

Module 5: Mobility and Exercise

Life After Stroke Education Series



Stroke Network
Southwestern Ontario

Disclaimer

- SWOSN has created the following PowerPoint to support the delivery of stroke education for providers working in the Life After Stroke Programs. SWOSN would like to acknowledge the Community Stroke Rehab Teams for providing the initial iteration of this resource.
- Every effort has been made to ensure that the following information provided is accurate, up-to-date, and complete, but no guarantee is made to that effect. This is a reference resource designed as a supplement to, and not a substitute for, the expertise, skill, knowledge, and judgment of healthcare practitioners. For the most current recommendations always refer to the Canadian Best Practice Recommendations for Stroke Care at: www.strokebestpractices.ca
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Outline

- Role of the physiotherapist post stroke
- Elements of a rehab program
- Transfer strategies, types, equipment and tips
- Gait devices and mobility post stroke
- Postural and positioning considerations
- Managing tone and neglect
- Exercise types, intensity, red flags
- Balance considerations and exercise precautions
- Falls management
- Online resources, best practice guidelines

Reasons Stroke Survivors See a Physiotherapist

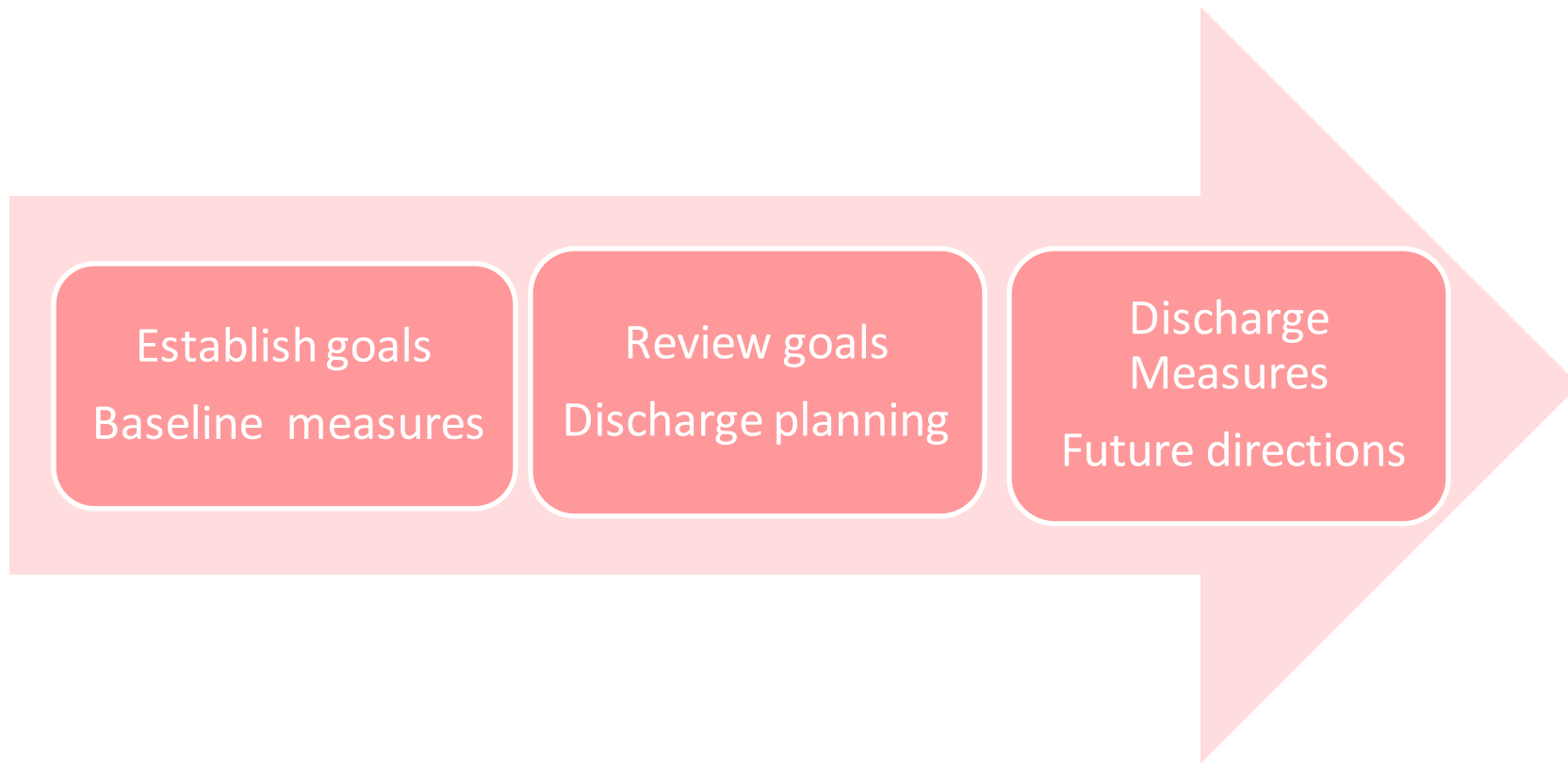
- Functional mobility training/assessments
- Gait training, gait aid prescription, bracing
- Balance training, falls prevention
- Strength and endurance exercises/training
- Secondary stroke prevention education
- Address pain
- Outdoor mobility assessment/recommendations
- Spasticity management
- Vestibular dysfunction (additional training required)
- Visual Syndromes affecting mobility (with OT)
- Provide home exercise programs and promoting self management

Elements of a Rehabilitative Exercise Program

Programming elements can be taken from the Ontario Stroke Network (OSN) guidelines and Canadian Stroke Best Practice Recommendations:

- 30 minutes: Cardiovascular activity (NuStep, circuit training, walking program)
- 20 minutes: Balance activity (client's home program, FAME program or other- eg. Dual task activity)
- 5 minutes: Stretching

Rehabilitative Exercise Programs



Transfer Types and Strategies

- Standing transfer with use of gait devices
- Low scoot, standing pivot
- Mechanical lifts
 - Hoyer, ceiling lift, sit to stand
- Non-mechanical transfer devices
 - Pivot disc, sliding board, E-Z turn, Sara stedy
- Individuals require varying amounts of support to complete the transfer

Transfer Tips

Key Transferring Principles

- Get area set up, brakes on, arm rest off, helper positioned, equipment in place, privacy maintained
- Have them help as much as possible
- Transfer to the unaffected side
- Short step commands, clear and concise
- Knees in line with toes
- Stop and start if you need to, be picky
- Be in control of the descent
- Use two people when warranted
- Know the transfer ability of the patient

Considerations:

- Use of an assistive device
- Use of an Ankle Foot Orthosis (AFO)
- Never pull on affected arm
- Fatigue
- Use of sling
- Functional progress

Transfer Tips Continued

- Prepare the environment
- Use recommended equipment
- Communicate clearly with the person, so they know what to expect:
 - Patient is cued/assisted to move to the front of the chair
 - Patient is cued/assisted to lean forward (nose over toes)
 - Feet are back and patient pushes off from arm(s) of chair
 - Caregiver typically will stand on the affected side to cue/assist patient into standing

*****NEVER pull on or grab the affected arm or under the shoulders*****

Transfer Examples

Wheelchair (W/C) bound clients:

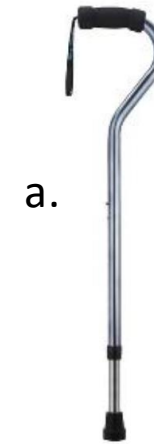
E.g.: from W/C to NuStep

- Often better going towards the strong side for safety
- Low scoot
 - Individual remains in a high squat throughout the movement
- Standing pivot
 - Individual stands and pivots on a stationary leg



Gait aids

- a) Single point cane
- b) Quad cane
- c) Walking poles
 - Urban Poles, Activator Poles, etc.
- d) Hemi walker
- e) Standard walker/2 wheeled walker (2WW)
- f) Rollator walker (RW)



Supporting Mobility Challenges

- Know how a stroke affects a person's ability to move.
- Make your safety and theirs a priority. Use proper positioning and safe transfer techniques.
- Cue verbally and/or manually, if required.
- Balance rest and activity.
- Encourage the person to participate as much as possible.
- Use short, simple directions when facilitating an exercise.
- Ask for help if you need it or you are unsure.

Supporting Mobility & Physical Functioning

Factors affecting movement following a stroke:

- Fatigue and pain
- Improper posture
- Loss of or change in sensation
- Changes in muscle tone (flaccidity or spasticity)
- Changes in muscle strength
- Poor balance
- Changes in coordination
- Perceptual problems (i.e. Spatial neglect, vision challenges)

Ambulating with a Stroke Survivor

- Do not hold the affected arm
- Stay on the affected side



Posture and Sitting Position

Correct Positioning

Wheelchair seat is lowered so that the survivor's feet may rest on the ground.



Incorrect Positioning

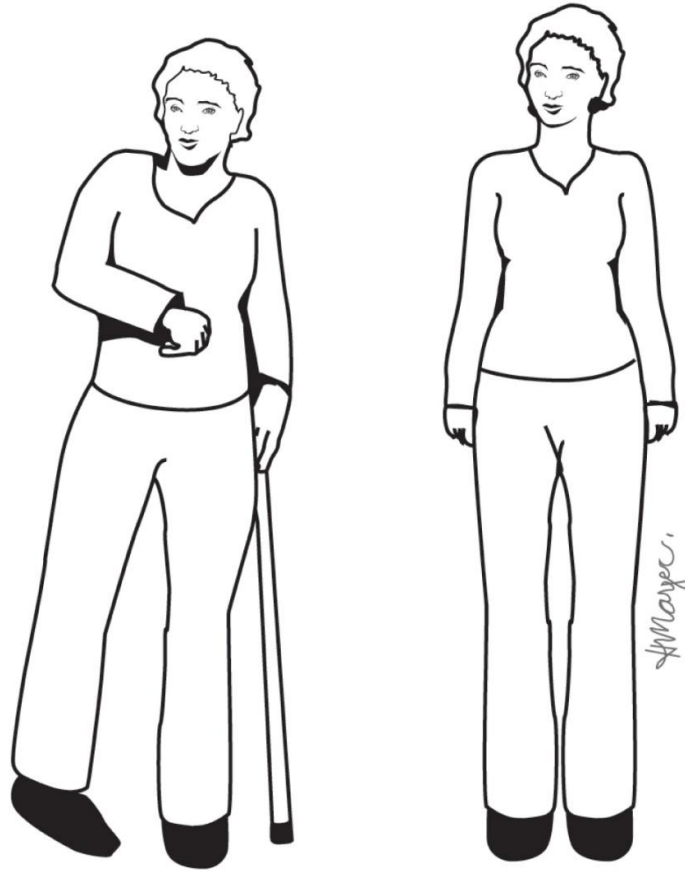
Survivor sits with poor posture, sliding hips forward and leaning back so that their feet may reach the floor.



Proper Sitting Position

- When a person who has had a stroke is sitting, whether in a chair or a wheelchair, their hips should be back and centered
- Hips often slide forward in a chair, creating a slumped posture.
- Encourage the patient to be active in repositioning themselves as much as able.
- Use the 90 degree rule
 - Hips, knees and ankles are close to 90 degrees
- Support the affected arm
- Support the affected leg
- For wheelchair dependent clients, avoid static positions for extended periods of time. Encourage client to engage in pressure relief strategies.

Postural Changes



EXAMPLE OF A STROKE SURVIVOR POSTURE

NORMAL POSTURE

High Muscle Tone Considerations

- Tone may be a response to:
 - Fatigue (take breaks)
 - Overly challenging activity (modify task)
 - Reduced weight-bearing on affected side (reminder to shift weight)
 - Emotional stressors including poor sleep quality (mindfulness training)
 - Fear (reassurance, peer support)
- Solutions to consider:
 - Stop the activity/exercise
 - Cue client to increase weight-bearing on affected side while standing or walking
 - Remind client to take rest breaks

Promoting Use of the Affected Side During Exercise

- Consider positioning of the individual within their environment.
 - When the goal is to encourage moving towards their affected side, position individual so that people and stimuli on their unaffected side
- Tactile cueing and support of the affected limb
- Biasing the affected limb (i.e. sit to stands, weight shifting, monitor for compensations, symmetry)

Managing Neglect/Inattention

Visual: decreased awareness of the environment on the side of the body affected

- Strategies to support: visual and verbal cueing of environment, supervise or assist with transfers for safety

Body: decreased awareness of the body on the side affected

- Strategies to support: use cues to draw attention to the affected side, help position the limb so survivor can see it, provide sensory feedback

Supporting the Affected Arm

- A weak upper extremity should be supported against the effects of gravity
 - Consider arm positioning when seated, standing, transferring and ambulating
- Support can come in many forms
 - Wheelchair tray, a stable surface, a walker splint, a sling
- Slings are typically used only during ambulation/transfers

When a sling may be considered:

- Painful shoulder
- Neglect



Sling use will vary based on client preference

Types of Exercise

- **Endurance (aerobic)**
 - Improves heart and lung fitness, reduces fatigue and increases energy. Enhances neuroplasticity.
- **Strength**
 - Increases your muscle strength so it is easier to do everyday activities like climb stairs and get up from a chair.
- **Balance and Coordination**
 - Makes it easier to move about, and reduces your risk of falls.
- **Stretching**
 - Keeps muscles relaxed and joints mobile so that you can get dressed and reach for objects more easily.

Strength, Balance, Coordination











Exercise Progression

- Typically, exercise progression is pre-determined by the community Physiotherapist. Progression may be based on function and symptom monitoring/tolerance, including parameters such as:
 - Sets
 - Reps
 - Hold Time
 - Frequency
 - Positioning

How Hard?

General Recommendations

Rating of Perceived Exertion Chart
(Cardiovascular Endurance)

#10		I am dead!!!
#9		I am probably going to die!
#8		I can grunt in response to your questions and can only keep this pace for a short time period.
#7		I can still talk but I don't really want to and I am sweating like a pig!
#6		I can still talk but I am slightly breathless and definitely sweating.
#5		I'm just above comfortable, I am sweating more and can talk easily.
#4		I'm sweating a little, but I feel good and I can carry on a conversation comfortably.
#3		I am still comfortable, but I'm breathing a bit harder.
#2		I'm comfortable and I can maintain this pace all day long.
#1		I'm watching TV and eating bon bons.

- The Rate of Perceived Exertion Scale is a tool that helps an individual express how hard they feel that they are working.
- Several different versions of the Perceived Exertion scale exist.
- Be aware of which scale your client is using or provide a copy to your client.

How Hard?

General Recommendations

- Ask your client if they have been provided recommendations about how hard they should strive to work and consult the referral form.
- If a recommendation is not known, start at a light intensity of about 3 or 4 on a scale of 10.
 - Clients with comorbid health conditions (i.e. COPD, cardiac concerns etc.) may need to start at a lower level.
- Build gradually towards a moderate intensity of about 4 or 5.
- *Consider clients with aphasic and establish a safety strategy for communicating during group or individual exercise*

Signs & Symptoms Which Require Participant to IMMEDIATELY STOP Exercising

- Pain, especially chest pain/angina
- Tightness, heaviness &/or radiation of discomfort towards jaw or arm
- Cold or clammy skin
- Excessive or unusual shortness of breath
- Dizziness or light-headedness
- Nausea, vomiting or severe headache

****High blood pressure is a contraindication to exercise ****

Balance Impairments

- Poor balance makes transferring, standing and walking difficult and often unsafe.
- Many stroke survivors will have reduced balance in sitting and standing due to weakness and loss of trunk control.
- Exercises can assist in improving balance and positioning.
 - Sitting upright in chair, working trunk muscles; reaching forward, side to side, trunk rotations
 - Bed exercises assist with improving trunk control
 - Standing balance exercises include weight shifting side to side, stepping on a stool, stairs, or balance board use

Exercise prescription should be set up and progressed by a physiotherapist

Balance Training

- Balance training programs are client specific and tailored to an individual's skill level and abilities
- Clients experiencing dizziness, postural hypotension (low blood pressure) are not be appropriate to continue with balance training if symptomatic
- Recommend referring to client's current home program for exercise routine suggestions
- A sturdy support surface is required at all times for client safety, many client's require standby (arms length supervision) for safety

Falls Safety

- Follow the facility's protocols or call 911 if unsure
- Follow facility's protocol for reporting the fall
- Recommended to keep a record of falls in client's history
- General principles when assisting post fall
 - Determine if there are any injuries
 - Determine if there are any musculoskeletal limitations affecting mobility (i.e. prosthetic knee, rotator cuff tear)
 - Make your client comfortable (pillow, blanket)
 - Take your time and review your environment
 - Get second person to assist
 - Consider if you have the appropriate knowledge and training and if it is appropriate to utilize equipment (i.e. a hoist lift) to support the transfer

Falls Safety

Start position: client on back

1. Set a chair with arm rests next to the individual on the ground and have someone hold it.
2. Assist the individual to roll onto their strong side.
3. Assist the individual to get into 4 point or 3 point kneel.
4. Encourage the individual to place their hand(s) on the chair.
5. Move into {half kneeling} position facing the chair. Typically encourage the individual to lead with stronger leg first. The client may prefer to lead up with weaker leg.
6. Guide and stabilize client as they rise up. Assist client to turn and sit.
7. Variation: two chairs- use one to rise and second one to sit as soon as client is tall enough to reach.

References

- <https://mobilitydeck.com/different-types-of-walkers/>
- www.heartandstroke.ca
- www.hypertension.ca
- www.strokebestpractices.ca
- www.ontariostrokenetwork.ca
- <http://neurorehab.med.ubc.ca/fame/>

Thank You

You have now completed **Module 5: Mobility and Exercise**. For any questions, please contact SWOSN@lhsc.on.ca and/or contact your designated Community Stroke Rehabilitation Team Representative.



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