

THE BRAIN, THE BODY & 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

Guiding Principles

Each person is different and unique

Effective communication/interaction between YOU and the stroke survivor is required

Always ask for consent for use of hand support around hip/ pelvis area

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

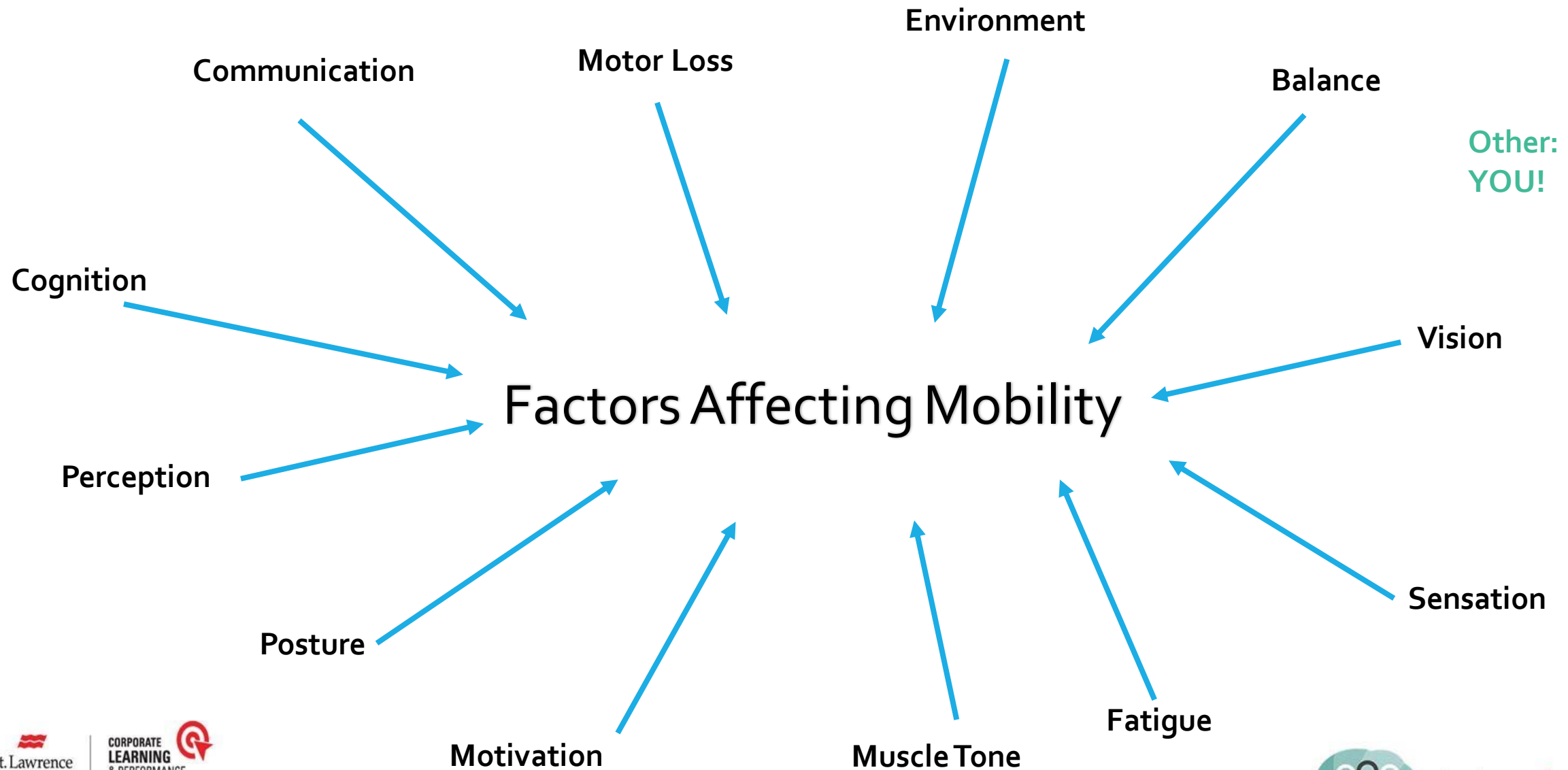
Be aware of your own body mechanics when assisting the stroke survivor

Following these guidelines will support effective mobility and the safety of both the stroke survivor and YOU, the stroke care giver. If you are having difficulty assisting an individual, seek advice.

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?

Fatigue

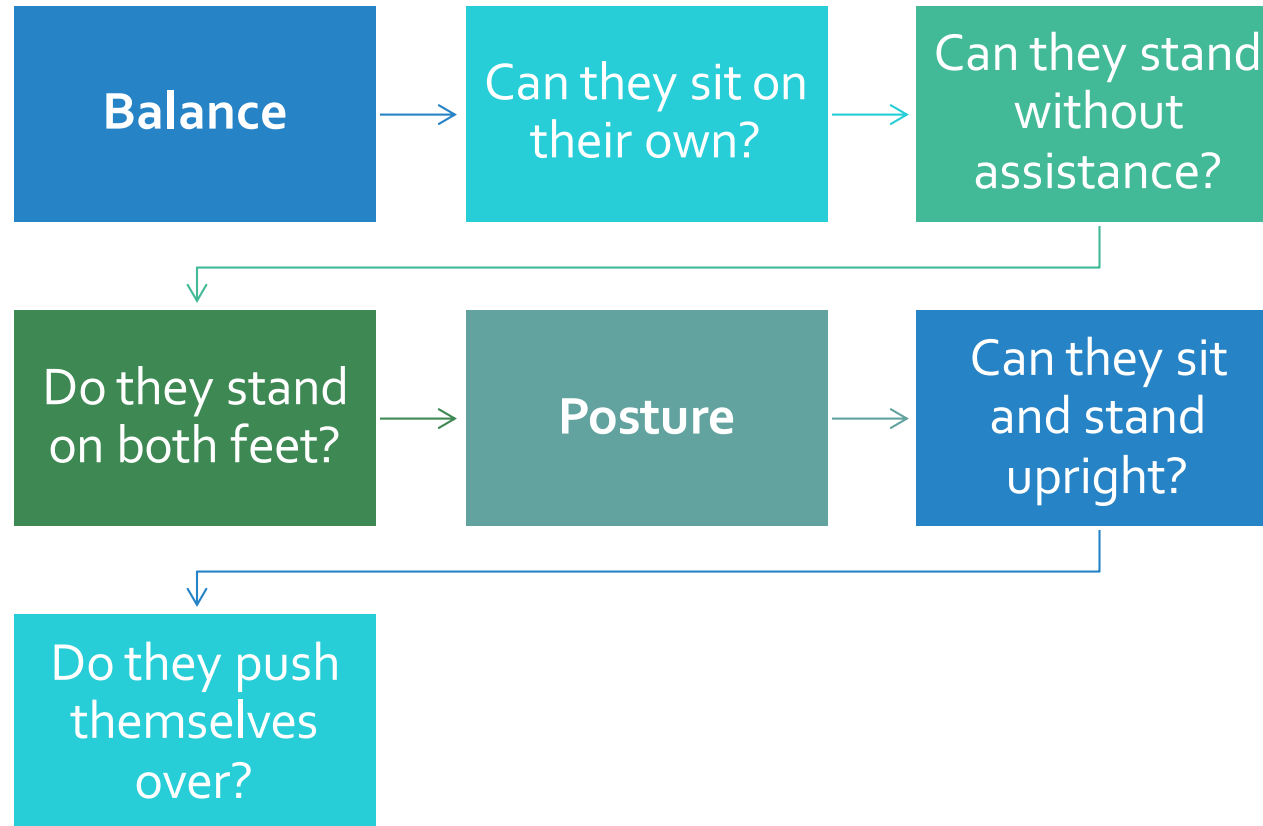
- Does the survivor require more assistance at various times throughout the day?

Muscle Tone

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

Factors Affecting Mobility

Factors Affecting Mobility



Perception

- Do they neglect one side?

Cognition

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

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

Factors Affecting Mobility



VISION



**ENVIRONMENT:
FLOORING, LIGHTING,
SPACE**



**FURNITURE,
FOOTWEAR, CLOTHING**



MOTIVATION

Factors Affecting Mobility

Non – neurological Physical Limitations

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

Stroke Arm and Hand Considerations

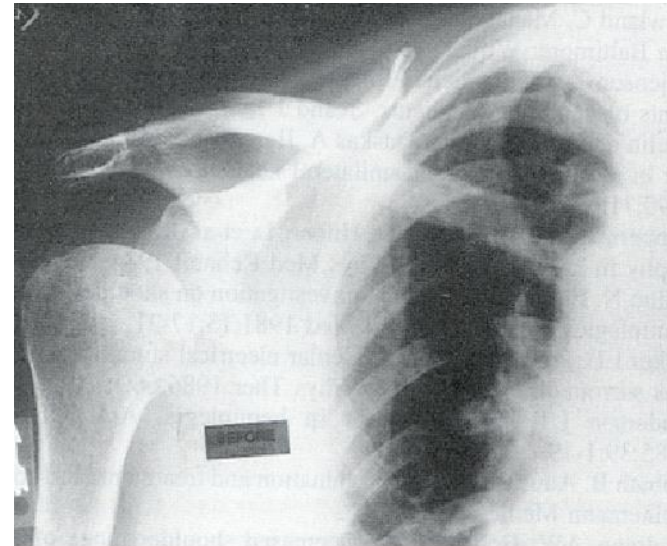
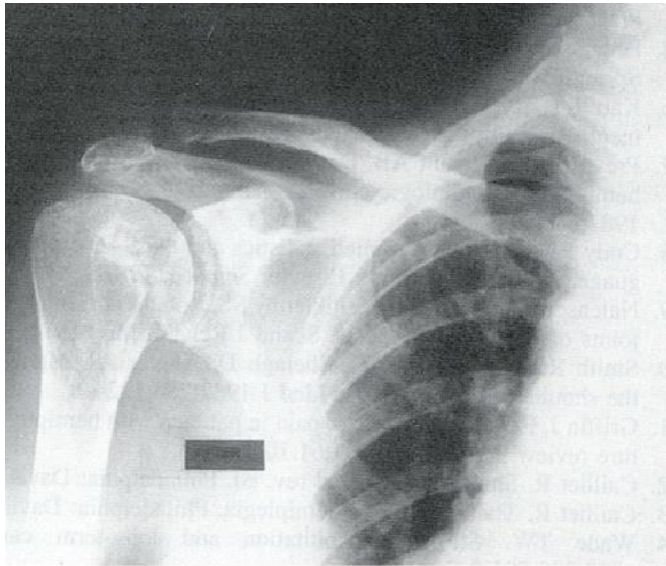
Effects of a stroke can reduce the strength and tone of the muscles supporting the shoulder joint.

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

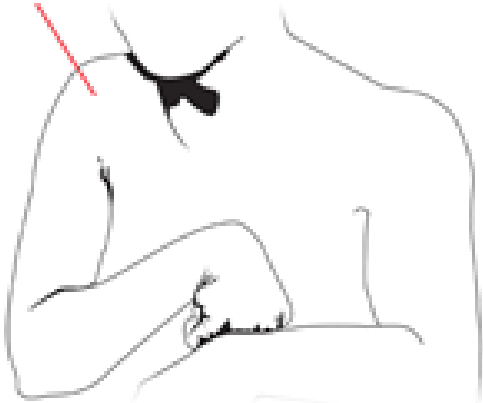




High Tone/Spasticity

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

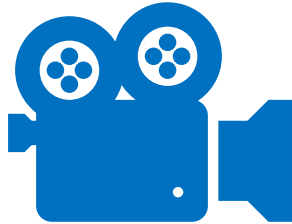
Bend knees

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://www.youtube.com/watch?v=H6x3Yg_rlw8



Pay attention to the position of the model's 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

TRUNK POSITION

- Slump trunk in chair– lift arms. What do you feel? (heaviness, restricted movement)
- Sit tall in chair– lift arms. What do you feel? (lightness, further reach)

FEET

- Feet out in front – stand up. What do you feel? (awkward transition, back on heels)
- Feet underneath knees–stand up. What do you feel? (easy transition, weight distributed across feet)

TRUNK MOVEMENT

- 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)
- 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)

ALIGNMENT

- One foot forward, one back– stand up. What do you feel? (balance problem, weight bearing on one side only)
- Both feet back–stand up. What do you feel? (more stable, even distribution of weight on both feet)

SYMMETRY

- Twisted trunk – stand up. What do you feel? (balance problems, unequal weight distribution)
- 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



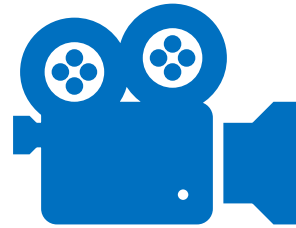
walker

commode

Bed Rails

Bed Position

Transfers: Preparing Equipment and Survivor



Video 2:

<https://www.youtube.com/watch?v=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

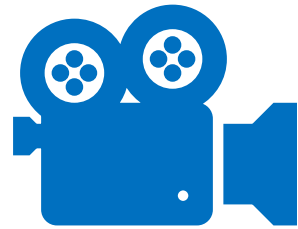


If the survivor overuses the unaffected side, have them stop and correct their position before the transfer



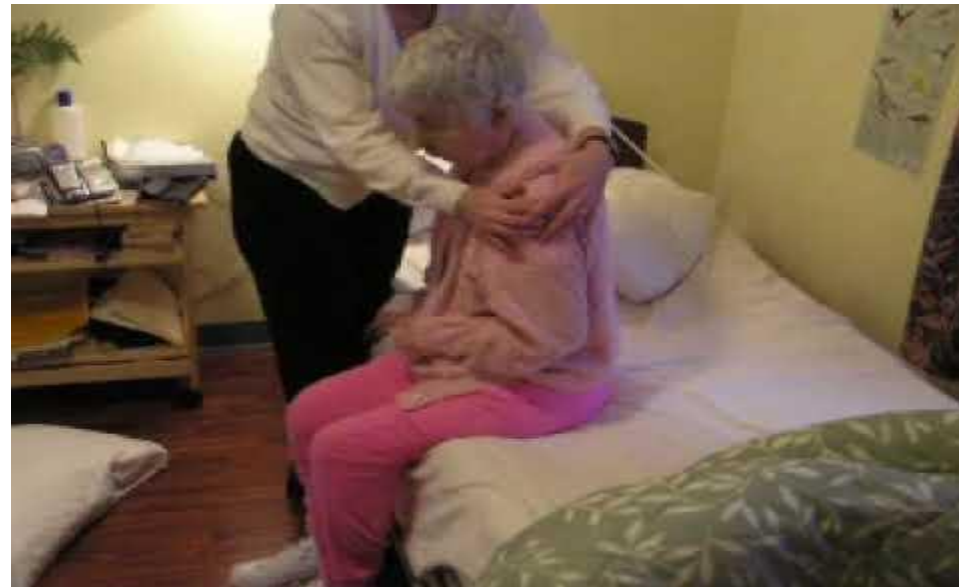
Stroke arm/hand supported on their thigh

Preparing Stroke Survivor – Moving Forward

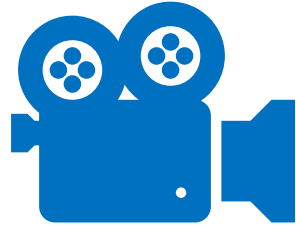


Video 3: (no sound)

<https://www.youtube.com/watch?v=7SEvnxE-qhA>



Transfers: Preparing you for sit to stand



Video 4:

<https://www.youtube.com/watch?v=US4ef8zHj38>

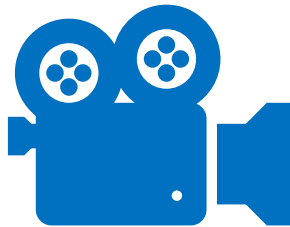
Figure 8 – Hand Position for Transfer



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

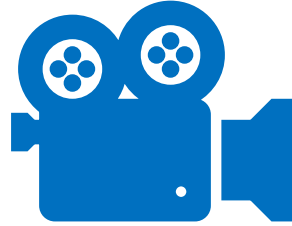


Video 5:

<https://www.youtube.com/watch?v=k3vcNyCJ1lo>



Sit to stand – incorrect/correct

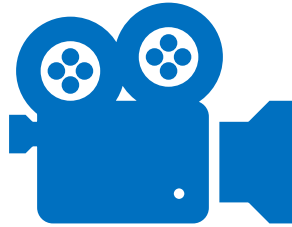


Video 6:

https://www.youtube.com/watch?v=UwH4XH_YdKA



Two Person Under Arms

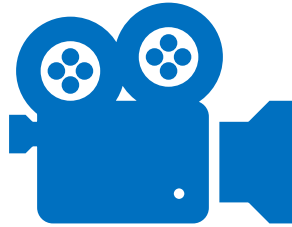


Video 7:

<https://www.youtube.com/watch?v=1122qzgHfxo>



Thoughts on Lifting Under the Arms



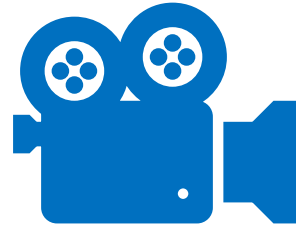
Video 8:

<https://www.youtube.com/watch?v=TnR9gY41oMc>



HORIZONTAL TRANSFERS

One Person Assist Standing Stepping Transfer

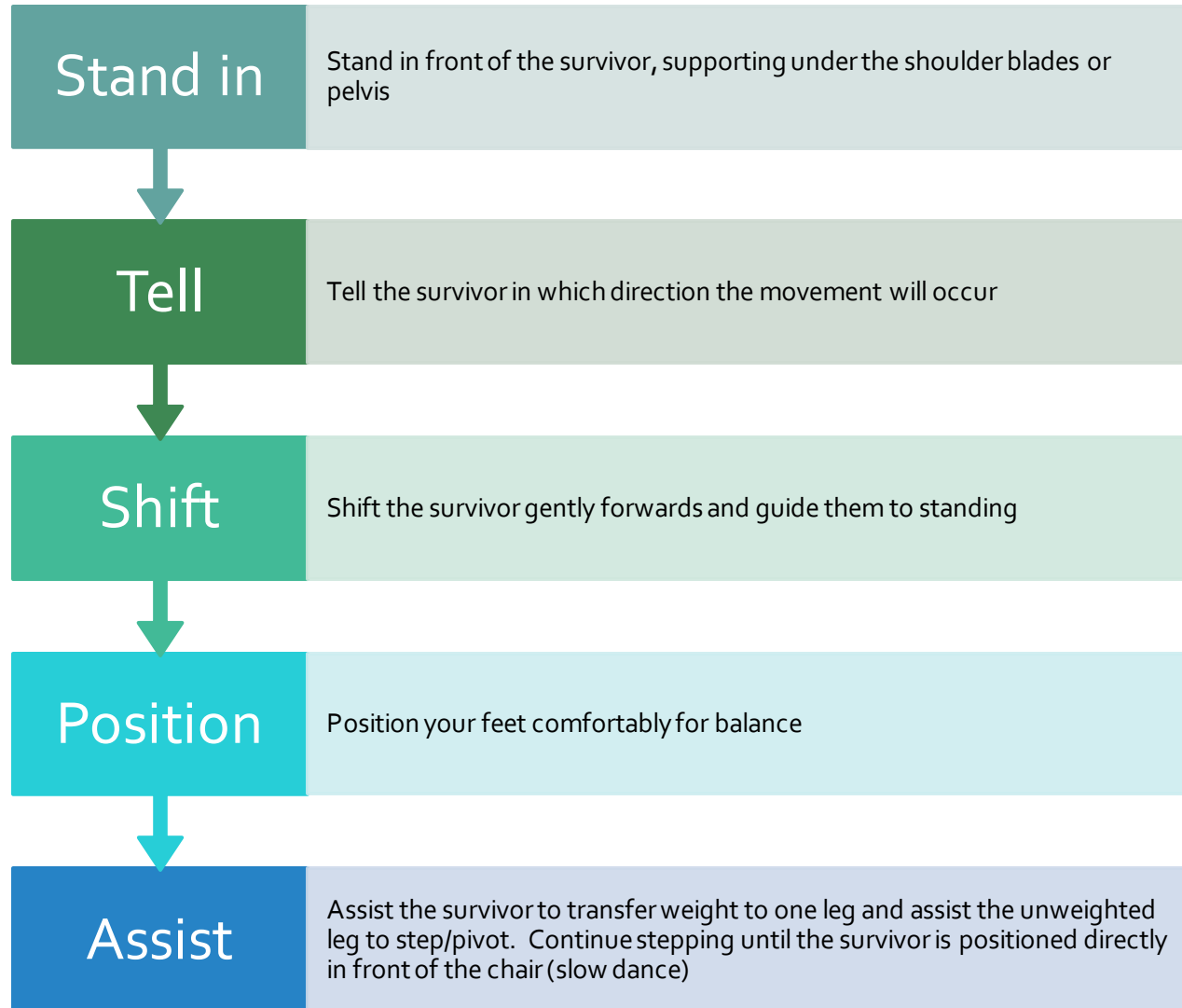


Video 9:

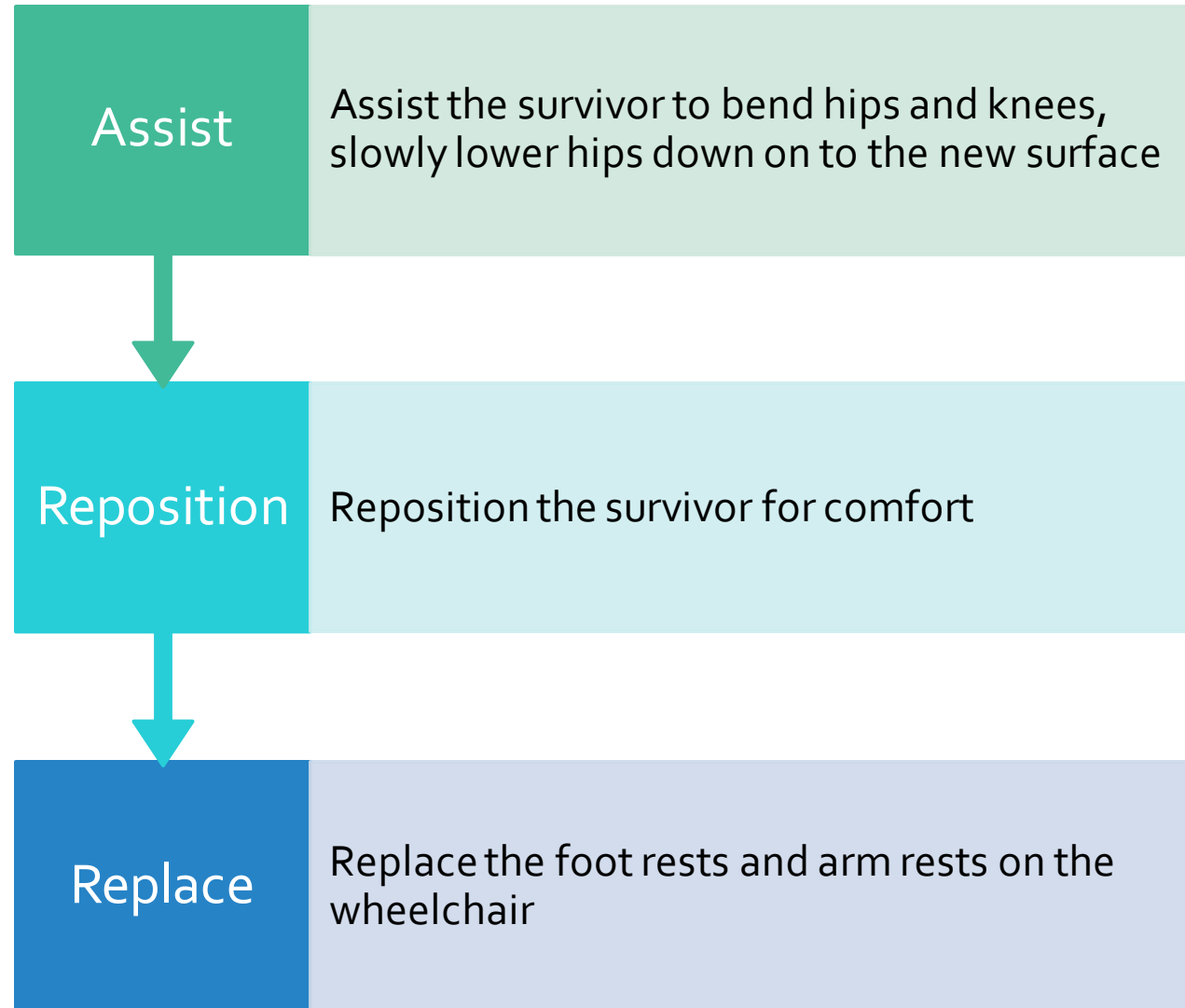
<https://www.youtube.com/watch?v=6KpxEaBCy1Q>



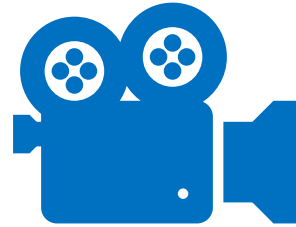
One Person Assist Standing Stepping Transfer



One Person Assist Standing Stepping Transfer



One Person Assist Sit Pivot Transfer with Safety Pole

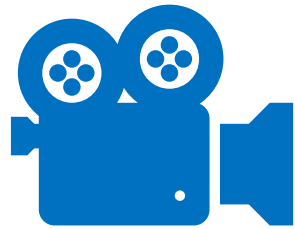


Video 10:

<https://www.youtube.com/watch?v=L13WMkh9oXs>



One Person Assist Standing Stepping Transfer with Safety Pole

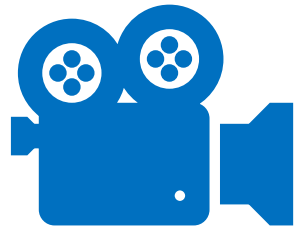


Video 11:

<https://www.youtube.com/watch?v=ydshz5ncFrM>



Two Person Assist Transfers (stand/step)



Video 12:

<https://www.youtube.com/watch?v=aRnRohaLyol>

2 Person Stand-Step Transfer

- never hold clothing
- never pull on affected arm
- never lift from under arms

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)

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

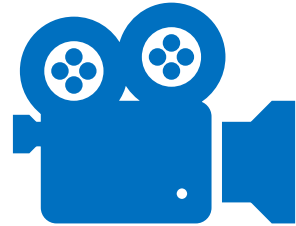
Two Person (Stepping) Transfer

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)



Video13:

<https://www.youtube.com/watch?v=yIarJlC-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(1)

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(2)

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.

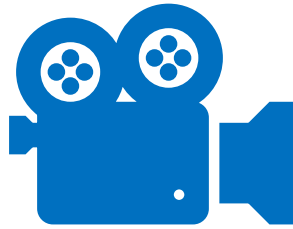


Reposition the survivor well back in the chair, and check for comfort.



Replace the foot rests and arm rest on the wheelchair.

Two Person Assist Sit Pivot Transfer



Video 14:

<https://www.youtube.com/watch?v=WnoAaKHMehc>



End of Part 1

**See you next
week!**

Overview of Workshop Part 2

01

Discussion from
Part 1 (sit/stand
and transfers)

02

Bed Mobility

03

Positioning –
bed and
wheelchair

04

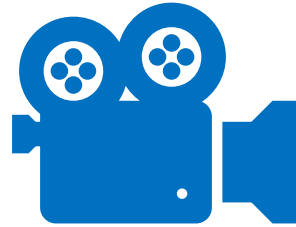
Gait and Stairs

05

Questions

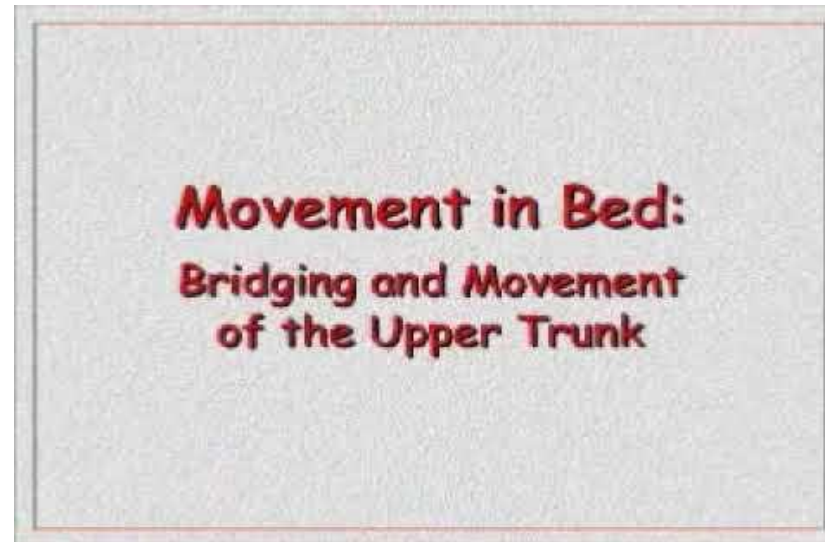
YOUR EXPERIENCE?

Moving in Bed - Bridging



Video 15:

<https://www.youtube.com/watch?v=qj1Zhi63VA4>



Bridging

Encourage the Survivor to:

Bend knees

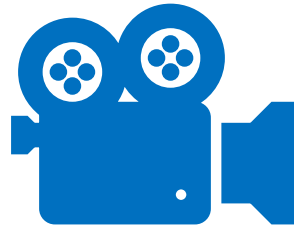
Keep feet flat on bed

Lift hips off bed

Move from side to side in bed shift hips to the left or right

Move up in bed push with both legs

Moving in Bed - Upper Body



Video 16:

<https://www.youtube.com/watch?v=4tEwcEaL5gs>



Movement of the Upper Body

Encourage the survivor to:

Cradle

- Cradle affected arm across body at the elbow

Lift

- Lift head and shoulders

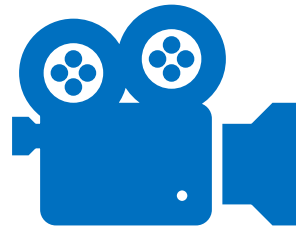
Shift

- Shift head and shoulders to the left or right

Move in

- Move in small increments

Moving in Bed

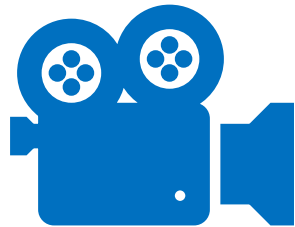


Video 16:

<https://www.youtube.com/watch?v=4tEwcEaL5gs>



Upper Trunk – Stroke survivor demo

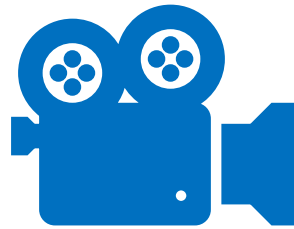


Video 17: (no sound)

https://www.youtube.com/watch?v=m74tA_IsCmc



Upper Trunk- Draw Sheet

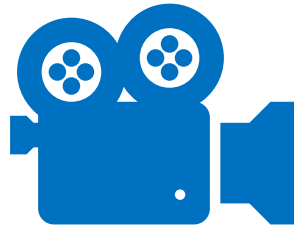


Video 18: (no sound)

<https://www.youtube.com/watch?v=gaWrBoJMdGU>



Rolling onto the Unaffected Side



Video 19:

<https://www.youtube.com/watch?v=hrjGJzJJWfI>



Rolling onto the side

Encourage the survivor:

To bend knees
up before
rolling

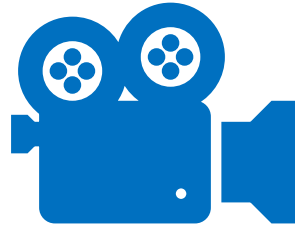


Not to forget
the affected
arm



To look towards
the direction of
the roll

Rolling onto the Affected Side

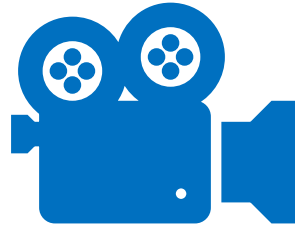


Video 20: (no sound)

<https://www.youtube.com/watch?v=mHgAgHaUPzc>



Moving from Lying to Sitting Position



Video 21:

<https://www.youtube.com/watch?v=A3jctW4djFs>



Moving From Lying to Sitting Position

Ask the survivor to:

01

Bend both knees

02

Lift and turn head to look in the direction of the roll

03

Roll completely onto the side, without forgetting the affected arm

04

Draw knees toward the chest

05

Slip both feet over the edge of the bed

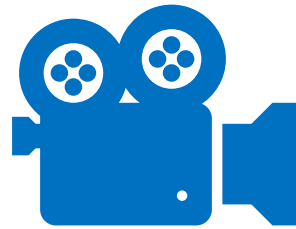
06

Push up with arm (s), lift head and trunk

07

Sit up tall

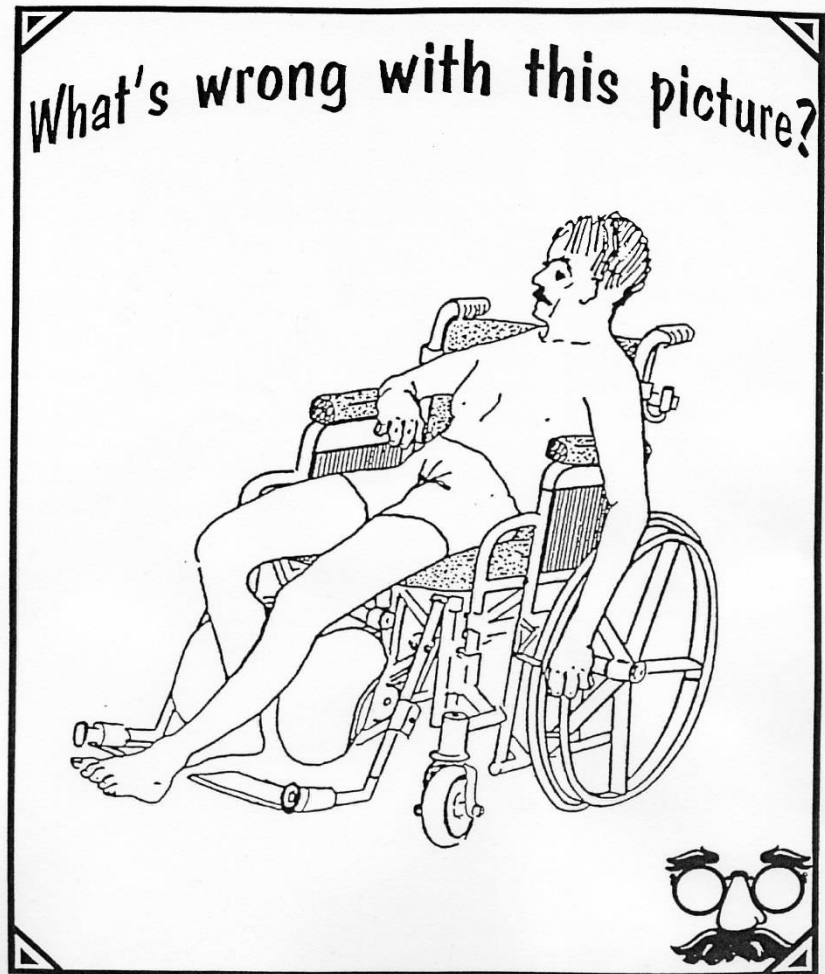
Moving from Lying to Sitting



Video 22:(no sound)
<https://www.youtube.com/watch?v=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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If John is not sitting properly, he may have problems with:

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

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!



- 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
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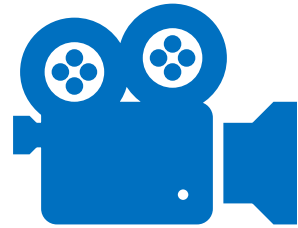
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- ☒ move his wheelchair
- ☒ be pain free & comfortable

STROKE NETWORK
of Southeastern Ontario

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Repositioning in Wheelchair



Video 23: (no sound)

<https://www.youtube.com/watch?v=uNAF8ii6Ck8>





FINAL SITTING POSITION

Seating Tips for survivor comfort and safety

1

Remember the 90-degree rule (hips, knees and ankles approximately at 90 degrees)

2

Regularly assess the need to reposition the hips back in the chair

3

Use a lap tray to support the affected arm

Bed Positioning

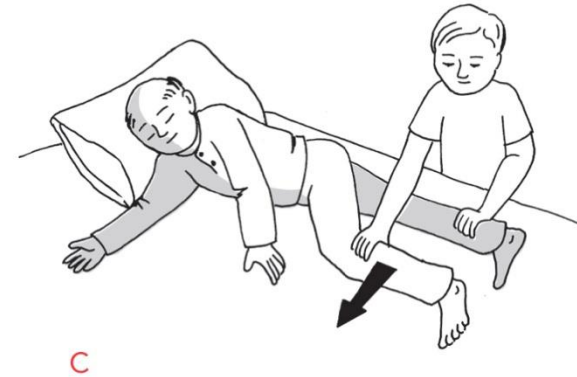
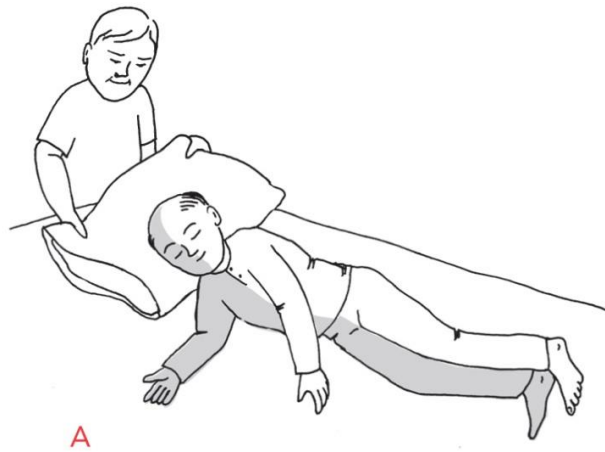
Why is this important?

- Alignment- joints, muscles in optimal positions
- Weight bearing- helps with tone management and motor recovery
- Skin integrity and circulation
- Body awareness
- Comfort- pain management
- Rest- healing

Bed Positioning Supine (on back)



Bed Positioning Side Lying





Anything you would change here?

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 the 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.

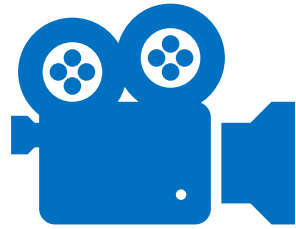
Side lying on Non Affected Side

- 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.



GAIT AND STAIRS

Gait and Stair Video



Video 24:

<https://www.youtube.com/watch?v=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!