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Looking into **oropharyngeal dysphagia** in older adults

By Mariya Canham, BSN, RN

NURSES ARE IN THE THICK OF IT when caring for older adults with dysphagia. *Dysphagia,* the subjective sensation of difficult or abnormal swallowing, can interfere with a patient's ability to eat or drink. *Oropharyngeal dysphagia* means difficulty initiating the swallowing process. *Esophageal dysphagia,* which is beyond the scope of this article, is difficulty swallowing several seconds into the process, along with a feeling of food being lodged in the esophagus.[1]

Older adults are more likely than younger ones to have dysphagia. In community-dwelling people over age 50, the estimated prevalence is 16% to 22%.[2] About 60% to 87% of long-term-care facility residents have a history of dysphagia, mostly oropharyngeal dysphagia.[2]

An estimated one in every five U.S. residents will be age 65 or older by 2030.[3] As patients age, nurses can expect dysphagia to become an increasingly recognized national healthcare issue associated with significant cost. This article focuses on oropharyngeal dysphagia in older adults, with a focus on dietary modifications.

Physiology of normal swallowing

The swallowing reflex propels food from the mouth through the esophagus to the stomach through a highly specific sequence of events. Although swallowing begins as a voluntary activity, when food or fluid reaches the pharynx, it becomes an involuntary activity.[4]

The swallowing center, located in the medulla and lower pons, integrates the sensory impulses and motor components of the reflex. The trigeminal (V), glossopharyngeal (IX), vagus (X), and hypoglossal (XII) cranial nerves conduct motor impulses needed for the oral and pharyngeal phases of swallowing. The vagus nerve conducts impulses for the esophageal phase. Disorders affecting these parts of the brain or cranial nerves can impair the coordination needed for swallowing. Affected patients are at risk for aspiration or airway obstruction.[4] (See *Steps in the swallowing reflex.*)

Myriad causes

The main causes of dysphagia include neurologic disorders and injuries such as stroke, Parkinson disease, dementia, multiple sclerosis, cerebral palsy, and traumatic brain injury; and also malignancies, including head and neck tumors and esophageal cancer.[5]

Dysphagia is considered an alarm symptom; that is, one that requires immediate evaluation to diagnose its cause and start appropriate treatment. Dysphagia should never be considered a normal sign of aging.[1]

Dysphagia can lead to serious complications such as:

- dehydration
- malnutrition and weight loss
- aspiration pneumonia
- airway obstruction.[6,7]

Clinical manifestations

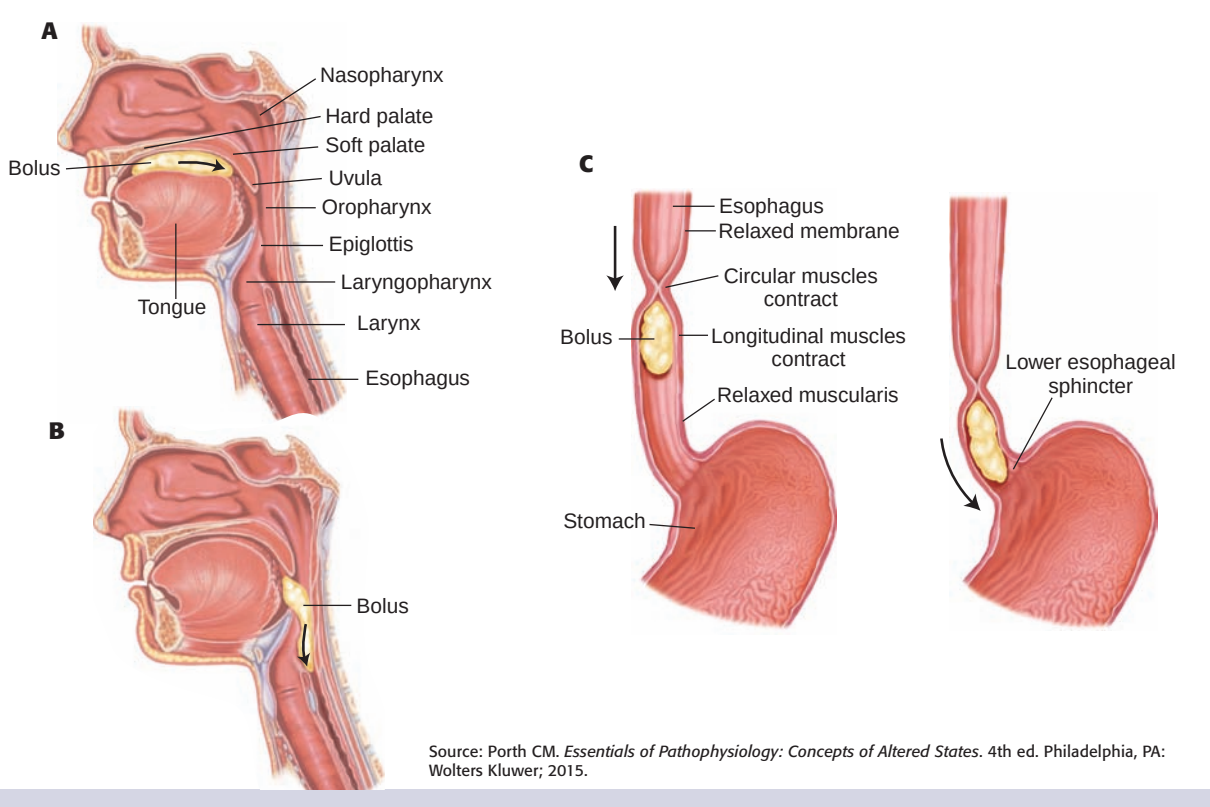
The most common signs and symptoms of dysphagia include:

- coughing or choking with swallowing
- difficulty or hesitancy initiating swallowing
- sensation of food sticking in the throat or chest
- change in voice or speech
- drooling
- nasal regurgitation
- heartburn
- watering of the eyes after eating
- pocketing (getting food stuck in the cheek)
- belching.[6,8]

Other signs and symptoms may include changes in dietary habits, unexplained weight loss, recurrent

Steps in the swallowing reflex

Swallowing consists of three phases: an oral, or voluntary, phase; a pharyngeal phase; and an esophageal phase: (A) The *oral or voluntary phase*, during which the bolus is collected at the back of the mouth so the tongue can lift the food upward and into the pharynx; (B) the *pharyngeal phase*, during which food movement into the respiratory passages is prevented while the tongue is elevated and pressed against the soft palate closing the epiglottis, the upper esophageal sphincter relaxes, and the superior constrictor muscle contracts, forcing food into the esophagus; and (C) the *esophageal phase*, during which peristalsis moves food through the esophagus and into the stomach.



Source: Porth CM. *Essentials of Pathophysiology: Concepts of Altered States*. 4th ed. Philadelphia, PA: Wolters Kluwer; 2015.

pneumonia, general weakness, and mental status changes.[6]

Health history

Start by obtaining a comprehensive health history, including patient risk factors and signs and symptoms associated with dysphagia.

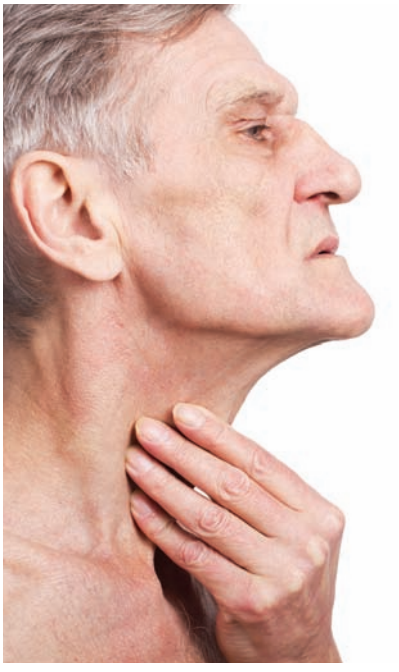
Ask patients these questions:

- Are you on a special diet? What do you typically eat and drink?
- Do you need any assistance with eating?
- Do you experience coughing, choking, or gagging while eating or drinking?
- Do you have any prolonged coughing after swallowing?
- After eating or drinking, do you notice any changes in your voice, such as wetness or hoarseness?
- Do you have a sensation of food sticking to the back of your throat or getting stuck in your upper chest (behind the breastbone) while you try to swallow or after swallowing?
- Do you experience any regurgitation of food into the nose or drooling?
- Do you feel any pain during swallowing?
- Do you have problems with acid reflux?
- Have you experienced any recent unintentional weight loss?

Physical assessment

Assess the patient's mental status and general appearance, looking for signs of malnutrition and dehydration such as loss of subcutaneous fat or dry tongue and oral mucosa. Assess the patient's dentition and oral hygiene. If dentures are present, assess how well they fit. Perform a focused neurologic assessment, including cranial nerve assessment.

If possible, directly observe patients while they eat and drink, assessing for coughing, drooling, choking, gagging, regurgitation, changes in voice, and repeated swallowing of the same food or fluid bolus. Observe to see if patients need to cut their food into smaller pieces. Also observe patients to see if they need prolonged processing time between bites of food or sips of fluid, and watch for any pocketing.



Dysphagia should never be considered a normal sign of aging.

Dysphagia diagnosis

After completing the patient health history and physical assessment, notify the healthcare provider of any abnormalities to help determine the need for further evaluation.

Clinical noninstrumental evaluation of dysphagia (bedside swallowing screening or assessment) can provide a rapid, easy, and convenient way to determine the likelihood that dysphagia is present, promoting faster appropriate management including referral for further swallowing assessment when indicated.[9] In one study, bedside assessments showed high sensitivity and specificity in detecting dysphagia compared with fiberoptic endoscopic evaluation of swallowing (FEES).[10]

Bedside evaluation includes initial assessment of cognitive status, gag reflex, voluntary cough, and throat clearing. When a patient successfully completes these initial steps, then spontaneous swallowing of saliva and its frequency are assessed. If a patient can't control saliva, the assessment is discontinued.

After passing the saliva test, a water swallowing test is initiated. The patient is given 5 mL of water, and when tolerated, the amount is increased to 20 mL followed by 50 mL of water or other thin fluid. The patient is assessed for coughing and choking during or after swallowing, and for a wet or weak cough after swallowing. The patient is asked to produce the sustained vowel "ahh" before and after swallowing water to observe for changes in the voice.[10] Compared with FEES, the combination of choking or coughing and change of voice shows high sensitivity and specificity as indicators of aspiration.[10]

If an initial bedside swallowing assessment indicates that dysphagia is present, additional swallowing evaluation may include the following:

- **Videofluoroscopy with modified barium swallow:** The patient drinks a barium solution that permits visualization of the pharynx and esophagus and assessment of muscular activity during swallowing. It can help clinicians detect oropharyngeal dysfunction and assess the severity of aspiration.[11]
- **Dynamic swallowing study:** A patient swallows barium-coated foods of different consistencies. The images can demonstrate alterations in the coordination of muscles involved in swallowing, as well as the presence of aspiration.[11]
- **Nasopharyngolaryngoscopy:** This is usually performed at the bedside by an otolaryngologist. It permits a detailed examination of the oropharynx, hypopharynx, larynx, and proximal esophagus to rule out structural lesions, as well as the presence of pooled secretions or food.[11]

• **FEES, also known as nasoendoscopy:** While the patient swallows food and fluid boluses, the laryngeal and pharyngeal structures and function are visualized via a flexible fiberoptic endoscope passed transnasally.[11]
• **Manometry of the upper esophageal sphincter (UES):** This provides quantitative evaluation of the pressures and timing involved in pharyngeal contraction and UES relaxation.[11]

Dysphagia management

Some of these swallowing techniques and exercises may help certain patients, depending on the reason for their dysphagia.
• For patients with reduced oral mobility on one side, teach them to tilt their head back and put food on the back of the tongue on the stronger side.[11]
• For patients whose pharynx contracts slowly, advise them to bend their neck forward.[11]
• For patients with unilateral pharyngeal dysfunction, have them turn their head to their weaker side while tilting it to the stronger side to help propel the bolus of food.[11]
• For patients with problems with tongue base contraction and control of the pharynx, teach them to use the effortful swallow (modified Valsalva maneuver) to help reduce food and liquid residual in the mouth after swallowing. Patients need to squeeze very hard with their tongue and throat muscles while they swallow, and the extra effort should be visible in the neck.[11,12]
• To improve closure of the larynx and protect the airway, teach patients to use the supraglottic swallow—they should hold their breath, swallow twice, and expire forcefully. This method closes the vocal folds before and during the process of swallowing.[11]
• Using the Mendelsohn maneuver to voluntarily prolong the phase of laryngeal elevation (closure) helps to prolong the opening of the UES, allowing significantly more time for bolus transfer. First, patients need to swallow their saliva multiple times to feel their larynx rise and fall during the process. Then, when swallowing a food or fluid bolus, they should feel the larynx lift but not let it go by holding it with the muscles for 2 seconds; then they should release it and repeat five times.[11,13]
• To make the lips and tongue stronger and help control drooling, ask the patient to perform oral motor exercises. This can also help patients form and propel boluses.[11]

For patients with dysphagia, substituting thickened fluids for thin ones helps slow the passage of the fluid bolus during swallowing.

Other measures that can reduce the risk of aspiration and improve swallowing in patients with dysphagia include the following.[11]
• Reduce the size of mouthfuls by cutting food into smaller pieces and providing small bites and sips.
• Alternate solid and liquid boluses to facilitate better transfer to the esophagus.
• Feed the patient with a specific cup, straw, or spoon if that helps that particular patient.
• If patients have neurologic dysfunction, provide meals when they're most alert and, if possible, ensure a caretaker provides assistance or supervision.

Patients who can't tolerate oral nutrition regardless of the measures taken or who are at high risk for aspiration should be fed with enteral nutrition by means of a feeding tube.[11]

Clinicians' roles

Healthcare providers prescribe a diet based on their own assessment findings or a speech pathologist's recommendation. Dietitians can work with patients individually to determine their flavor and food preferences within the parameters of the prescribed diet, modifying food options to meet patients' nutrition requirements. The most important guideline is individualizing dietary modifications to each patient's needs.

Understanding thickened fluids

Most commonly, dysphagia is managed by substituting thickened fluids for thin liquids, which helps to slow the passage of the fluid bolus during swallowing. This gives the patient more time to control the process and prevent aspiration.[5] Solid foods will likely need modified consistency as well, such as soft or pureed foods. In long-term care skilled nursing facilities, up to 28% of residents receive thickened fluids for dysphagia, costing over $200 per month per patient.[14]

Various thickening agents and prethickened fluids are currently available. Liquids are thickened with a range of starches and gums.[5] Products come as thickening agents, such as white powders or clear gels, and prethickened (prepackaged) thickened fluids. Hand-thickened liquids are produced individually or in bulk by adding a thickening agent to a thin base liquid, either by hand or with

commercial kitchen equipment such as a blender. Prepackaged thickened fluids are prethickened and individually packaged at various levels of thickness as labeled.[15] Facilities may use both hand-thickened fluids and prepackaged thickened fluids.

Thickening agents come in packages with recipes and preparation instructions detailing the proportions needed for prescribed consistencies. These powders are usually packaged with measuring devices such as scoops. Some thickening agents come in kits that also include dispenser bottles, shakers, and pumps.[16] All staff and consumers who manually prepare thickened liquids need to read and follow the instructions carefully to obtain the desired fluid consistency.

Defining thickness

The American Dietetic Association published the National Dysphagia Diet (NDD) in 2002 to provide standard terminology and practice applications for dietary texture modifications to manage dysphagia.[17] The need to develop standardized terminology and standard food texture rose from issues related to provider miscommunication, when patients were prescribed stricter diets than necessary or less strict diets that could cause complications. The NDD defined thickened fluids by assigning viscosity ranges. (See *Defining four levels of thickness.*)

Complications

Although the use of thickened fluids is effective for preventing aspiration, it's also associated with several patient-care issues:

Dehydration. Many patients who receive thickened fluids fail to meet their daily fluid requirement (1.7 to 2 L per day), which can lead to dehydration.[18] According to reports, in long-term care facilities, about 75% of residents relying on thickened liquids for oral hydration were dehydrated.[5] Dehydration, in turn, can lead to an increased risk of falls and other complications, including acute kidney injury, constipation, urinary tract infections, changes in mental status, poor muscle strength, respiratory infections, and pressure ulcers.[19]

Aspiration due to inappropriate viscosity. While overthickening fluids can lead to dehydration, failure to achieve the recommended viscosity of fluids can increase aspiration risk. Some studies have shown that manually prepared thickened fluids vary greatly in their viscosity levels and many don't meet the consistency guidelines of the NDD.[20] Variations in viscosity can be caused by different preparation techniques used by various professionals, failure to read the label product information, and lack of specific training.[20]

Decreased adherence and patient satisfaction. Although thickening fluids doesn't affect the bioavailability of water, feelings of satiety and thirst increase as the viscosity of the fluid increases.[5] Flavor deteriorates as fluid thickness increases, regardless of the thickening agent used.[5]

Nursing considerations

Nurses caring for patients with dysphagia should document aspiration precautions in the patient's medical record and place a corresponding sign at the patient's bedside. Nurses are also responsible for providing optimal oral hygiene and ensuring that the patient receives prescribed dietary modifications. Monitoring patients for these complications related to the use of modified fluids is crucial.

- **Signs of dehydration:** oliguria, dark concentrated urine, dry mucous membranes, tachycardia, hypotension, and mental status changes.
- **Signs of aspiration:** coughing or drooling during swallowing, wet or hoarse voice, adventitious breath sounds, sudden oxygen desaturation.
- **Signs of nonadherence with thickened fluids and poor patient satisfaction:** decreased daily fluid intake, consumption of less than two-thirds of the served fluid amounts, refusal to drink thickened fluids and cravings for plain thin water, complaints of poor taste and unpleasant texture of thickened fluids.

To provide patients with both adequate hydration and optimally safe fluid consistency, healthcare providers have to find the best option among the wide variety of thickened fluids or instant thickeners available. Taste preferences should be given great weight: Better taste and palatability will improve intake of fluid and ultimately improve hydration.

Clinicians are encouraged to prescribe the minimal level of thickness needed for swallowing safety. This can enhance adherence and ensure adequate hydration. ■

Defining four levels of thickness[8,20,21]

Level of thickness	Description	Examples
Thin	No alteration	Water, coffee, soda, broth
Nectar-like	Slightly thicker than water; consistency of unset gelatin	Buttermilk, cold tomato juice, eggnog, fruit nectars
Honey-like	A liquid with the consistency of honey	Thick yogurt, tomato sauce, thick honey
Spoon-thick	A liquid with the consistency of pudding	Thickened applesauce, thick milk, chocolate pudding

REFERENCES

1. Fass R. Overview of dysphagia in adults. 2015. www.uptodate.com.

2. Lembo AJ. Oropharyngeal dysphagia: etiology and pathogenesis. 2015. www.uptodate.com.

3. Aslam M, Vaezi MF. Dysphagia in the elderly. *Gastroenterol Hepatol (N Y)*. 2013;9(12):784-795. www.ncbi.nlm.nih.gov/pmc/articles/PMC3999993/.

4. Porth CM. *Essentials of Pathophysiology*. 4th ed. Philadelphia, PA: Wolters Kluwer; 2015.

5. Cichero JA. Thickening agents used for dysphagia management: effect on bioavailability of water, medication and feelings of satiety. *Nutr J*. 2013;12:54.

6. Paik N-J, Consuelo CT. Dysphagia. Practice essentials. 2014. emedicine.medscape.com/article/2212409-overview.

7. Forster A, Samaras N, Gold G, Samaras D. Oropharyngeal dysphagia in older adults: a review. *Eur Geriatr Med*. 2011;2(6):356-362.

8. Texas Department of Aging and Disability Services. Feeding assistant training. 2013. www.dads.state.tx.us/providers/nf/credentialing/NATCEP/feedingassistant.pdf.

9. American Speech-Language-Hearing Association. Swigert N, Riquelme L, Steele C. Frequently Asked Questions (FAQ) on swallowing screening: special emphasis on patients with acute stroke. 2009. www.asha.org/uploadedFiles/FAQs-on-Swallowing-Screening.pdf.

10. Hassan HE, Aboloyoun AI. The value of bedside tests in dysphagia evaluation. *Egypt J Ear Nose Throat Allied Sci*. 2014;15(3):197-203.

11. Lembo AJ. Oropharyngeal dysphagia: clinical features, diagnosis, and management. 2015. www.uptodate.com.

12. Medical Speech Pathology. Dysphagia exercises. https://medicalspeechpathology.wordpress.com/swallowing/dysphagia-exercises/.

13. Ohio State University Medical Center. Swallowing exercise – Mendelsohn maneuver. 2008.

14. Robbins J, Barlow S, Qian-Jie F, Ramig L. Bench to bedside technology transfer in speech, swallowing and hearing. ASHA Annual Conference, San Diego, CA, 2011.

15. Hulcombe J. Thickened fluids for adults in hospital and Health Service facilities. *Department of Health Guideline*. Version1.0. 2013. https://www.health.qld.gov.au/qhpolicy/docs/gdl/qh-gdl-941.pdf.

16. Simply Thick Online Catalog. 2014. http://old.simplythick.com/catalog/.

17. McCullough G, Pelletier C, Steele C. National Dysphagia Diet: what to swallow? *The ASHA Leader*. 2003;8:16-27.

18. McCormick SE, Stafford KM, Saqib G, Chroinin DN, Power D. The efficacy of pre-thickened fluids on total fluid and nutrient consumption among extended care residents requiring thickened fluids due to risk of aspiration. *Age Ageing*. 2008;37(6):714-715.

19. British Nutrition Foundation. Dehydration in the elderly. 2014. https://www.nutrition.org.uk/nutritionscience/life/dehydrationelderly.html.

20. Garcia JM, Chambers E 4th, Clark M, Helverson J, Matta Z. Quality of care issues for dysphagia: modifications involving oral fluids. *J Clin Nurs*. 2010;19(11-12):1618-1624.

21. Dysphagia Diet. https://www.dysphagia-diet.com.

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