Υ	D	F	0	L	L	Η	Χ	Ι	Κ	S	Ι	Η
V	G	Ρ	0	S	Т	U	R	Ε	S	Η	С	R	Ρ	Υ	Α	J	С	S	Μ	Q	Ι	Т
R	Η	С	R	Т	R	0	Ρ	Ρ	U	S	F	0	Ε	S	Α	В	S	0	Μ	S	0	F
I	Ε	R	Ζ	Ν	F	0	0	0	Ε	U	Ρ	D	S	I	R		D	Ρ	Ρ	Ε	Ρ	Ε
Κ	С		Т	Ι	Ν	Τ	R	Υ	Τ		V	Α	R	G	F	0	R	Ε	Т	Ν	Ε	С
С	0	0	R	D	Ι	Ν	Α	Т	Ι	0	Ν	С	0	0	R	Χ	Ε	U	S	R	F	С

Word Scramble: Unscramble the words from Module I, Body Mechanics. A word bank is included below.

sabe fo pposutr	pseuin
atnigemIn	utosepr
erpon	dnoioortacni
'fwleors	stoginnpiio
etecnr of ygartiv	ssmi
dybo nmcehasci	llaaret

Word Bank: center of gravity, body mechanics, lateral, positioning, coordination, alignment, Sims, prone, base of support, Fowler's, supine, posture

Station #5 Body Mechanics Puzzles Answers

Word Search: Search for words from Module I, Body Mechanics. Words may be frontwards, backward, across, up, or down. A word bank is included below.

B	<u>0</u>	D	Y	M	E	<u>C</u>	H	Α	N	I	<u>C</u>	<u>S</u>	Χ	С	Τ	R	I	G	0	I	Η	<u>S</u>
Ζ	Τ	0	R	R	Υ	Ι	0	Ρ	Η	J	I	6	F	G	N	Ε	R	N	В	Ν	Μ	U
E	Н	0	S	Κ	Μ	Q	G	I	Т	0	Υ	<u>R</u>	U	Ζ	E	Μ	Ν	Ţ	0	Ρ	Ρ	<u>P</u>
N	Α	Т	Т	L	-	Α	Η	0	Α	S	D	E	Μ	0	Μ	0	Ρ	N	Ρ	S	D	Ī
<u>0</u>	W	L	<u>A</u>	Ι	E	R	A	L	Ε	G	G	L	J	V	N	Μ	0	<u>0</u>	D	S	Υ	N
<u>R</u>	S	J	Α	0	0	G	J	U	R	R	В	W	Κ	В	G	Μ	Ρ	Ţ	0	Ī	U	E
<u>P</u>	D	I	В	Ρ	Ρ	Н	Ι	Κ	Т	Ι	F	<u>0</u>	L	Ι	Ţ	Μ	S	Ι	Ι	Μ	U	G
Ζ	F	Κ	С	Χ	Н	Μ	Κ	I	Υ	Υ	D	<u>F</u>	0	L	L	Н	Χ	Ţ	Κ	S		Н
V	G	Ρ	Ο	S	Ι	U	R	E	S	Η	С	R	Ρ	Υ	<u>A</u>	J	С	S	Μ	Q	Ι	Τ
R	Н	С	R	Ι	R	0	Ρ	Ρ	U	S	F	0	E	S	A	B	S	0	Μ	S	0	F
Ι	Ε	R	Ζ	Ν	F	0	0	0	Ε	U	Ρ	D	S	Ι	R	Ι	D	P	Ρ	Ε	Ρ	Ε
Κ	С	Ι	Т	Ι	Ν	Т	R	Y	Ι	I	V	<u>A</u>	<u>R</u>	G	E	0	<u>R</u>	E	Τ	Ν	E	<u>C</u>

Word Scramble: Unscramble the words from Module I, Body Mechanics. A word bank is included below.

sabe fo pposutr base of support	pseuin supine
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erpon prone	dnoioortacni coordination
'fwleors Fowler's	stoginnpiio positioning
etecnr of ygartiv center of gravity	ssmi Sims
dybo nmcehasci body mechanics	llaaret lateral

Word Bank: center of gravity, body mechanics, lateral, positioning, coordination, alignment, Sims, prone, base of support, Fowler's, supine, posture