

Revisiting Nutrition Best Practice for Dysphagia

by Brenda Richardson, MA, RDN, LD, CD, FAND

One of the great joys of life is taking pleasure in food and drink. Food and drink provide nutrients needed by our physical bodies, and are also essential to our quality of life. However, many of us take the ability to enjoy food for granted. Not everyone experiences this joy of eating because swallowing may be impaired (known clinically as dysphagia). This occurs as we age and even more so when other medical conditions are present.

One thing is for sure, whatever the cause, we know that dysphagia creates many challenges to leading a healthy quality of life.

In the article “Making Dysphagia Easier to Swallow,”

published in the March 2012 issue of *Nutrition & Foodservice Edge*, author Debbie Zwiefelhofer, RD, LD noted that the time had come for improved standardization of “best practice” standards of care related to dysphagia and diet. So here we are three years later as we take a look at what improvements have been made.

OVERVIEW OF DYSPHAGIA

Difficulty swallowing is also called dysphagia. It is usually a sign of a problem with the throat or esophagus (the muscular tube that moves food and liquids from the back of the mouth to the stomach). Although dysphagia can



USE A PERSON-CENTERED APPROACH WHEN MEETING THE NEEDS OF DYSPHAGIA PATIENTS

happen to anyone, it is most common in older adults, babies, and people who have problems of the brain or nervous system.

What Causes Dysphagia?

Normally, the muscles in the throat and esophagus squeeze, or contract, to move food and liquids from the mouth to the stomach without problems. Sometimes, though, food and liquids have trouble getting to the stomach.

The types of problems that can make it hard for food and liquids to travel down the esophagus may be related to:

- The muscles and nerves that help move food through the throat and esophagus not working right. This can happen when one has:
 - > Had a stroke or a brain or spinal cord injury.
 - > Certain problems with the nervous system, such as multiple sclerosis, muscular dystrophy, or Parkinson's disease.
 - > An immune system problem that causes swelling (or inflammation) and weakness, such as polymyositis or dermatomyositis.
 - > Esophageal spasm where the muscles of the esophagus suddenly squeeze.
 - > Scleroderma where tissues of the esophagus become hard and narrow.
 - > Something blocking the throat or esophagus. This may happen with:
 - Gastroesophageal reflux disease (GERD). When stomach acid backs up regularly into the esophagus, it can cause ulcers in the esophagus, which can then cause scars to form and possibly make the esophagus narrower.
 - Esophagitis, which is inflammation of the esophagus.
 - Diverticula—small sacs in the walls of the esophagus or the throat.
 - Esophageal tumors.
 - Masses outside the esophagus, such as lymph nodes, tumors, or bone spurs on the vertebrae that press on the esophagus.

Swallowing disorders, also called dysphagia, can occur at different stages in the swallowing process:

- Oral phase—sucking, chewing, and moving food or liquid into the throat
- Pharyngeal phase—starting the swallowing reflex, squeezing food down the throat, and closing off the airway to prevent food or liquid from entering the airway (aspiration) or to prevent choking
- Esophageal phase—relaxing and tightening the openings at the top and bottom of the feeding tube in the throat (esophagus) and squeezing food through the esophagus into the stomach

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General signs and symptoms of swallowing disorders may include:

- Coughing during or right after eating or drinking
- Wet or gurgly sounding voice during or after eating or drinking
- Extra effort or time needed to chew or swallow
- Food or liquid leaking from the mouth or getting stuck in the mouth
- Recurring pneumonia or chest congestion after eating
- Weight loss or dehydration from not being able to eat enough
- Poor nutrition or dehydration
- Risk of aspiration (food or liquid entering the airway), which can lead to pneumonia and chronic lung disease
- Less enjoyment of eating or drinking
- Embarrassment or isolation in social situations involving eating

HOW WE GOT TO WHERE WE ARE

In the 1990s it was recognized that there needed to be some standardization in dietary modifications used in treating dysphagia. This led to the development of the National Dysphagia Diet (NDD) introduced in 2002. The NDD incorporated a scientific foundation for the dysphagia diet based on key rheological properties of foods and fluids. The NDD also included the consideration of physical forces of the chewing and swallowing process. (See Figure 1)

The NDD consists of 4 diet levels: see Figure 2.

For liquids there are also 4 levels of liquid viscosity: see Figure 3.

WHY THE CONFUSION?

One would reason that with the introduction of the NDD in 2002, there would be continued improvement in the treatment of dysphagia. The NDD authors stressed that this was a work in progress and there was a need for continued studies and research. So here we are in 2015, and there continues to be a need for “best practice” parameters for healthcare professionals, clients, and caregivers. Several key areas for us to consider include:

Figure 1: Forces of Chewing and Swallowing



Food is **compressed**. This means the food item is deformed by force, such as when the tongue pushes a food up against the roof of the mouth and basically squishes it.

Food can be **adhesive**. Some foods are attracted to another surface. Peanut butter is very adhesive. Oil is not at all sticky.

Food becomes **tensile**. Food can be extended (stretched) due to force. Think of dough being extruded from a cookie press. Food extrusion occurs in the process of swallowing when the food bolus moves through the esophagus by way of peristaltic waves. These waves stretch and pull the food bolus along until it reaches the stomach.

Food is **sheared** (cut) by the grinding force of molar teeth.

Food can be **fractured** (broken) by biting it into pieces.

Source: *Nutrition & Foodservice Edge*, March 2012

Current “Best Practice Guidelines”

Probably the best information that gives an overview of the continued need for “best practice” can be found by looking at the International Dysphagia Diet Standardization Initiative (IDDSI), which aims to develop global standardized terminology and definitions for texture modified foods and thickened liquids for individuals with dysphagia of all ages, in all care settings, and all cultures.

IDDSI is a group of volunteers from diverse professions including nutrition & dietetics, medicine, speech pathology, occupational therapy, nursing, patient safety, engineering, food science & technology from around the world working to establish an international standardized terminology and definitions for texture modified foods and thickened liquids for persons with dysphagia.

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In February 2015, IDDSI announced the publication of a systematic review article, *The influence of food texture and liquid consistency modification on swallowing physiology and function: A systematic review*. This open-access article is the most comprehensive review to date of the effects of altering food and liquid consistency on swallowing, and includes that while texture modification is the most common form of intervention for dysphagia, it lacks a solid evidence base. (Download the article at <http://bit.ly/1wvZydp>)

In January 2015 a group of IDDSI committee members met to draft the framework for international dysphagia diet standards. The committee reviewed:

- Findings from an IDDSI international survey
- Existing regional or national standards being used by various countries
- Evidence from the systematic review

From this meeting there was an agreement on number of levels, descriptors and Identification schemes; standards that account for the full lifespan and populations and consideration for the environment of use. There are plans for stakeholder consultation and surveys to begin in March/April 2015.

Overall, this reminds us that the dysphagia field is still in relative infancy. Given the prevalent use of texture-modified foods and thickened liquids in the treatment of

dysphagia, the gaps in these areas are still in need of being identified based on clinically relevant research to guide best practice.

Variance In Levels of Viscosity and Food Textures

One of the most frequent challenges for treatment of dysphagia centers on determination of the level for a particular liquid. As noted previously the viscosity ranges for liquids allow for “inconsistent consistencies,” and while various commercial thickened products are available there is still the need for improvement in standardization.

In a recent article, *Thickening agents used for dysphagia management: effect on bioavailability of water, medication and feelings of satiety* (Nutrition Journal 12:54) clinicians were encouraged to prescribe the minimal level of thickness needed for swallowing safety.

The author stated that although thickened liquids improve swallow safety, they appear to have a great potential for unintended physiological consequences. There were initial concerns about the impact of thickeners on water binding due to the high prevalence of dehydration among individuals with dysphagia. The end result was that thickeners do not affect water bioavailability which held true even for extremely thick fluids.

It was determined, however, that bioavailability of medication is impaired with viscous substances. In addition, feelings of satiety and thirst increase with increasingly viscous

Figure 2: Levels of the National Dysphagia Diet

Level	Description	Examples of Recommended Foods
Level 1: Dysphagia Pureed	Homogenous, cohesive, and pudding-like. No chewing required, only bolus control.	Smooth, homogenous cooked cereals. Pureed: meats, starches (like mashed potatoes), and vegetables without lumps. Pureed/strained soups. Pudding, souffle, yogurt.
Level 2: Dysphagia Mechanically Altered	Moist, semi-solid foods, cohesive. Requires chewing ability.	Cooked cereals with little texture. Moistened ground or cooked meat. Moistened, soft, easy to chew canned fruit and vegetables.
Level 3: Dysphagia Advanced	Soft-solids. Requires more chewing ability.	Well moistened breads, rice, and other starches. Canned or cooked fruit and vegetables. Thin sliced, tender meats/poultry.
Level 4: Regular	No modifications, all foods allowed.	No restrictions.

Adapted from Groher ME, Crary MA. Dysphagia: Clinical management in adults and children. Maryland Heights, MO: Mosby, Elsevier; 2010. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3426263/table/t4-cia-7-287/>

fluids while flavor deteriorates with increasing thickness regardless of the thickening agent.

The physical property of viscosity rather than a particular thickening agent appears to be key. Provision of “spoon-thick” or “extremely thick liquids” is particularly likely to contribute to dehydration and poor bioavailability of solid dose medication.

The article encourages clinicians to prescribe the minimal level of thickness needed for swallowing safety, and that it is essential to include consultation with pharmacy and dietetic staff for optimum management of individuals with dysphagia.

Successful “Person-Centered” Nutrition Interventions Using a Team Approach

Given the aged population forecasts for the year 2050, improved dysphagia management should be a high priority, and a team effort is essential for success.

The Dining Practice Standards released from the Pioneer Network is a set of agreed-upon standards to support individualized care and self-directed living vs. traditional diagnosis-focused treatment. These standards are supported by more than 10 professional organizations to include the Centers for Medicare & Medicaid Services recommend that diets are to be determined with the person and in accordance with his/her informed choices, goals and preferences rather than exclusively by diagnosis. All decisions default to the person.

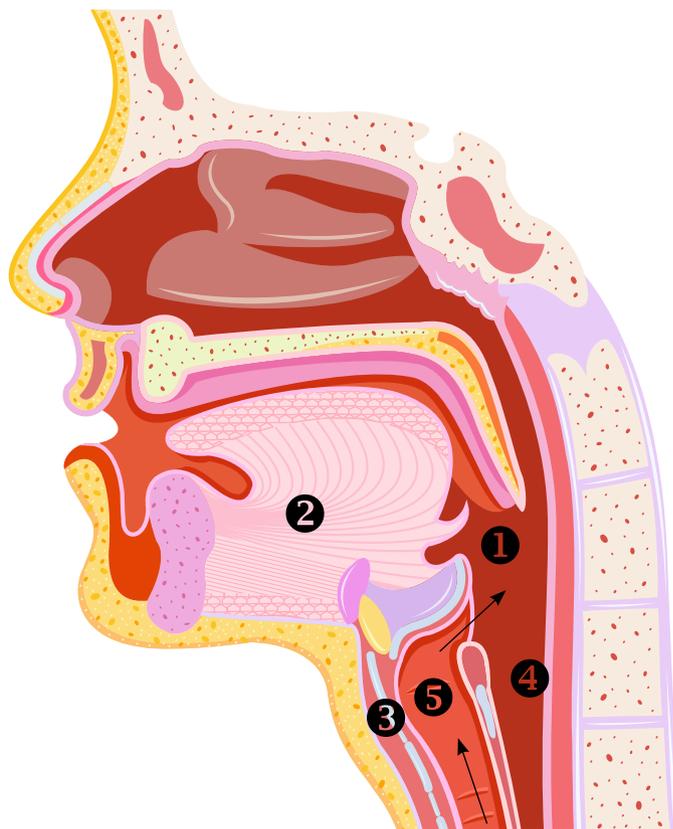
In regard to the Individualized Altered Consistency Diet, the American Medical Directors Association recommends that swallowing abnormalities do not necessarily require diet and fluid textures, and that food should be provided

at a consistency and texture that allows comfortable chewing and swallowing for the resident.

The Academy of Nutrition and Dietetics recommends that the Registered Dietitian Nutritionist should collaborate with speech therapy and other healthcare professionals to ensure residents with dysphagia receive appropriate and individualized modified texture diets. The article “Registered Dietitians and Speech-Language Pathologists: An Important Partnership in Dysphagia Management” (Journal of the American Dietetic Association, September 2010)

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Parts of the Mouth and Neck Involved in Swallowing



- 1 Pharynx (throat)
- 2 Tongue
- 3 Larynx (voice box)
- 4 Esophagus (food channel)
- 5 Trachea (windpipe)

Figure 3: Liquid Consistencies

Thin: 1-50 centiPoise (cP)*

Nectar-like: 51-350 cP

Honey-like: 351-1,750 cP

Spoon-thick: >1,750 cP

* Note: The NDD Task Force acknowledged these ranges are for “a commonsense approach” and were a catalyst for more research. The ranges for nectar-like and honey-like in particular allow for practitioners to vary in their assessment of which level of thickness a liquid is.

Source: National Dysphagia Diet, 2002

provides clarification of how RDs and SLPs can partner together to improve client care.

Team members for treatment of dysphagia may include speech-language pathologists; physicians; nurses; registered dietitians; physical, occupational and recreational therapists; social workers; family members; and the client. The actual composition needs to be addressed by each facility; however, a clear process with role delineation, policies/procedures, and overall performance improvement is critical.

WHAT'S NEXT?

As we look for improved “best practice” standards in the treatment of dysphagia, we need to continue offering the most current “evidence-based” treatment to our clients. This requires keeping up with the most current research, informing and listening to our clients while working together as a clinical team to best meet their needs. **E**

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WEBSITES/RESOURCES FOR MORE INFORMATION

- The International Dysphagia Diet Standardisation Initiative (IDDSI) <http://iddsi.org/>
- *Dysphagia OnLine*: Provides information about swallowing difficulties for patients and professionals. <http://www.dysphagiaonline.com/en/pages/home.aspx>
- The American Speech-Language-Hearing Association (ASHA) *Dysphagia Diets Web Page*: <http://www.asha.org/SLP/clinical/dysphagia/Dysphagia-Diets/>
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