

# TAKING ACTION FOR OPTIMAL COMMUNITY AND LONG-TERM STROKE CARE

*A Resource for Healthcare Providers*

Chapter 3 - Body Function (Physical)

Updated November 2015



HEART & STROKE  
FOUNDATION

CANADIAN  
**Stroke**  
BEST PRACTICE  
RECOMMENDATIONS

# OVERVIEW



The goal of **Taking Action for Optimal Community and Long-Term Stroke Care (TACLS)** is to provide information to support healthcare providers as they work together with people who have had a stroke to help them achieve optimal outcomes, regain their best level of functioning, and live meaningful lives.

## SCOPE

This resource provides guidance and information to healthcare providers about how to care for people who have had a stroke who are living in community settings, such as their own home, a rehabilitation centre, a long-term care setting, or other community facility.

The care described in this resource is applicable throughout recovery and resuming activities of daily life, a process that may continue for months and years after a stroke has occurred. It focuses on the care needed after the hyperacute (generally the hours immediately following the stroke) and acute phases (usually the first week following the stroke) have passed. Information on caring for people in the hyperacute and acute phases of stroke can be found in other resources developed by the Heart and Stroke Foundation of Canada, available at [www.strokebestpractices.ca](http://www.strokebestpractices.ca).

The layout of this resource follows the International Classification of Functioning, Disability and Health (ICF), the World Health Organization's framework for measuring health and disability. The ICF provides a standard language and framework to talk about functioning, disability, and health, using four domains: Body Structures, Body Functions, Activities and Participation, and Environmental Factors. This document is structured around the first three, with environmental factors being integrated throughout rather than addressed in a separate section.

This resource updates and replaces *Tips and Tools for Every Day Living: a Guide for Caregivers*. It includes updated information on specific areas of caring for people who have had a stroke, and more closely links to the Heart and Stroke Foundation's Canadian Stroke Best Practice Recommendations.

## TARGET AUDIENCE

This resource is written primarily for healthcare providers such as Personal Support Workers, Health Care Aides, Home Care Attendants, Rehabilitation Assistants, and others who are providing paid care, in any setting across the continuum of care, to people who have had a stroke. The focus is on rehabilitation and recovery.

Other healthcare professionals working with people who have had a stroke and their families may also find the content helpful. They may also wish to read *Taking Action Towards Optimal Stroke Care: An Overview*, *Taking Action in Stroke Prevention: A Quick Response Guide*, and *Taking Action Towards Acute Inpatient Stroke Care*, all available from the Heart and Stroke Foundation Canadian Stroke Best Practices at [www.strokebestpractices.ca](http://www.strokebestpractices.ca).

Caregivers, family members, and friends who provide informal support and care may find this resource useful. They may also wish to read *Your Stroke Journey: A Guide for People Living with Stroke* and *Taking Charge of Your Stroke Recovery: A Survivor's Guide to the Canadian Stroke Best Practice Recommendations*, available from the Heart and Stroke Foundation at [www.strokebestpractices.ca](http://www.strokebestpractices.ca)

## CANADIAN STROKE BEST PRACTICE RECOMMENDATIONS

The information in this resource is based on the Canadian Stroke Best Practice Recommendations, which outline the best ways to prevent, diagnose, treat, and care for people who have had a stroke. The recommendations are developed and updated every 2-3 years under the leadership of the Heart and Stroke Foundation of Canada. Canadian healthcare professionals from many disciplines with expertise in stroke care review current research, evidence, and information from Canada and around the world to create the best practice recommendations.

The best practice recommendations represent the gold standard in stroke care. Meeting all of the recommendations is a challenge; however, they serve as goals that healthcare professionals and healthcare systems can strive toward in a spirit of continuous quality improvement.

Following the best practice recommendations narrows the gap between what is known about the best ways to treat stroke (evidence) and how stroke care is actually delivered on a daily basis (practice). Ultimately, implementing stroke best practices decreases the impact of stroke on individuals, families, communities, and the healthcare system.

Some of the best practice recommendations are included in this resource. The full content can be found at [www.strokebestpractices.ca](http://www.strokebestpractices.ca). In addition to the recommendations, the website also includes information on the types of services that should be available for people who have had a stroke; ways to measure how well stroke care is being delivered; and lists of tools, checklists and questionnaires that can be used to guide care for people who have had a stroke.

## 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.

## THANK YOU

The Heart and Stroke Foundation of Canada acknowledges and thanks the dedicated group of healthcare professionals who gave their time, energy, and expertise to write and review this resource. Their commitment to improving stroke care in Canada represents interprofessional collaboration at its best. We also thank the many thousands of healthcare providers, family members, and caregivers who provide invaluable assistance to people who have had a stroke.

# CHAPTER 3

## Body Function (Physical)

Body function refers to physiological functions of body systems (WHO, ICF 2001).

It includes all areas of care that help people recover and manage mobility, nutrition, self-care and personal hygiene, sensory functions, pain, emotions, thinking, and memory.

### IN THIS CHAPTER

- 3.1 Movement and Motor Recovery
- 3.2 Nutrition and Swallowing
- 3.3 Hydration
- 3.4 Bladder and Bowel Control
- 3.5 Skin Integrity



# 3.1 Movement and Motor Recovery



## IN THIS SECTION

- Factors affecting movement after a stroke
- Using the affected limbs in recovery

## YOUR ROLE AS A HEALTHCARE PROVIDER

Stroke frequently affects a person’s ability to move parts of their body, as well as to move around safely in their environment. Limitations in these areas can be frustrating and confining. There are many techniques to help a person who has had a stroke move without causing further injury or pain, as well as improve their ability to move safely on their own. By being aware of the typical changes in movement that occur after a stroke you can help the person be safer, more comfortable, and more independent. You need to use proper positioning and safe transfer techniques, and provide support as they adjust to the changes.

## FACTORS AFFECTING MOVEMENT AFTER A STROKE

There are many factors that affect how well a person can move after a stroke. First, the stroke itself often affects motor function (the ability to move parts of the body), usually on the opposite side from where the stroke occurred (i.e., a left brain stroke can affect motor function on the right side of the body). Brain stem stroke can affect motor function on both sides of the body.

In addition, the following effects of a stroke can make movement more difficult.

## FATIGUE

Healing the brain and relearning the tasks of daily living take a great deal of energy. People who have had a stroke often feel very tired, especially during their initial recovery. Some fatigue is a normal part of stroke recovery. Even simple tasks may be exhausting. Being so tired all the time can lead to frustration, sadness, and anger. The rehabilitation specialists are able to suggest ways that the person can save their energy, so they can better manage fatigue and participate in recovery. Severe and persistent fatigue is a serious issue that should be reported to the stroke care team.

## BEST PRACTICE RECOMMENDATION

**Post-stroke fatigue is a common condition, and can be experienced after TIA and stroke at any point during the recovery process. Post-stroke fatigue is often under-recognized; thus healthcare professionals should anticipate the possibility of post-stroke fatigue, and prepare patients and families to mitigate fatigue through assessment, education, and interventions at any point during the stroke-recovery continuum.**

## LOSS OF SENSATION

Sensation means being able to feel, be aware of touch and temperature, and know where the body is in space. A person who has had a stroke may have limited or no sensation in the part of the body affected by the stroke.\*

## CHANGES IN MUSCLE TONE (SPASTICITY OR FLACCIDITY)

Muscle tone is the slight tension always present in normal muscle, even when the muscle is at rest. Normal muscle tone stops muscles from being pulled down by gravity. Stroke can cause muscles to become low tone (flaccid) or high tone (spastic) leading to movement and mobility problems.

- **Flaccidity:** A flaccid or low-tone limb appears heavy and limp. It must be handled carefully at all times (lying down, sitting, standing, and when transferring), to prevent joint and soft tissue injury and pain. The occupational therapist or physiotherapist can recommend ways to safely position and manage a flaccid limb.
- **Spasticity:** A spastic or high-tone limb appears stiff or tense. Careful and gentle handling and positioning, as well as doing prescribed range of motion exercises and stretching can help prevent spasticity from getting worse. Spasticity can cause muscle contractures or shortening of the muscles, and reduce the **range of motion** (how far a person's joints can be moved in different directions) in a joint. Splints are sometimes prescribed to provide a prolonged stretch to tight muscles and soft tissues. Splints should always be worn according to the schedule provided and skin should be checked regularly for irritation or breakdown.

## BEST PRACTICE RECOMMENDATION

**Spasticity and contractures can be prevented or treated 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.**



\* Refer to Section 4.5 for more information on sensory loss.

## CHANGES IN MUSCLE STRENGTH

Muscle strength can be affected by stroke. Muscle groups in the trunk and in the arm and leg on the side of the body affected by the stroke can have decreased strength after a stroke. This can lead to difficulty moving around and completing activities of daily living and/or a painful shoulder. Because certain arm and leg movement patterns are common after a stroke, therapists often work with stroke survivors to strengthen weakened muscles and help the person return to more normal and functional movement.

## POOR BALANCE

Problems with sensation, motor control, and vision can affect balance, whether sitting or standing, and increase the risk of falls. Therapists will often evaluate the person who has had a stroke in their home and community environments and recommend modifications and/or equipment to minimize the risk of falls.

## BEST PRACTICE RECOMMENDATION

**Based on risk assessment findings, an individualized falls prevention plan should be implemented for each patient.**

## IMPROPER POSTURE

Proper standing posture means that the shoulders, hips, and feet are vertically aligned, with the head upright in the middle. Stroke may cause people to put more weight on the unaffected side. This can cause the affected shoulder (**shoulder girdle**) and hip (**pelvic girdle**) to become misaligned, and this asymmetrical or uneven posture may lead to muscle tightness, pain, and difficulties with movement.

## PERCEPTUAL PROBLEMS

Changes in perception may affect mobility and make it harder to move around safely. Changes in perception caused by stroke include:

- Visual neglect (decreased awareness of the environment on the side of the body affected by stroke)
- Body neglect (decreased awareness of the body on the side affected by stroke)
- Apraxia (difficulty planning and carrying out purposeful movements, even when the person has normal movement required to perform the task)
- Impaired depth and distance perception, often a result of double vision or partial loss of vision in one or both eyes
- Visual field loss (being unable to see the full scope of what is in front and to the side)\*

\* Refer to 4.1 for more information about vision and visual perception impairments caused by stroke.

## USING THE AFFECTED LIMBS IN RECOVERY

Although recovery is often greatest in the first several months following a stroke, recovery from impairment and the resulting improvements in function and participation can go on for years. Our understanding of neuroplasticity, the brain's ability to reorganize by forming new neural connections, has led to more treatment options to promote optimal recovery. Intense practice of relevant and challenging tasks has been shown to affect neuroplasticity and improve functional recovery.

To promote recovery, people who have had a stroke are encouraged to incorporate their affected limbs into daily activities as soon as possible. Even small movements can be used to help accomplish tasks. There was a time when people who had a stroke were encouraged to use their stronger arm to complete tasks; however, it has been found that this does not encourage positive brain changes and in fact can interfere with learning new skills and improving function. For this reason, ongoing intense, goal-directed therapy is very important in the early months and should be practiced daily. Therapists often work with the person who has had a stroke to develop a home program of challenging tasks and activities that should be completed daily.

## KEY MESSAGES OF MOVEMENT AND MOTOR RECOVERY

- ❑ **Know how stroke** affects a person's ability to move.
- ❑ **Make your safety** and theirs a priority. Use proper positioning and safe transfer techniques.
- ❑ **Provide support** as people who have had a stroke adjust to the changes.
- ❑ **Motor recovery takes energy**; ensure people who have had a stroke balance exercise and rest periods.
- ❑ **Provide assistance** with the goal of helping the person who has had a stroke regain as much independence as possible.
- ❑ **Stroke recovery** happens over many months, and in some cases years.





## 3.2 Nutrition and Swallowing



### IN THIS SECTION

- Eating and swallowing problems
- Dysphagia
- Oral hygiene
- Adapting food textures and special diets
- Assistive devices

### YOUR ROLE AS A HEALTHCARE PROVIDER

Eating and drinking are necessary and pleasurable parts of life. Stroke can leave people unable to feed themselves or swallow food or liquid safely. Food textures often need to be modified. You play a critical role in helping people eat and drink enough to stay healthy, avoid the dangers caused by swallowing problems, and enjoy their meals.

### EATING AND SWALLOWING PROBLEMS

**Eating:** A stroke can interfere with getting food from the plate to the mouth in a number of ways. The person's arm and hand movement may be affected, the cognitive abilities that help them know how to chew and swallow may be affected, or they may not see some of the food on their plate due to neglect. Also, stroke can change how food smells or tastes to the person. All of these can make mealtimes challenging, frustrating, and less enjoyable.

**Swallowing:** Swallowing requires the coordination of many muscles to move food and liquid through the mouth, throat, and esophagus to the stomach. A stroke can affect these muscles, resulting in dysphagia (difficulty swallowing). Decreased alertness and attention from a stroke may further impact the ability to swallow safely.

Some effects on these muscles are easy to see, such as weakness in facial muscles and drooling. Other effects may be invisible and unrecognized. These include lack of a cough reflex when food or liquid enters the airway (silent aspiration), or preventing food from moving quickly through the esophagus into the stomach.

### DYSPHAGIA

People who have had a stroke will have their swallowing abilities assessed by a member of the team. This could be the speech-language pathologist, occupational therapist, dietitian, nursing assistant, or a healthcare support worker.

### COMMONLY OBSERVED SIGNS AND SYMPTOMS

- Coughing, throat clearing, or choking during or after meals
- Shortness of breath
- Difficulty moving food to start the swallow
- Drooling
- Poor lip closure, loss of food from mouth
- Altered voice quality, such as a wet, gurgling, or weak voice

- Watery eyes or runny nose when eating or drinking
- Spitting food out
- Pocketing food in cheeks, under the tongue or the side of the mouth
- Slow, effortful chewing
- Rapid, uncontrolled eating

Additionally, the person may report:

- A tight throat
- Food sticking in their throat or chest
- Difficulty swallowing solids
- Reflux or heartburn
- Feeling full after eating very little
- Feeling anxious about mealtimes

Carefully monitor the person for any of these signs and symptoms. If you observe them, talk to your team for advice and strategies. If a person's condition and swallowing abilities change at any time, they should be screened and possibly re-assessed by team members with expertise in dysphagia management.

## CONSEQUENCES OF DYSPHAGIA

Dysphagia often stops people who have had a stroke from getting enough nourishment, especially during early recovery, and may lead them to avoid mealtimes.

**Dehydration:** Not drinking enough fluid can result in dehydration. Dehydration can cause dry mouth, constipation, urinary tract infection, confusion, severe illness, or even death. It can make some swallowing difficulties even more difficult to manage.

**Malnutrition:** Not eating enough can result in malnutrition, weight loss, reduced energy, skin breakdown, impaired wound healing, and lower resistance to infection.

**Aspiration:** The entry of saliva, food, liquid, or refluxed stomach contents (stomach contents coming back up) into the airway can cause respiratory problems, and pneumonia.

**Choking:** A piece of food may become lodged in the airway, making it difficult or impossible to breathe.

**Impaired quality of life:** Eating is often a social activity. Swallowing and eating problems can make the person reluctant to eat with a group. This can increase social isolation and decrease their quality of life. Changes in taste and smell can also affect the person's enjoyment of food.

Other consequences of dysphagia may include:

- Spikes in temperature shortly after meals
- Dry mouth
- Weight loss or weight gain due to malnutrition
- Respiratory infections
- Poor air intake or weak cough
- Chronic heartburn

## HOW YOU CAN HELP



### Always use proper positioning

- Get the person out of bed to eat whenever possible.
- Seat the person upright in a wheelchair or straight-backed chair.
- Position someone who is unable to get out of bed at 60 to 90 degrees, and stabilize them with pillows.
- Keep the head in the midline and flexed forward slightly.
- Encourage them to stay upright for 30 minutes after meals, or elevate the head of the bed 30 degrees, to prevent reflux.

### Reduce distractions

- If the person is easily distracted, remove all non-essential items from the table or tray, avoid busy dining rooms, and present one food at a time.
- Serve meals in a quiet environment. For example, turn off the television or radio, minimize conversation, and discourage them from talking with food in their mouth.
- Encourage visitors to come outside of mealtimes.
- Have the person take medications before and after meals, rather than during.

### Monitor feeding rate and amount

- Provide small, frequent meals.
- Feed small amounts using a teaspoon or even a half teaspoon, not a tablespoon.
- Encourage them to swallow twice. To check for a complete swallow, watch for laryngeal elevation, which is the movement of the Adam's apple up and down.
- Ensure the mouth is clear before introducing more food.
- Cue them to the whole plate or tray if they have neglect or tend to miss food.
- Encourage them to eat slowly, and never rush them.

### Teach the person to

- Monitor self-feeding with a mirror.
- Remove pocketed food with their tongue.
- Be aware of drooling and use a napkin if necessary.
- Cough to clear the throat.
- Wear loose-fitting clothes and avoid tight belts, to avoid reflux.

## ORAL HYGIENE

Poor oral hygiene, dental problems such as loose or decayed teeth, and poorly fitting dentures can cause problems with eating and swallowing safely.

A clean mouth and teeth are essential to comfort and good health. Gum disease is linked to heart disease, pneumonia, and stroke. Bacteria from diseased gums may travel through the bloodstream and cause infections. Bacteria and food particles in the mouth can be especially dangerous if aspirated into the lungs, potentially causing aspiration pneumonia.

A clean mouth and teeth are important even for people who are fed through a tube.

## BEST PRACTICE RECOMMENDATION

Patients, families and caregivers should receive education on swallowing and feeding recommendations. To reduce the risk of aspiration pneumonia, patients should be permitted and encouraged to feed themselves whenever possible. Patients should be given meticulous mouth and dental care, and educated in the need for good oral hygiene to further reduce the risk of pneumonia.

## HOW YOU CAN HELP



**Help the person practice good oral hygiene:**

- Encourage or help the person perform mouth care before and after meals
- Remove dentures after each meal so food particles can't collect and cause irritation
- Check the mouth for food debris after each meal

**At least once a day**, check that the person's mouth and tongue are pink and moist. If the mouth is dry with patchy white areas, or the tongue is white and coated, tell your team.

**Help the person brush** their teeth, gums, and tongue using a soft toothbrush and toothpaste. Do not use oral swabs, as they do not clean the mouth properly.

**Clean dentures** when required, not just at bedtime. Remove and soak dentures overnight. Gums and mouth tissues will be healthier when allowed to "breathe" for four to six hours every night.

**Encourage the person** to get regular dental check-ups.

## ADAPTING FOOD TEXTURES AND SPECIAL DIETS

To eat safely, stroke survivors with dysphagia often need their food textures adapted. The type of swallowing problem they have determines which food textures are safer for them. If food textures cannot be adapted sufficiently, the person may need to be fed through a tube, which can still provide them with the calories and nutrients they need. If their swallowing ability improves, they can often return to a soft or regular diet.

Many healthcare professionals (speech-language pathologists, dietitians, occupational therapists) are involved in assessing and monitoring someone's ability to chew and swallow. They also recommend safe food textures and strategies for feeding.

- A speech-language pathologist will identify the specific problems with swallowing
- A dietitian ensures that the diet texture or tube feeding meets nutrition and hydration needs
- An occupational therapist recommends seating and positioning strategies
- An occupational therapist recommends appropriate adaptive equipment



Always follow the food and diet instructions in the care plan. Never adapt a food texture or change a person's diet on your own.

### If the person should have...

<p><b>Puréed food</b></p>	<p><b>Serve:</b></p> <ul style="list-style-type: none"> <li>• Mashed and blenderized foods</li> <li>• Dense, smooth foods of pudding consistency</li> </ul>
<p><b>Minced or moist minced food</b></p>	<p><b>Serve:</b></p> <ul style="list-style-type: none"> <li>• Foods that are the texture of ground beef</li> <li>• Finely chopped foods</li> </ul>
<p><b>Thickened fluids</b></p> <p>(From thickest to thinnest: pudding, liquid honey, nectar.)</p>	<p><b>Serve:</b></p> <ul style="list-style-type: none"> <li>• Fluids thickened to the consistency specified in the care plan</li> </ul> <p>If you are not sure how thick a fluid should be, ask the person on the team who is trained in dysphagia to show you. Commercial and pre-mixed thickeners (available through pharmacies and some hospitals) can be used with hot or cold beverages. If these are recommended, follow the instructions for use on the box or can.</p>

## If the person should NOT have...

<b>Dry particulates</b>	<p><b>Avoid:</b></p> <ul style="list-style-type: none"> <li>• Dry and crumbly foods, breads, muffins, cookies</li> <li>• Peanut butter, dry crumbly cheeses</li> </ul>
<b>Bread products</b>	<p><b>Avoid:</b></p> <ul style="list-style-type: none"> <li>• Breads, cakes, pastries, and sandwiches</li> <li>• Any meals prepared with bread</li> </ul>
<b>Mixed consistencies</b>	<p><b>Avoid:</b></p> <ul style="list-style-type: none"> <li>• Foods combining liquids and solids (i.e., cereal with milk, chicken/vegetable soups, etc.)</li> </ul>
<b>Thin fluids</b>	<p><b>Avoid:</b></p> <ul style="list-style-type: none"> <li>• Water</li> <li>• Unthickened beverages</li> <li>• Broth-based soups</li> <li>• Commercial supplements</li> <li>• Ice cream, ice, cold jellied products</li> </ul>
<b>Foods that may cause reflux</b>	<p><b>Avoid:</b></p> <ul style="list-style-type: none"> <li>• Spicy, seasoned foods</li> <li>• Citrus products and other acidic foods</li> <li>• Peppermint and spearmint</li> <li>• Caffeine (e.g., coffee, tea, chocolate, cola)</li> <li>• High-fat and fried foods</li> </ul>

Other problematic foods include rice, stringy food, raisins, nuts, and seeds. If these cause chewing or swallowing difficulties, avoid them.

If the person's sense of smell or taste has been affected, but they don't have reflux or swallowing problems, you can try different spices and flavour enhancers to increase their enjoyment of food and mealtimes.



## ASSISTIVE DEVICES

An occupational therapist can recommend assistive devices for eating and swallowing problems. These might include:

- Rimmed plates
- A gripper pad to prevent dishes from slipping
- Cup or glass holders
- Modified utensils with built-up or bent handles
- Cutting utensils for one-handed use, such as a rocker knife, cheese knife, and pizza cutter
- Modified cups with a cut-out or partial lid



## BEST PRACTICE RECOMMENDATION

Stroke patients with suspected nutritional concerns, hydration deficits, dysphagia, or other comorbidities that may affect nutrition should be referred to a dietician for recommendations to meet nutrient and fluid needs orally while supporting alteration in food texture and fluid consistency recommended by a speech-language pathologist or other trained professional.

## KEY MESSAGES OF NUTRITION AND SWALLOWING

- ❑ **Know whether the person** you are working with has had a swallowing assessment and whether they have any swallowing issues.
- ❑ **Problems with swallowing** could lead to complications and interfere with recovery.
- ❑ People with dysphagia may need **foods of specific textures** for safety. They are at risk of poor nutrition and need to be carefully monitored.
- ❑ **Report any changes** in nutrition and swallowing to the stroke care team.



## 3.3 Hydration



### IN THIS SECTION

- Daily fluid requirements
- Dehydration
- Hydration and urinary incontinence

### YOUR ROLE AS A HEALTHCARE PROVIDER

Water is critical to life. Dehydration occurs when the body loses more fluid than it takes in. You play a key role in making sure the person who has had a stroke drinks enough to stay healthy, and letting the team know right away if you notice signs of dehydration.

### DAILY FLUID REQUIREMENTS

The average adult can live for weeks without food, but only a few days without water.

We all need at least six to eight cups of fluids daily to stay hydrated. The amount of fluid the person who has had a stroke needs should be specified in the care plan. This chart shows equivalent amounts in ounces, litres (L), and millilitres (mLs):

Measure	Amount	
Cups	6	8
Ounces	48	64
Litres	1.5	2
Millilitres	1500	2000

Types of fluids include:

- Beverages such as water, juices, and milk
- Frozen liquids such as a popsicle or frozen juice bar
- Some foods, such as jellied desserts, pudding, ice cream, soup, and canned fruit

This chart gives examples of the amount of fluid in some common foods:

Food	Serving Size	Fluid content
Jellied dessert	½ cup	120 mL
Pudding	½ cup	100 mL
Ice cream or sherbet	½ cup	120 mL
Popsicle	1 popsicle	90 mL
Yogurt	½ cup	90 mL
Canned Fruit	½ cup	100 mL
Soup	1½ cups	165 mL
<b>Simple conversion for daily fluid requirement</b>		
1 cup = 250 mL	½ cup = 125 mL	



## DEHYDRATION

Dehydration can quickly become life-threatening. When people are dehydrated they may lose physical, mental, and cognitive function. It also increases their risk of infection, constipation and fecal impaction, and urinary tract infection.

Stroke survivors with swallowing problems may avoid drinking fluids for fear of choking. Those who worry about incontinence may drink less to try to prevent accidents.

People who have had a stroke are more likely to become dehydrated if they:

- Are on a thickened fluid diet and do not take all the fluids provided
- Have swallowing difficulties known as dysphagia
- Refuse fluids at meals or snacks
- Need help with eating and drinking
- Do not feel thirsty (this is common among older adults)
- Are unable to communicate that they are thirsty
- Have memory problems or are forgetful
- Have an illness that increases fluid loss, such as vomiting, diarrhea, or fever and sweating, so that their fluid loss becomes greater than their intake

## SIGNS OF DEHYDRATION

Report any of these signs to the nurse.

- Decreased urine output
- Dark, concentrated, or strong-smelling urine
- Frequent urinary tract or bladder infections
- Thick, stringy saliva
- Constipation
- Dizziness when sitting up or standing
- Confusion or a change in mental status
- Weight loss of 3.5 pounds (1.5 kg) in less than seven days
- Fever and sweating
- Decreased skin elasticity (To check, gently pinch the skin on the person's hand. If it stays pinched up when you release it, the person may be dehydrated.)



## HYDRATION AND URINARY INCONTINENCE

Some people with urinary incontinence believe if they drink less they won't need to urinate as often. The reverse is actually true.

Low fluid intake decreases urine production. This results in concentrated dark urine that irritates the bladder lining. As a result, the person needs to release small amounts more often.

Adequate fluid intake flushes the bladder and helps prevent bladder irritation and urinary tract infection. A hydrated person has clear, light yellow urine. Cloudy, smelly urine is usually a sign of inadequate fluid intake, not a urinary tract infection.

In addition, normal, healthy bowel function depends on adequate fluid intake. The normal frequency of bowel movements is anywhere from three times a day to three times a week. Low fluid consumption can result in hard stools that are difficult to pass.\*

### HOW YOU CAN HELP



- Try to ensure the person gets the amount of fluid specified in the care plan by giving frequent, gentle reminders to drink. (If no amount is specified, aim for six to eight cups a day.)
- Water is the preferred fluid, but you can offer a variety such as juices, popsicles, and puddings. Ask what the person's favorite fluids are and make them available.
- Encourage them to sip fluids throughout the day rather than drinking large amounts all at once.
- You may want to put the required amount of fluid in a container each day, so you both know how much is left to drink.
- If the person has neglect, put the container on the unaffected side.
- Limit caffeinated drinks such as coffee, tea, and cola to two or three servings per day. Caffeine promotes urination and fluid loss, and should be limited. They are counted as part of the daily fluid intake.
- Give the fluid at the temperature the person prefers. Some people prefer room temperature, while others like drinks that are ice cold.

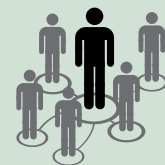
\* Refer to 3.4 for more information on Bladder and Bowel Control.

## BEST PRACTICE RECOMMENDATION

Stroke patients with suspected nutritional concerns, hydration deficits, dysphagia, or other comorbidities that may affect nutrition should be referred to a dietitian for recommendations to meet nutrient and fluid needs orally while supporting alteration in food texture and fluid consistency recommended by a speech-language pathologist or other trained professional.

## KEY MESSAGES OF HYDRATION

- ❑ **Maintaining good hydration** is very important after stroke.
- ❑ **Monitor the amounts of fluid** the person who has had a stroke takes in each day.
- ❑ **Find strategies** to help the person remember to take in enough fluids.
- ❑ **Report changes** in hydration status to the stroke care team.



## 3.4 Bladder and Bowel Control



### IN THIS SECTION

- Incontinence after stroke
- Normal bladder function
- Identifying urinary problems
- Strategies to manage urinary incontinence
- Normal bowel function
- Identifying bowel problems
- Factors that increase the risk of incontinence
- The team approach to managing incontinence.

### YOUR ROLE AS A HEALTHCARE PROVIDER

Bladder incontinence, or loss of bladder control, is common after stroke. Bowel incontinence is less common but can also result from stroke. Incontinence is a key factor in determining whether someone who has had a stroke can remain at home. By learning strategies to help people manage bladder and bowel incontinence, as well as constipation, you can make a big difference to their quality of life, comfort, dignity, and self-esteem.

### INCONTINENCE AFTER STROKE

A person who has had a stroke and their family members are often devastated by the loss of bladder or bowel control. Incontinence dramatically affects feelings of self-worth and well-being, as well as lifestyle and social interactions. The person may feel the need to stay close to a toilet, and their activities may be interrupted by frequent bathroom visits. They may socialize less and stop taking part in activities or travel in case of accidents. Sexual activity may decrease. Depression, a common complication of stroke, can make the person less able to manage incontinence.

Having to help someone who has had a stroke go to the bathroom can strain family relationships. It may limit family visits and reduce social outings.

Incontinence can result in skin breakdown and infection, urinary tract infection, pain, falls and injuries from hurrying to the toilet and dehydration from restricted fluid intake. In addition, it is one of the main reasons that someone who has had a stroke goes to a long-term care home or other facility rather than being able to live at home.

Almost half of stroke survivors who have problems with incontinence had the same problems before the stroke. With lifestyle changes and good support, about 80 percent of incontinence problems can be resolved.

### NORMAL BLADDER FUNCTION

The normal adult bladder holds between 500 and 600 millilitres (mLs) of urine. People start feeling the urge to urinate when the bladder is about half full (250 to 300 mLs). A person with normal bladder function can suppress this urge for up to one to two hours, until the bladder is full.

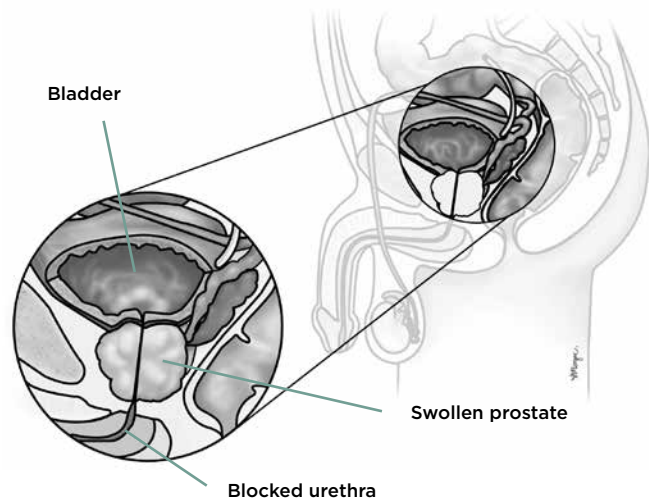
Normal bladder function requires coordination between the nervous system and the lower urinary tract. The lower urinary tract is made up of the bladder, urethra, and sphincters. The urethra is the tube that the urine passes through. The sphincters are muscles that close to hold urine in or open to let it pass through the urethra.

As a person ages, the bladder shrinks. An aging bladder holds only 250 to 300 mLs of urine, which is about half what a younger bladder holds. While most people urinate three to six times during the day and possibly once or twice during the night, older people need to empty smaller amounts from their bladders more frequently. In addition, as the bladder wall becomes thinner and muscle tone decreases, the urine stream weakens and the bladder does not empty completely.

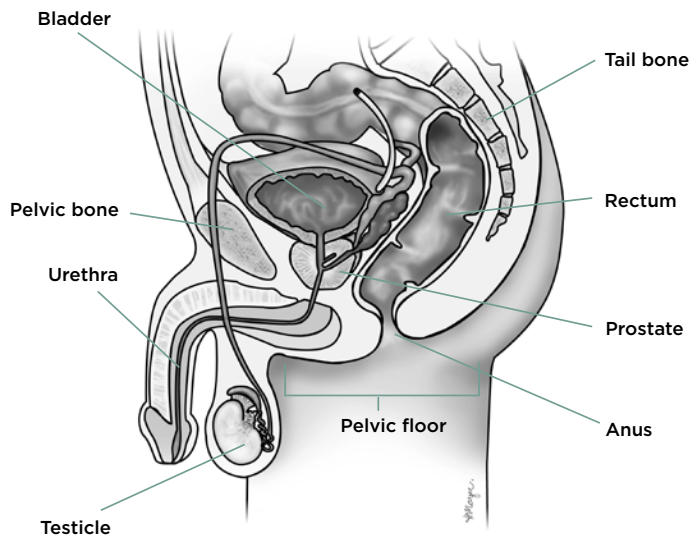
Men may have even more trouble emptying their bladder if they have an enlarged prostate (a small gland that surrounds the urethra) that blocks the flow of urine.

After menopause, women may have urine leakage. This is because a drop in estrogen can weaken the muscles that normally stop the flow of urine. This often happens during coughing or laughing, and is called **stress incontinence**.

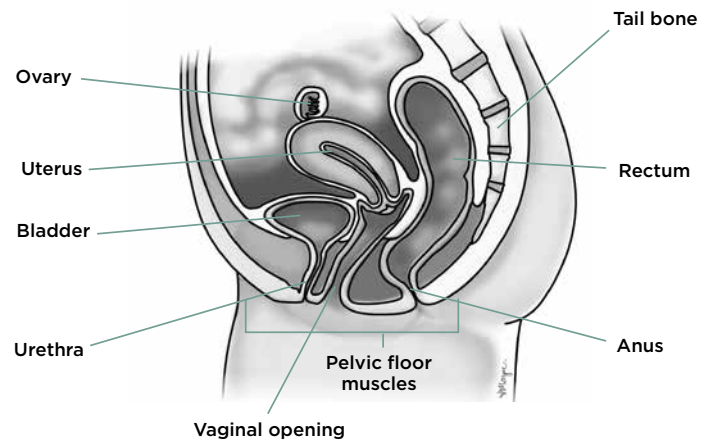
Some older people have involuntary bladder wall contractions that make them feel like they need to urinate. This is called **urge incontinence**.



### MALE ANATOMY



### FEMALE ANATOMY



## IDENTIFYING URINARY PROBLEMS

Because bladder problems can have such serious health and emotional consequences, they need to be identified quickly.

Urinary problems that can arise after stroke include:

- **Urinary incontinence:** The person who has had a stroke may lose the ability to identify and respond to the need to urinate, especially right after the stroke happens. Many regain this function within a couple of months. For some, incontinence may come and go, or it may be permanent.
- **Urinary retention** causes urine to back up. Stroke can interrupt the nerve pathways that control bladder emptying. If this happens, the person does not feel an urge to urinate. So even though the bladder fills, they are unable to empty it. Urinary retention increases the risk of urinary tract infection and damage to the kidneys. The urine may need to be removed with a **catheter**, a tube inserted into the urethra that empties the urine into a bag.

Watch for these signs and symptoms of incontinence and notify the nurse as soon as possible if you see:

- Changes in the person's normal pattern of going to the bathroom.
- Loss of small amounts of urine (dribbling). This might happen when the person does something physical, such as lifting, coughing, or sneezing (stress incontinence), or even without any movement.
- A sudden urge to urinate, followed by loss of large amounts of urine (urge incontinence). You might notice unsuccessful rushes to the bathroom. The person might become aware of the need to urinate only seconds before the bladder empties, and it may be difficult or impossible to stop the urine stream.
- Urinating more than eight times per day or twice per night.
- A weak or interrupted urine stream.
- Reporting that their bladder still feels full, even after urinating (urinary retention).
- Frequent urinary tract infections.

## COMPLICATING FACTORS IN INCONTINENCE

**Vision problems:** The person may be unable to find the bathroom or see enough to use the toilet independently.

**Decreased mobility:** The person may be unable to get to the bathroom independently or quickly enough, as their balance and gait may be impaired. Or they may not be able to transfer to the toilet independently and have to wait for assistance.

**Lack of movement:** The person may have difficulty managing clothing, continence products, or wiping, especially if one or both arms are affected.

**Changes in time of urine production:** More urine may be produced during the night, requiring the person to get up more often.

## URINARY TRACT INFECTION

A lower urinary tract infection (UTI) is also called a bladder infection. Untreated, it can move up the urinary tract to the kidneys and cause serious health problems.

Watch for these signs and symptoms.

**Temperature** above 37.9° C

**Blood** in the urine

### Any new:

- Burning or pain with urination
- Chills or shaking
- Delirium or confusion — any rapid change in cognitive abilities, such as a sudden inability to focus

### Any new or worsening:

- Urinary urgency
- Urinary frequency
- Urinary incontinence
- Pain in the lower abdomen or side
- Change in urine colour or odour
- Urethral or vaginal discharge

## HOW YOU CAN HELP



- Report signs and symptoms of a urinary tract infection to the nurse.
- Ensure the person has an adequate fluid intake (six to eight cups per day, or as prescribed in the care plan).
- Encourage the person to drink more fluids if they have a burning feeling during urination.
- Limit caffeinated drinks to two cups per day.

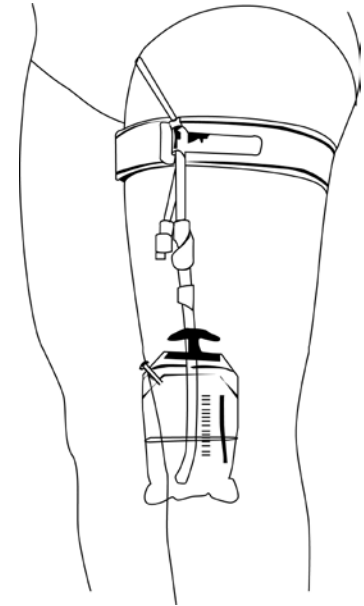


## URINARY CATHETERS

A urinary catheter or other external device may be needed on a temporary or permanent basis.

A catheter increases the risk of urinary tract infection. Appropriate catheter use and care can reduce this risk.

- Ensure the person drinks at least six to eight cups of fluid daily (1,500 - 2,000 mLs) to keep the catheter draining well and free of sediment.
- Position the drainage bag below the bladder, to prevent urine from backing up into the bladder.
- Position the catheter tubing so it does not kink or pull on the catheter.
- Secure tubing to leg to prevent accidents.
- Empty the drainage bag every eight hours.
- Prevent tubing contamination. Follow your employer's procedures for disconnecting and connecting tubing.
- Ask how long the tube needs to stay in, with the goal of leaving it in only as long as necessary



Report any of the following signs and symptoms to the nurse:

### Changes in urine output

- Any change in output over a four-hour period
- Decreased output, especially if the person reports a feeling of a full bladder

### Pain

- In the abdomen, pelvis, or at the catheter insertion site
- Restlessness or agitation (this could be a sign of pain or discomfort)

### Urine

- Change in colour or consistency
- Blood
- Foul-smelling drainage around the catheter
- Urine leakage around the catheter
- Any signs or symptoms of urinary tract infection



## STRATEGIES TO MANAGE URINARY INCONTINENCE

**Prompted voiding** can help treat urinary incontinence and constipation. This strategy has three parts: monitoring, prompting and redirecting, and positive feedback.

### Monitoring

- At regular intervals, ask if the person would like to use the toilet. People who have lost the ability to identify and respond to the need to urinate may benefit from a toileting schedule, with regular reminders and physical help. Always try to stay on the schedule.
- Watch for behaviour that shows a need to urinate. Someone who has difficulty communicating may be more agitated because of worry about incontinence, or when they are wet.
- Note the usual times the person urinates or has a bowel movement. Take them to the toilet on that schedule, whether or not they have an urge to go.
- Keep a voiding diary.

### Prompting and redirecting

- At regular intervals, prompt the person to use the toilet.
- Between those times, encourage them to stay on schedule. Redirect or distract them by suggesting they read, watch television or listen to the radio, or meditate.
- Work with the nurse to adjust the schedule as needed to reduce the chance of incontinent episodes.

### Positive feedback

- React in a positive way when the person stays dry and uses the toilet when needed.
- Manage incontinent episodes without comment.

**Bladder retraining** gradually increases the times between trips to the bathroom. This reduces frequent voiding, increases bladder capacity, and helps suppress the feeling of urgency.

The nurse usually puts the bladder retraining protocol in the care plan. The plan may include **pelvic floor exercises**. These exercises involve tightening and relaxing the muscles of the pelvic floor, which are the muscles that control urination and bowel movements. The plan should include a schedule for urinating. For instance, you might be asked to periodically increase the interval between voids by 15 minutes (or less if needed), until the time between voids is three to four hours.

## BEST PRACTICE RECOMMENDATIONS

**Stroke patients with urinary incontinence should be assessed by trained personnel using a structured functional assessment to determine causes and develop an individualized management plan. A bladder-training program should be implemented in patients who are incontinent; including timed and prompted toileting on a consistent schedule.**

## HOW YOU CAN HELP



- Know the care plan strategies that are being used to help with bladder control and follow them.
- Remind and encourage the person to practice pelvic floor exercises if they are part of the care plan.
- Write down the toilet schedule, and physical assistance and equipment required to help the person and other healthcare providers keep track.
- Encourage and praise them for staying on schedule. If they can't, be positive about trying again the next time.

## NORMAL BOWEL FUNCTION

The bowels absorb nutrients and fluid from the food we eat and drink. They also remove solid waste (stool) from the body. There are two parts to the bowel:

- **Small bowel** (small intestine): The small bowel absorbs nutrients. It is about 20 feet long. It begins at the stomach and ends at the large bowel.
- **Large bowel** (large intestine or colon): The large bowel absorbs fluids. It is about five or six feet long. It begins at the end of the small bowel and ends at the rectum.

A healthy bowel depends on a number of factors, including how well the muscles and nerves work together, eating a high fibre diet, and drinking six to eight cups of fluids each day.

Usually, bowel movements occur anywhere from three times a day to three times a week.

## IDENTIFYING BOWEL PROBLEMS

Constipation or other bowel problems may be part of a serious, underlying health condition. If you see any of these signs, tell the nurse:

- Sudden change in bowel pattern or stool
- No bowel movements in at least three days
- Constant straining with bowel movements
- Abdominal pain
- Rectal bleeding
- Liquid stools
- Fever
- Weight loss



## CONSTIPATION

Stroke can weaken the muscles that expel stool from the colon, causing constipation or making it worse. Constipation happens when the bowels don't move often enough. Stools become hard and dry and difficult to pass. This is the most common bowel management problem for people who have had a stroke. It reduces quality of life, comfort, functional ability, and social life.

It is critical to identify and treat constipation early.

Symptoms of constipation include:

- Fewer than three bowel movements per week
- Straining
- Hardened stools
- Feeling of incomplete stool evacuation
- Feeling of blockage or obstruction
- Need for stool evacuation

## COMPLICATIONS OF CONSTIPATION

**Fecal impaction:** Fecal impaction is a mass of hard, clay-like stool lodged in the rectum. It can cause bowel obstruction, ulcers in the bowel, and an enlarged colon. The person may need enemas and laxatives to clear the bowel. Once normal bowel function is restored, they will need strategies to prevent constipation.

**Fecal incontinence:** Fecal incontinence occurs when a person cannot prevent fecal material from passing through the body. It can be liquid stool that soils undergarments, or a loss of control of solid stools. Often, fecal impaction causes incontinence, as liquid stool seeps around the bowel obstruction.

**Straining:** When a constipated person strains to pass stools, it can cause hemorrhoids, and heart problems. It can also cause **rectal prolapse**, when part of the bowel slips or falls out of place.

Constipation can also create urinary incontinence by increasing pressure on the bladder, making it harder to maintain normal bladder function.

## DIARRHEA

**Diarrhea** is marked by frequent, watery stools. Causes can range from viral infections, such as the flu, to more serious medical problems, such as Crohn's disease. Sometimes, fecal incontinence can be mistaken for diarrhea, when in fact the person has severe constipation.

## FACTORS THAT INCREASE THE RISK OF INCONTINENCE

### Environmental

- Poor access to a toilet, such as long distances to the bathroom
- Limited room for a wheelchair and other equipment to help with transferring in the bathroom
- Lack of equipment such as bedside commodes, transfer belts
- Lack of privacy
- Lack of adaptive clothing (clothing that is easy to put on and take off)

### Health and stroke-related

- Conditions such as diabetes, depression, or dementia
- Some medications
- Limited mobility, needing more time and help to reach the toilet and remove clothing
- Communication problems that make it hard to express an urgent need to use the bathroom
- Loss of the ability to identify and respond to the urge to go to the bathroom

### Lifestyle

- Not getting enough fluids, especially if the person is avoiding fluids to try to prevent urinary incontinence
- Not eating enough, or not eating enough fibre
- Not getting enough exercise
- Ignoring the urge to go to the bathroom

## THE TEAM APPROACH TO MANAGING INCONTINENCE

Managing bladder and bowel problems is critical. Avoiding even one episode of incontinence a day can greatly increase self-esteem and quality of life, as well reduce complications and the risk of falls and injury. It also saves you time as a healthcare provider and cuts down on the use of continence products such as pads or diapers.

The team approach to managing bladder and bowel problems requires assessment, diagnosis, care planning, implementation, and evaluation.

### Assessment

Your careful and accurate observations will provide much of the information needed for assessment. You may want to keep a voiding diary to organize the information for the team, with details such as:

- Urination habits
- Bowel habits, stool colour, and consistency
- Straining and discomfort with bowel movements
- Diet and fluid intake
- Mobility, activity, or exercise
- Signs of skin breakdown such as swelling, redness, oozing or crusting around the anus, scrotum, vulva, or **perineum** (the skin between the genitals and the anus)
- How well the person transfers from the bed or wheelchair to the commode chair
- Problems with undressing and dressing
- The person's behaviour and response to care
- Any impact from the environment (i.e., is the bathroom too far away?)
- Whether you think a home assessment might be helpful, to determine need for adaptation and supportive equipment (e.g., over arm toilet bars (versa frame), raised toilet seats)

The nurse on the team can show you how to collect this information and tell you what information should be reported right away. The speech-language pathologist can identify the best communication method for each person.

If you notice any of the following symptoms, report them immediately:

- Not passing urine for more than four hours
- Unable to have a bowel movement
- Fever
- Increasing confusion or agitation
- Pain in the lower abdomen or lower back
- Skin breakdown or discomfort in the perineal area

### Diagnosis

The team doctor will diagnose urinary incontinence and bowel problems and their causes. An urologist may be consulted as well.

### Care planning and implementation

Based on the diagnosis, the team develops a care plan. Your observations about and knowledge of the person can help the team tailor the plan to the person's needs and determine the best way to implement it.

The plan may address:

- Medications and laxative use
- Activity levels
- Equipment needed for easy and safe toileting
- Fluid intake and diet (e.g., adding more fibre for constipation.) People who cannot move or who do not get enough fluids should not take fibre supplements.
- Strategies to manage bladder and bowel incontinence, some of which are described in this section. They may include **habit training** where a routine toileting schedule is followed, **prompting** the person about scheduled trips to the bathroom, or **redirection** (particularly for those with cognitive impairment), where the person is distracted with other activities.



### Evaluation

Observe the person's response to the care plan and report it to the team. Note what the person tells you and their non-verbal reactions. For example, during a wheelchair-to-toilet transfer, you may notice them frown or become agitated. Talk to the team. This could mean the person is in pain and may need pain treatment.

## BEST PRACTICE RECOMMENDATION

**A bowel management program should be implemented for stroke patients with persistent constipation or bowel incontinence.**

## HOW YOU CAN HELP

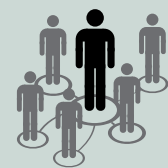


- Be alert to any behaviour that may communicate the need to urinate or have a bowel movement, such as restlessness, agitation, or grimacing.
- Observe and record bowel and bladder habits.
- Report any changes or new problems with mobility to the nurse.
- Move furniture or other obstacles to getting to the toilet.
- Place a night light near the bed to orient the person to the room at night.
- Allow privacy but stay close so you can help if they call for assistance.
- Encourage the person to use a commode or toilet rather than a bedpan. A commode or toilet promotes more complete bladder emptying, because of gravity and increased abdominal pressure. Tell them to lean forward during urination if possible, with their feet flat on the floor or on a stool, to help the bladder empty.
- If the person uses a urinal, keep it where it can be easily seen and reached. It may help to keep a urinal on each side of the bed.
- If the person uses a bedpan, make sure the head of the bed is as upright as possible to allow the person to sit as normally as possible when using the bedpan.



## KEY MESSAGES OF BLADDER AND BOWEL CONTROL

- ❑ **Bladder incontinence**, or loss of bladder control, is common after stroke. Bowel incontinence can also be a problem after stroke.
- ❑ **Understand issues of bladder and/or bowel control** in the persons you are caring for
- ❑ **Follow-through** on bladder and bowel programs consistently.
- ❑ **Monitor carefully** for skin breakdown, infection, or other complications.
- ❑ **Maintain a safe physical environment** for people who need to go to bathroom often and urgently.
- ❑ **Provide emotional support** and reassurance to people experiencing incontinence.



## 3.5 Skin Integrity



### IN THIS SECTION

- Movement and skin health
- Skin and skin breakdown
- Protect bony and compromised areas
- Reduce friction and shear injuries
- Pressure-redistribution devices
- Cleaning a spastic (contracted) hand
- Hygiene and incontinence

### YOUR ROLE AS A HEALTHCARE PROVIDER

The skin is the largest organ in the body. Skin maintains body temperature and hydration, and intact skin keeps us safe from infection. You can help keep the stroke survivor's skin healthy and reduce the risk of skin breakdown through many care activities, such as careful positioning, frequent movement as appropriate, good hygiene and skin care, maintaining good nutrition and hydration, and careful monitoring.

### MOVEMENT AND SKIN HEALTH

When someone sits or lies in the same position for a long time, circulation to their skin is reduced. This increases the risk of skin damage, pressure sores, or ulcers. The risk is greatest for those who cannot move without help. Follow the care plan for moving the person regularly, usually at least every two hours for people who are in bed, and repositioning people who are in a wheelchair or other seats for long periods of time during the day.

The more someone can move and maintain or improve their current activity level, mobility, and range of motion, the lower the risk of skin breakdown.

People who are unable to reposition themselves in bed should be turned at least every two hours. Those who are unable to shift their weight while sitting should be repositioned at least every hour, or according to the care plan.

### SKIN AND SKIN BREAKDOWN

The skin consists of three layers called the epidermis, dermis, and subcutaneous tissue.

The **epidermis** is the outermost layer and it is mostly made up of dead skin cells. These cells are constantly being shed and replaced with more cells from underneath. The second layer is called the **dermis** and it has sweat glands, oil glands, nerve endings, small blood vessels called capillaries, and collagen. The nerves ending in this layer transmit sensations of pain, itch, touch and pleasure. The deepest layer of skin has **subcutaneous adipose tissue**. It is the layer of fat and collagen that contains nerves and blood vessels. This inner layer helps control the temperature of the skin and the body, and protects the body from injury by acting as a cushion.

Skin breakdown or **ulceration** (sores) can be very painful and may result in serious infection or even death if it is very severe. People who have had a stroke face skin breakdown because of:

- Decreased ability to relieve pressure due to weakness and limited mobility
- Decreased or no sensation
- Increased moisture from incontinence or perspiration
- Poor nutrition, dehydration, and dry skin
- Inability to communicate pain and discomfort
- Improper positioning, causing friction and shear injuries

Proper skin care is very important, especially for people who cannot move on their own. Follow turning and sitting schedules determined by stroke care team members, including changing their position frequently, and getting them out of bed and onto supported seating as described in the care plan.

## HOW YOU CAN HELP



### Inspect and report

- Check the person's skin carefully every day for redness, blisters, skin openings, or breakdown. This is particularly important for people who have impaired sensation. Some organizations use specific tools (such as the Braden Scale) to guide how you should examine the skin.
- Skin checks should be done at least once a day, during regular grooming activities (bathing, dressing), during toileting, or at other convenient opportunities.
- Skin checks should include looking for signs of redness, blisters, discharge or breakdown; feeling the skin for moisture, heat, swelling, induration; and smelling the skin for foul or unusual odour.
- Pay special attention to **bony prominences**. These are areas that tend to stick out, like elbows, heels, ankles, hip bones, the sacral area (tailbone), and **ischial tuberosities** (sitting bones). When a person is seated, their weight typically rests on the ischial tuberosities which bear the majority of their weight.
- Report concerns or signs of skin irritation immediately to the right person — the nurse, case manager, physician, or a family member.

### Clean

- Wash skin gently and regularly, using mild cleansers. Do not scrub.
- Rinse thoroughly.
- Dry thoroughly using soft cloths, especially in skin folds. Pat the skin dry rather than rubbing it to avoid further irritation.
- Always wash soiled skin promptly, to remove irritants and maintain the skin's natural barrier.



**Moisturize**

- Treat dry skin with moisturizers. Dry, flaky or scaling skin can lead to skin irritation, pressure sores and pressure ulcers, and possible infection.
- Discuss the most appropriate type of cream or ointment for each person with the stroke care team. Some have barrier ingredients such as urea creams, some are scent-free to further reduce the risk of irritation, and others have medication such as cortisone.
- Do not massage bony prominences or reddened areas. A reddened area is an early sign of tissue irritation and the mechanical forces of massage can result in greater tissue damage.
- Some people may have skin that is already very moist due to excess sweating or urine leakage. Good hygiene is important for these situations, and moisturizers should only be used on the advice of the stroke care team. In these cases, barrier-type creams may be preferred to other types of moisturizers.

**Protect**

- Sources of moisture on the skin that can cause skin breakdown include urine or stool, perspiration, and/or fluids from a draining wound. These fluids contain chemical irritants that can damage the skin.
- Protect skin from contact by gently cleansing at time of soiling, or using wound dressings or barrier creams as specified in the care plan.
- Promote good bladder and bowel routines and follow bladder and bowel training programs to reduce the risk of skin breakdown.\*
- Minimize the use of continence products as they may increase skin temperature, and prevent good air circulation which helps keep skin dry and healthy.

**Reposition**

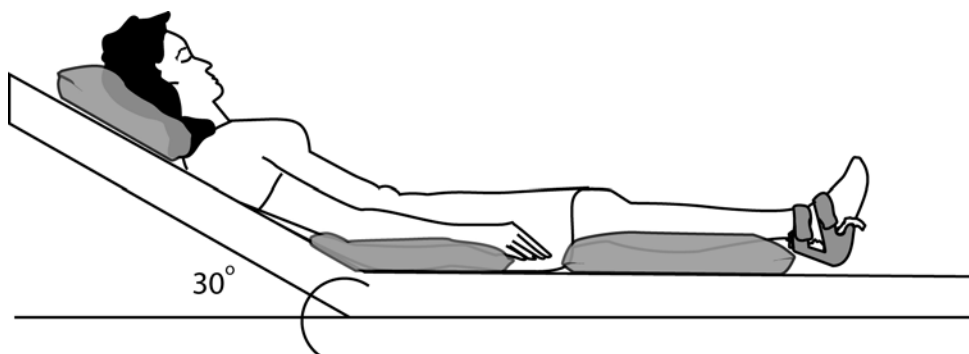
- Repositioning is important for people who cannot move on their own.
- Change their position according to the care plan, and get them out of bed and onto supported seating (e.g., using special cushions) whenever possible.
- People who are unable to reposition themselves in bed should be turned at least every two hours.
- Those who are sitting should shift their weight at least every 15 minutes if they are able; if not, they should be repositioned at least every hour.
- When repositioning the individual, move them and use repositioning equipment (e.g., sliders (friction reducing devices), mechanical lifts) as required, avoiding friction that may be caused if the person is pulled or dragged across surfaces. (See Friction Injuries below).

\* Refer to 3.4 for more information about incontinence.

## PROTECT BONY AND COMPROMISED AREAS

When positioning a person who has had a stroke, your goal is to maintain proper body alignment while reducing pressure on bony prominences.

Position the person who has had a stroke in a 30 degree side-lying position in the bed. Do not put the person completely on their side. Lying directly on the hip increases the risk of a pressure ulcer. Change the position regularly.



- Use foam wedges or pillows to support the person in the proper position.
- Use pillows between the knees and the ankles to separate bony prominences.
- Use a water pillow, thick foam, or specialty boot to relieve pressure on the heels.
- Use wedges and padding. Donut devices should not be used as they can decrease blood flow and increase tissue breakdown.
- If the person has a pressure ulcer, avoid positioning them directly on it. If it's unavoidable, keep them there for as little time as possible.
- If lying on the unaffected side, ensure the affected arm is supported by pillows.
- When positioning on the back, ensure the head, affected arm and affected hip are supported with pillows. A pillow under the knees may help take pressure off the sacral area.
- If you are unsure how to position someone, check with the nurse or occupational therapist.\*



## REDUCE FRICTION AND SHEAR INJURIES

**Friction injury** occurs when the skin moves over another surface. A friction injury can happen when you move someone in bed or they move themselves. These injuries happen often on the sacrum (tailbone), heels, and elbows.

Use sliders (friction reducing devices) when you move someone. Use sliders as prescribed and follow the care plan. Never pull or drag the person.

\* Refer to 6.2 for more information on positioning.

**Shear injury** occurs when the body moves without the skin moving. For example, raising the head of the bed allows the body to slide down, while the skin remains pressed against the sheet. Shear injuries reduce blood supply to the skin.

Prevent shear injuries by lifting the head of the bed no more than 30 degrees and limiting the amount of time in this position.

## PRESSURE REDISTRIBUTION DEVICES

Devices that help prevent skin breakdown include:

- Pressure-redistribution mattresses (e.g., alternating pressure air mattress or high density foam)
- Elbow pads
- Heel pads or booties, devices that relieve pressure on the heels and bony prominences of the feet
- Specialized wheelchair cushions (gel or air-filled); do not add extra covers on top of the wheelchair seat cushions as they destroy the pressure reducing benefits/properties of the cushion.
- Bath seats and commode chairs with friction and pressure reducing surfaces

Do not use donut devices or products that localize or increase pressure to other areas.

The nurse or occupational therapist may recommend one of these devices, based on the person's needs. Follow the care plan for using the device. Discuss any other new devices with the stroke care team before using them.

## CLEANING A SPASTIC (CONTRACTED) HAND

A person who has had a stroke may develop high tone in their affected hand due to spasticity. Constant spasticity can lead to **contractures**, where the muscles and tendons shorten, and the hand becomes clenched and very difficult to open and keep clean.\*

A spastic or contracted hand often sweats, and poor air circulation can cause skin damage, odour, and infection. Good hygiene is important to prevent skin damage. Once it is open, wash it gently and clean and trim the nails. Dry the hand thoroughly. This also provides essential sensory input. If the hand is painful, the person may prefer to clean it themselves.



\* Refer to 6.2 for how to open the hand safely.

## HYGIENE AND INCONTINENCE

People with urinary incontinence have a higher risk of developing perineal skin problems and urinary tract infections. Proper hygiene and good skin care can help avoid these problems:

- Wipe from front to back after voiding
- Change underwear daily or more often if soiled
- Always provide thorough **peri-care** (care of the perineum or genital area) after urinary or fecal incontinence. Wear gloves when completing peri-care
- Use barrier creams if recommended in the care plan
- Wash your hands and those of the stroke survivor after peri-care
- Do not use deodorant sprays, powder, or perfumes on perineal skin

## CONTINENCE PRODUCTS

Continence products should only be used when absolutely necessary. If required, always use continence products rather than menstrual products. Continence products draw urine away from the surface of the pad and promote healthy skin. Replace pads and linens when they are damp. Watch for leaking, tight fitting products, skin irritation, or rash, and report any signs of redness, irritation, or skin breakdown to the nurse.

## KEY MESSAGES OF SKIN INTEGRITY

- ❑ **Good skin care** is important for someone who has had a stroke.
- ❑ **Regularly monitoring skin** can help identify skin breakdown early, preventing more serious problems from developing.
- ❑ **Proper positioning** and frequent adjustments can significantly decrease the risk of skin breakdown.



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