

The Brain....The Body...and You

Mobility, Transfers and Positioning

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Mobility, Transfers and Positioning

Part 1 (2 hours)

- Factors affecting mobility, arm and hand considerations, body mechanics, human movement lab, sit to stand, standing and sitting transfers

Part 2 (2 hours)

- Problem solving, bed mobility and positioning, seating repositioning, gait and stairs

Overview of Workshop Part 1

- Guiding Principles
- Factors affecting mobility
- Stroke arm and hand considerations
- Body mechanics
- Human movement lab
- Preparation for transfers
- Sit to stand
- Standing and sitting transfers

Workshop Part 1 Objectives

Understand the guiding principles for assisting the stroke survivor with safe/effective mobility

- Sit to stand
- 1 and 2 person transfers

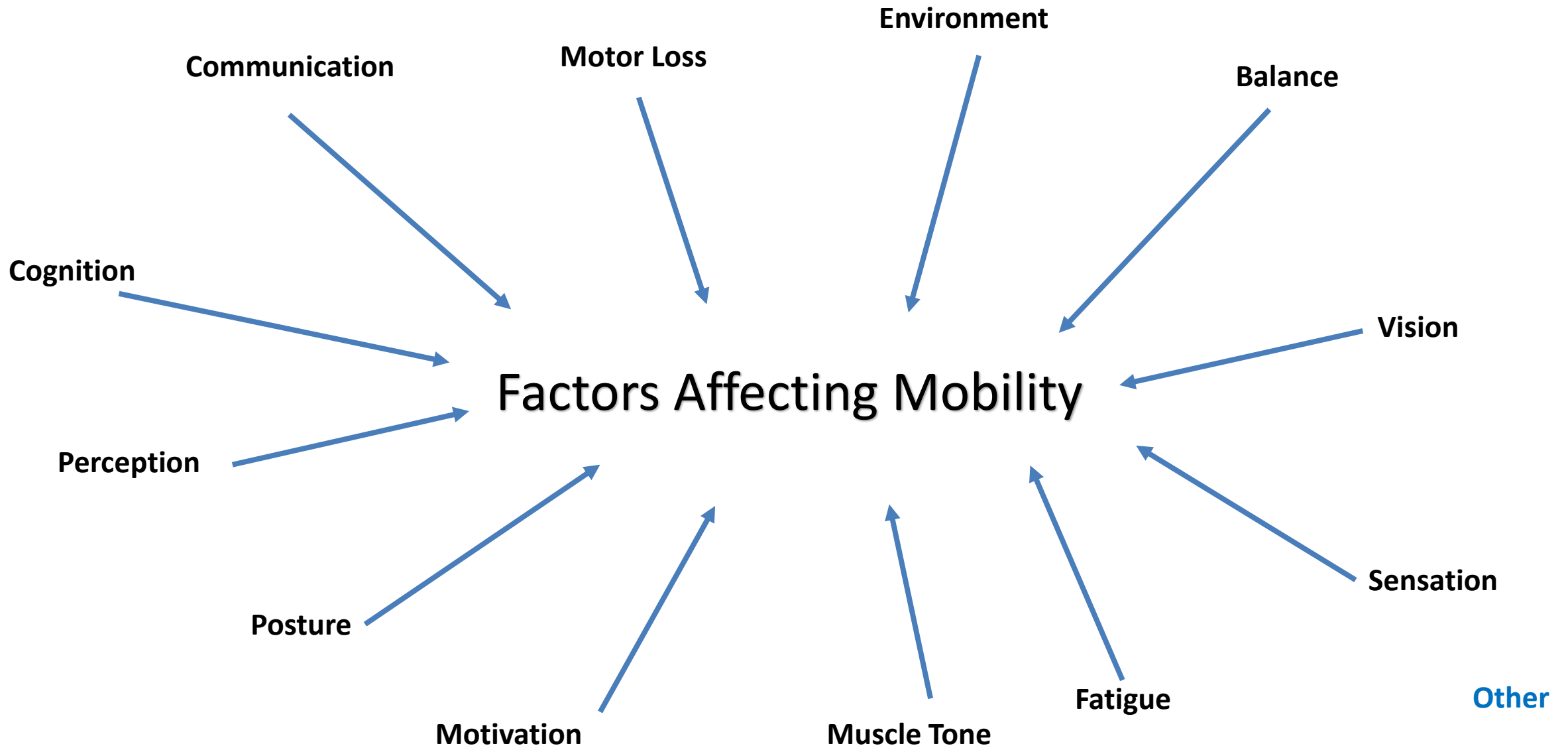
Guiding Principles

- Each person is different and unique
- Effective communication/interaction between YOU and the stroke survivor is required
- Encourage the survivor to participate as much as possible
- Move slowly and gently
- Never LIFT the survivor
- Be aware of the stroke arm positioning in all aspects of mobility
- Be aware of your own body mechanics when assisting the stroke survivor
- If you are having difficulty assisting an individual, seek advice.

Following these guidelines will support effective mobility and the safety of both the stroke survivor and YOU, the stroke care giver.

The Goal of Assistance

The goal of assistance is survivor safety and comfort, quality of movement, and as high a level of independence as is possible to maintain or improve their level of function.



Factors Affecting Mobility

Motor Loss

- Which side has been affected by the stroke?
- Ability to move each limb?

Sensation

- Can they feel their arm/leg?
- Do they know where it is positioned?
- Pain?

Factors Affecting Mobility

Fatigue

- Does the survivor require more assistance at various times throughout the day?

Muscle Tone

- Is the limb stiff and difficult to move or is it limp and floppy?

Factors Affecting Mobility

Balance

- Can they sit on their own?
- Can they stand without assistance?
- Do they stand on both feet?

Posture

- Can they sit and stand upright?
- Do they push themselves over?

Factors Affecting Mobility

- **Perception**
- Do they neglect one side?

- **Cognition**
- Are they alert?
- Are they able to learn?
- Can they maintain their attention?
- Are they impulsive?

Factors Affecting Mobility

Communication

- Can they understand language and follow instructions?
- Can they speak?

Personality

Do they have a fear of moving/falling?

- Are they impulsive?

Factors Affecting Mobility

Vision

Environment

Footwear, lighting, furniture, space

Motivation

Factors Affecting Mobility

Non – neurological Physical Limitations

- Previous fractures
- Painful joints
- Contractures
- Amputations
- Obesity

Stroke Arm and Hand Considerations

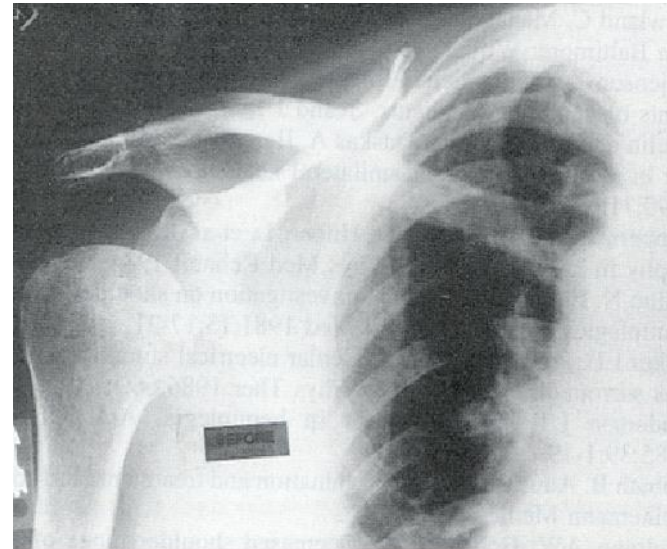
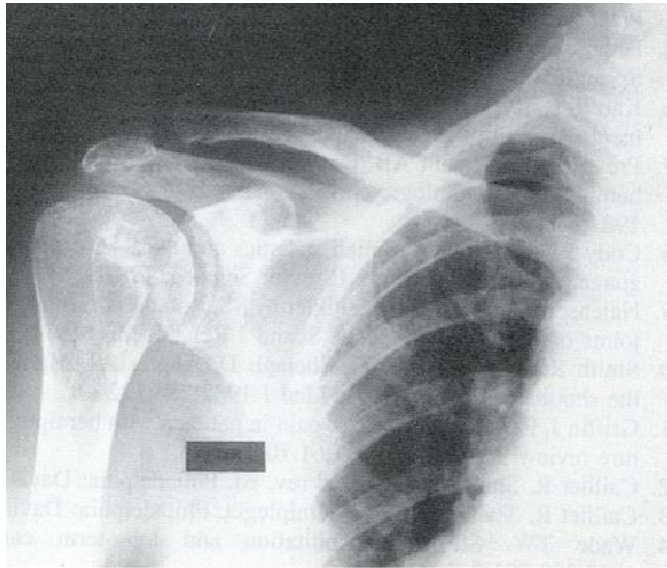
Effects of a stroke can reduce the strength and tone of the muscles supporting the shoulder joint.

As a result, gravity can drag the head of the humerus down, overstretching the weakened muscles.

This may cause the shoulder to move out of alignment. It may even cause a partial dislocation (subluxation).

Shoulder subluxation

- **Never** pull on the survivor's affected arm or lift under the survivor's arm



Low Tone

Shoulder subluxation



Low tone hand



High Tone/Spasticity

High muscle tone can pull the arm and hand toward the chest wall, making it extremely difficult for the stroke survivor to move in the opposite direction.

High tone shoulder



What Does this all Mean?

- **Always** be careful when handling the limb
- When the survivor is sitting/lying, **support** the affected arm
- When using a lifting device (Hoyer, ceiling lift) ensure affected arm is **positioned** inside the sling. **Never** let the arm hang outside the sling.
- **Never** pull on the arm or hand.
- **Never** lift from under the arm.

What do You Think about this Photo?



Body Mechanics

Body Mechanics

- Centre of Gravity close to object/person/ body part you are moving
- Bend knees
- Straight back/ avoid twisting
- Weight transfer with movement
- **Bonus:** These principles apply not only to the stroke survivor population, but also to people with other medical conditions, i.e. M.S., Parkinson, Alzheimer, etc.

Human Movement Lab: How we Move.

Video 1:

https://youtu.be/H6x3Yg_rlw8

Pay attention to the position of the models feet, hips, shoulders as she attempts to stand up. What happens if:

- Her feet are too far in front of her knees?
- Her hips are too far back on the chair?
- Her shoulders don't move forward enough?

Human Movement Lab: How we Move.

- 1a. Slump trunk in chair – lift arms . What do you feel? (heaviness, restricted movement)
- b. Sit tall in chair – lift arms. What do you feel? (lightness, further reach)
-
- 2a. Feet out in front – stand up. What do you feel? (awkward transition, back on heels)
- b. Feet underneath knees – stand up. What do you feel? (easy transition, weight distributed across feet)
-
- 3a. Sit at edge of chair, feet underneath knees – stand up without letting your trunk move forward. What do you feel? (body moving straight up with weight on heels only, continuously falling backwards)
- b. Allow trunk to move forward – stand up. What do you feel? (weight transition from hips to feet, equal weight distribution on feet, no falling backwards)
-
- 4a. One foot forward, one back – stand up. What do you feel? (balance problem, weight bearing on one side only)
- b. Both feet back – stand up. What do you feel? (more stable, even distribution of weight on both feet)
-
- 5a. Twisted trunk – stand up. What do you feel? (balance problems, unequal weight distribution)
- b. Symmetrical trunk – stand up. What do you feel? (more stable, equal weight distribution on both feet)
- Use this movement information as a guide when assisting stroke survivors with mobility. Make sure your survivor is set up for success. Make sure your body is not impeding their movement.

Preparation for Transfers

Transfers: Preparing Equipment



Transfer board

Sturdy Pole

Wheelchair – lap tray,
arm rests, foot
pedals, brakes

walker

commode

Bed Rails

Bed Position

Transfers: Preparing Equipment and Survivor

Video 2:

<https://youtu.be/OYhjmO8X1IM>

Transfers: Preparing Stroke Survivor

- Assist the survivor to bring their hips closer to the edge of the bed/wheelchair by shifting one side forward at a time
- If the survivor overuses the unaffected side, have them stop and correct their position before the transfer
- Stroke arm/hand supported on their thigh

Preparing Stroke Survivor – Moving Forward

Video 3:

<https://youtu.be/7SEvnxE-qhA>

Transfers: Preparing you for sit to stand

Video 4:

<https://youtu.be/US4ef8zHj38>

Transfers: Preparing You

- Position yourself as close to the survivor as possible, (front/side) without blocking the direction of movement or the survivor's vision of the path of movement
- Assist with hands as directed by the PT/OT: hips/trunk/knee - combination of choices
- Lots of options depending on your comfort and abilities combined with stroke survivor needs.
- Never hold onto clothing. Never pull on the stroke survivor's affected arm.
- If the transfer requires two people to assist, communicate clearly with each other as well as the patient, this will ensure a coordinated effort.

Sit to stand

Video 5:

<https://youtu.be/k3vcNyCJ1I0>

Sit to stand – incorrect/correct

Video 6:

https://youtu.be/UwH4X_YdKA

Two Person Under Arms

Video 7:

<https://youtu.be/1122qzgHfxo>

Thoughts on Lifting Under the Arms

Video 8:

<https://youtu.be/TnR99Y410Mc>

Horizontal Transfers

One Person Assist Standing Stepping Transfer

Video 9:

<https://youtu.be/6KpxEaBCy1Q>

One Person Assist Standing Stepping Transfer

- Stand in front of the survivor, supporting under the shoulder blades or pelvis
- Tell the survivor in which direction the movement will occur
- Shift the survivor gently forwards and guide them to standing
- Position your feet comfortably for balance
- Assist the survivor to transfer weight to one leg and assist the unweighted leg to step/pivot. Continue stepping until the survivor is positioned directly in front of the chair (slow dance)

One Person Assist Standing Stepping Transfer

- Assist the survivor to bend hips and knees, slowly lower hips down on to the new surface
- Reposition the survivor for comfort
- Replace the foot rests and arm rests on the wheelchair

One Person Assist Sit Pivot Transfer with Safety Pole

Video 10:

<https://youtu.be/L13WMkh90Xs>

One Person Assist Standing Stepping Transfer with Safety Pole

Video 11:

<https://youtu.be/ydshz5ncFrM>

Two Person Assist Transfers (stand/step)

Video 12:

<https://youtu.be/aRnR0haLy0I>

Two Person Assist Transfers (stand/step)

- This transfer is for the survivor who bears weight through the legs, has difficulty moving or is unreliable.
- The strategy requires two caregivers, the lead caregiver is positioned in front of the survivor and communicates to the group

Two Person Assist Transfers (stand/step)

- Assist the survivor to sit on the edge of the bed with his feet flat on the floor
- The survivor places their unaffected arm around the lower back of the lead caregiver, who, in turn, places their hands on the survivor's upper back and underneath the affected hip
- Affected arm/hand rests on the survivor's lap

Two Person (Stepping) Transfer

- The caregiver behind the survivor places one knee on the bed and supports the survivor as directed by the lead caregiver
- Assist the survivor to stand, then transfer weight to one leg and assist the unweighted leg to step. Continue stepping until the person is positioned directly in front of the chair
- Assist the survivor to bend hips and knees and slowly lower hips down into the wheelchair

Two Person Assist Transfers (sit pivot)

Video 13:

<https://youtu.be/ylarJlC-Vkk>

Two Person Assist Sit Pivot Transfer

- This transfer is for the survivor who does not fully bear weight through the legs, has difficulty moving or is unreliable.
- The strategy requires two caregivers, the lead caregiver is positioned in front of the survivor and communicates to the group.
- The transfer occurs in several steps towards the new surface, not one large motion.

Two Person Assist Sit Pivot Transfer

- The caregiver in front assists the survivor to sit on the edge of the bed with feet flat on the floor. The survivor places the unaffected arm around the lower back of the lead caregiver, who in turn places their hands on the survivor's upper back and underneath the affected hip.
- The affected arm/hand rests on the survivor's lap
- The second caregiver places one knee on the bed and supports the survivor from behind.

Two Person Assist Sit Pivot Transfer

- Assist the survivor to bend forward to unweight the hips, but do not have them stand fully.
- Assist the survivor to pivot and shift their hips sideways and have them sit again. Repeat this procedure until the survivor's hips are in the chair. Reposition the feet each time you have the person move.
- Reposition the survivor well back in the chair, and check for comfort.
- Replace the foot rests and arm rest on the wheelchair.

Two Person Assist Sit Pivot Transfer

Video 14:

<https://youtu.be/WnoAaKHMehc>

Overview of Workshop Part 2

- Discussion from Part 1 (sit/stand and transfers)
- Bed Mobility
- Positioning – bed and wheelchair
- Gait and Stairs
- Questions

Workshop Part 2 Objectives

Understand the guiding principles for assisting the stroke survivor with safe/effective mobility

- Bed mobility
- Bed and wheelchair positioning
- Gait and stairs

Your Experience?

Moving in Bed - Bridging

Video 15:

<https://youtu.be/qj1Zhi63VA4>

Bridging

Encourage the Survivor:

- To bend knees
- Keep feet flat on bed
- Lift hips off bed
- To move from side to side in bed shift hips to the left or right
- To move up in bed push with both legs

Moving in Bed - Upper Body



Movement of the Upper Body

Encourage the survivor:

- Cradle affected arm across body at the elbow
- Lift head and shoulders
- Shift head and shoulders to the left or right
- Move in small increments

Moving in Bed

Video 16:

<https://youtu.be/4tEwcEaL5gs>

Upper Trunk Draw Sheet

Video 17:

https://youtu.be/m74tA_IsCmc

Rolling onto the Side

Video 19:

<https://youtu.be/hrjGJzJJWfl>

Rolling onto the Side

Encourage the survivor:

- To bend knees up before rolling
- Not to forget the affected arm
- To look towards the direction of the roll

Rolling onto the Side

Video 18:

<https://youtu.be/gaWrBoJMdGU>

Rolling onto the Affected Side

Video 20:

<https://youtu.be/mHgAgHaUPzc>

Moving from Lying to Sitting Position

Video 21:

<https://youtu.be/A3jctW4djFs>

Moving From Lying to Sitting Position

Ask the survivor to:

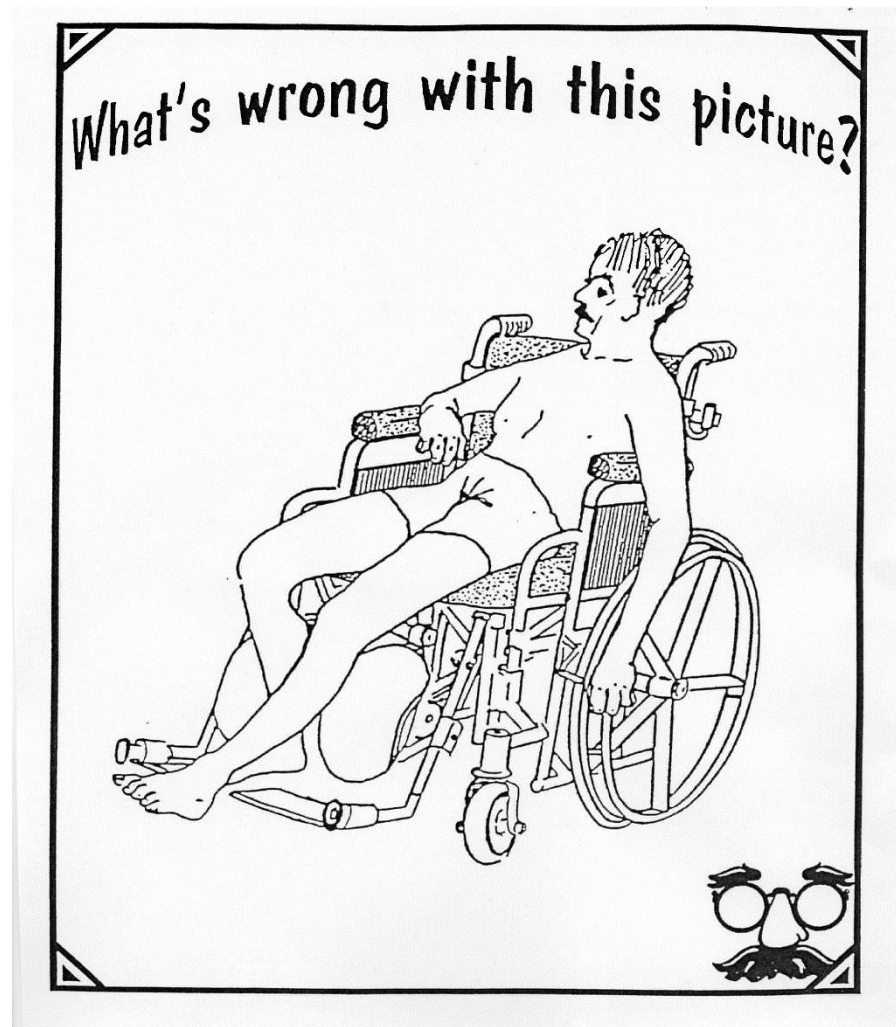
- Bend both knees
- Lift and turn head to look in the direction of the roll
- Roll completely onto the side, without forgetting the affected arm
- Draw knees toward the chest
- Slip both feet over the edge of the bed
- Push up with arm (s), lift head and trunk
- Sit up tall

Moving from Lying to Sitting

Video 22:

<https://youtu.be/yEAOXBXS2LY>

Repositioning in Chair



What's Wrong with this Picture?



Making Seating A Success

John is a stroke survivor. About twenty five percent of Long Term Care residents have had a stroke.



- 1 **Head** is tilted
- 2 **Shoulder & Back** are tilted to the side
- 3 **Arm** is not supported
- 4 **Hip** is tucked under & slipped forward
- 5 **Feet** are not flat on floor

If John is not sitting properly, he may have problems with:

- eating, swallowing and talking
- dressing
- moving his body
- moving his wheelchair
- pain

Repositioning in Chair – Survivor Preparation

Hips



Feet



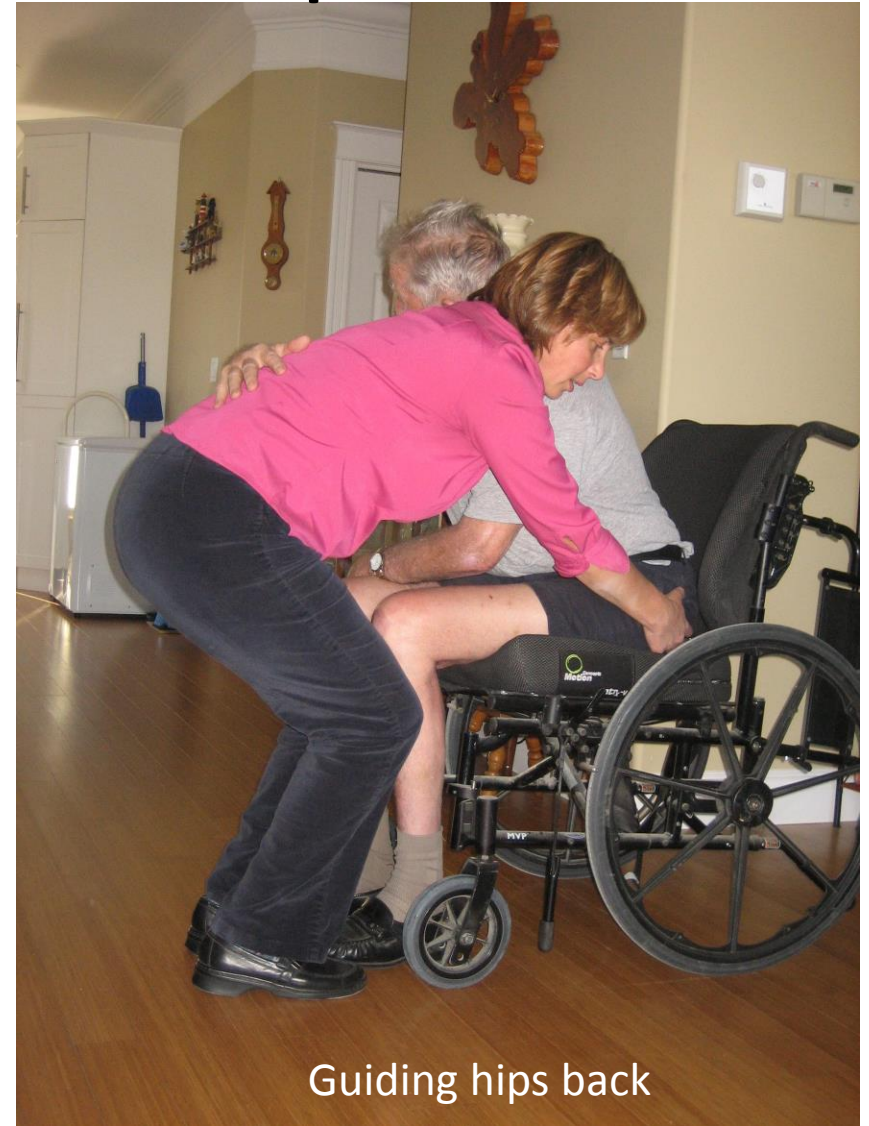
Arms



Repositioning in Chair - Caregiver Preparation/Action



Forward weight shift



Guiding hips back

Successful Seating



Successful Seating!



- 1 Head** is straight
- 2 Shoulders & Back** are straight & supported
- 3 Affected Arm** is secure with support of some kind (armrest, pillow or tray)
- 4 Hips** are level & well back in chair
- 5 Full foot** is flat on the floor
- 6 Hips, knees, and ankles** positioned at 90° (**90° Rule**)

John can now more easily:

- eat, swallow & talk
- dress
- move his body
- move his wheelchair
- be pain free & comfortable

STROKE NETWORK
of Southeastern Ontario

For More Information:
Heart & Stroke Foundation of
Canada (2015) Taking Action for
Optimal Community and Long
Term Stroke Care (TACLS) [Link](#)

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Help John Without Hurting Yourself

While helping John, ensure that your knees are bent and your back is straight



DO NOT level John's hips by trying to lift them with your hands



DO NOT place just the heel of John's foot under his knee



DO NOT pull John's stroke arm to his lap



DO NOT pull up underneath John's armpits to take the weight off his hips



DO NOT lift John's hips to the back of the chair



DO make hips **level** by **drawing** the tucked hip out towards you, ensuring your knees are bent to protect your back

DO ensure that the **ball** of John's foot is directly under his knee

DO **gently** place John's stroke hand on his lap

DO **guide** John's shoulders forward to shift the weight off his hips

DO **gently slide** John's hips back into the chair by placing your knees against his, and then carefully guiding them backwards

Successful Seating!



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Repositioning in Wheelchair

Video 23:

<https://youtu.be/uNAF8ii6Ck8>

Final Sitting Position



Seating Tips

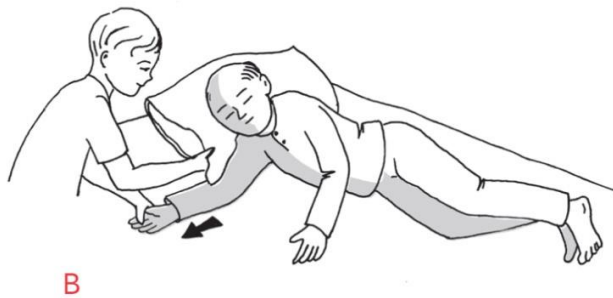
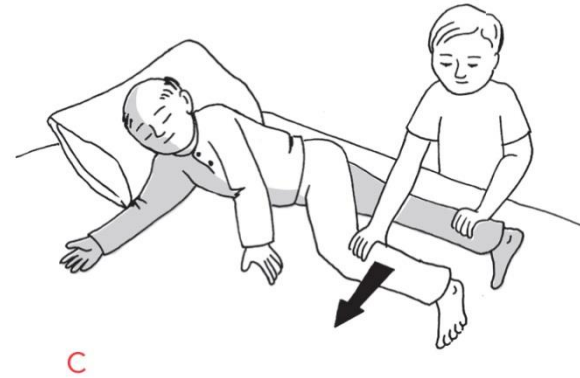
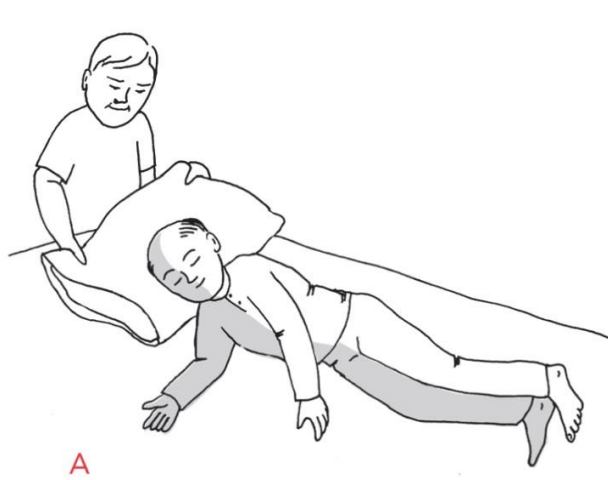
Tips to help you help your survivor sit comfortably and safely

- Remember the 90-degree rule (hips, knees and ankles approximately at 90 degrees)
- Regularly assess the need to reposition the hips back in the chair
- Use a lap tray to support the affected arm

Bed Positioning Supine (on back)



Bed Positioning Side Lying



Side lying on Affected Side

Make sure to gently draw the Affected side scapula forward so that survivor is not directly on pin of shoulder.

A pillow behind can allow for movement of body weight off side with some support still available.

Low tone arms may stay extended on bed, or in best option given patient presentation.

Great position to allow patient to weight bear on stroke side and visually see stroke arm and hand.



Anything you would change here?

Side lying on Non Affected Side

Pillow support for affected arm, leg and foot. May need pillow support from behind.

Comfort is key. Always check once Before leaving the stroke survivor.

Would you be able to stay in that position comfortably?

Consider that a stroke survivor may feel 'trapped' in this position if they do not have movement of the affected side.



Anything you would change here?

Gait

Gait and Stair Video

Video 25:

<https://youtu.be/PAdxJ2gZCsl>

Guidelines for Assisted Walking

- Consult with your supervisor or Physiotherapist regarding the specific ways to help the stroke survivor walk
- Follow guidelines for sit – to – stand
- Stand and support stroke survivor on their affected side
- To walk you may need to help them shift their weight from side to side. Move gently and do not push them
- Step with the same foot as they do

Guidelines for Stair Assistance

- Consult with your supervisor or Physiotherapist regarding the specific ways to help the stroke survivor climb the stairs
- Be mindful of other factors (medical conditions i.e. arthritis, railings) that may influence the method used
- Stand and support stroke survivor on their affected side
- Support may be required at the affected hip or knee
- The caregiver should straddle the steps to widen their base of support for better balance

THANK YOU!