Taking Action for Optimal Community and Long-Term Stroke Care
A Resource for Healthcare Providers

Chapter 6: Activities and Participation
Section 6.2: ***Shoulder Care*** *and Positioning*
Updated September 18, 2020

Disclaimer

- Taking Action for Optimal Community and Long-Term Stroke Care is for informational purposes only and is not intended to be considered or relied upon as medical advice or a substitute for medical advice, a medical diagnosis or treatment from a physician or qualified healthcare professional. You are responsible for obtaining appropriate medical advice from a physician or other qualified healthcare professional prior to acting upon any information available through this publication

TACLS Overview

Overview

- This presentation has been developed to complement the information provided in Taking Action for Optimal Community and Long-Term Stroke Care
- TACLS content is aligned with the most current Canadian Stroke Best Practice Recommendations (www.strokebestpractices.ca)
- Some of the best practice recommendations are included in this resource for quick reference. For the full Canadian Stroke Best Practice recommendations visit: www.strokebestpractices.ca
- As you consider the following information, always ensure that you are practicing and working within your scope of practice and seek advice from qualified and appropriate team members as needed

COVID-19

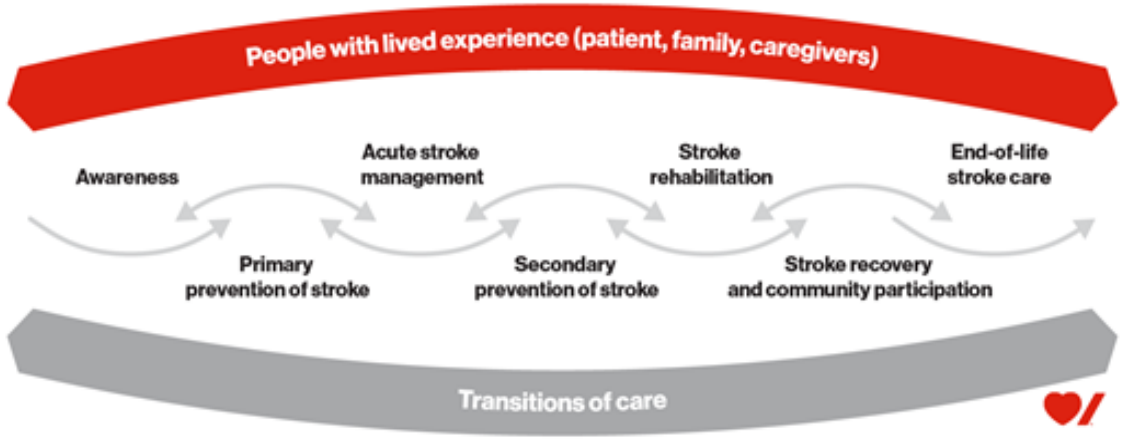
- In light of COVID-19, resources are being shifted across the healthcare continuum to help meet ongoing and changing needs.
- There may be some variability in the staff who would typically work with patients who have had a stroke.
- There are many considerations that are key to promoting safety and optimizing recovery when working with individuals who have had a stroke.
- TACLS can be used to help *support healthcare providers* and may be helpful to informal caregivers during this time by providing key information, skills and guidance when providing care to individuals who have had a stroke in any setting, from acute inpatient care to the community.

Purpose and Use of TACLS

- TACLS slide presentations are designed to be used as a resource, in conjunction with the TACLS manual, for informing and educating healthcare providers about how to care for individuals who have had a stroke across care settings
- Informal caregivers may also find these resources helpful
- TACLS content is aligned with the Canadian Stroke Best Practice Recommendations (www.strokebestpractices.ca)

Target Audience

- Healthcare providers who care for individuals who have had a stroke and are in acute care, inpatient rehabilitation, or community settings (such as at home or in long-term care)
- Informal caregivers, such as family members, may also find these resources helpful as they provide practical information to deliver safe and appropriate care



Your role

- It is very important to review and understand your role within the stroke care team
- Consult with your team if you
  - Are unclear about any aspect of the care plan
  - Have questions about how to implement the recommended care
  - Have concerns about the health of the person you are caring for
- Know your direct contact on the team and follow your workplace guidelines for communicating with the team
- Do not delay if a situation requires immediate attention – contact the appropriate team member as quickly as you can
- There may be times when the information in this resource differs from the instructions or care plan that have been developed by the organization you work for or by the stroke team. **In these cases, always follow the direction from your employer, your team, and the care plan**

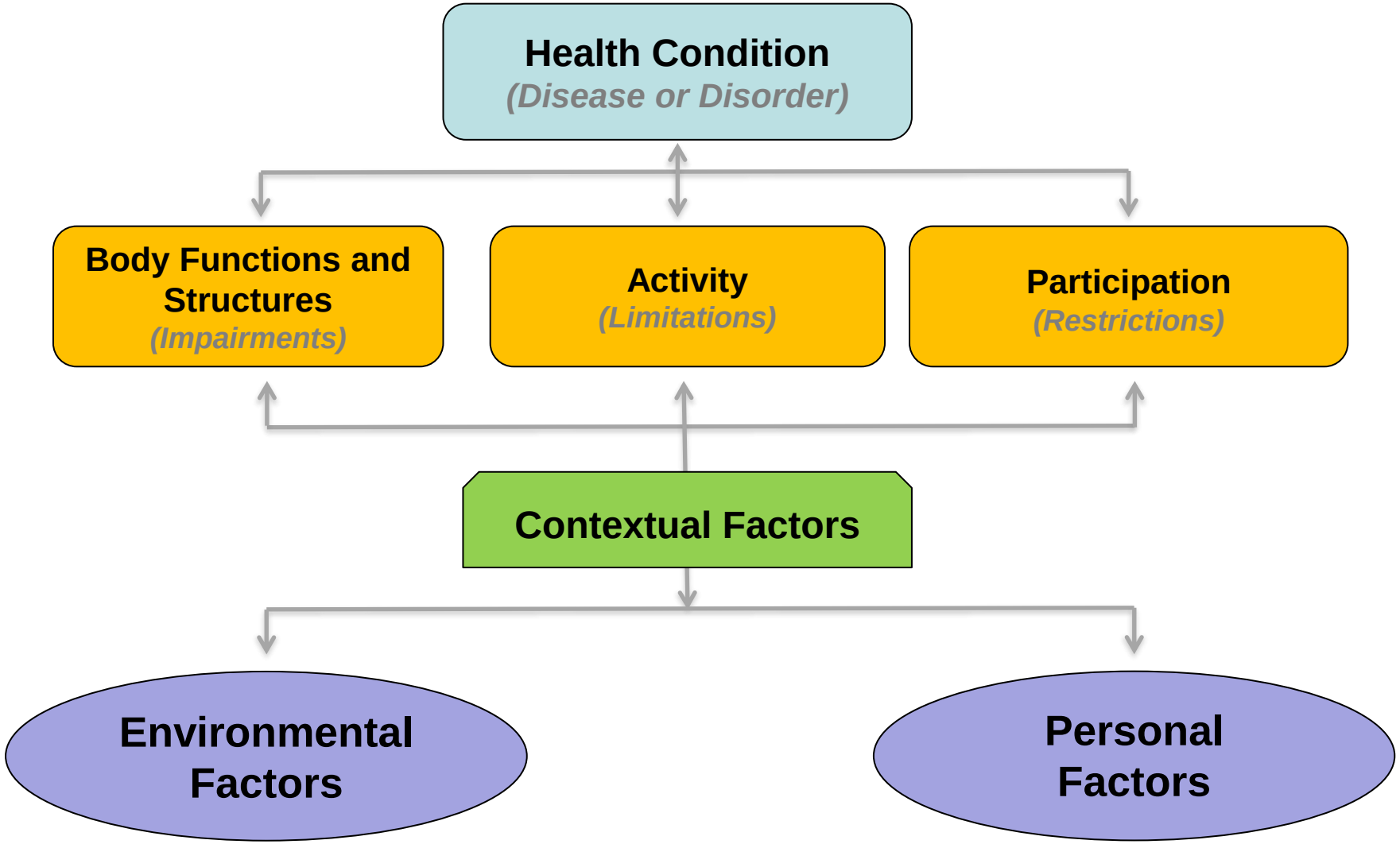
Your Role: Communicate with your Team

Canadian Stroke Best Practices

Stroke care is a TEAM effort. The team is there to support you. Make sure to reach out to your team if you have any questions so that the safety and recovery of the individual you are working with and/or caring for is not compromised.

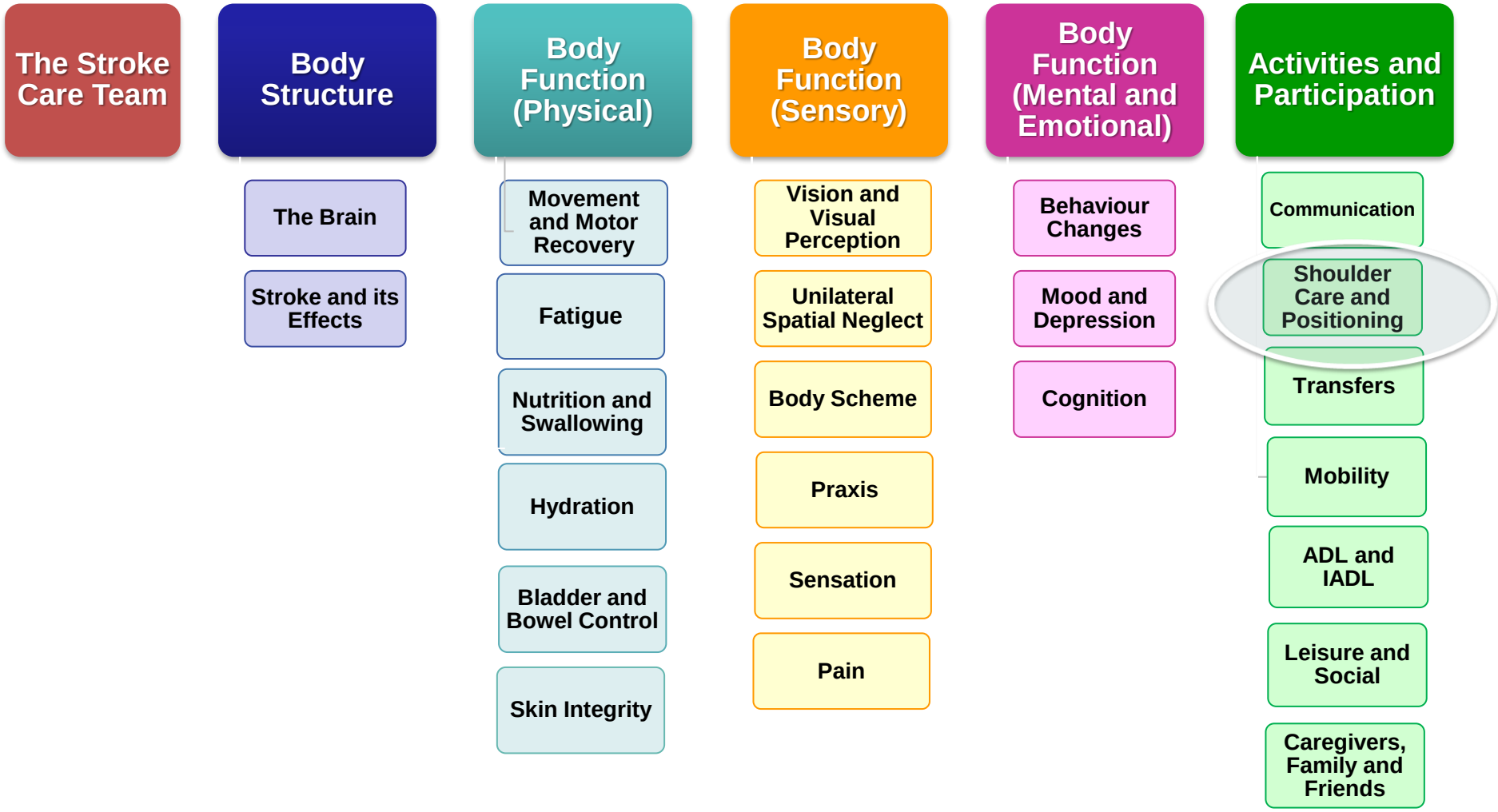
TACLS Structure

TACLS is organized to follow the International Classification of Functioning (ICF) structure.



https://www.who.int/classifications/icf/en/

TACLS Content and Layout



Section 6.2
Shoulder and Arm Care

Shoulder and Arm Care

- Topics in this section
  - Shoulder structure and complex
  - Impact of a stroke on the shoulder, arm and hand
  - Preventing shoulder, arm and hand complications
  - Positioning and managing the affected shoulder, arm and hand

Key Messages: Shoulder and Arm Care

- Stroke frequently affects a person's ability to move and position their body, especially their affected arm and leg
- Proper positioning can help minimize complications such as contracture and pain and also assist people to be more independent, safe, and comfortable
- The arm should **not** be moved passively beyond 90 degrees of shoulder flexion or abduction
- The occupational therapist and physiotherapist can provide education on safe handling techniques, strategies and any recommended exercises. **Never** complete exercises on an affected shoulder unless they are prescribed by the physiotherapist or occupational therapist
- There are many different pieces of equipment that may be prescribed to provide arm and hand support. Ensure any equipment is used according to the care plan. Ask for education and assistance from the stroke care team as needed to ensure correct use
- Only use a sling if recommended by an occupational therapist or physiotherapist and it is part of the current care plan

Best Practice Recommendations

Prevention of Hemiplegic Shoulder Pain and Subluxation

- Joint protection strategies should be applied during the **early or flaccid stage of recovery** to prevent or minimize shoulder pain and injury. These include:
  - Positioning and supporting the arm during rest
  - Protecting and supporting the arm during functional mobility; avoid pulling on the affected arm
  - Protecting and supporting the arm during wheelchair use; examples include using a hemi-tray, arm trough, or pillow
  - The use of slings should be discouraged with the exception of the flaccid stage given it may discourage arm use, inhibit arm swing, contribute to contracture formation, and decrease body image
- Overhead pulleys should not be used
- The arm should not be moved passively beyond 90 degrees of shoulder flexion or abduction, unless the scapula is upwardly rotated and the humerus is laterally rotated
- Healthcare staff, patients and family should be educated to correctly protect, position, and handle the involved arm
  - For example, careful positioning and supporting the arm during assisted moves such as transfers; avoid pulling on the affected arm

Canadian Stroke Best Practice Recommendations, *Stroke Rehabilitation and Recovery following Stroke*, 6th edition, section 5.3

Best Practice Recommendations

Management of Hemiplegic Shoulder Pain

- Treatments for hemiplegic shoulder pain related to limitations in range of motion may include gentle stretching and mobilization techniques, and typically involves increasing external rotation and abduction.
- Taping of the affected shoulder has been shown to reduce pain
- If there are no contraindications, analgesics (such as ibuprofen or narcotics) can be considered for pain relief on an individual case basis

Hand Edema

- There is insufficient evidence for or against compression garments, e.g. compression gloves

Note: Always work within your scope and consult the care plan and the stroke care team with any questions regarding various interventions and any impact that it may have to your role. Always seek medical advice regarding medication use to manage pain.

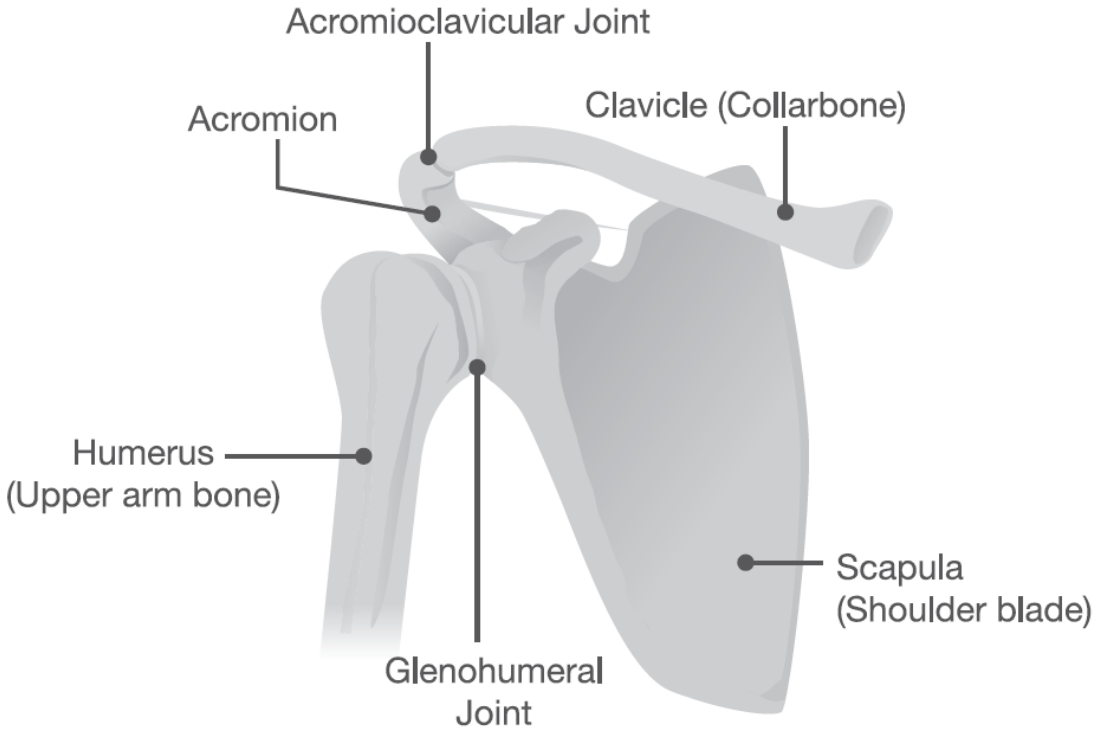
Canadian Stroke Best Practice Recommendations, *Stroke Rehabilitation and Recovery following Stroke*, 6th edition, section 5.3

Your Role as a Healthcare Provider

- A shoulder that is affected by stroke can be injured more easily than the unaffected shoulder, so it is important for you to know how to correctly position, handle and manage the affected shoulder, arm and hand
- Safe positioning and handling techniques must be used during all aspects of care (e.g., during bed mobility, transfers, dressing, bathing and mobilizing) to try and prevent subluxation, injury and pain. The therapy team can provide education and strategies to support the person during care activities
- Follow the care plan and ensure any prescribed equipment is used correctly

Shoulder Complex

- The shoulder complex consists of 3 bones (scapula, humerus and clavicle) and 2 joints (glenohumeral and acromioclavicular) that allow the arm move in many directions
- Because of the multiple bones and muscle attachments as well as the influence of gravity, it is not as stable as other joints in the body. This places the joint at greater risk of complications such as subluxation due to muscle weakness or pain due to impingement (pinching of soft tissue in the joint)



Shoulder Structure

- The shoulder complex is supported by muscles and ligaments
- Muscles affected by stroke may no longer hold the shoulder joint in alignment (in the correct position), leading to subluxation
- When poor alignment occurs, movement is affected, and pain can occur
- There is also a higher risk of injury to the shoulder if not properly supported

Shoulder and Stroke

- A shoulder that is affected by stroke can be injured more easily than the unaffected shoulder
- Make sure you know the correct techniques and strategies to handle a shoulder affected by stroke
- **A physiotherapist and occupational therapist can teach you safe exercises and ways to position and move the affected shoulder and arm**

Care for the Affected Shoulder

- **Never** complete exercises on an affected shoulder unless they are prescribed by the physiotherapist or occupational therapist
- Improper movement may lead to further damage, pain, and loss of function

Flaccid or Low-Tone Shoulder and Arm

- A flaccid or *low-tone shoulder and arm* feels heavy and limp
- The effects of a stroke can reduce the strength and tone of the muscles supporting the shoulder complex
- The limb must **always be handled carefully** to avoid injury to the joints, muscles and ligaments. Pain can result if a flaccid limb is mishandled in any position
- The arm should **not** be moved passively beyond 90 degrees of shoulder flexion or abduction, unless the scapula is upwardly rotated and the humerus is laterally rotated
  - Do not complete this type of movement prior to checking with the occupational therapist or physiotherapist. You may require training to do so safely
  - E.g., Do not raise the arm above the person's head when cleaning the underarms or putting on a shirt
- Never move the arm in any range that is painful
- The occupational therapist and physiotherapist can provide education on how to properly protect, position and handle the affected arm. They can also provide education regarding joint protection strategies

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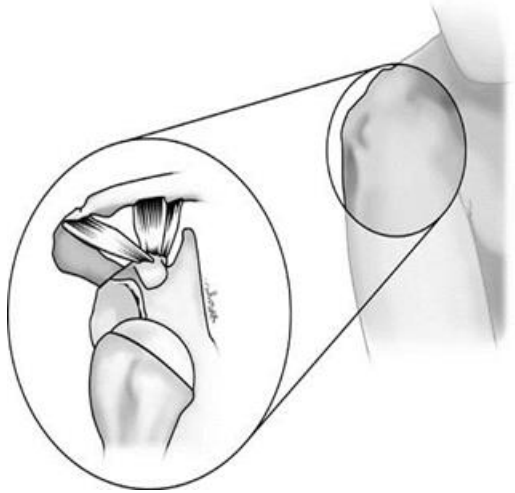
Flaccid or Low-Tone Shoulder and Arm

- Joint protection strategies include:
  - Position and support the arm during rest
    - For example, when lying in bed or sitting in a chair
  - Protect and support the arm during functional mobility and always avoid pulling on the affected arm
    - For example, when standing, walking, transferring or assisting with personal care
  - Protect and support the arm during wheelchair use
    - For example, using a hemi-tray, arm trough, or pillow
    - An occupational therapist will prescribe equipment as indicated; always follow the care plan
  - The use of slings should be discouraged except for the flaccid stage as it may discourage arm use, inhibit arm swing, contribute to contracture formation, and decrease body image
    - The occupational therapist or physiotherapist will prescribe a sling if indicated

Canadian Stroke Best Practice Recommendations, *Stroke Rehabilitation and Recovery following Stroke*, 6th edition, section 5.3

Subluxation

- It is crucial to protect and support the arm during all functional movements, and to always avoid pulling on the affected arm
- Gravity and improper handling and positioning can drag the head (top) of the humerus (the long bone in the arm that extends from the shoulder to the elbow) down, overstretching the weakened muscles and ligaments
- This movement may cause the shoulder to move out of alignment (position)
- It may even cause a subluxation (partial dislocation) of the shoulder
- A subluxed shoulder has a noticeable gap between the ball and socket of the glenohumeral joint
- Safe positioning and handling techniques must be used during all aspects of care (e.g., during bed mobility, transfers, dressing, bathing and mobilizing), to try and prevent subluxation, injury and pain. The therapy team can provide strategies as needed



Shoulder Pain

- Subluxation can stretch the muscles and ligaments of the shoulder even further
- Excessive muscle and ligament stretching may cause a constant dull pain, often described as being similar to a toothache
- Sometimes severe pain can result from mishandling the affected arm
- The occupational therapist and physiotherapist may provide education to the caregiving team on gentle stretching and mobilization techniques to assist with pain management. If this is part of your role, consult with the therapy team and ensure you understand how to assist with these exercises
- The occupational therapist and physiotherapist may tape the affected shoulder to help manage pain. Consult with the therapy team regarding any impact that this may have to care and your role

Arm Supports

- A sling is sometimes prescribed to support the flaccid (low-tone) arm when standing, walking, or transferring
- Only use a sling if recommended by an occupational therapist or physiotherapist and is part of the person's care plan
  - E.g., use a sling for the transfer if recommended and remove after the transfer. Continue to support the arm as recommended in the care plan
- The use of slings should be discouraged with the exception of the flaccid stage given it may discourage arm use, inhibit arm swing, contribute to contracture formation, and decrease body image.
- Alternate strategies to support the arm during standing, walking or transfers may be suggested based on individual assessment from the therapy team
- Consult with the stroke care team if you are unsure how to safely help a person who has a flaccid or low tone arm

Sling

- A sling can reduce arm swing during walking and affect balance which can increase the risk of falls
- A therapist may prescribe a sling on an individual basis to provide temporary support and/or pain relief
- Several different types of slings are available
- If a sling is prescribed by a rehabilitation therapist, ensure you are familiar with the correct way to put on and take off the sling and ensure it is worn according to the care plan
- Always consult with the stroke care team if you have any questions

Arm Trough

- An arm trough is a modified armrest on a wheelchair that can support a flaccid (low-tone) arm
- These supports may swivel to let the arm rest in a more natural position
- It is important to monitor use of the arm trough
- An occupational therapist will add an arm trough if indicated and add it to the care plan

Supporting the Arm

- Strapping the arm to the arm trough is not typically recommended due to the possibility of impingement of soft tissues at the shoulder
- However, the arm may also be at risk of trauma due to “falling off” the arm trough
- Careful observation and communication with the appropriate therapist is important

Lap Tray

- A full or half **lap tray** supports the affected arm when the person is in a wheelchair. It is easier to see the arm and allows the person to handle and move the affected arm with the unaffected hand
- The occupational therapist will ensure that the wheelchair armrests and lap tray are at the correct height

Arm Wedge

- An **arm wedge** is sometimes used to support an affected arm and reduce swelling
- Placing an arm wedge on a lap tray positions the wrist higher than the elbow in a neutral position. An occupational therapist may recommend this for management of hand swelling
- If used, ensure the arm wedge is positioned according to the therapist's instructions

How You Can Help - Individualized Care

- Know the techniques and strategies for movement and positioning that are specified in the person's care plan
  - They can help prevent injury, pain and further loss of function. If you are unsure, ask the stroke care team to show you the correct way to move or position an affected arm
- Follow the positioning pictures in the care plan
- During the flaccid stage of recovery, the arm and hand must be handled carefully to prevent painful over-stretching of the muscles and ligaments and shoulder injury

How You Can Help - Gentle Support

- Support and move the affected arm gently
  - Position and support the arm during rest
  - Use a pillow, lap tray, or wheelchair arm trough when the person is sitting, if this is prescribed in the care plan
  - Support the affected arm while moving the person and during all functional activities. For example: during bathing, dressing, transferring, walking
  - Do not pull on the arm when you are moving the person in bed, or helping them transfer, walk or move. Pulling can cause pain and shoulder damage
  - Ensure you follow the care plan carefully if slings or other arm support (positioning) devices are recommended to ensure you are using them correctly
- The occupational therapist and physiotherapist will recommend ways to safely move, position and avoid risk of injury to a flaccid arm or leg. All healthcare staff, patients and families should be educated to correctly protect, position and handle the involved arm

High-Tone Shoulder

- Spasticity or increased muscle tone may develop in the weeks or months after a stroke
- The arm will feel stiff and become more difficult to move through a normal range. The increase in tone is typically seen in the flexor muscles, as shown in the diagram. Spasticity can pull the upper arm towards the chest wall
- Spasticity can be painful and interfere with functional recovery. If not managed appropriately, people may experience a loss of range of movement at involved joints of the arm, which can result in contractures and decreased quality of life
- Positioning, range of motion exercises and stretches may be recommended by an occupational therapist or physiotherapist

Best Practice Recommendations

Upper Extremity:

- **Spasticity** and contractures may be managed by antispastic pattern positioning, range-of motion exercises, and/or stretching
  - Routine use of splints is not recommended
  - In some select patients, the use of splints may be useful and should be considered on an individualized basis. A plan for monitoring the splint for effectiveness should be implemented and followed
- Chemo-denervation using botulinum toxin can be used to increase range of motion and decrease pain for patients with focal symptomatically distressing spasticity
- Oral medications can be considered for the treatment of disabling spasticity, however, side effects of fatigue and drowsiness are common and benefits for treating spasticity tend to be marginal

Note: Always work within your scope and consult the care plan and the stroke care team with any questions regarding various interventions and any impact that it may have to your role

Canadian Stroke Best Practice Recommendations, *Stroke Rehabilitation and Recovery following Stroke*, 6th edition, sections 5.2

Managing the High-Tone Shoulder

- If a person has spasticity in the shoulder and/or hand muscles, it may be:
  - Difficult for you to move and manage the arm, for example, when assisting with a transfer, washing or dressing
  - Hard to wash and dry the arm and hand
  - Painful for the person
- The occupational therapist or physiotherapist will recommend ways to safely move, position and minimize pain during daily activities. All healthcare staff, patients and families should be educated to correctly protect, position and handle the affected arm
- Using proper strategies can help prevent or minimize difficulties

Support the High-Tone Shoulder

- Support and align the arm properly to reduce muscle imbalance and pain
- Use pillows or towels to improve arm positioning in bed
- Support the arm on a pillow, a wheelchair lap tray or arm trough when the person is sitting

How You Can Help

- Report pain to the occupational therapist or physiotherapist for follow up
- Strategies to manage spasticity including gentle handling, positioning, range of motion exercises and/or stretches **may be prescribed by an occupational therapist or physiotherapist**
- Never perform exercises unless they are approved by the occupational therapist or physiotherapist on your team, they are part of the care plan and you have received training

The Affected Hand

- A low-toned hand, lack of active movement and/or sensation can contribute to:
  - Swelling
  - Positioning challenges
- These impairments can then lead to:
  - Pain
  - Joint tightness
  - Skin breakdown

Compression Glove

- A therapist will sometimes prescribe a **compression glove** as a measure to reduce swelling of the affected hand
  - Please see the TACLS section 4.6 *Pain* for additional information on hand swelling/ hand edema
- Compression gloves need to be professionally measured
- Compression gloves need to be monitored regularly and worn only according to the care plan
- Skin should be monitored frequently (e.g., looking for changes in colour or skin irritation). Consult with the occupational therapist for more details and report any concerns immediately

Note, there is insufficient evidence for or against compression garments. They should only be used if prescribed by the stroke care team

Canadian Stroke Best Practice Recommendations, *Stroke Rehabilitation and Recovery following Stroke*, 6th edition, section 5.3

Managing the Affected Hand

- An affected hand may develop spasticity or high-tone
- Gentle, slow movement is important with a spastic or high-tone (contracted) hand
- The hand should never be forced open
- Using quick movements to open a tight hand may lead to increased muscle tightness
- Routine use of splints is not recommended however, an occupational therapist may fit a person with a splint in some situations
  - It may be used to position the wrist and hand in a neutral position and prevent excessive wrist and finger flexion
  - Only use the splint as directed in the care plan. A plan for monitoring the splint for effectiveness should be implemented and followed

Opening a Hand with Spasticity

- **Opening a hand with spasticity can be difficult. Consult with the occupational therapist for training and strategies on how to open a tight hand**
- Quick movements of the wrist, fingers and thumb may increase the spasticity; always use slow and gentle movements
- Position the shoulder and arm forward
- Support the person's wrist and forearm; avoid pulling on the affected shoulder
- Gently turn the forearm so that the palm is facing up
- Spasticity can increase with pressure to the palm of the hand; avoid this if possible

Opening a Hand with Spasticity

- **Opening a hand with spasticity can be difficult. Consult with the occupational therapist for training and strategies on how to open a tight hand**
- Ease the hand open
  - With your fingertips on the large muscles of the person's thumb, gently attempt to move the thumb out of the palm of the hand
  - Sometimes gently straightening the affected thumb helps relax the fingers
  - With your fingertips touching the person's fingertips, gently pull the fingers into a position of extension (straight)
  - Gently bend the wrist into flexion (forward) as this may help to relax the hand and allow the thumb and fingers to be more easily straightened

How You Can Help

- Always be aware of the affected hand
  - Follow the therapist's instructions to mobilize the hand and manage pain and swelling
  - Report changes in pain, swelling or function to the team
- To reduce swelling, support the arm on pillows, lap tray or arm trough when the person is sitting
  - Place the arm with the hand in front and fingers opened
  - Only use a sling when it has been prescribed

How You Can Help

- Use a foam arm wedge, pillows, or other arm supports to raise the hand and support the wrist if they have been prescribed
- Encourage the person to use their unaffected hand to gently open the fingers of the affected hand and place the hand on the support surface
- Use hand splints only as prescribed by the occupational therapist

Case Example

Case Example

- Abdul had a stroke that affected his left side
- He has a flaccid (low tone) left arm and is not able to move it
- He is not able to walk and uses a wheelchair to move around
- When he is in his wheelchair, he tries to keep his arm in his lap, but it keeps sliding down between his legs and drags his left shoulder down

This is an example where positioning and support for the affected side would be very important

Case Example

- The occupational therapist has recommended an arm trough to support his left arm and hand
- It is important for everyone working with Abdul to check the care plan and ensure that they know how to position his arm is correctly in the arm trough
- Healthcare workers can remind Abdul to make sure that his arm is correctly positioned on the arm trough
- The healthcare providers must advise their healthcare team immediately if Abdul is having any difficulty keeping his arm positioned on the arm trough

Quiz

Case Example: Test Your Knowledge

1. True or false: The best source of information about how to move, position, and support Abdul's shoulder and arm is his care plan.
2. Which of the following may be useful to support Abdul's arm while he is in his wheelchair?
    a. Pillow
    b. Compression glove
    c. Sling
    d. Lap tray
    e. Arm trough
    f. Arm wedge

Test Your Knowledge

3. When managing the affected hand, which of the following strategies are appropriate?
    a. Never force the hand open
    b. Position the hand with the fingers opened and supported on a lap tray or arm trough when sitting, and use a foam wedge to raise the hand and further support the wrist if swelling is an issue
    c. All of the above

Conclusion

- More information regarding stroke and stroke care can be found at **www.strokebestpractices.ca**

- For additional resources visit: **https://www.strokebestpractices.ca/resources/professional-resources**

- Questions and comments can be sent to **strokebestpractices@heartandstroke.ca**

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