

MODULE 6: SWALLOWING, NUTRITION AND ORAL CARE



Learning Objectives

Upon completion of this module, nurses will be able to:

- Define dysphagia
- List the complications associated with dysphagia
- Understand the mechanics of a normal swallow
- List signs of swallowing problems
- Define silent aspiration
- Identify a screening tool for dysphagia
- Understand the purpose and goals of dysphagia management
- Explain the indications, risks and benefits related to enteral nutrition
- Understand proper feeding strategies
- Understand the importance of and methods for oral care



6.1 Swallowing Post-Stroke: Dysphagia

Dysphagia is a significant consequence of stroke. Optimal stroke care includes identifying and managing dysphagia.

Key Points about Dysphagia:

- The loss or the impaired ability to chew and/or swallow
- Characterized by a disturbance in the swallowing mechanism
- Difficulties include choking, coughing, excess drooling, and the inability to manage secretions
- Presentation is varied and difficulty can occur in one or more of the swallowing phases
- Risk increases with the elderly population

Studies indicate that approximately 50% of acute stroke patients have some degree of dysphagia within the first 72 hours after the stroke (Kidd D et al., 1995). Dysphagia may resolve in some patients but can be longstanding in others.

From the *Registered Nurses Association of Ontario (RNAO): Stroke Assessment across the Continuum of Care*, 2011, p. 18:

6.1 – Nurses in all practice settings who have the appropriate training should screen within 24 hours of the client becoming awake and alert for risk of dysphagia using a standardized tool. This tool should also be completed with any changes in neurological or medical condition, or in swallowing status. In situations where impairments are identified, clients should be kept NPO and referred to a trained healthcare professional for further assessment and management.

**NOTE the difference between these two terms:*

Dysphasia/Aphasia is a language disorder in which there is an impairment of the comprehension and expression of language.

Dysphagia is a medical term defined as “difficulty swallowing.”

Stroke can affect one's ability to eat or swallow when:

- Muscles involved in feeding, swallowing, or breathing are affected
- Alertness and attention to eating are affected
- Independence for eating is taken away

Swallowing Problems Related to Aging:

- Decreased peristalsis in the esophagus
- Decreased lung function
- Decreased muscle strength
- Decreased saliva
- Problems with dentition

Complications Associated with Dysphagia

Dysphagia can have a serious impact on one's health, leading to other serious conditions such as:

- Airway obstruction
- Aspiration pneumonia
- Malnutrition
- Dehydration
- Reduced quality of life

Quick facts:

In total, more than 200,000 people suffer from dysphagia in Canada at any given time

Visible signs of swallowing difficulty exist in 80% of the institutionalized elderly

The risk of developing aspiration pneumonia in the stroke survivor is 7x greater when dysphagia is present (Singh and Hamby, 2006)

The cost of treating pneumonia in Canada has been estimated at \$1,000 per day of hospitalization (Steele et al, 2008)

Malnutrition and Stroke

Inadequate energy and protein intake is highly prevalent in stroke patients. The majority of stroke patients do not consume their estimated requirements.

- Identifying malnutrition in stroke patients is critical; 16% of acute stroke patients admitted to hospital are malnourished.
- Malnutrition increases the risk of pneumonia and other infections.
- Malnutrition after stroke is associated with poor long-term outcome (i.e., decreased functional status, physical decline, increased length of stay in hospital etc.).
- It is critical to begin appropriate nutrition as soon as possible.

For more information, refer to the *2013 Canadian Best Practice Recommendations for Stroke Care: Acute Inpatient Stroke Care, 4.2.6 - Nutrition and Dysphagia*.

Dehydration and Stroke

According to the *Heart and Stroke Foundation of Canada's Tips and Tools (2010)*:

Survivors with swallowing problems may fear choking and avoid drinking fluids. Survivors who fear incontinence may decrease their fluid intake in an attempt to prevent accidents, while others may be unable to communicate that they are thirsty.

- Dehydration increases the risk of falls, infection (urinary tract), constipation, and deep vein thrombosis.
- Those who require help eating or drinking, refuse fluids at meals, or are on thickened fluids are at an increased risk for dehydration.
- Signs of dehydration include dizziness upon standing, confusion or change in mental status, rapid weight loss, thick, stringy saliva, decreased urine output, and dark concentrated urine.

Hydration and Thickened Fluids

Stroke patients on thickened fluids are at increased risk of inadequate fluid intake, which leads to dehydration. This is due to the reduced level of free water content in the thickened fluids and overall reduced total fluid intake. Stroke patients need to be encouraged to consume the thickened fluids on their meal trays.



Consult the *Dietitian* if there is a concern on the amount of fluids your patient is consuming, or if the patient is at risk of malnutrition.

Goals of Dysphagia Management

- Maximize nutrition
- Protect airway from obstruction
- Protect airway from aspiration
- Manage reflux
- Control oral bacteria
- Monitor medication intake
- Monitor and maintain fluid intake for hydration

***Dysphagia management is the key to preventing aspiration and aspiration pneumonia (see section 6.3 *Aspiration*). If any signs of dysphagia are noted, the patient should be made NPO for further assessment.**

6.2 Normal Swallow

Swallowing is a semi-automatic motor action involving the movement of food from mouth to stomach. The average adult swallows 1500 times per day. While awake, we swallow once every 60-120 seconds.

A normal swallow has four phases:

1. Oral Preparatory Phase
2. Oral Transport Phase
3. Pharyngeal Phase
4. Esophageal Phase

1. Oral Preparatory Phase

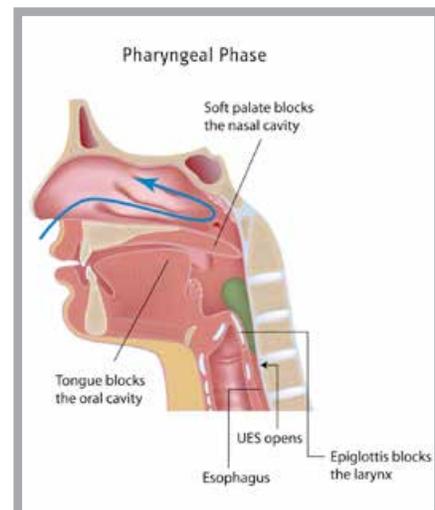
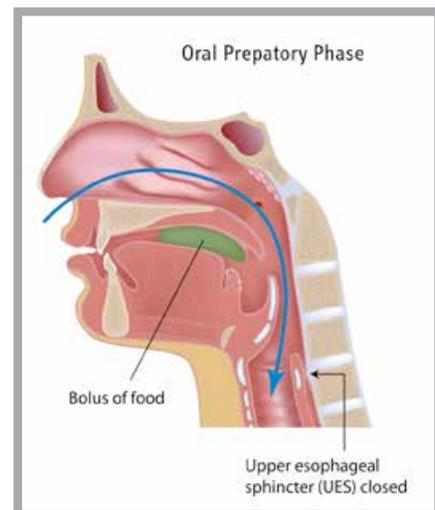
- The initial stage whereby food and drink are brought to the mouth, and the lips and the jaw close to seal the mouth and saliva is produced to add moisture
- Under voluntary control
- Food is chewed and mixed with saliva to form a bolus (ball of food)

2. Oral Transport Phase

- Bolus is delivered by voluntary tongue movement to the back of the mouth, into the pharynx

3. Pharyngeal Phase

- Involuntary/reflexive phase– lasts 800 milliseconds
- Triggered when food passes towards the esophagus and the soft palate closes
- Pharynx and larynx move up to protect the airway and direct the bolus to the esophagus



4. Esophageal Phase

- Involuntary/reflexive
- Relaxation of the upper part of the esophagus
- Peristalsis pushes the bolus down into the stomach
- Gravity also assists with bolus transportation

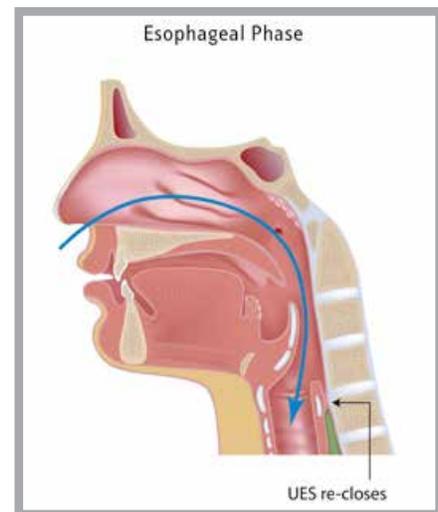
Signs of Swallowing Problems



It is important to notice these crucial signs that may indicate your stroke patient is having difficulty swallowing:

- Drooling
- Slow eating, prolonged chewing
- Food left in mouth after eating (e.g., residue or pocketing)
- Pain associated with swallow
- Effortful swallow
- Delayed initiation of swallow
- Coughing or choking during and/or after swallowing
- Throat clearing after swallowing
- Voice changes (i.e. wet/gurgly voice)
- Refusal to eat or drink
- Recurrent chest infections
- Unexplained weight loss
- Gagging
- Nasal regurgitation
- Shortness of breath
- Poor lip closure with loss of food from mouth
- Increase in temperature

(Heart and Stroke Foundation, Tips and Tools, 2010)



6.3 Aspiration

Aspiration is the entry of food or liquid into the airway below the muscles that produce sound, the vocal folds (Rosenbek JC et al., 1996).

Bacteria in saliva, foods and liquids, or refluxed material from the stomach can enter the airway. It can lead to choking or breathing problems. If this material enters the lungs, it can cause an infection, typically **aspiration pneumonia**.

Martino et al., (2005) found that patients with dysphagia after stroke have a 3 times greater risk of pneumonia than stroke patients without dysphagia, and when those dysphagia patients were confirmed as aspirators their relative risk rose to 11 times greater.

Incidence of aspiration in stroke

- 50% aspirate immediately after the brain insult
- 25% die of aspiration pneumonia within the 1st year of rehabilitation (American Academy of Otolaryngology – Head and Neck Surgery, 2006)
- Patients with infarctions of the brain stem, multiple strokes, major hemispheric lesions or depressed consciousness are at increased risk of aspiration (AHA, 2013 – Acute Guidelines)
- An abnormal gag reflex, impaired voluntary cough, dysphonia (wet voice), incomplete oral-labial closure, a high NIHSS score, or cranial nerve palsies should alert the interprofessional team to the risk of dysphagia
- A preserved gag reflex may not indicate safety with swallowing

*A Few Words about **Reflexes**...*

Absence of a gag reflex does not predict dysphagia

Presence of a gag reflex does not protect against aspiration

The cough reflex can be impaired or absent, so silent aspiration may occur

Silent Aspiration

Coughing is a physiologic response to aspiration in normal healthy individuals, but aspiration is not always accompanied by coughing. Silent aspiration means there are no clinical signs of aspiration (no coughing or throat clearing). It is very common. In fact, lack of coughing is prevalent in 40% of aspirators (Logemann, 1983).

When silent aspiration is occurring, it is not until respiratory complications occur that we realize the patient has been aspirating.

How do you detect silent aspiration?



When a stroke patient presents with high risk of aspiration, we closely monitor *temperature, fever, white blood cell count, and chest* to detect any new infection.

If the patient is silently aspirating, they will not cough or clear their throat at bedside.

It is important to evaluate overall respiratory status and consider the patient's likelihood of being able to protect themselves from further infection when evaluating feeding options.

Remember chest x-ray key terms:

Consolidation – *the lung is filled with liquid or a mark of swelling/ hardening of normal soft tissue*

Infiltrate – *abnormal substance has infiltrated the lungs*

Atelectasis – *a collapse or closing of the lung resulting in reduced or absence gas exchange*

Pleural effusion – *excess fluid that accumulates between the two pleural layers, the fluid-filled space that surrounds the lungs*

6.4 Dysphagia Screening

What is a screening tool?



A swallowing/dysphagia screening tool indicates likelihood of the presence or absence of dysphagia and identifies patients who require a referral to a *Speech-Language Pathologist* for a full swallowing assessment.



The Heart and Stroke Foundation (HSF) and Registered Nurses' Association of Ontario (RNAO) (2005) publication entitled, *Stroke Assessment across the Continuum of Care*, suggests that a dysphagia screening tool contain:

- Assessment of the client's alertness and ability to participate
- Direct observation of the oropharyngeal swallowing difficulty (choking, coughing, wet voice)
- Assessment of tongue protrusion
- Assessment of pharyngeal sensation
- Assessment of voice quality
- Administration of a 50mL water test
- Evaluation of the patient's voice quality, oromotor function, oral sensation, and ability to cough
- Trials of water using a present protocol

What are some examples of swallowing screening tools?

Massey Bedside Swallowing Screen

The Massey Bedside Swallowing Screen is a 14 point screen that examines alertness level, dysarthria, aphasia, oral motor abilities, gag reflex, and incorporates a one teaspoon water swallow followed by a 60mL water swallow.

Timed Test of Swallow and Questionnaire

Each patient answers a standard questionnaire related to his or her swallowing. If swallowing, the patient undergoes a limited timed test. The timed test involves 5-10 mL of water from a teaspoon. Patients choking on this amount do not proceed to the full test and are recorded as an abnormal test. If the patient passes then 50- 100 mLs of water is given and the patient is asked to drink the water as quickly as possible. Any residual water is measured as are the number of swallows. The test is abnormal if either the quantitative or the qualitative aspects of the swallow are outside the normal limits.

Toronto Bedside Swallowing Screening Test (TOR BSST)

The TOR BSST screen includes 4 clinical test items: dysphonia, 'voice before' and 'voice after', tongue movement, and water swallows using a preset protocol.

Screening Tool for Acute Neurological Dysphagia (STAND)

The STAND screening tool evaluates patients' alertness and oxygen saturation levels, voice quality and ability to manage oral secretions, and history of dysphagia. It also includes a swallow challenge with pureed foods and water and while the assessor observes for specified signs of impaired swallowing.

Standardized Swallowing Assessment (SSA)

SSA consists of a general evaluation (e.g., conscious level, postural control) in order to ensure the patient is physically capable of undertaking screening. The screening tool then assesses the patient's breathing, voice control, saliva control, as well as his or her ability to cough, sip water from a spoon, and drink water from a glass.

The Barnes-Jewish Hospital Screen

The Barnes- Jewish Hospital Screen assesses consciousness, dysarthria and has a 3 ounce water trial to identify any signs of aspiration.

*Refer to the screening tool used in your organization

6.5 Managing Dysphagia and Feeding Your Stroke Patient

Dysphagia Diets



As there is no standard classification for diets, please check with your own facility or organization regarding available diet for patients with dysphagia.

The *Speech-Language Pathologist* in conjunction with the *Dietitian* will identify the most appropriate diet for the individual patient.

Nutrition Support: Enteral Nutrition

2013 Canadian Best Practice Recommendations for Stroke Care: Rehabilitation 5.7.2 state that enteral nutrition support should be considered as early as possible after admission, usually within the first three days if a patient is unable to meet their needs orally or if NPO status is considered:

- ii. Stroke patients with suspected nutritional concerns, hydration deficits, dysphagia, or other comorbidities that may affect nutrition (such as diabetes) should be referred to a *Dietitian* for recommendations:
 - a. To meet nutrient and fluid needs orally while supporting alterations in food texture and fluid consistency recommended by a *Speech-Language Pathologist* or other trained professional [Evidence Level B];

- b. For enteral nutrition support (nasogastric tube feeding) in patients who cannot safely swallow or meet their nutrient and fluid needs orally.
- c. **The decision to proceed with tube feeding should be made as early as possible after admission**, usually within the first three days of admission in collaboration with the patient, family (or substitute decision maker), and interprofessional team [Evidence Level B].

Nasogastric (NG) Feeding Tube

NG feeding tubes are used for short-term nutrition support. They allow an immediate route for nutrition, hydration and most medications. Average use is less than 4 weeks. The nares should be checked periodically for breakdown and soreness.

Common benefits of using NG tube:

- Provides immediate route to provide nutrition, water, and medications
- Allows patient to be nourished and hydrated when some recovery of swallowing ability is expected within a short-time period (1-3 weeks)

Common risks of using NG tube:

- Patient may pull NG out, as it is easily accessible
- Hands may need to be restrained if repeatedly pulled out
- Smaller tubes clog more easily
- May cause reflux, possible aspiration pneumonia
- May cause an increase in secretions and sinusitis
- Not all medications can be put through an NG tube

***If no progress in 1-3 weeks, PEG Tube or gastrostomy tube should be considered for longer-term tube feeds.**

Percutaneous Endoscopic Gastrostomy (PEG) Feeding Tube

PEG feeding tubes are used for longer term nutrition support (greater than 4-6 weeks). It can be inserted endoscopically, radiologically, CT-guided or surgically. Consider PEG placement for enteral feeding lasting longer than 28 days, as this time frame has been associated with fewer complications.

Feeding Your Stroke Patient

Feeding is a skill that requires knowledge and experience. Safe, low-risk feeding practices should be used with all patients, but are especially important with patients requiring full feeding assistance. This helps to prevent serious health problems and improve the quality of the experience for the patient.

Consider the placement of food in front of the survivor to accommodate for neglect (see *Module 9: Cognition, Perception, and Behaviour*).

To ensure patient safety, one must consider:

- Positioning for feeding
- Safe feeding techniques and strategies
- Mouth care
- Dysphagia diets
- Thickened fluids

Patients who are fed by others are at an increased risk of aspiration, so stroke survivors should be encouraged and assisted to *feed themselves* when possible.

Patient Positioning

- Sit fully upright with a slight chin tuck when eating and/or drinking

Feeder Positioning

- Eye-level with the patient
- Across from the patient
- Feeder should be comfortable
- Do not feed from above the mouth

Feeding Strategies

- Check the tray to ensure the correct diet has been provided
- Feed at a relaxed pace
- Ensure patient has swallowed before giving the next bite, watch and feel the swallow
- Small amounts of $\frac{1}{2}$ to one teaspoon at a time
- Do not engage in conversation with patient when there is food or liquid in their mouth
- It is permissible to engage in conversation once their mouth is empty, as this is a way to check vocal quality (listen for wet voice)
- Use hand-over-hand support with dysphagic patients who cannot self-feed
- Cue patients to feed on the strong side of their mouth (i.e., present utensil or cup to non-affected side)
- Reduce distractions
- Provide one pill at a time (crush if necessary)
*Consideration: is pill crushable?
- Patient should remain upright for at least 30 minutes after meal
- Complete mouth care after each meal
- Use assistive devices; rimmed plates, a gripper pad to prevent dishes from slipping, cup or glass holders, modified utensils with built up or bent handles, etc. (Heart and Stroke Foundation, Tips and Tools, 2010)

Dangerous Practices

According to the Heart and Stroke Foundation of Ontario's *Improving Recognition and Management of Dysphagia in Acute Stroke, A Vision for Ontario 2005*, the following practices may have significant clinical consequences, including aspiration or dehydration, for individuals with dysphagia:

- Feeding someone who is not alert
- Syringe feeding
- Feeding in a fully or partially recumbent position
- Giving pills with water to individuals on a 'no thin fluids' diet
- Unnecessarily restricting diet to thickened and puree
- Feeding with a tablespoon rather than a teaspoon
- Giving anything not approved in the diet; tell family, other staff members, and visitors to check if specific food items are allowed before they bring them

Other Considerations

Weight

It is important that all stroke patients are weighed upon their admission to the medical floor. This will serve as a baseline weight so that the *Dietitian* can determine that any weight loss is occurring during their hospital stay. Weights can be recorded in the patient's chart.

Intake Records

Food intake records can be ordered by the *Physician* and/or *Dietitian* for a set number of days to better determine if a stroke patient's oral intake is meeting their estimated nutritional needs. Please use the menu tickets, if available, on a patient's meal tray to mark the approximate amount of each food consumed. In some centres, these menu tickets are kept on the front of the patient's chart for the *Dietitian* to view.

6.6 Oral Care

The objective of proper mouth care is to maintain the mouth in a comfortable, clean, moist and infection-free state.

To be effective, **oral care must include** cleaning the:

- Entire oral mucosa
- Tongue
- Teeth
- Sulci (spaces between the cheeks and gums)

Thorough and effective mouth care is required to maintain a healthy oral environment on all patients, especially if they are:

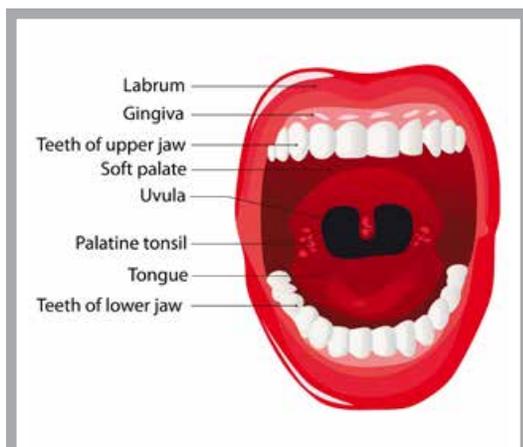
- Unconscious
- NPO; for these patients, mouth care should be performed a minimum of bid
- Eating and drinking minimally
- Have impaired oral sensation

For patients receiving thickened fluids:



If patient has been prescribed a mouth care agent (e.g., nystatin), ensure it is ‘swabbed on’ due to risk of aspiration; patient cannot “swish and swallow” but may be able to “swish and spit”.

Consider consulting *Dentistry, Occupational Therapy, Speech-Language Pathologists, and/or a Dental Hygienist* to develop an oral care protocol (National Stroke Nursing Council, 2010).



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