



ICE LEARNING CENTER  
INTERNATIONAL CLINICAL EDUCATORS, INC.

Stroke Help<sup>®</sup>

TEACHING INDEPENDENCE:  
A THERAPEUTIC APPROACH

*To STROKE REHABILITATION*  
SECOND EDITION

By Jan Davis, MS, OTR/L

UNIVERSITY EDITION  
STUDENT WORKBOOK

### About the Author & Presenter

Jan Davis, MS, OTR/L, is an internationally recognized leader in educational programs developed for health care providers, families and caregivers of stroke survivors. She founded International Clinical Educators in 1983 and since then, faculty, students, and therapists have attended her workshops and used her training materials worldwide.

### About International Clinical Educators, Inc.

ICE is dedicated to providing high-quality educational programs for occupational therapists, physical therapists, nurses and assistants working with stroke survivors. All programs are designed to give practitioners practical treatment ideas that can be used in acute care, rehabilitation, skilled nursing, outpatient and home health settings.

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- Treatment Strategies in the Acute Care of Stroke Survivors
- Functional Treatment Ideas and Strategies in Adult Hemiplegia

#### **StrokeHelp: Teaching Independence: A Therapeutic Approach to Stroke Rehabilitation**

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# HOW TO USE THIS LEARNING MODULE

This learning module is made up of six individual programs, each with videos and step-by-step written instructions. The six programs are:

- Improving Function & Awareness
- Preventing Shoulder Pain
- Wheelchair Transfers
- Standing Safely
- Bed Positioning & Mobility
- Self-Care

The learning module is designed to be interactive. Watch the videos for each program and follow along in this text. As you watch, you'll also be participating.

Although you may view the videos in any order, we recommend that you watch them in the order they appear within the series. While viewing each video, refer to the corresponding section in this Workbook for additional written information specifically developed for that particular program.

## ⌘ **Pause and Practice: Practical Lab Sessions**

There are 41 individual practice labs illustrated and identified throughout this learning module. Each is extremely important.

While viewing the video, the symbol ⌘ will appear in the lower left-hand corner of your screen. At this point, pause the program and refer to the corresponding page in the Workbook, noting the **Pause and Practice** boxes. Follow the directions stated in the Workbook to practice the therapeutic method illustrated.

During each practice lab, write down your observations in the space provided. It is helpful to practice each therapeutic method with a partner and try it more than once. As you practice, you will feel more comfortable with each method. After you've "practiced, observed, and analyzed," continue with the video portion of the learning module.

## **Handling Methods**

The treatment methods chosen for this learning module were carefully selected in order to provide success with the majority of your patients with hemiplegia.

In treatment, your handling should be firm but never forceful. *Nothing in this series should ever hurt or be painful.* If you or your patient finds any method uncomfortable, stop. If at any time you do not feel safe, stop and get assistance.

When practicing with a partner, give each other feedback. Your handling will improve as you and your partner share information.

# ❖ Improving Upper Extremity Function & Awareness

## Three Ways to Include a Nonfunctional Upper Extremity into a Task

Even before movement returns to the nonfunctional extremity, you can encourage the patient to incorporate the involved hand into daily functional activities. Therapists should always include the nonfunctional upper extremity during functional tasks in one of the three ways described: weight bearing, guided movement or bilaterally. Each and every opportunity, large or small, can help the overall recovery of the patient by improving their potential for recovery.

### 1. Weight bearing/Stabilizer

Movement often begins within the context of a functional task, even before an exercise program begins. Incorporating the involved hand can be as simple as placing the arm on the table to support it in weight bearing or by holding or stabilizing an object.

Patients, who are positioned in this way, with the arm supported and used as a stabilizer, are more likely to spontaneously include that extremity into everyday tasks.

### 2. Guided Movement

Guiding is another method which can be used to help improve function and awareness of the hemiplegic side. It is incredibly effective. Guiding a patient during a task reduces the need for verbal cueing. In addition to encouraging more normal movement patterns, it is also very effective for patients with aphasia, apraxia, motor planning problems, and hemionopsia.

Guiding is best described as the therapist placing her hand over the patient's hand in order to carry out the correct manipulation of objects during a task.



- Place your hand over their hand, down to the fingertips.
- Try to move with them in as normal a movement pattern as possible.
- Minimize talking, allowing feedback to come from the activity.
- Stand or sit where your movements are similar to theirs.
- Be sensitive to your patient's movements; move with them and in a normal movement sequence.
- Guide both hands when possible (not just the weak hand).

#### ⌘1 Pause and Practice with a Partner

Select a simple task and following the above directions, guide your partner's hands to experience this therapeutic method.

### 3. Bilateral

When patients use both hands together, at the same time, it helps improve awareness of the involved side and better integrates the involved side with the non-involved side. This can begin early in the rehabilitation process.

Teaching patients to clasp their hands together. Helps them remember the weak hand. For example, as they roll over in bed, keeping the hands together helps them avoid rolling onto the glenohumeral joint of the involved arm, which could cause impingement and subsequent pain.

Bilateral use of the upper extremities can also help patients inhibit their own abnormal patterns of movement. By clasping the hands together in order to take the foot on and off the footrest of the wheelchair, the patient brings the scapula forward, reducing flexor tone of the upper extremity and, at the same time, incorporating the involved hand into the task.

Bilateral use of the upper extremities can also facilitate dynamic trunk control. A patient's base of support becomes narrower when the upper extremities are removed from weight bearing and used bilaterally during tasks in sitting or standing. Therefore, bilateral use of the upper extremities during tasks activates more dynamic trunk control.





## ❖ Functional Treatment Ideas

### Examples of Guiding, Weight bearing, and Bilateral Use During Function

This functional activity illustrates the three methods of including the nonfunctional upper extremity into everyday tasks: weight bearing, guiding, and bilateral. As the patient cuts the orange\*, squeezes the juice and drinks from the cup, the involved upper extremity can be utilized throughout the activity. The glass juicer is especially good for patients exhibiting increased tone in finger flexion. The size is perfect for positioning the hand in slight finger flexion. The glass is rigid and keeps the fingers in the proper position.



Guiding can be unilateral or bilateral. Guiding is most commonly done with the involved hand, but there may be times during the activity when you will be guiding both hands. If your patient has bilateral weakness or if your patient has motor-planning problems, you may need to guide both hands.

At the end of the task, wiping off the table is a perfect example of bilateral use of the upper extremities. Place the involved hand on the cloth or sponge and the non-involved hand over the weak hand. This method of bilateral activity encourages trunk rotation and weight shift toward both sides. It is simple and easy to do. It is not contrived but realistic and appropriate for patients to clean up their own spills. *Never spill something on the table just to have the patient do this bilateral task!*

This is a good activity for lower-level patients. It is simple, inexpensive, and can be accomplished within 30 minutes in any setting: acute care, rehabilitation, skilled nursing, or home health. You don't need expensive equipment or even a kitchen. For higher functioning patients, you could increase the complexity while working in standing and even include ambulation while gathering the supplies needed. Making orange juice with your patient is purposeful and gives them a sense of accomplishment.

#### **\*A Safety Tip About Using Sharp Knives**

A fairly sharp knife is necessary for this task, but safety is a concern. The safest method is to place the knife in the patient's involved hand and then guide their hand to cut the fruit. This way you control the movements of the hand holding the knife. As your patient stabilizes the object with their other hand, place your other hand over theirs for additional safety.

## Summary of Benefits of Weight bearing, Guiding, and Bilateral

### Incorporating the nonfunctional upper extremity in weight bearing or as a stabilizer

- Facilitates weight bearing over the involved side.
- Encourages use of the involved side.
- Improves awareness.

### Guiding the involved upper extremity

- Promotes normal sensory information.
- Facilitates normal patterns of movement.
- Encourages compensation for visual-field cut.

### Bilateral use of both upper extremities

- Allows the patient to incorporate the involved side without assistance from the therapist.
- Promotes symmetry.
- Facilitates dynamic trunk control.

## Functional Treatment Ideas in Standing

Standing with your patients during functional activities is often more effective than standing in the therapy gym “just for practice”. Patients involved in a task often initiate more trunk control, have greater weight shift toward the involved side, and exhibit improved endurance.

When standing your patient, provide a solid surface in front of them. This can be a heavy, solid table, a bathroom sink, or a kitchen counter. Avoid unstable surfaces such as a bedside table.

Stand slightly behind your patient, on their involved side. Position yourself close to your patient so that your trunk and their hip make contact. Place your hands on each side of their pelvis, not their waist, for better control. Place their wheelchair (or chair) behind them in case they need to sit down quickly.

During the activity, incorporate the involved upper extremity and hand in the three ways previously mentioned: weight bearing, guiding, and bilateral. Begin activating dynamic trunk control. Have your patient reach for objects from different height surfaces to encourage trunk elongation and/or lateral trunk flexion.

Be sensitive to your patient’s response to standing. Observe breathing patterns, skin color, and temperature for signs of fatigue. Ask your patient if they need to sit down *before* it becomes urgent.



## Standing with Fearful Patients During Function

Patients may become very fearful during standing. Providing a secure environment is the most effective way to help decrease this fear. A patient once told me, “Standing in the middle of a room feels like standing on the edge of a cliff!”

Full contact along solid, stable surfaces is extremely effective in decreasing fear in a stroke survivor. Also, finding an activity that shifts their focus away from standing and onto the task at hand is also very effective. Once the patient has become less fearful, slowly begin to shift their weight toward the weak side and onto the involved lower extremity.



I have found that patients will increase their weight bearing over the involved side *if they initiate the movement* and I don't pull them toward that side.

**Remember:** Provide a wide base of support. A narrow base of support requires more dynamic trunk control.

If your patient is functioning at a low level or fearful, begin with a broad base of support. Pay close attention to the placement of their feet, hands and trunk. Position their feet approximately shoulder width apart. Provide contact with a solid surface in front of your patient and position both of their hands on the table surface. Your patient will feel more secure as they experience the stability of the environment. With your hands provide additional support as needed.

As your patient improves, begin to narrow their base of support. For example, allow one hand to remain in weight bearing and free the other hand to begin the task. Or, to encourage even greater dynamic trunk control, do an activity that requires bilateral use of the upper extremities, narrowing their base of support.

# BED POSITIONING & MOBILITY

## Learning Objectives

- Identify four therapeutic benefits of proper bed positioning for stroke survivors.
- List three components of movement necessary to assist in rolling from supine to sidelying.
- Identify the most therapeutic position for bed rest and explain why.
- List four components of movement necessary to scoot from side to side in bed.

## Introduction to Bed Positioning & Mobility

The rehabilitation process begins before the patient gets out of the hospital bed. Use the procedures outlined in this program and give your patient a head start in the rehabilitation process.

The ultimate goal of bed positioning is to help the patient rest more comfortably. In addition, we need to prevent pressure sores. It is not realistic to expect family members to get up every two hours during the night, night after night, after the patient has returned home. Therefore, it is necessary that we don't immobilize our patients but help them to learn how to move in bed.

Not only is it important to encourage proper bed positioning, but the position of the bed in the room can also be therapeutic. If possible, don't have the patient positioned with their weak side toward the wall because all of the stimulation will be toward the sound side. Instead, have the patient positioned so the weak side is facing the door and other necessities (such as the night stand, telephone, television, and water pitcher). This will encourage awareness of the weak side as it allows those coming into the room (nurses, therapists, and visitors) to more easily approach that side, increasing visual, auditory, and tactile stimulation.

Encouraging the patient to look and move toward the weak side can also help patients who are fearful or have problems with neglect or visual-field deficits. One exception, just make sure the call-light for the nurse is placed on their strong side where they can easily see it and reach it, in order to get the assistance they need as soon as possible.

## Therapeutic Benefits of Proper Bed Positioning & Mobility

Encourage your patients to relearn normal patterns of movement before "bad habits" begin. For example putting weight into the involved foot during bridging will help prepare your patient for standing and will help to regulate lower extremity tone at the same time. We can achieve numerous therapeutic goals during bed positioning and bed mobility by following four basic treatment principles.

1. Encourage weight bearing over the involved side to help decrease fear and increase awareness.
2. Encourage trunk rotation for dissociation of pelvis and shoulder girdles and to facilitate more normal movement.
3. Encourage elongation of the trunk and gently put muscles on length in order to prevent tightness.
4. Encourage scapular protraction to prevent shoulder pain and inhibit flexor tone of the upper extremity. If you are working with patients who are longer-term post stroke, they can still benefit from these guidelines. However, if orthopedic limitations have already begun, you may need to make modifications. Work from proximal to distal when making modifications.

## ❖ Scooting Side to Side: Therapeutic Method

*The following guidelines may need to be modified if your patient has already developed tightness or contractures, or if medical conditions interfere.*

### Starting Position

The patient is lying on the bed or the mat table in supine.

### Handling

1. Have the patient bring the strong leg into as much hip and knee flexion as comfortably possible, placing the sole of the foot flat onto the bed.
2. Grasp the ball of the foot and bring the ankle into dorsiflexion with eversion.
3. Slowly bring the weak leg into hip and knee flexion.
4. Place the foot flat onto the bed.
5. Ask the patient to take care of their weak hand (assist as necessary).
6. Reposition your hand onto the lower end of the femur, just above the knee.
7. Firmly bring the femur forward, bringing the knee over the foot. It can be helpful to use your forearm, in addition to your hand, to help give more input into the femur to bring the hips off the bed. This is especially true with larger patients.
8. With your other hand, support under the weak side, unweighting and extending the hips.
9. When no longer weight bearing, cue the hip to the side or to the direction in which they are scooting.
10. Allow the hips to return to the surface of the bed.
11. Reposition feet in alignment with the knee and femur.
12. Assist the patient to lift the head and shoulders off the pillow (if the patient is very weak and needs maximal assistance, you can support the head and shoulders at the same time by using the pillow as a support).
13. Scoot the head and shoulders and align over the hips.
14. Repeat the sequence until the patient has scooted as far as needed.



## Tips

The following guidelines can help you to determine how far to scoot the patient over in bed:

- If you are having a patient scoot in order to be positioned in sidelying, scoot them as far to the edge of the bed as possible. This will be helpful in proper positioning.
- If you are scooting the patient over in preparation to come from sidelying to sitting, measure the length of the femur.



- This is approximately the distance that your patient should be from the edge of the bed.



## Variations

Some patients need more assistance. It may be necessary for you to assist in bringing both femur forward in order to bridge and scoot.

A draw sheet can be used to slide a patient from one side of the bed to the other, but because it is passive, the therapeutic value of this facilitation is lost.



## Common Mistakes

Most patients have difficulty scooting from side to side for two reasons.

- First, they have difficulty bridging (lifting their hips off of the bed).
- Second, the effort involved in trying to scoot can cause the leg to shoot out into extension. Sometimes the patients try so hard that the head and shoulders push deeper into the bed/pillow instead of lifting off the pillow. Proper handling, as previously described, will help to eliminate these problems.

**⌘32 Pause and Practice with a Partner**



## ❖ Sidelying to Sitting from the Involved Side

### Starting Position

The patient is in sidelying on the weak side.

### Handling

1. Without forcing range, the hips and knees should be brought into as much flexion as the patient can comfortably tolerate. This will help to inhibit extension synergy of the lower extremity and will also shorten the “levers,” making it easier to control taller patients.
2. Stand in front of the patient with a wide base of support.
3. The weak shoulder should be brought close to 90° of flexion and the scapula should be brought into protraction.
4. Slide your hand under the scapula and bring the upper trunk into flexion, forward toward the edge of the bed (this will help to keep the patient from pushing back and “flopping” back onto the bed).
5. Place the patient’s lower arm between your humerus and trunk and maintain this support.
6. Assist your patient to reach across with the non-involved arm and help “push themselves up” from the bed. This hand placement also helps to keep them forward and discourages them from falling back onto the bed.
7. Slide the patient’s feet off of the bed, keeping your leg in front of their feet. Don’t allow their legs to fall as this can cause stress at their hip.
8. Place one hand on the patient’s iliac crest, bringing the pelvis down and slightly back in order to facilitate the sound side.
9. At the same time, shift your weight from one leg (positioned toward the head of the bed) to the other leg (positioned near the foot of the bed). This “lunge” helps you use your legs protect your back.
10. Bring the patient’s upper trunk upright (keeping them forward) into a sitting position while supporting the affected upper extremity.
11. Do not let the weak arm “flop” to the side—keep it tucked between your body and your arm.



## ❖ Fundamental Therapeutic Principles

### Activities of Daily Living (ADL)

As we begin teaching ADL, keep in mind that these are only some of the possibilities. There are many ways of doing each of the following tasks. You may want to modify your hand placement and continue with facilitation of a task to meet your individual patient's abilities and specific problem areas.

### Therapeutic Benefits of Self-Care Activities

Self-care tasks have many therapeutic benefits in addition to overall functional independence.

- Improved joint range of motion of the involved side.
- Increased awareness of the involved side.
- Improved problem-solving abilities. We know that tasks done repetitively, on a daily basis and in different situations, improve problem solving skills and opportunities for learning.
- Facilitation of normal movement components of the trunk and limbs. It's not uncommon to see some spontaneous movement on the weak side during familiar activities.

### Therapy Tips for Self-Care Activities

- **Grade the activity.** If a patient has limited endurance, begin with light hygiene at the sink. Progress to upper extremity dressing and, as their endurance and tolerance to activity improve, assist with lower extremity dressing as well. Don't attempt too much in the beginning.
- **Monitor fatigue and frustration.** What typically took 10 to 15 minutes prior to the stroke, may now take 30 to 45 minutes with full concentration.
- **Assist your patient as needed.** Don't just sit and watch your patient (unless you are evaluating their independent status). Avoid saying "What comes next?" or "What did you forget?" This only adds to their frustration.
- **Think normal movement.** In order to help facilitate normal movement patterns, I often think about how I would move.
- **Incorporate the weak side into the task,** as appropriate, when assisting your patient. Even if the patient has absolutely no movement of the weak side, you can still incorporate that side into the task.
- **Grade your facilitation as your patient improves.** When moving the limb, gradually "lighten" your assistance as your patient begins to take over. Be prepared to "take over" if more assistance is needed again. For the higher level patient, you may need to assist only at the moments where they experience difficulty.
- **Try to discourage abnormal patterns of movement.** Reposition your patient or guide their movements to encourage more normal movement patterns.
- **Use the three ways to incorporate a nonfunctional upper extremity into self-care activities** (see *Improving Function & Awareness: Improving Upper Extremity Function*):
  1. weight bearing or stabilizer
  2. guiding
  3. bilateral



# Dressing

The following guidelines may need to be modified if your patient has already developed tightness, contractures or if medical conditions interfere.

## Starting Position

Begin with your patient sitting in a chair or a wheelchair. If necessary have them transfer from the bed to a chair next to the bed. The stroke patient should not get dressed lying in bed. Not only is this difficult for them, it teaches abnormal patterns of movement. Sitting on the edge of a hospital bed is also not the best choice, as it is too soft (making it difficult to maintain balance) and too high (making it difficult for patients to have their feet flat on the floor with a good base of support). Place your patient's clothes on the bed, toward their strong side.



## Handling

For safety, **always** stay on their involved side in order to give assistance.

## Donning Underclothes and Pants

1. Begin dressing with the involved side. Have the patient cross their weak leg over their strong leg. Incorporate the weak upper extremity by clasping their hands together.
2. Release their hands and pull the pant leg over the weak foot. Do not allow the weak arm to be trapped in their lap as this can contribute to shoulder pain. Allow the hand to rest on a surface. When able, the patient can use the involved hand as needed.
3. Clasp hands again to uncross weak leg. If the patient has enough movement in the weak leg to actively uncross the leg, (without assistance) encourage them to do so.
4. The patient places the strong foot into the pant leg (without crossing the legs). This step is often difficult for patients because they must transfer weight to the weak leg while picking up the strong leg. You may need to assist the patient in weight shifting toward the weak side.
5. The patient pulls the pants up to their knees.
6. The therapist stands on the patient's weak side. While holding onto the waistband, the patient leans forward and stands with assistance (as needed). See *Standing Safely* for detailed instructions.
7. In standing (or if that is too difficult, in sitting) the patient zips and buttons the pants.
8. The therapist helps the patient sit down (see *Standing Safely*).



## Donning Shirt

1. Position the shirt across your patient's knees with the armhole visible and the sleeve placed between the patient's knees.
2. Have the patient bend forward at the hips and place their weak hand in the sleeve. The forward flexion helps to inhibit lower extremity extensor tone and, at the same time, bringing the scapula forward helps to inhibit upper extremity flexor tone.
3. As the arm drops into the sleeve, the patient brings the collar up to the neck.
4. As the patient sits upright, place the strong arm into the sleeve.
5. Buttoning the shirt from the bottom to the top helps to keep it straight and buttons in proper alignment.



## Variations

For T-shirts and pullover shirts, place the weak arm in the sleeve, then the strong arm, and then gather up the front of the shirt and place over the head.

## Donning Shoes and Socks

1. Have the patient cross their weak leg over their strong leg (as previously described).
2. Begin with the weak foot to don shoes and socks.
3. Cross the strong leg over the weak leg and put on the sock.
4. Step into the shoe.



### ⌘38 Pause and Practice

Note your own movement patterns. Note how environmental factors play a roll in movement patterns.

## Notes

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## ❖ One-Handed Shoe Tying

Learning one-handed shoe tying gives patients the option of wearing any shoes with laces.

### Prepare the shoe for the patient:

1. Unlace the shoe completely.
2. Make a simple knot at one end and place it through the hole on the outside of the shoe (on the patient's strong side).
3. Bring the lace across the shoe down through the first hole.
4. Bring the lace up and under the second hole on the opposite side. Continue lacing in this pattern to the top of the shoe.
5. At the top, go through the last hole a second time to keep the shoe securely on the foot all day long.

### Now the shoe is ready to give the patient.

1. Teach the patient to make a simple loop (as in the letter "c") starting up toward the ankle and then down toward the toe of the shoe.
2. Tuck the shoe lace (toward the toe) under laces which span the last two holes at the top of the shoe.
3. Pull and cinch toward the strong side.
4. If the laces are too long, you can cut the laces. Be sure to cut the end of the shoe lace where the knot is, so the "working" end doesn't become frayed.

### About tennis shoes:

Patients with impaired ankle dorsiflexion often do much better with leather-soled shoes than with tennis shoes. The "stickiness" of rubber soles (especially on carpeting) can hinder swing phase and worsen abnormal gait patterns, causing exaggerated circumduction. Also, older patients who never wore tennis shoes prior to the stroke can find walking in them difficult. And, because tennis shoes are designed to absorb impact, if your patients have any sensory loss, they may have difficulty feeling when their foot hits the floor during heel strike.



### ⌘39 Pause and Practice