Diet and Nutrition Care Manual

Chapter 2: Consistency Alterations

©2019 Becky Dorner & Associates, Inc.

©2019 Becky Dorner & Associates, Inc.

Diet and Nutrition Care Manual

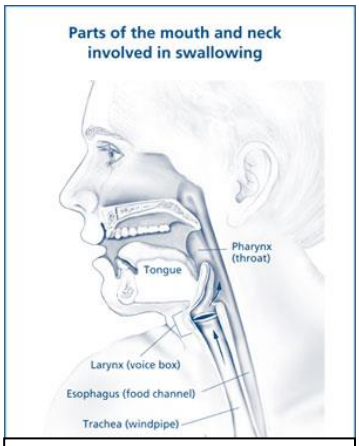
Introduction to Dysphagia

Dysphagia can be simply defined as any difficulty or inability to swallow. Dysphagia is not a disease, but a disruption of a normal process. Problems at any point during the swallow can result in difficulty swallowing (1,2). A person with dysphagia may have a delayed, incomplete or absent swallowing response. Incidence of dysphagia is estimated to be 15 to 40% in adults over the age of 60 (3). Some studies estimate to the prevalence of dysphagia around 15% in community dwelling individuals and upwards of 40% for older adults in long-term care facilities (3).

Dysphagia can have a dramatic impact on nutritional status including development of malnutrition, unintended weight loss, dehydration, and other nutrition deficits (4). The consequences of dysphagia will be discussed later in this section.

The Swallowing Process

Swallowing is a complex physical function which involves approximately 50 pairs of muscles and many nerves to move food from the mouth to the stomach (5.). The normal swallowing process consists of several phases. The oral preparatory and oral phase are sometimes considered one phase rather than two (6,7).



(Photo source: 5)

1. The **oral preparatory** stage is also referred to as the "anticipatory phase" as a person anticipates the taste of food and the sensations that normally accompany eating. It begins before the food even reaches the mouth: the stimulation that takes place as a result of the appearance and aroma of the food (i.e. production of saliva, peristalsis of the stomach upon smelling food). These sensations affect willingness to eat and acceptance of food. Oral preparation also includes biting, chewing and forming a bolus to prepare to swallow.

2. The **oral phase** in the normal swallow is a voluntary action: the food bolus is mixed with saliva using the tongue, the food is moved to the back of the mouth (oropharynx) and into the pharynx to be swallowed. Food temperatures, textures and moisture may affect the ease or difficulty of the oral phase of swallowing.

3. The **pharyngeal phase** is an involuntary (reflexive) action that begins when the bolus of food reaches the back of the throat and the swallow response is triggered. This causes a sequence of motions that moves the bolus into the esophagus: the rise of the soft palate, the upward and forward movement of the hyoid bone and larynx (the larynx lifts and closes to protect the airway), the movement of the vocal folds to the midline, the movement of the epiglottis to protect the airway, the movement of the tongue and the pharyngeal walls to push the food down into the esophagus, the relaxation of the upper esophageal sphincter, and its closure after the food passes through.

   This whole sequence occurs in less than one second in a normal swallow. Temperature, taste and texture of the food can all affect the response speed of the swallow.

4. The **esophageal phase** is also an involuntary reflexive phase. It is the movement of the food from the upper esophagus to the stomach through peristaltic movement. It includes the relaxation of the lower esophageal sphincter to allow the food to pass into the stomach. Its closure after the swallow prevents gastroesophageal reflux.

   In the normal swallow, this phase takes about nine seconds, but may range from 8 to 20 seconds.

Potential causes of dysphagia are listed in the *Causes of Dysphagia* table on the next page.

©2019 Becky Dorner & Associates, Inc.

Causes of Dysphagia (1,2,4,5)		
Obstruction	**Nerve and Muscle Problems**	**Miscellaneous**
• Emotional or anxiety disorder • Esophageal webs • Narrowings (strictures) due to radiation, chemicals, medications, chronic inflammation, or ulcers • Schatzki's ring • Tumors due to cancers of the head, neck or esophagus	• Achalasia • Amyotrophic lateral sclerosis (ALS or Lou Gehrig's disease) • Esophageal spasm • Myasthenia gravis • Muscular dystrophy • Multiple sclerosis • Nutcracker esophagus • Parkinson's disease • Polymyositis • Scleroderma • Stroke	• Dementia • Trauma to the esophagus, tongue, larynx, or pharynx • Medications that cause sedation, impair cognition, or decrease saliva production • Poor dentition or poor mouth care

Warning Signs of Dysphagia (3,8)

Unfortunately, dysphagia sometimes goes undetected and untreated because the signs and symptoms may be confused with other problems or conditions. Some of the signs of dysphagia are:

- Coughing frequently or a weak cough (before, during or after a swallow)
- Delayed or absent swallow reflex
- Difficulty controlling mouth secretions or excessive drooling
- Facial weakness/difficulty chewing
- Slurred speech
- Frequent throat clearing
- Nasal regurgitation
- Pocketing food in the mouth
- Mucositis, xerostomia, or oral lesions
- Recurring or persistent pneumonia or repeated upper respiratory infections
- Poor tongue control
- Sensation of food sticking in the throat or sternal area
- Unexplained loss of appetite or unintentional weight loss
- Wet/gurgly voice or hoarse or breathy voice
- Poor control of head or body position
- Heartburn or acid reflux
- Taking a long time to eat

Referral to Appropriate Health Care Professionals

If signs of swallowing problems are identified, referral should be made to the physician, speech-language pathologist (SLP), nurse, registered dietitian nutritionist (RDN), and/or nutrition and dietetics technician, registered (NDTR) (4). The interdisciplinary team (IDT) should screen the individual for dysphagia and assess for problems with dentition, tongue movement, transit of food from the mouth through the esophagus, pocketing of food in the mouth, pooling of liquids, suspected aspiration and risk of unintended weight loss and malnutrition. A bedside swallow evaluation may be completed to determine need for further testing.

©2019 Becky Dorner & Associates, Inc.

Screening for Dysphagia (9)	
Has the individual:	**Does the individual:**
• Had any recent change in eating habits? • Had any recent unintended weight loss? • Avoided thin liquids? • Had difficulty swallowing liquids? • Had difficulty swallowing solids?	• Cough before, during or after swallowing food, liquid, or medications? • Need to swallow 3 to 4 times per bolus? • Clear throat frequently? Have a wet, gurgly or hoarse voice? Or a change in voice quality with eating or drinking? • Complain of food stuck in the throat?

Also refer to the *Appendix* for information on *EAT-10: A Swallowing Screening Tool*.

Diagnosis

The SLP may refer patients for testing to evaluate swallowing function (see chart on right). The videofluoroscopic swallowing study is often used to determine the type of dysphagia that exists and the best methods for treatment. If the problem originates beyond the pharynx, this test can identify the problem and assist the dysphagia care team in determining the most appropriate interventions. This is a moving x-ray of the swallowing process in which the individual is videotaped while consuming small amounts of liquid barium, then pudding, and lastly crackers or other foods that require chewing. The SLP examines images of the bolus as it moves from the oral cavity to the pharynx, looking for delayed transit, food residue in the oral cavity and pharynx, structural abnormalities, and/or silent aspiration.

Diagnostic Tests for Dysphagia (6)
• Videofluoroscopy (barium swallow study) • Chest x-ray • Endoscopy (EGD) • Esophageal pH monitoring (checks for acid that comes from the stomach and enters the esophagus, as in gastroesophageal reflux disease or GERD) • Esophageal manometry (measures pressure in the esophagus) • Fiber-optic endoscopic evaluation (FEES test) – an endoscope is passed down the throat

Diagnosis of the type of dysphagia will depend on the origin of the problem (4,8). Dysphagia can be classified as:

- **Oral Dysphagia:** Difficulty initiating a swallow due to difficulty chewing, manipulating food in the mouth or propelling food to the back of the throat.
- **Pharyngeal Dysphagia:** The food bolus penetrates the larynx due to a delayed swallow reflex, incomplete closure of the larynx or residues remaining in the pharynx after the swallow.
- **Esophageal Dysphagia:** Food does not move easily through the esophagus due to esophageal dysmotility, structural blockage, stenosis or strictures due to gastro-esophageal reflux disease (GERD).

Treatment

Once the type of dysphagia is diagnosed, treatment goals should include:

1. Promoting a safe swallow to reduce risk of choking and/or aspiration of food and fluid into the lungs.
2. Maintaining good nutritional status and adequate hydration.
3. Facilitating independent eating and swallowing.
4. Enhancing the enjoyment of eating.
5. Enhancing quality of life.

©2019 Becky Dorner & Associates, Inc.

The IDT works with the individual to determine the most appropriate strategies. The SLP and IDT may recommend treatment strategies that may help improve the swallowing process and prevent complications including (3,8):

- **Swallowing exercises and techniques** for poor tongue/mouth control to improve strength, range of motion, and ability to gather food particles together (i.e. double dry swallows, chin tucks).
- **Thermal or nerve stimulation** using cold laryngeal mirror, changes in food and fluid temperature, or sourness or spice.
- **Good oral care** to reduce risk of aspiration pneumonia.
- **Alterations in food texture and/or fluid consistencies** to assist the individual to more easily create a food bolus including mechanical soft, chopped, or pureed foods and use of gravy or sauces; thickened liquids as ordered by physician.
- **Alternating sips of liquid with food** as needed to facilitate swallowing.
- **Proper positioning at mealtime** to assure ease of swallowing.
- **Adaptive equipment** such as modified cups or straws.

In addition, close monitoring and intervention of the individual while eating and drinking may be needed.

Medical Complications Resulting from Dysphagia

Aspiration

Dysphagia can lead to aspiration, which is the inhalation of either oropharyngeal or gastric contents into the lungs. Sometimes aspiration is silent, meaning food or fluid enters the lungs with no immediate physical signs of a problem. Other times, it leads to aspiration pneumonia. Silent aspiration has been observed in 49% of patients who have dysphagia and 20% of dysphagic patients who have no complaints of swallowing difficulty (10). Patients with documented aspiration of solids or liquids don't necessarily develop pneumonia (10).

Three types of material cause three different types of aspiration pneumonia (11,12):

1. Aspiration of gastric acid causes chemical pneumonia (sometimes called aspiration pneumonitis).
2. Aspiration of bacteria from the mouth and esophagus causes bacterial pneumonia.
3. Aspiration of oil causes exogenous lipoid pneumonia, which is very rare.

Aspiration pneumonia is a serious condition and treatment will vary depending on the cause. Recent research indicates that good oral care may be as important (or more important) than other techniques for preventing aspiration (13,14). Good oral care can prevent transfer of bacteria from the mouth into the lungs (3,9-11,13,14). The consistent removal of plaque from the teeth, gums, cheeks, and dentures has been shown to significantly reduce the incidence of pneumonia in long-term care (11). Good oral care has been defined by one study as tooth brushing after each meal, cleaning dentures once a day, and professional oral health care once a week (14). Oral decontamination using antimicrobial rinses or topical antibiotics can also have a positive effect (13). More studies are needed to determine adequate oral hygiene protocols for nursing home residents to prevent aspiration pneumonia (15).

Choking

Choking occurs when a person's airway is completely or partially blocked so that not enough oxygen reaches the lungs (16). The death rate from food-related suffocation is nearly 7 times higher among adults over 65 than among children ages 1 to 4. Roughly 500 adults over the age of 65 suffocate due to choking on food each year (17). Approximately 25% of those deaths were in residential institutions. Decedents also suffered from Alzheimer's, stroke, or Parkinson's disease in 11% of cases (17).

©2019 Becky Dorner & Associates, Inc.

Dehydration

Studies have shown that modification of fluid consistency to treat dysphagia may lead to inadequate intake of fluids (10,18) and contribute to dehydration in older adults. A study of 86 institutionalized patients without dysphagia revealed that the average fluid intake was 1504 mL per day, which represented 67% of their estimated daily requirement (19). Individuals who have dysphagia and/or are dependent on others (as is the case for some dysphagia patients) are likely to drink less, which can increase the risk for dehydration. Thickeners do not affect water bioavailability (20), so dehydration is related to a decrease in fluid intake and not the effect of thickeners on total fluid available.

Because foods also contain fluid, a decreased intake of foods because of consistency-modifications could also affect total fluid intake. People with dysphagia may be at risk for dehydration due to unpalatable and unappealing food and fluids (21). Fluid intake can be maximized by providing the most palatable, well-tolerated, and accepted liquid consistency possible for each individual.

There is some evidence that thin water is safe for individuals with dysphagia because it is rapidly absorbed if aspirated (22). The Frazier Free Water Protocol may help improve fluid intake and the quality of life for individuals on thickened liquids (22,23). This protocol permits individuals with dysphagia who are on oral diets, to have access to unrestricted water prior to a meal and then again 30 minutes after a meal (22). Medications must not be given with water, but only with applesauce, yogurt, pudding or thickened liquids (22). The safety and success of this protocol depends upon maintaining a program of aggressive oral care to reduce pathogenic bacteria (22). Degree of mobility and level of neurologic functioning have been identified as factors to consider before implementing this protocol (22,23). A physician's order is required before implementing the Frazier Free Water Protocol and unless specified otherwise by a physician's order, all other fluids provided should be thickened appropriately.

Unintended Weight Loss and/or Malnutrition

Dysphagia can result in unintended weight loss or compromised nutritional status in older adults (10,11, 18,24). Weight loss could be due to poor acceptance and intake of texture-modified foods, unintentionally leaving food in the mouth, or a deliberate reduction in food consumed due to fear of coughing and choking. Foods and beverages that are high in calories and protein can be used to increase calorie and nutrient content of texture-modified foods without increasing volume. See *Calorie Boosters* and *Protein Boosters* on pages 1-21 and 1-22 for more suggestions. Commercial oral nutritional supplements (ONS) that are high in calories and/or protein can also be purchased from a pharmacy or food service supplier.

Controversies in Dysphagia Management

Considerable disagreement exists in the literature as to the efficacy of dysphagia treatment.

Efficacy of Texture-Modified Diets

Puree or mechanical soft food or thickened liquids are often recommended to treat dysphagia and prevent aspiration pneumonia. Cohesive foods like ground meats with gravy and hot cereals tend to be easier to control in the mouth and easier to swallow. Thickening liquids slows the time it takes for the fluid to move through the mouth and esophagus and allows better control of the swallow.

Recent research is questioning the efficacy of using texture modification. Many experts now believe that that evidence does not support diet modification for reducing aspiration pneumonia (10,11,18,24-26). The data from several studies demonstrate that positioning and/or modification of dietary consistency or texture does not reduce aspiration events in persons with dysphagia (11) or in dementia patients living in residential care facilities (26). Based on a recent literature search, studies show an association between texture-modified diets and lower energy and fluid intake as well as variable adherence (26).

As a result of this research the standard of care for dysphagia management may be changing, especially for management of older adults in skilled nursing facilities. According to The Society for Post-Acute and Long-Term Care Medicine swallowing abnormalities are common in older adults but do not necessarily require modified diet and fluid textures, especially if these restrictions adversely affect food and fluid intake (27). The 2011 *Pioneer Network's New Dining Practice Standards* suggest that identifying a swallowing abnormality alone does not always warrant dietary restrictions or food texture modifications (21).

©2019 Becky Dorner & Associates, Inc.

Acceptance of Texture-Modified Foods and Consistency-Altered Fluids

It is difficult to determine how many individuals refuse consistency modifications or thickened liquids when they are ordered. However, diet modification is often associated with reduced acceptability and poor adherence (8).

Texture and consistency-modified diets can have a negative effect on quality of life (3). Some individuals with dysphagia may request regular food and/or liquids because they don't like the diet that is ordered. In skilled nursing facilities, all decisions on texture and consistency-modified diets should defer to the person (and/or family) after medical advice on the risks and benefits have been provided (21). If the individual and/or the family refuse recommended treatment, the facility should document that they have educated the individual and/or family, and request an adjustment of the physician's orders and care plan to honor informed choice (21).

Regulations regarding ordering of consistency and texture-modified diets in nursing facilities are changing to reflect a resident's right to make choices about their medical care. The Centers for Medicare and Medicare Services (CMS) acknowledges that presence of a swallowing problem does not necessarily warrant dietary restrictions or food texture modifications (28), and indicates the decisions to modify the diet consistency must include the resident or their representative's input.

Standardizing Consistency and Texture of Foods

The consistency of pureed foods and of thickened liquids may vary depending on several factors. Temperature can affect the viscosity of thickened liquids. Beverages thickened with certain thickening agents may continue to thicken over time (20). In addition, the texture of pureed foods may not be consistent from one facility to another. Research suggests that many patients are served modified liquids that are too thick or too thin (29). Standardized recipes for puree foods are available and directions for thickening agents should be carefully followed in attempt to assure correct textures and consistencies.

National Dysphagia Diet

In 2002, the National Dysphagia Diet Task Force (NDDTF), a group of RDs, SLPs, researchers, and industry leaders, published a nationally standardized definition for food and fluid consistencies for dysphagia treatment. Their goals included: standardize terminology across the continuum of health care, provide a scientific foundation for diet and liquid consistencies based on properties of liquids and solids, offer food characteristics that were objective, measurable and continuous so that "all foods fit", and develop a correlation between the severity of the dysphagia and the level of the diet recommended (30).

The National Dysphagia Diet (NDD) has not consistently been adopted by speech and language pathologists, health care professionals, and/or health care facilities. Consistency altered diets provided by health care facilities may not always use NDD terminology, but menus should meet standards for consistency modifications for puree and mechanically altered diets similar to those outlined in this manual.

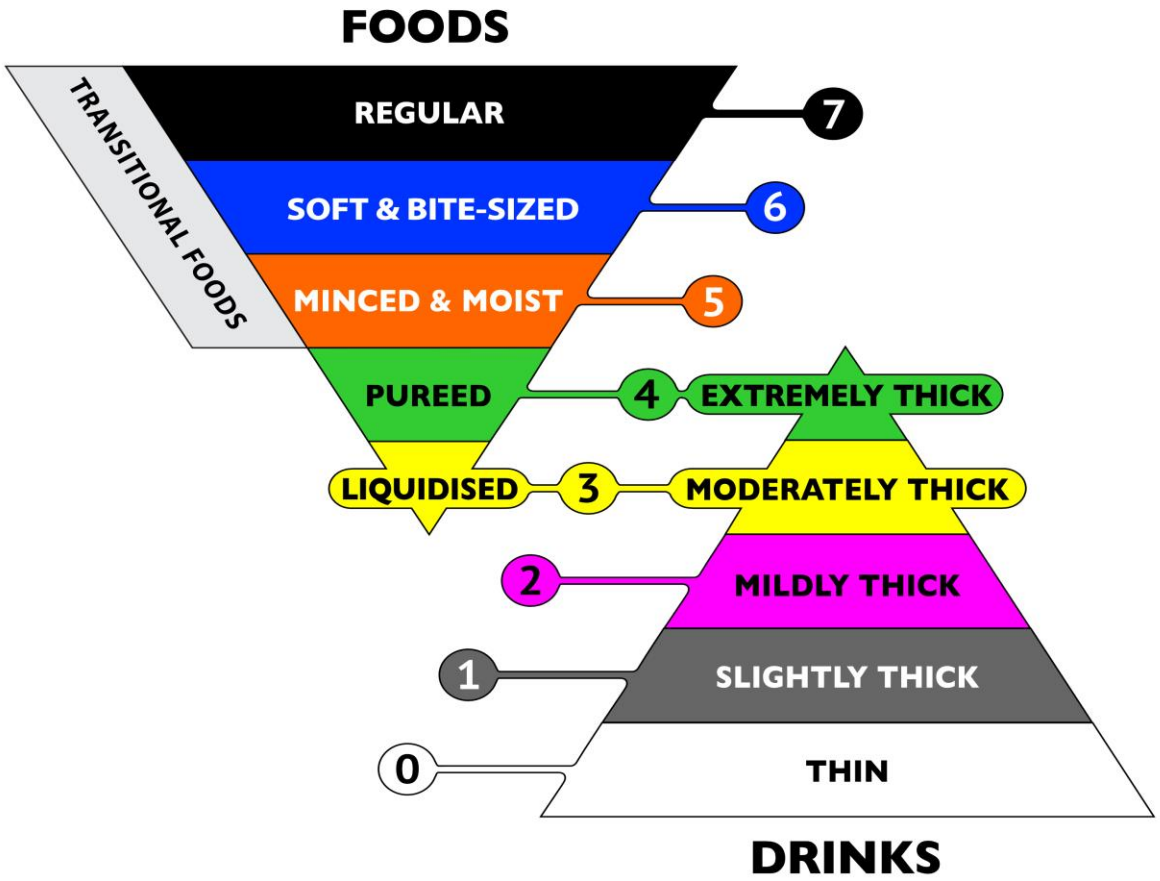
International Dysphagia Diet Standardisation Initiative

In November 2015, the International Dysphagia Diet Standardisation Initiative (IDDSI) framework for food and fluid consistencies was released. The Initiative provides a global approach for consistent diet terminology and definitions for dysphagia diet therapy in all settings for all cultures (31). The IDDSI framework provides details on diet texture to improve patient safety. IDDSI proposes that health care facilities conduct standard testing of foods and fluids served using commonly available tools such as forks, spoons, and syringes to provide practical, ongoing evaluation of specific food and fluid consistency. More information is available on the IDDSI website (https://iddsi.org/).

The American Academy of Nutrition and Dietetics (Academy) and the American Speech-Language-Hearing Association (ASHA) have voted to formally support the implementation of IDDSI framework and definitions. Work is underway to develop an IDDSI implementation plan (31). During the IDDSI transition phase, use of both the NDD and IDDSI names and definitions are acceptable. However, after the IDDSI implementation date of May 1, 2019 as announced by the Academy in October 2018, NDD diet terminology and definitions may eventually become obsolete (4).

©2019 Becky Dorner & Associates, Inc.

During the transition to adopting IDDSI standards, RDNs, NDTRs, and SLPs in health care facilities should work together to meet IDDSI guidelines. Information provided by IDDSI, the Academy and ASHA should be used for guidance on implementation. As of publication of this manual, many companies have begun labeling thickened liquids using the IDDSI terminology. Seven food and liquid consistencies which are included in the IDDSI framework are outlined in the graphic below (31). Guidelines for mapping NDD terminology to IDDSI terminology for drinks and foods can be found on the next page.

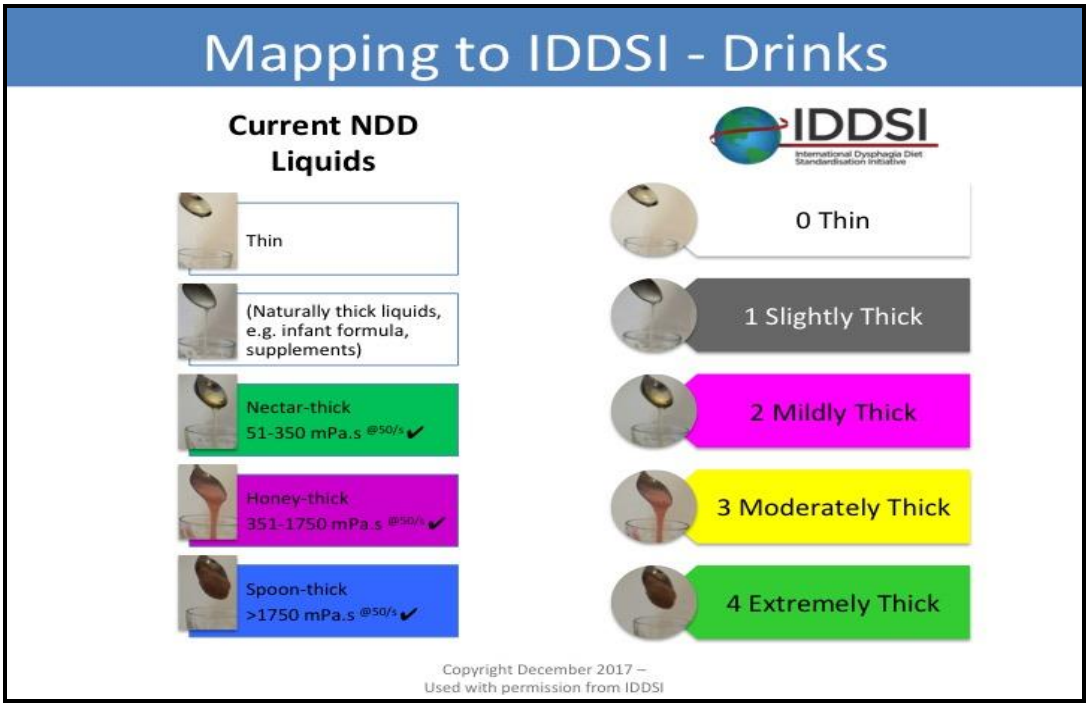


©The International Dysphagia Diet Standardisation Initiative 2016 @ http://iddsi.org/wp-content/uploads/2018/01/Framework_with_CreativeCommons_2018.jpg.

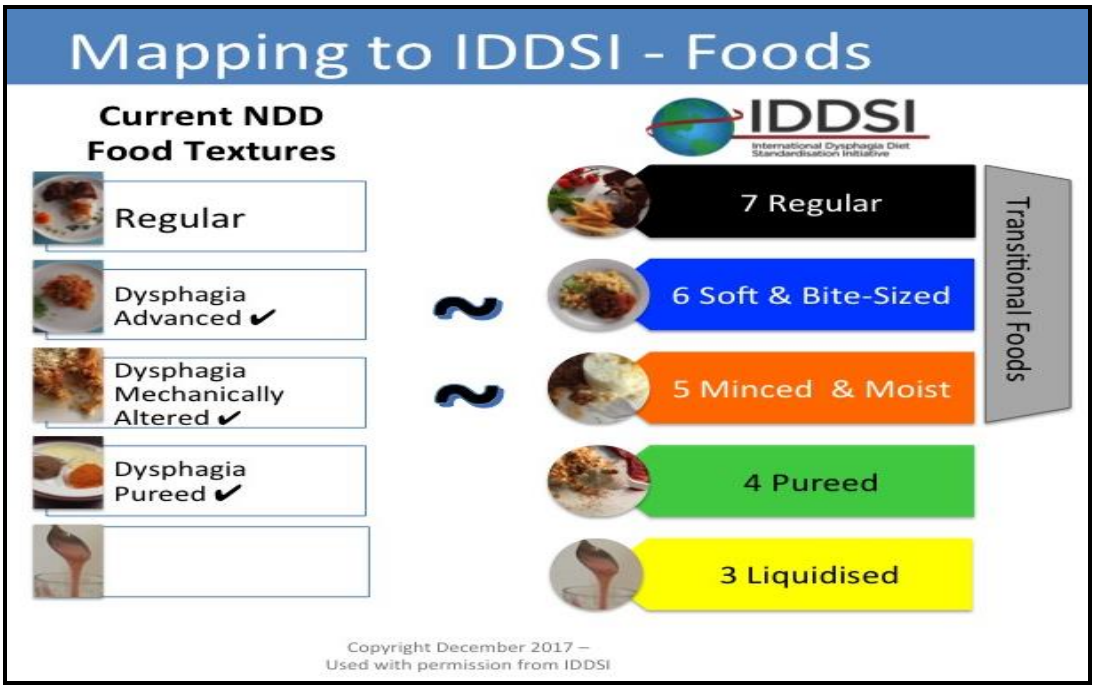
Please note that this book is printed in black and white. The color coding is very important. Please refer to the color guide at http://iddsi.org/wp-content/uploads/2018/07/IDDSI-Colour-codes-FINAL-2018.jpg.

The IDDSI has established food texture descriptions and testing methods and consistencies for all dysphagia diet levels. Photos and videos of appropriate textures and consistencies can be found at iddsi.org. A comprehensive explanation of the IDDSI consistencies and testing methods can be found at http://iddsi.org/Documents/IDDSIFramework-CompleteFramework.pdf. When a facility adopts IDDSI terminology and menu extensions, routine testing of food texture and fluid consistency should be completed as outlined at https://iddsi.org/.

©2019 Becky Dorner & Associates, Inc.



Source: The International Dysphagia Diet Standardisation Initiative 2016 at http://iddsi.org/framework/ (31).



Source: The International Dysphagia Diet Standardisation Initiative 2016 at http://iddsi.org/framework/ (31).

©2019 Becky Dorner & Associates, Inc.

Developing a Care Plan for Dysphagia Management

The standard of nutrition care for dysphagia is changing, and new recommendations may be released in the future as new evidence is made available. However, despite the controversies that exist, texture modifications, fluid consistency alterations, and proper positioning continue to be the standard of care for dysphagia treatment in many healthcare settings.

Treatment for dysphagia should be individualized. Key points for nutrition care are as follows:

- The RDN or NDTR should work with the interdisciplinary team (IDT), including the SLP, to implement a plan of care. The risk of choking, dehydration and/or malnutrition should be evaluated for each individual.
- Each person with dysphagia should receive a nutrition assessment that includes medical factors affecting food and fluid intake, nutrition-focused physical assessment with emphasis on condition of the teeth and oral cavity, nutritional needs, weight history, evaluation of laboratory tests, food habits and preferences, ability and/or willingness to adhere to consistency and/or texture modifications.
- A physician's order should reflect the results of the evaluation and specify food texture and fluid consistency needed, using terminology currently in use at a facility.
- Quality of life and an individual's right to make choices about their care are important considerations, particularly for older adults living in post-acute care settings (28).
- All decisions regarding diet orders for dysphagia should default to the individual (21). Individuals have the right to refuse recommended treatment and that right should be respected.
- Regular monitoring and evaluation should include:
    - Assessing weight over time to identify unintended weight loss
    - Monitoring hydration status
    - Evaluating food and fluid intake
    - Assessing to assure proper feeding assistance and positioning is provided, if applicable
    - Assuring foods provided are of the appropriate consistency
    - Monitoring for signs and symptoms of swallowing problems, which are outlined below
- If intake of foods and fluids is very poor and/or nutritional status is highly compromised, enteral feeding should be considered if consistent with the goals of care.

Implementing Nutrition Interventions

Caregivers and facility staff should follow guidelines for safe feeding for individuals with dysphagia as follows (9):

- Positioning for feeding is an important part of treatment.
- Small sips or bites may be easier for an individual to consume.
- Foods that are moistened with sauce or gravy may be easier to eat than dry foods.
- Individuals should be instructed to swallow prior to placing additional food in the mouth.
- Monitor for signs and symptoms of feeding problems, including:
    - Coughing, gagging or choking
    - Wet, gurgly vocal quality
    - Residual food in the mouth (food pocketing)
    - Frequent throat clearing after a swallow
    - Tongue rocking
    - Regurgitation of food
    - Refusing or spitting food out
    - Difficulty chewing or moving food around in the mouth
    - Excessive secretions
    - Delayed swallow

©2019 Becky Dorner & Associates, Inc.

Nutrition Care for Dysphagia Management At the time of publication of this manual, the National Dysphagia Diet (NDD) (Levels 1 through 4) and International Dysphagia Diet Standardisation Initiative are both suggested by the Academy *Nutrition Care Manual* for those at risk for choking or aspiration. Over time, NDD will most likely be replaced by IDDSI. During the transition process both terminologies and consistencies may be used. Pending more specific information on implementation of IDDSI in post-acute care settings, this manual will continue to use NDD terminology, textures, and consistencies. Readers should refer to the IDDSI website (implementation guides are available from ISSDI at http://iddsi.org/resources/) and the Academy of Nutrition and Dietetics (www.eatright.org) for more information on timelines and guidelines on implementation.

Liquids for Dysphagia
Data on the use of thickened liquids in institutions is difficult to obtain (32). Thickened liquids move more slowly through the mouth and esophagus and allow better control of the swallow than thin liquids. Thickened liquids should not be ordered by the physician without the knowledge and consent of the individual with dysphagia. The Frazier free water protocol (see page 2-5) may help improve quality of life and hydration status for those on thickened liquids. Each individual with dysphagia should receive the least-restrictive fluid order possible and the appropriate thickness of liquid. Fluid intake and hydration status should be monitored and evaluated, with changes in the plan of care as needed. See *Guidelines for Serving Thickened Liquids* later in this chapter for more detailed information on thickened liquids and thickening agents.

Dysphagia and Enteral Feeding
Some individuals may reach a stage in which oral intake of any kind is unsafe. When this occurs, enteral feeding is considered the next option for maintaining nutrition and hydration. Many clinicians assume that enteral feeding prevents aspiration pneumonia (11). However, enteral nutrition does not eliminate the risk of aspiration (3,10) and can actually *increase* the risk of aspiration pneumonia (11,18). In most cases if enteral feeding is desired a percutaneous endoscopic gastrostomy tube (PEG tube) is placed. Proper positioning during and after tube feeding may reduce the risk for aspiration.

The decision to initiate tube feeding for individuals with severe swallowing disorders can be difficult and should be made in consultation with the individual and/or family and IDT. The benefits of providing adequate nutrition and hydration must be balanced with the risks of enteral feeding. Risks and complications can include potential for infection around the tube site; intolerance to formula, resulting in diarrhea, nausea, vomiting, or constipation; fluid and electrolyte imbalances; aspiration pneumonia; discomfort around tube site, resulting in pulling of the tube (particularly in people who have dementia); and/or clogged tube (9,33).

The IDT should discuss the risks and benefits of tube feeding with the individual or their representative and the decision to initiate enteral feeding should default to the individual (21). Transitioning back to oral feeding, if possible, should be part of the plan of care.

Individuals who have chewing problems, dentures, or poor dentition, eat too quickly, or put too much food in their mouth but have not been diagnosed with dysphagia may benefit from a texture-modified diet. Modifications in fluid consistencies may be needed for some individuals. All consistency modifications and/or thickened liquids require a physician's order.

©2019 Becky Dorner & Associates, Inc.

Levels of the National Dysphagia Diet

Note: After the IDDSI implementation date of May 1, 2019 announced by the Academy, NDD diet terminology and definitions may eventually become obsolete (4).

There are three phases of dysphagia diets as defined by the National Dysphagia Diet Task Force (30):

Level 1: Dysphagia Pureed
Level 2: Dysphagia Mechanically Altered
Level 3: Dysphagia Advanced

Dysphagia diets should be customized for each individual with modifications made by the RDN, SLP, and/or physician. A physician's order is needed for each specific level of dysphagia diet and thickness of liquid and for any changes in the consistency of foods or fluids.

National Dysphagia Diet Levels (4,9,30)

Level 1 Dysphagia Pureed	Level 2 Dysphagia Mechanically Altered	Level 3 Dysphagia Advanced	Regular Diet
• Pureed, homogenous, cohesive, pudding-like food that is in the form of an easy to swallow bolus • Moist, pudding-like consistency without particles • Provides a nutritionally adequate, easily swallowed diet with minimum chewing	• Cohesive, moist, semi-solid • Requires some chewing ability • Ground or minced meats with fork-mashable fruits and vegetables • Moist, ground, soft textured, minced or fork-mashable, simple to chew foods that are included in a transition from puree texture to mechanical soft texture • The food forms easily into a cohesive bolus • May include foods from the Level I diet • Excludes most bread products, crackers, and other dry foods	• Soft-solid - Requires more chewing ability • Easy-to-cut meats, fruits, vegetables • Regular texture with the exception of hard, chunky food items • All foods in Level I and II are allowed • Requires some chewing ability • Meats in soft, bite-size pieces	• Any solid textures

Guidelines for Each Level of Dysphagia Diet

For purposes of this publication, dysphagia diets are presented in descending order, from Regular to Dysphagia Advanced, to Dysphagia Mechanically Altered, to Dysphagia Pureed. This is to encourage the philosophy of keeping individuals on the highest level diet tolerated. An individualized Regular Diet is included in *Chapter 1.*

It is critical that food and nutrition services staff follow menu extensions for consistency-altered diets that are provided with their menus. A copy of menu extensions should be posted on the tray line at each meal for easy reference to assure that all planned foods are prepared. *As the IDDSI framework is implemented, terminology on menus developed by food service suppliers and other independent sources will be changing.* If IDDSI terminology is used in a facility, routine testing of food consistency (as outlined at https://iddsi.org/) is recommended.

The following diets are based on the guidelines written based on the NDDTF's publication, entitled *The National Dysphagia Diet (NDD),* as well as past editions of this *Diet and Nutrition Care Manual* (9,30).

©2019 Becky Dorner & Associates, Inc.

Diet and Nutrition Care Manual

Dysphagia Advanced (Level 3) or Mechanical (Dental) Soft Diet

This diet is used for individuals with mild oral and/or pharyngeal phase dysphagia. Foods that are difficult to chew are chopped, ground, shredded, cooked, or altered to make them easier to chew and swallow. Food should be prepared according to individual tolerance to the food. Any foods that are very hard, sticky, chewy, or crunchy should be avoided. To achieve optimal intake, diets should be planned with the individual's preferences and cultural norms in mind. These guidelines are intended for use with adults. Provide adequate nutrients as recommended by the Dietary Guidelines and National Research Council by using these guidelines to provide three balanced meals and up to three snacks daily:

Food	Amount Each Day*
Vegetables (include more dark green, leafy, red/ orange vegetables; dry beans/peas/lentils as tolerated) Cooked, tender, chopped, shredded	≥2 ½ cups or equivalent Juices at ordered thickness
Fruits (include a variety; with more fruit than juice as appropriate) Cooked, tender, chopped or shredded	≥2 cups or equivalent Juices at ordered thickness
Grains (include as much whole grain/enriched as possible; at least half of grains should be whole) as tolerated At proper consistency: well moistened (with syrup, jelly, margarine or butter as appropriate for your diet)	≥6 oz or equivalent
Dairy (fortified with vitamins A and D) Encourage fat free or low fat as appropriate. At ordered thickness.	3 cups or equivalent Liquids at ordered thickness
Protein Foods (i.e. fish, seafood, lean meat, poultry, eggs, dry beans/peas/lentils, soy products, nuts) Chopped or ground as tolerated.	5-6 oz or equivalent Encourage 8 oz of cooked seafood per week.
Sodium, Saturated Fat, Added Sugars, Alcohol Limit added sugars/saturated fats, reduce sodium. Less than 10% of calories from sugar daily. Most fat should come from healthy oils. Alcohol in moderation as appropriate.	Use in limited quantities to round out the menu for pleasing appearance and satisfying meals. Alcohol: Women: up to 1 drink/day, Men: up to 2 drinks/day (at ordered thickness).
Fluids (especially water) At ordered thickness.	Fluids based on individual needs. ≥1500 mL unless otherwise indicated.

These amounts are recommended based on a 2000 calorie meal plan by ChooseMyPlate.gov. See pages 1-8 to 1-12 for specific food amounts. Follow menus/recipes approved by your RDN.

Recommended Nutritional Composition	
Calories[1] Approximately 2000	**Fiber** 25-35 gm
Carbohydrates 45-65% of calories	**Sodium**[3] 2300 mg
Protein[2] 10-35% of calories	**Calcium**[4] ≥1000-1200 mg **Vitamin D**[5] 600-800 IU
Fat 20-35% of calories <10% of calories from saturated fat	**Vitamin A** F 700/M 900 mg RAE **Vitamin C** 90 mg **Potassium** 4700 mg
Nutrients may vary day to day, but should average to the above estimates. Added sodium, saturated fats, sugars and alcohol will alter nutritional composition.	

- Also see foods allowed next page. This diet is based on the Regular Diet. All the same guidelines apply with alterations being made to ease chewing/swallowing.
- Use a wide variety of nutrient dense foods (fruits, vegetables, whole grains, dairy products, cooked dry beans/peas/lentils) rich in vitamins, minerals and dietary fiber.
- Supplement based on individual need: multivitamin or multivitamin with minerals, calcium, vitamin D, and B_{12} in older adults.
- Older adults may need individualized/less restrictive diets especially if intake is poor. Honor food preferences & cultural norms.

[1]Depending on activity level, based on reference heights/weights adults aged 61+: Males (5'10", 154#) need 2000-2400 calories; Females (5'4", 126#) need 1600–2200 calories (34). For specific calorie level patterns, see *Appendix*.
[2]Based on individual needs.
[3]Sodium intake will be higher with processed foods/added salt. For individuals with hypertension further reduction to 1,500 mg sodium per day can result in even greater blood pressure reduction.
[4]Calcium: 1200 mg for females 51+, 1000 mg for males 51+ and 1200 mg for males 71+.
[5]Vitamin D: 600 IU for 51+ and 800 IU for 71+.
Note: Nutritional composition will change with diet liberalization.

©2019 Becky Dorner & Associates, Inc.

Dysphagia Advanced (Level 3) or Mechanical (Dental) Soft Diet

Foods Allowed	Foods to Avoid
All foods on Levels 1 and 2 are allowed if desired.	See below
Protein Foods (Low-fat as appropriate) **Meats** Must be very tender, small pieces, thin slices, chopped or ground, and well moistened. Meats are served moistened with sauce or gravy.	Dry, tough meat, fish or poultry, any other whole pieces of meat, or cheese slices or cubes.
Meat alternatives Include casseroles with small soft chunks of meat, macaroni and cheese, well-cooked pasta and ground meat sauce or meat balls with sauce, lasagna or quiche without chunks. Soft, mashable baked beans. Poached, scrambled eggs, omelets, egg bakes, and cottage cheese. Tuna or egg salad without large chunks or raw vegetables. Regular yogurt without seeds, nuts, coconut, granola, or large chunks of fruit	Chunky peanut butter Pizza Difficult-to-chew meat alternates.
Dairy (Low fat as appropriate) Include any milk or milk alternate at the ordered thickness, regular cottage cheese or yogurt without nuts, coconut, or large chunks of fruit.	Yogurt with nuts, coconut, or large chunks of fruit.
Fruits Include all soft, canned, cooked fruits without skins. Peeled fresh fruits (bananas, soft peeled peaches, nectarines, kiwi, melon without seeds), or ripe berries without seeds (or with small seeds such as strawberries). Chopped if needed. Fruit juices at ordered thickness. May substitute cooked fruits or juices at allowed thickness.	Fresh apples, grapes, mango, papaya, pears, pineapple Dried fruits (unless cooked in water to a very soft consistency), or fruit leather. Other difficult to chew fruits.
Vegetables (Low-fat as appropriate) Should be soft, well cooked and chopped if needed. May substitute cooked vegetables or juices for difficult-to-chew items.	Raw vegetables (except shredded lettuce). Cooked rubbery or non-tender cooked vegetables. Corn, potato skins, tough or crisp-fried potatoes.
Grains (Low-fat as appropriate) Well-moistened biscuits, breads, muffins, pancakes, waffles, etc. (moistened with syrup, jelly, margarine or butter as appropriate for the diet). Moist bread dressing/stuffing, noodles, rice (preferably moistened).	Any dry, tough or crusty bread (such as French bread, biscuits, focaccia bread), crackers, toast, etc. Grilled sandwiches Pizza Dry bread dressing/stuffing

©2019 Becky Dorner & Associates, Inc.

Dysphagia Advanced (Level 3) or Mechanical (Dental) Soft Diet (continued)

Foods Allowed	Foods to Avoid
Grains (continued) Dry cereal well moistened with milk or milk substitute (such as bran flakes, corn flakes, puffed rice, toasted O's, fruit rings). Drain any excess milk if thin liquids are not allowed. Cooked cereals (i.e. cream of wheat, cream of rice, cooked grits).	Dry/crunchy cereals such as granola, shredded wheat, bran, or raisin bran cereal. Coarse cooked cereal. Cereal with nuts, seeds, and/or coconut.
Fluids Should be at allowed thickness only (i.e. nectar-like, honey-like or spoon thick liquids).	If thin liquids are restricted, avoid milkshakes, frozen yogurt, ice cream, sherbet, gelatin, or anything that is liquid at room temperature.
Sodium, Saturated Fat, Added Sugars, Alcohol and Miscellaneous Foods include pudding, custard, soft fruit crisps, cobblers or pies without large chunks or nuts, soft, moist cakes, or slurred cakes and cookies. Non-chewy candies without nuts, seeds or coconut. Seasonings, sweeteners, sauces, jams, jellies, and/or honey. Soup fillings should be easy to chew and swallow with liquid broth thickened to allowed consistency.	Dry or chewy cakes, cookies, coconut, nuts, large edible seeds, popcorn, potato or corn chips or other dry/crunchy chips, caramel, taffy, or other chewy candies. Soups with large chunks of meats and vegetables, (>1 inch in size), rice, corn, or peas. Clam or oyster chowder.

Individualize the diet as needed for best tolerance and safety with swallowing.
It is important to make the diet look appealing. The following garnishes can help (as appropriate). Also see *Garnishes Appropriate for Each Level of Dysphagia* later in this chapter.

- Fruits: whipped topping, a light sprinkle of powdered gelatin, or cinnamon sugar.
- Meats: gravy, sauce, catsup, mustard, mayonnaise, or barbeque sauce.
- Hot vegetables: cheese sauce or Hollandaise sauce,
- Desserts: chocolate, butterscotch or strawberry syrup, and/or whipped topping.

Foods high in simple sugars are high in carbohydrates and must be counted in the day's total carbohydrates if on a carbohydrate-controlled diet.

©2019 Becky Dorner & Associates, Inc.

Sample Daily Meal Plan for a Well Balanced Dysphagia Advanced (Level 3) Or Mechanical (Dental) Soft Diet *(Similar to IDDSI Soft and Bite-Sized)*

Breakfast	Lunch	Dinner
¾ c Orange Juice ***at ordered thickness***	2 oz ***Chopped or Ground*** *Baked Chicken* **with Gravy**	6 oz Vegetable Soup ***at ordered thickness***
½ c Cooked Oatmeal	***½ c Seasoned*** *Buttered Rice*	3 oz ***Soft*** Baked Fish ***with Smooth Tartar Sauce***
¼ c Scrambled Egg	½ c ***Well Cooked*** Seasoned Peas w/Mushrooms	***½*** c Mashed Potato ***with Margarine****
1 ***slice WW Bread Moistened with Margarine****	½ c ***Shredded Lettuce*** w/1 Tbsp Salad Dressing	½ c ***Soft Cooked*** Green Beans ***(No Almonds)***
1 Tbsp Jelly or Fruit Spread	1 WW Roll ***Moistened with Margarine****	1 slice WW Bread ***Moistened with Margarine****
1 c Low Fat Milk ***at ordered thickness***	½ c Fruit Sorbet ***at ordered thickness*** with ¼ c Strawberries	1 Baked Apple ***(No Skin)***
Condiments as Desired+ ***and allowed***	1 c Low Fat Milk ***at ordered thickness***	1 c Low Fat Milk ***at ordered thickness***
Beverage of Choice ***at ordered thickness***	Condiments as Desired+ ***and allowed***	Condiments as Desired+ ***and allowed***
	Beverage of Choice ***at ordered thickness***	Beverage of Choice ***at ordered thickness***
P.M. Snack		
1 Muffin (No chunks of fruit or nuts), Moistened with Margarine*		
Beverage of Choice ***at ordered thickness***		

Bold/italicized items indicate differences from the Regular Diet menu.
*Low in saturated fats and *trans* fats
+Condiments may include pepper or other spices, sugar, sugar substitute, salt, coffee creamer, etc. based on nutrition goals. Additional condiments and garnishes (i.e. margarine, gravy, sauces, ketchup, etc.) may round out the menu and make it more appealing and palatable. These add additional calories, added sugars, micro- and macronutrients (i.e. calories, fat, carbohydrates, sodium, etc.) and may not be appropriate for some individuals.

Note: Liquids thickened to the physician ordered consistency as appropriate (nectar like, honey like or spoon thick).

(References for Dysphagia Advanced Level 3 Diet: 4,9,30,34,35)

©2019 Becky Dorner & Associates, Inc.

Dysphagia Mechanically Altered (Level 2) or Mechanical Soft Diet

This diet is for people with mild to moderate oral and/or pharyngeal dysphagia. Some chewing ability is required. Difficult to chew foods are chopped, ground, shredded, cooked, or altered to make them easier to chew and swallow. Foods should be soft and moist enough to form a bolus, and prepared according to the individual's tolerance to the food. To achieve optimal intakes, diets should be planned with the individual's preferences and cultural norms in mind. These guidelines are intended for use with adults. Provide adequate nutrients as recommended by the Dietary Guidelines and National Research Council by using these guidelines to provide three balanced meals and up to three snacks daily:

Food	Amount Each Day*
Vegetables (include more dark green, leafy, red/ orange vegetables; dry beans/peas/lentils as tolerated) Cooked, tender, chopped, shredded. May need pureed.	≥2 ½ cups or equivalent Juices at ordered thickness
Fruits (include a variety; with more fruit than juice as appropriate) Cooked, tender, chopped or shredded; juice at ordered thickness.	≥2 cups or equivalent Juices at ordered thickness
Grains (include as much whole grain/enriched as possible; at least half of grains should be whole) as tolerated. At proper consistency: Breads pureed following a recipe. See additional details.	≥6 oz or equivalent
Dairy (fortified with vitamins A and D) Encourage fat free or low fat as appropriate.	3 cups or equivalent Liquids at ordered thickness.
Protein Foods (i.e. fish, seafood, lean meat, poultry, eggs, dry beans/peas/lentils, soy products, nuts) Chopped or ground as tolerated, moisten with sauce/gravy.	5-6 oz or equivalent Encourage 8 oz of cooked seafood per week.
Sodium, Saturated Fat, Added Sugars, Alcohol Limit added sugars/saturated fats, reduce sodium. Less than 10% of calories from sugar daily. Most fat should come from healthy oils. Alcohol in moderation as appropriate; at ordered thickness.	Use in limited quantities to round out the menu for pleasing appearance and satisfying meals. Alcohol: Women: up to 1 drink/day, Men: up to 2 drinks/day at ordered thickness.
Fluids (especially water) At ordered thickness.	Fluids based on individual needs. ≥1500 mL unless otherwise indicated.

These amounts are recommended based on a 2000 calorie meal plan by ChooseMyPlate.gov. See pages 1-8 to 1-12 for specific food amounts. Follow menus/recipes approved by your RDN.

Recommended Nutritional Composition	
Calories[1] Approximately 2000	**Fiber** 25-35 gm
Carbohydrates 45-65% of calories	**Sodium**[3] 2300 mg
Protein[2] 10-35% of calories	**Calcium**[4] ≥1000-1200 mg **Vitamin D**[5] 600-800 IU
Fat 20-35% of calories <10% of calories from saturated fat	**Vitamin A** F 700/M 900 mg RAE **Vitamin C** 90 mg **Potassium** 4700 mg
Nutrients may vary day to day, but should average to the above estimates. Added sodium, saturated fats, sugars and alcohol will alter nutritional composition.	

- Also see foods allowed next page. This diet is based on the Regular Diet. All the same guidelines apply with alterations being made to ease chewing/swallowing.
- Use a wide variety of nutrient dense foods (fruits, vegetables, whole grains, dairy products, cooked dry beans/peas/lentils) rich in vitamins, minerals and dietary fiber.
- Supplement based on individual need: multivitamin or multivitamin with minerals, calcium, vitamin D, and B_{12} in older adults.
- Older adults may need individualized/less restrictive diets especially if intake is poor. Honor food preferences & cultural norms.

[1]Depending on activity level, based on reference heights/weights adults aged 61+: Males (5'10", 154#) need 2000-2400 calories; Females (5'4", 126#) need 1600–2200 calories (34). For specific calorie level patterns, see *Appendix*.
[2]Based on individual needs.
[3]Sodium intake will be higher with processed foods/added salt. For individuals with hypertension further reduction to 1,500 mg sodium per day can result in even greater blood pressure reduction.
[4]Calcium: 1200 mg for females 51+, 1000 mg for males 51+ and 1200 mg for males 71+.
[5]Vitamin D: 600 IU for 51+ and 800 IU for 71+.
Note: Nutritional composition will change with diet liberalization.

©2019 Becky Dorner & Associates, Inc.

Dysphagia Mechanically Altered (Level 2) or Mechanical Soft Diet

Foods Allowed	Foods to Avoid
All foods on Level 1 are allowed if desired	See below
Protein Foods (Low-fat as appropriate) **Meats,** poultry and fish must be tender and moist, ground or chopped to less than ¼ inch cubes as tolerated. May serve pureed meats if preferred by individual Meatloaf, meatballs with sauce or gravy All meats, poultry and fish may be served moistened with sauce or gravy	Dry, tough meat or any other whole pieces of meat such as bacon, sausage, hotdogs, or bratwurst
Meat alternatives Casseroles without rice, moist macaroni and cheese, well-cooked pasta and ground meat sauce, tuna noodle casserole, lasagna or quiche without large chunks Soft, mash-able baked beans or legumes Poached, scrambled, omelets, or baked eggs (with small, soft chunks), and cottage cheese Tuna or egg salad without large chunks or raw vegetables Tofu	Casseroles with rice or large chunks Cheese slices or cubes Peanut butter Pizza Sandwiches Hard-cooked or crispy fried eggs Difficult-to-chew meat alternatives
Dairy (Low fat as appropriate) Include any milk or milk alternate at the ordered thickness, cottage cheese, pudding, whipped topping, sour cream, frozen desserts made with milk, regular yogurt without nuts, coconut, or large chunks of fruit	Yogurt or cottage cheese with nuts, coconut, or large chunks of fruit. Avoid frozen desserts made with milk if thickened liquids are ordered
Fruits Soft, canned, cooked fruits or soft, ripe bananas Juices at allowed thickness (may have a small amount of pulp)	Raw (fresh) fruits (other than bananas), pineapple, dried fruit, frozen fruit juice bars, fresh or frozen fruits No seeds or skins
Vegetables (Low-fat as appropriate) should be soft, well-cooked and easily mashed with a fork Substitute cooked vegetables or juices for difficult-to-chew items Well-cooked, moistened, boiled, baked, or mashed potatoes, or shredded hashed browns that are not crisp All potatoes should be moist and in sauces	Raw vegetables (including lettuce), cooked asparagus, broccoli, Brussels sprouts, cabbage, corn, peas, other fibrous or rubbery vegetables Potato skins, fried or French-fried potatoes Any pieces larger than ½" in size

©2019 Becky Dorner & Associates, Inc.

Dysphagia Mechanically Altered (Level 2) or Mechanical Soft Diet (continued)

Foods Allowed	Foods to Avoid
Grains (Low-fat as appropriate) Breads (such as biscuits, muffins, pastries, rolls, etc.) should be pureed following a recipe Well-cooked noodles or dumplings in sauce Soft pancakes well moistened with syrup or sauce **Cereals** Should have little texture such as cream of wheat or rice, smooth cooked oatmeal; or moistened bran flakes, corn flakes, puffed rice, toasted Os, fruit rings, Wheaties™, etc. (If on thickened liquids, milk must be completely absorbed into cereal or thickened to appropriate consistency)	Regular breads, any breads with coconut, seeds, pieces of fruit, etc. that are not pureed Regular rice Pizza Coarse cooked cereal, dry whole grain (i.e. shredded wheat or bran bud type cereal, raisin bran, granola), cereal with nuts, seeds, coconut, dried fruit or other large, hard, dry pieces of food
Fluids should be at allowed thickness only (physician order for nectar-like, honey-like or spoon thick liquids) or as allowed by physician's order for Frazier Free Water Protocol Beverages (including fruit and vegetable juices) should be smooth and of one consistency, based on the consistency ordered by the physician	If thin liquids are restricted, avoid milkshakes, frozen yogurt, ice cream, sherbet, gelatin, or any that are liquid at room temperature (including broths in soups and stews) Beverages with pulp that separates out
Sodium, Saturated Fat, Added Sugars, Alcohol and Miscellaneous Foods include pudding, custard, soft fruit crisps, cobblers or pies (bottom crust only), without large chunks or nuts, soft, very moist cakes Soft, smooth chocolate. Butter, margarine, gravy, cream sauce, mayonnaise, cream cheese, sour cream, salad dressing, whipped topping Soup fillings should be easy to chew and swallow with liquid broth thickened to allowed consistency Food pieces should be less than ½" in size.	Dry coarse cakes, cookies, skins, nuts, seeds, coconut, rice or bread pudding Sticky foods, chewy candies (such as caramel or licorice), nuts, large edible seeds, popcorn, corn chips Potato chips Soups with large chunks of meats and vegetables, rice, corn or peas

Individualize the diet as needed for best tolerance and safety with swallowing.
It is important to make the diet look appealing. The following garnishes can help (as appropriate). Also see Garnishes Appropriate for Each Level of Dysphagia later in this chapter.

- Fruits: whipped topping, a light sprinkle of powdered gelatin, or cinnamon sugar.
- Meats: smooth gravy, sauce, catsup, mustard, mayonnaise, or barbeque sauce.
- Hot Vegetables: smooth Hollandaise sauce, or cream sauce.
- Desserts: smooth chocolate, butterscotch or strawberry syrup, or whipped topping.

Foods high in simple sugars are high in carbohydrates and must be counted in the day's total carbohydrates if on a carbohydrate-controlled diet.

©2019 Becky Dorner & Associates, Inc.

Sample Daily Meal Plan for a Well Balanced Dysphagia Mechanically Altered (Level 2) or Mechanical Soft Diet *(Similar to IDDSI Minced and Moist*)

Breakfast	Lunch	Dinner
¾ c Orange Juice ***at ordered thickness***	2 oz ***Chopped or* Ground** *Baked Chicken* **w/Gravy**	6 oz ***Well Cooked*** Vegetable Soup ***at ordered thickness***
½ c Cooked Oatmeal ***(smooth)***	***½ c Pureed Buttered*** Rice (May substitute cream of rice cereal)	3 oz ***Chopped or Ground Baked Fish* w/Smooth Tartar Sauce**
¼ c Scrambled Egg	½ c ***Well Cooked Carrots***	***½ c*** Mashed Potato ***with Margarine****
½ c Pureed WW Bread	***¾ c Vegetable Juice at ordered thickness***	***½ c Pureed or Soft Cooked Fork Mashable Green Beans (No Almonds)***
1 Tbsp Jelly	***1 Serving Pureed Bread w/1tsp Margarine****	***1 Serving Pureed Bread w/1tsp Margarine****
1 tsp Margarine*	½ c Fruit Sorbet ***at ordered thickness with #20 scoop Pureed Strawberries***	1 ***Soft*** Baked Apple ***(no skin)***
1 c Low Fat Milk ***at ordered thickness***	1 c Low Fat Milk ***at ordered thickness***	1 c Low Fat Milk ***at ordered thickness***
Condiments as Desired+ ***and allowed***	Condiments as Desired+ ***and allowed***	Condiments as Desired+ ***and allowed***
Beverage of Choice ***at ordered thickness***	Beverage of Choice ***at ordered thickness***	Beverage of Choice ***at ordered thickness***
P.M. Snack		
1 Pureed Muffin (no chunks of fruit or nuts) with Margarine*		
Beverage of Choice ***at ordered thickness***		

Bold/italicized items indicate differences from the Regular Diet menu.
*Low in saturated fats and *trans* fats
+Condiments may include ***finely ground*** pepper or other spices, sugar, sugar substitute, salt, coffee creamer, etc. based on nutrition goals. ***Nothing with chunks of solid food such as pickle relish.*** Additional condiments and garnishes (i.e. margarine, gravy, sauces, ketchup, etc.) may round out the menu and make it more appealing and palatable. These add additional calories, added sugars, micro- and macronutrients (i.e. calories, fat, carbohydrates, sodium, etc.) and may not be appropriate for some individuals.

Note: Liquids thickened to the physician ordered consistency as appropriate (nectar like, honey like or spoon thick).

(References for Dysphagia Mechanically Altered Level 2 Diet: 4,9,30,34,35)

©2019 Becky Dorner & Associates, Inc.

Dysphagia Puree (Level 1) Diet

This diet is used only for people who have severe chewing and/or swallowing problems. All foods are pureed to simulate a soft food bolus, eliminating the whole chewing phase. Thoroughly evaluate individuals before placing on a puree diet, and periodically re-evaluate for ability to advance to the next level dysphagia diet. To achieve optimal intakes, diets should be planned with the individual's preferences and cultural norms in mind. These guidelines are intended for use with adults. Provide adequate nutrients as recommended by the Dietary Guidelines and National Research Council by using these guidelines to provide three balanced meals and up to three snacks daily:

Food	Amount Each Day*
Vegetables (include more dark green, leafy and orange vegetable choices; and dry beans and peas) Pureed consistency; juices at ordered thickness	≥2 ½ cups or equivalent See Foods Allowed next pages. Juices at ordered thickness.
Fruits (include a variety; with more fruit than juice as appropriate) Pureed consistency; juices at ordered thickness.	≥2 cups or equivalent See Foods Allowed next pages. Juices at ordered thickness.
Grains (include as much whole grain enriched as possible; at least half of grains should be whole) as tolerated Pureed	≥6 oz equivalent See Foods Allowed next pages.
Dairy (fortified with vitamins A and D) Encourage fat free or low fat as appropriate. At ordered thickness.	3 cups or equivalent See Foods Allowed next pages. Liquids at ordered thickness
Protein Foods (i.e. fish, seafood, lean meat, poultry, eggs, dry beans/peas/lentils, soy products, nuts) Pureed consistency foods only.	5-6 oz or equivalent Encourage 8 oz of cooked seafood per week. See Foods Allowed next pages.
Sodium, Saturated Fat, Added Sugars (pureed), **Alcohol** Limit added sugars/saturated fats, reduce sodium. Less than 10% of calories from sugar daily. Most fat should come from healthy oils. Alcohol in moderation as appropriate; at ordered thickness.	Use in limited quantities to round out the menu for pleasing appearance and satisfying meals. Alcohol: Women: up to 1 drink/day, Men: up to 2 drinks/day at ordered thickness.
Fluids (especially water) at ordered thickness. Smooth/of 1 consistency (i.e. nectar, honey, spoon thick)	Fluids based on individual needs. ≥1500 mL unless otherwise indicated.

These amounts are recommended based on a 2000 calorie meal plan by ChooseMyPlate.gov. See pages 1-8 to 1-12 specific food amounts. Follow menus/recipes approved by your RDN.

Recommended Nutritional Composition	
Calories[1] Approximately 2000	**Fiber** 25-35 gm
Carbohydrates 45-65% of calories	**Sodium**[3] 2300 mg
Protein[2] 10-35% of calories	**Calcium**[4] ≥1000-1200 mg **Vitamin D**[5] 600-800 IU
Fat 20-35% of calories <10% of calories from saturated fat	**Vitamin A** F 700/M 900 mg RAE **Vitamin C** 90 mg **Potassium** 4700 mg
Nutrients may vary day to day, but should average to the above estimates. Added sodium, saturated fats, sugars and alcohol will alter nutritional composition.	

- All foods must be the consistency of moist mashed potatoes or pudding.
- Pureed Diet menus follow the foods on the Regular Diet as closely as possible with the main difference being food consistency to ease chewing/swallowing.
- Use a wide variety of nutrient dense foods (fruits, vegetables, whole grains, dairy products, cooked dry beans/peas/lentils) rich in vitamins, minerals and dietary fiber.
- Supplement based on individual need: multivitamin or multivitamin with minerals, calcium, vitamin D, and B_{12} in older adults.
- Older adults may need individualized/less

[1]Depending on activity level, based on reference heights/weights adults aged 61+: Males (5'10", 154#) need 2000-2400 calories; Females (5'4", 126#) need 1600–2200 calories (34). For specific calorie level patterns, see *Appendix*.
[2]Based on individual needs.
[3]Sodium intake will be higher with processed foods/added salt. For individuals with hypertension further reduction to 1,500 mg sodium per day can result in even greater blood pressure reduction.
[4]Calcium: 1200 mg for females 51+, 1000 mg for males 51+ and 1200 mg for males 71+.
[5]Vitamin D: 600 IU for 51+ and 800 IU for 71+.

Note: Nutritional composition will change with diet liberalization.

©2019 Becky Dorner & Associates, Inc.

Dysphagia Puree (Level 1) Diet

Foods Allowed	Foods to Avoid
Protein Foods (Low-fat if appropriate) **Meats**, eggs, and cottage cheese should be pureed to moist, pudding-like consistency following an appropriate recipe Pre-prepared pureed shaped meats Meats are served moistened with sauce or gravy	Any non-pureed meats or meat alternatives including cheese
Meat alternatives Include any that are well pureed into a smooth, moist, mashed potato consistency	Any non-pureed meats or meat alternatives Avoid peanut butter unless part of a complete pureed recipe that is easy to swallow
Dairy (Low fat as appropriate) Include any milk or milk alternate at the ordered thickness, sour cream, pureed cottage cheese and cream cheese, frozen desserts made from milk (unless thickened liquids are required), whipped topping, pudding, regular yogurt without nuts, coconut, or large chunks of fruit	Yogurt or cottage cheese with nuts, coconut, or large chunks of fruit, hard and soft cheese If thickened liquids are ordered, avoid frozen desserts made with milk (ice cream, frozen yogurt)
Fruits Include any that are pureed to a smooth consistency with no pulp, seeds, skins or chunks Fruit juice without pulp thickened to proper consistency Well mashed, ripe bananas, free of lumps Pre-prepared pureed shaped fruits	Any non-pureed fruits, or juices that are not at the proper consistency Juice with pulp
Vegetables (Low-fat if appropriate) Should be soft, well cooked and pureed using an appropriate recipe, and free from chunks, lumps and/or seeds. All potatoes and other starches should be pureed per appropriate recipes Potatoes (including mashed potatoes) can be served with gravy, sauce, butter, or margarine to moisten Tomato or vegetable juice thickened to proper consistency Pre-prepared pureed shaped vegetables	Any non-pureed vegetables
Grains (Low-fat if appropriate) Should be served pureed (through the entire thickness), or may be pureed into other foods (in accordance with appropriate recipes) Pureed bread products (mixes or pre-prepared, shaped products)	Regular breads Any non-pureed bread/starch foods

All foods are the consistency of moist mashed potatoes or pudding. Liquids at ordered consistency (nectar-like, honey-like or spoon-thick).

©2019 Becky Dorner & Associates, Inc.

Dysphagia Puree (Level 1) Diet (continued)

Foods Allowed	Foods to Avoid
Cereals (Low fat if appropriate) Should be smooth and of one consistency (usually cooked cereals such as cream of wheat or rice, farina, and oatmeal if pureed to a smooth consistency) Cereals should be a pudding-like consistency	Any other cereal including oatmeal Coarse cooked cereal, dry whole grain, cereal with nuts, seeds, and coconut
Fluids should be at allowed thickness only (physician order for nectar-like, honey-like or spoon thick liquids) or as allowed by physician's order for Frazier Free Water Protocol Beverages (including fruit and vegetable juices) should be smooth and of one consistency, based on the consistency ordered by the physician	If thin liquids are restricted, avoid milkshakes, frozen yogurt, ice cream, sherbet, gelatin, or any that are liquid at room temperature (including broths in soups and stews) Beverages with pulp that separates out
Sodium, Saturated Fats, Added Sugars, Alcohol and Miscellaneous Pureed foods of pudding-like consistency such as smooth puddings, custards, yogurts Milkshakes, eggnogs, ice cream, and sherbet only if thin liquids are allowed Pureed desserts, cakes and cookies Butter, margarine, gravy, sauces, mayonnaise, sour cream, cream cheese, whipped topping, salad dressing Soups must be pureed with no chunks or lumps, thickened to proper consistency if needed	Any non-pureed desserts or snacks Any food item with chunks, lumps or particles Bread or rice pudding or any coarse or textured desserts Any food item with chunks, lumps or particles Nuts, sprinkles, seeds, coconut, course ground pepper, herbs or spices Sticky or chewy foods Any non-pureed soups, or any soups that are not at the proper consistency

Individualize the diet as needed for best tolerance and safety with swallowing.
It is important to make the diet look appealing. The following garnishes can help (as appropriate). Also see *Garnishes Appropriate for Each Level of Dysphagia* later in this chapter.

- Fruits: whipped topping, a light sprinkle of powdered gelatin, or cinnamon sugar.
- Meats: smooth gravy, sauce, catsup, mustard, mayonnaise, or barbeque sauce.
- Hot Vegetables: smooth Hollandaise sauce, or cream sauce.
- Desserts: smooth chocolate, butterscotch or strawberry syrup, or whipped topping.

Foods high in simple sugars are high in carbohydrates and must be counted in the day's total carbohydrates if on a carbohydrate-controlled diet.

©2019 Becky Dorner & Associates, Inc.

Sample Daily Meal Plan for a Well Balanced Dysphagia Puree (Level 1) Diet *(Similar to IDDSI Puree)*

Breakfast	Lunch	Dinner
¾ c Orange Juice ***at ordered thickness*** ***½ c Cooked Cream of Rice*** ***1 serving Pureed Egg*** ***1 serving Pureed WW Toast*** ***1 Tbsp Jelly*** 1 tsp Margarine* 1 c Low Fat Milk ***at ordered thickness*** Condiments as Desired+ ***and allowed*** Beverage of Choice ***at ordered thickness***	***1 (2 oz) serving Pureed*** Baked Chicken ***w/Gravy*** ***1 (½ c) serving Pureed*** Rice (May substitute cream of rice cereal) ***with Margarine* and allowed seasonings*** ***1 (½ c) serving Pureed Peas*** ***¾ c Vegetable Juice at ordered thickness*** ½ c Fruit Sorbet ***at ordered thickness with #20 scoop Pureed Strawberries*** ***1 svg Pureed Bread*** 1 c Milk Low Fat ***at ordered thickness*** Condiments as Desired+ ***and allowed*** Beverage of Choice ***at ordered thickness***	6 oz ***Pureed*** Vegetable Soup ***at ordered thickness*** ***1 (3 oz) serving Pureed*** Baked Fish ***with Pureed Tartar Sauce*** ½ c Mashed Potato ***with Margarine**** ***1 (½ c) serving Pureed*** Green Beans ***(No Almonds)*** ***1 svg Pureed Bread*** ***1 Pureed*** Baked Apple ***(No Skin)*** 1 c Low Fat Milk ***at ordered thickness*** Condiments as Desired+ ***and allowed*** Beverage of Choice ***at ordered thickness***
P.M. Snack		
1 Pureed Cinnamon Muffin (no chunks, nuts, fruits) with Margarine* Beverage of Choice ***at ordered thickness***		

Bold/italicized items indicate differences from the Regular Diet menu.
*Low in saturated fats and *trans* fats
+Condiments may include ***finely ground*** pepper or other spices, sugar, sugar substitute, salt, coffee creamer, etc. based on nutrition goals. ***All others must be pureed. Nothing with chunks of solid food such as pickle relish.*** Additional condiments and garnishes such as those shown in this sample menu (i.e. margarine, gravy, sauces, ketchup, etc.), may round out the menu and make it more appealing and palatable. These add additional calories, added sugars, micro- and macronutrients (i.e. calories, fat, carbohydrates, sodium, etc.) and may not be appropriate for some individuals.

Note: Liquids thickened to the physician ordered consistency as appropriate (nectar like, honey like or spoon- thick).

(References for Dysphagia Puree Level 1 Diet: 4,9,30,34,35)

©2019 Becky Dorner & Associates, Inc.

Sample Daily Meal Plan for Well Balanced Diets

Dysphagia Advanced (Level 3) or Mechanical (Dental) Soft Diet *(Similar to IDDSI soft and bite-sized)* (31)	**Dysphagia Mechanically Altered (Level 2) or Mechanical Soft Diet** *(Similar to IDDSI Minced and Moist)* (31)	**Dysphagia Puree (Level 1)** *(Similar to IDDSI Pureed)* (31)
Breakfast	**Breakfast**	**Breakfast**
¾ c Orange Juice # ½ c Cooked Oatmeal ¼ c Scrambled Egg 1 ***slice WW Bread, Moistened with Margarine**** 1 Tbsp Jelly or Fruit Spread 1 c Low Fat Milk # Condiments as Desired+ ***and allowed*** Beverage of Choice #	¾ c Orange Juice # ½ c Cooked Oatmeal ***(smooth)*** ¼ c Scrambled Egg ***½ c Pureed WW Bread*** ***1 Tbsp Jelly*** 1 tsp Margarine* 1 c Low Fat Milk # Condiments as Desired+ ***and allowed*** Beverage of Choice #	¾ c Orange Juice # ***½ c Cooked Cream of Rice*** ***1 Serving Pureed Egg*** ***1 Serving Pureed WW Toast*** ***1 Tbsp Jelly*** 1 tsp Margarine* 1 c Low Fat Milk # Condiments as Desired+ ***and allowed*** Beverage of Choice #
Lunch	***Lunch***	***Lunch***
2 oz ***Chopped or Ground*** Baked Chicken ***w/Gravy*** **½ c Seasoned** *Buttered Rice* ½ c ***Well Cooked*** Seasoned Peas w/Mushrooms ½ c ***Shredded Lettuce*** w/1 Tbsp Salad Dressing 1 WW Roll ***Moistened with Margarine*+*** ½ c Fruit Sorbet # with ¼ c Strawberries 1 c Low Fat Milk # Condiments as Desired+ ***and allowed*** Beverage of Choice #	2 oz ***Chopped or Ground*** Baked Chicken ***w/Gravy*** ***½ c Pureed Buttered*** Rice (May substitute cream of rice cereal) ½ c ***Well Cooked Carrots*** ¾ ***c Vegetable Juice*** # ***1 Serving Pureed Bread with 1 tsp Margarine**** ½ c Fruit Sorbet # ***with #20 scoop Pureed Strawberries*** 1 c Low Fat Milk # Condiments as Desired+ ***and allowed*** Beverage of Choice #	***1 (2 oz) Serving Pureed*** Baked Chicken ***w/Gravy*** ***1 (½ c) Serving Pureed*** Rice (May substitute cream of rice cereal) ***with Margarine* and allowed seasonings*** ***1 (½ c) Serving Pureed Peas*** ¾ ***c Vegetable Juice*** # ***1 Serving (slice) Pureed Bread*** ½ c Fruit Sorbet # ***with #20 scoop Pureed Strawberries*** 1 c Milk Low Fat # Condiments as Desired+ ***and allowed*** Beverage of Choice #
Dinner	***Dinner***	***Dinner***
6 oz Vegetable Soup # 3 oz ***Soft*** Baked Fish ***with Smooth Tartar Sauce*** ½ c Mashed Potato ***with Margarine**** ½ c ***Soft Cooked*** Green Beans (***No Almonds)*** 1 slice WW Bread ***Moistened with Margarine**** 1 Baked Apple ***(No Skin)*** 1 c Low Fat Milk # Condiments as Desired+ ***and allowed*** Beverage of Choice #	6 oz ***Well Cooked*** Vegetable Soup # 3 oz ***Chopped or Ground Baked Fish With Smooth Tartar Sauce*** ½ c Mashed Potato ***with Margarine**** ***½ c Pureed or Soft Cooked Fork Mashable Green Beans (No Almonds)*** ***1 Serving Pureed Bread w/1tsp margarine**** 1 ***Soft*** Baked Apple ***(no skin)*** 1 c Low Fat Milk # Condiments as Desired+ ***and allowed*** Beverage of Choice #	6 oz ***Pureed*** Vegetable Soup # ***1 (3 oz) Serving Pureed*** Baked Fish ***with Pureed Tartar Sauce*** ½ c Mashed Potato ***with Margarine**** ***1 (½ c) Serving Pureed*** Green Beans ***(No Almonds)*** ***1 Serving Pureed Bread*** ***1 Pureed*** Baked Apple ***(No Skin)*** 1 c Low Fat Milk # Condiments as Desired+ ***and allowed*** Beverage of Choice #
P.M. Snack	**P.M. Snack**	**P.M. Snack**
1 Muffin (no chunks of fruit, nuts) Moistened with Margarine* Beverage of Choice #	***1 Pureed Muffin (no chunks of fruit, nuts) with Margarine**** Beverage of Choice #	***1 Pureed Muffin (no chunks of fruit, nuts) with Margarine****+ Beverage of Choice #

*Low in saturated fats and trans fats

#At ordered thickness (Liquids thickened to the physician ordered consistency as appropriate (nectar like, honey like or spoon thick).

+Condiments may include ***finely ground*** pepper or other spices, sugar, sugar substitute, salt, coffee creamer, etc. based on nutrition goals. ***For NDD Pureed and NDD Level 2, all other condiments must be pureed. Nothing with chunks of solid food such as pickle relish.*** Additional condiments and garnishes such as those shown in this

©2019 Becky Dorner & Associates, Inc.

sample menu (i.e. margarine, gravy, sauces, ketchup, etc.), may round out the menu and make it more appealing and palatable. These add additional calories, micro- and macronutrients (i.e. calories, fat, carbohydrates, sodium, etc.) and may not be appropriate for some individuals.
Bold/italicized items indicate differences from regular diet.

Note: After the IDDSI implementation date of May 1, 2019 announced by the Academy of Nutrition and Dietetics, NDD diet terminology and definitions may become obsolete (4).

Making Consistency Altered Diets Appealing

During preparation, consistency-altered diets should be seasoned to provide maximum flavor. They should be served on china unless divided dishes or other adaptive devices are needed to enhance independence with eating or requested by the individual. Food should be garnished within allowed texture modifications.

Mechanically altered foods consist of ground meats, soft fruits and vegetables that can be mashed with a fork, and extra gravies and sauces to moisten foods to ease swallowing. In most cases they can be presented nicely on a china plate with garnishes used as appropriate.

Pureed foods are generally cohesive, moist mashed potato or pudding-like consistency for people who cannot tolerate regular or mechanical soft foods. Food is pureed in a food processor to achieve a consistent smooth and easy-to-swallow product. Fluid may be added, or commercial thickening agents can be used to assure the proper consistency is achieved.

Pureed food should appear and taste like "real food" (as close to the regular diet as possible), while easing the chewing and swallowing process. Formed pureed foods can be purchased or prepared in-house. Standardized pureed recipes are the first step to assure a product that is consistent in taste, appearance, consistency and nutrient content.

Enhancing Plate Presentation

Appearance of food is important to everyone, but especially for the individual who has a poor appetite and/or decreased sense of sight, smell and taste. A consistency-modified diet can contribute to an unappetizing appearance. Plate presentation must be attractive to encourage food intake. Colors, shapes, arrangement and garnishes can enhance appeal. The goal is to make dysphagia diets eye appealing and tasty. Here some ideas for enhancing plate presentation for mechanically-altered meals.

Simple Techniques to Create Appealing Pureed Food (9)	
• Use a spatula to flatten a scoop of pureed meat to make it look like a patty. • Use smaller scoops to make meat look like meatballs. • Use sauces and gravies over meats and vegetables to garnish. • Sprinkle fruits or desserts with colored gelatin powder to add color or add a dollop of whipped topping to garnish. • Layer pureed bread with pureed meat to create the appearance of a sandwich. • Layer pureed pasta with pureed meat and sauce to create the appearance of lasagna or spaghetti. • Vary shapes using food molds, soufflés and mousse recipes.	• Use pastry bags to create special effects such as mixing two different colored vegetables (i.e. peas and carrots) and piping them onto the plate to create eye appealing vegetables. • Use commercial products such as modified food starches to ease preparation and enhance appearance to make pureed foods look more like their regular counterparts. • Use commercial pre-prepared pureed, molded foods, such as meats or vegetables to allow for additional variety and a more normal food presentation.

©2019 Becky Dorner & Associates, Inc.

Garnishes Appropriate for Each Level of Dysphagia (9)

Garnish	Level 3	Level 2	Level 1
Barbecue sauce	√	√ *	√ *
Cheese sauce	√		
Cinnamon sugar, sprinkle	√	√	√
Cranberry sauce, smooth	√	√	√ *
Cream sauce	√	√ *	√ *
Gelatin powder, flavored, sprinkle	√	√	√
Gravy	√	√ *	√*
Hollandaise sauce	√	√	√ *
Jelly	√	√	√ *
Honey	√	√	√ *
Ketchup, mustard, mayonnaise	√	√ *	√ *
Maple syrup	√	√	√ *
Parmesan cheese, grated, sprinkle	√		
Pickle relish	√	√ *	√ *
Powdered sugar, sugar or brown sugar, sprinkle	√	√	√ *
Salad dressing	√	√ *	√ *
Syrup: butterscotch, chocolate, strawberry	√	√	√
Whipped topping	√	√	√

*Must be totally smooth consistency with no lumps or chunks of food particles, herbs or spices.
All liquids must be at the ordered thickness.

Note: Presentation ideas may suggest additional foods that may or may not be appropriate for specific therapeutic diets (such as diabetic, carbohydrate or calorie controlled, sodium or fat/cholesterol restrictions). Consult an RDN or NDTR if you are unsure if these food items should be added.

©2019 Becky Dorner & Associates, Inc.

Full Liquid Diet

This diet may be used as a temporary diet (<5 days) for those individuals who are unable to tolerate solid foods. In some circumstances, an individual may need to continue on a full liquid diet for an extended period of time*. This diet consists mostly of items that are liquid or become liquid at room temperature. If necessary, liquids should be thickened to the appropriate consistency as ordered by the physician. It may be difficult to meet 100% of the US RDA/AI on a Full Liquid Diet due to inadequacy in some nutrients and fiber. High calorie/high protein oral nutritional supplements, enhanced or fortified foods should be considered. To achieve optimal intakes, diets should be planned with the individual's preferences and cultural norms in mind. Use the following foods/liquids to plan three meals and two to three snacks daily:

Food	Amount Each Day
Dairy and Substitutes (fortified with vitamins A and D) and/or or high calorie/high protein supplements. Substitute low lactose products as needed for allergies or intolerance.	6 to 8 cups as tolerated Milkshakes, hot cocoa, pudding, custard, strained cream soups, plain ice cream, etc. Fluids at ordered thickness
Fruit Juices** (include a variety of fruit juice choices)	2 cups at ordered thickness
Vegetable Juices** (include a variety of choices)	2 ½ cups at ordered thickness
Grains (preferably enriched): strained cooked cereals, cream of wheat or rice cereals only. Cooked hot cereal (plus enough liquid to achieve nectar thick or honey thick liquid consistency)	2 to 3 serving equivalents (6-8 ounces per serving)
High Calorie/High Protein Oral Nutritional Supplements, Enhanced or Fortified Foods (such as strained soups or broths, cereals, frozen desserts, juices, coffees, hot cocoas, puddings, liquid supplements) to boost calories and protein in the diet.	May need 3 to 6 servings per day to meet calorie and protein needs, especially if lactose intolerant, allergic to milk/milk products. At ordered thickness.
Fluids** At ordered thickness. Limit use of fluids that contain no nutritional value.	Fluids based on individual needs. ≥1500 mL unless otherwise indicated.
Sodium, Saturated Fat, Added Sugars, Alcohol such as gelatin, plain sherbet, flavored ices, margarine, jelly. These add calories, but few nutrients.	Use to round out the menu for a pleasing appearance, more satisfying meals, and to boost calories. Avoid alcohol.

Fruit and vegetable juices are low in calories and protein; monitor to assure the individual is not filling up on these juices rather than consuming those liquids with more calories and protein. It may be difficult to meet fruit and vegetable recommendations on a full liquid diet.* ***Follow menus and recipes approved by your RDN.

Recommended Nutritional Composition	
Calories Varies, depending on foods chosen	**Fluids** based on individual needs
Carbohydrates Varies depending on foods chosen	**Sodium** Varies depending on foods chosen
Protein ≥75 grams	**Calcium**+ ≥1000-1200 mg **Vitamin D**+ 600-800 IU
Fat Varies depending on foods chosen	**Vitamin C** 90 mg
Nutrients may vary day to day, but should average to the above estimates. Added sodium, saturated fats, sugars and alcohol will alter nutritional composition.	

- All foods/liquids are liquid or become liquid at room temperature (with the exception of hot cereal which liquids are added to in order to achieve a nectar or honey thick liquid).
- Use a wide variety of nutrient dense foods/liquids (milk/milk products, fruit and vegetable juices) rich in vitamins and minerals.
- Consider supplementation with a multivitamin or multivitamin with minerals, calcium, vitamin D and/or B_{12} in older adults; based on individual need.

Note: According to the Academy of Nutrition and Dietetics, there are no data supporting the use of a full liquid diet as part of a diet progression following surgery. Because the trend toward early postop discharge has caused postop diet regimens to be impractical, the full liquid diet is no longer widely advocated or used after surgery. For people with chewing or swallowing difficulties that may benefit from a liquid diet, dysphagia diets are recommended (4).

*Liquidized diets may be recommended long-term for those with dysphagia as per IDDSI guidelines (31). Consult a RDN for assistance to assure food is liquidized using calorie and/or protein dense fluids, is nutritionally adequate, and is served at the correct consistency as outlined by IDDSI at https://iddsi.org/.

©2019 Becky Dorner & Associates, Inc.

General Guidelines for the Diet

- Provide 3 meals and 2 to 3 snacks each day.
- All food items are liquid or become liquid at room temperature.
- Concentrate on high-calorie and high-protein foods for a more adequate diet. Include at least 6 to 8 servings of milk or milk-based items such as milkshakes, puddings, cream soups, hot cocoas, etc. If intolerant or allergic to milk products, substitute with milk free low-lactose products or medical nutritional supplements that don't contain lactose.
- Other foods to utilize: Strained soups or broth, high calorie/high protein supplements, fruits and/or vegetable juices, strained cereals, cream of wheat or rice, clear liquids, gelatin, plain ice cream or sherbet, custard, flavored ices, margarine, jelly, carbonated beverages, fruit flavored drinks such as Kool Aid®.
- Fortified foods (high calorie/protein) such as soups, cereals, frozen desserts, juices, coffees, hot cocoas, and puddings will help to boost calories and protein in the diet.

Sample Daily Meal Plan for a Full Liquid Diet
(Similar to IDDSI Liquidised)

Breakfast	***Lunch***	***Dinner***
1 c Apple Juice *¾ c Enhanced or Fortified Cereal (cooked/strained or cream of wheat or rice only)* *1 c Whole Milk* *Sugar* *Coffee, Tea or Beverage as Desired*	*1 c Grape Juice* *¾ c Strained Cream Soup* *¾ c Vegetable Juice* **1 c Milkshake* *½ c Ice Cream or Sherbet* *Sugar* *Coffee, Tea or Beverage as Desired*	*1 c Cranberry Juice* *¾ c Strained Cream Soup* *¾ c Vegetable Juice* **1 c Milkshake* *½ c Custard or Pudding* *Sugar* *Coffee, Tea or Beverage as Desired*
Mid-Morning Snack	***Mid-Afternoon Snack***	***Evening Snack***
¾ c Enhanced or Fortified Cereal (cooked/strained or cream of wheat or rice only) *½ cup Whole Milk*	*½ c Pudding*	**1 c Milkshake*

*Oral nutritional supplements may be substituted for milkshakes (liquid or pudding consistency).

High-protein puddings and milkshakes will boost the number of calories and grams of protein per day.

(References for Full Liquid Diet: 4,9)

©2019 Becky Dorner & Associates, Inc.

Diet and Nutrition Care Manual

Clear Liquid Diet

Individuals may be placed on Clear Liquid Diets secondary to acute state of illness, vomiting, diarrhea, pre-operative or post-operative patients, or for specific clinical tests. The Clear Liquid Diet is intended for temporary use and should be limited to no more than 1 to 3 days (preferably ≤24 hours) because it is inadequate in nutrients. If necessary, clear liquids should be thickened to the appropriate consistency as ordered by the physician. Any individual on clear liquids for more than 3 days should be evaluated by the RDN (or NDTR). Use these foods to plan three meals and up to three snacks daily:

Food	Servings/Day
Clear liquid high calorie/high protein supplements (juice-based or other clear liquid oral nutritional supplement, etc.)	6-8 cups (6-8 oz/serving) as tolerated (clear broth, gelatin, popsicles, fruit juice without pulp, carbonated beverages, coffee, tea). At ordered thickness.
Fruit juices (include a variety of juice choices) clear liquid, no pulp	≥2 cups at ordered thickness
Fluids (including water) Coffee, tea, clear broth or bouillon, carbonated beverages, plain flavored gelatin, and/or popsicles.	Fluids based on individual needs. ≥1500 mL unless otherwise indicated. At ordered thickness. Avoid alcohol.
Calorie boosters Gelatin (with sugar), flavored ices, sugar, honey, hard candy if tolerated. These add additional calories, but few nutrients.	Use to round out the menu for a pleasing appearance, and satisfying meals. May be needed to help boost calories. At ordered thickness.

Follow menus and recipes approved by your RDN.

Note: Use sugar and clear liquid oral nutritional supplements as calorie and protein boosters.

Diabetes: Due to decreased calorie level, sugar substitutes are not generally given. People with diabetes need a minimum of 200 grams carbohydrate daily on a Clear Liquid Diet, spread out evenly throughout the day. Coordinate diet and insulin therapy with physician. A regular diet should be resumed as soon as possible.

Nutritional Composition	
Calories Varies depending on fluids offered	**Fluids** based on individual needs
Carbohydrates Varies depending on fluids offered	**Sodium** Varies depending on fluids offered
Protein Varies depending on protein supplements used	**Calcium and Vitamin D** Inadequate without supplementation
Fat Minimal unless specialized clear liquid supplements are used	**Vitamin C** 90 mg
Nutrients may vary day to day, but should average to the above estimates. Added sodium, saturated fats, sugars and alcohol will alter nutritional composition.	

- This diet is not adequate in nutrients.
- Do not use this diet for more than 1 to 3 days.
- All food items are clear liquid or become clear liquid at room temperature.
- Use a wide variety of nutrient-dense liquids (allowed fruit juices, and high calorie/high protein clear liquid oral nutritional supplements) rich in vitamins and minerals.
- Consider supplementation with a multivitamin or multivitamin with minerals, calcium, vitamin D and/or B_{12} in older adults; based on individual need.

©2019 Becky Dorner & Associates, Inc.

Sample Daily Meal Plan for a Clear Liquid Diet

Breakfast	*Lunch*	*Dinner*
1 c Clear Liquid Oral Nutritional Supplement *1 c Apple Juice* *Black Coffee or Tea or Clear Liquid Beverage if desired* *Sugar*	*1 c Clear Liquid Oral Nutritional Supplement* *8 oz Grape Juice* *Black Coffee or Tea or Clear Liquid Beverage if desired* *Sugar*	*1 c Clear Liquid Oral Nutritional Supplement* *1 c Cranberry Juice* *Black Coffee or Tea or Clear Liquid Beverage if desired* *Sugar*
Mid-Morning Snack	***Mid-Afternoon Snack***	***Evening Snack***
1 c Clear Liquid Oral Nutritional Supplement	*1 c Clear Liquid Oral Nutritional Supplement*	*1 c Clear Liquid Oral Nutritional Supplement*

(References for Clear Liquid Diet: 4,9)

Clear Liquid and Full Liquid Diet Supplies (4,9)
Keep the following items on hand at all times for a clear or full liquid diet.

Supplies	Clear Liquid	Full Liquid
Soft Drinks		
Ginger ale or lemon lime soda	√	√
Other carbonated beverages	**No**	√
Juices		
Apple, cranberry, grape and/or orange (no pulp)	√	√
Peach, pear, apricot nectars	**No**	√
Tomato juice, vegetable juice	**No**	√
Broth/Bouillon		
Chicken, beef and/or vegetable	√	√
Gelatin		
Cherry, lime, orange, raspberry, strawberry	√	√
Hot Cereal		
Cream of rice or cream of wheat	**No**	√
Grits, fortified cereal	**No**	√
Oral Nutritional Supplements/Shakes		
Instant breakfast mix, commercial supplements, milkshakes, commercial egg nog	**No**	√
High calorie/protein clear liquid supplements (variety of types and flavors)	√	√
Desserts		
Fudgesicles®	**No**	√
Fruit ices	√	√
Ice cream	**No**	√
Plain popsicles®	√	√
Plain, smooth pudding (vanilla, chocolate, butterscotch)	**No**	√
Sherbet, plain, smooth (no chunks of fruit)	**No**	√

©2019 Becky Dorner & Associates, Inc.

Diet and Nutrition Care Manual

Guidelines for Serving Thickened Liquids

The SLP and food and nutrition services department should work together to identify and provide the appropriate fluid consistency. All individuals on thickened liquids require a physician's order for the appropriate fluid consistency. All liquids should be thickened to the proper consistency, including soups, water, oral nutritional liquid supplements, and all other beverages.

The facility will determine whether nursing or food and nutrition services personnel will thicken the liquids or if pre- thickened products will be used.

General Guidelines for Thickened Liquids - National Dysphagia Diet (NDD) (9,30)
The following consistencies may be ordered based on individual needs:

- **Thin** – water, coffee, tea, soda, ices, juices, milk, carbonated beverages, broth or broth-based soups, thin tomato juice, gelatin, ice cream, sherbet, sorbet, anything that will liquefy in the mouth within a few seconds (1 to 50 cp).
- **Nectar-like** – fruit nectars such as apricot, peach or pear nectar, maple syrup, thick tomato juice; or beverages thickened to nectar consistency (51 to 350 cp).
- **Honey-like** – thickened to honey consistency (351 to 1750 cp).
- **Spoon Thick** – thickened to a pudding consistency (>1750 cp).

Note: cp = centipoise, a measurement of the thickness of a liquid.

Examples of each consistency are listed below for the NDD and the International Dysphagia Diet Standardisation Initiative (IDDSI).

Thin (NDD) Thin (IDDSI)	Nectar-like (NDD) Mildly Thick (IDDIS)	Honey-like (NDD) Moderately Thick (IDDSI)	Spoon Thick (NDD) Extremely Thick (IDDSI)
Broth, bouillon Carbonated beverages Coffee or tea Gelatin Ice or ice chips Ice cream, frozen yogurt Ices (fruit ices) Frozen fruit bars Juice Malts Milk Milkshakes Oral nutritional supplements (unless specified by manufacturer) Popsicles™ Soda Soups, thin broth Thin tomato juice Watermelon	Apricot nectar Peach nectar Pear nectar Thick tomato juice Commercial thickeners may be used to achieve nectar-like consistency. Commercially prepared nectar-like thickened products.	Commercial product needed to achieve desired consistency. Commercially prepared honey-like thick products.	Commercial product needed to achieve desired consistency.

(References for Thickened Liquids: 9,30,31)

Note: Work with the RDN and SLP to assure the correct products under each category. If IDDSI terminology has been adopted by a facility, routine testing of fluid consistency as outlined at https://iddsi.org/ is recommended to assure correct consistency.

©2019 Becky Dorner & Associates, Inc.

Diet and Nutrition Care Manual

Positioning Tips to Increase Independence and Reduce Risk of Aspiration or Choking

Note: Please work very closely with the speech language pathologist (SLP) on positioning that is appropriate for each individual. Be aware that the techniques noted in this manual are not appropriate for everyone and should be individualized by the SLP to best meet each person's needs.

Positioning for Eating

Proper positioning at meals is extremely important for a safe swallow. When positioning an individual with dysphagia, it is best to seat them in a dining room chair with arms if possible, at 90" X 4" angles (see explanation below).

1. Small of back to the back of the seat, with the torso at a 90-degree angle to the lap.
2. Upper legs at a 90-degree angle with the lower legs.
3. Feet on the floor with the lower legs at a 90-degree angle to the feet.
4. Most importantly, head at a 90-degree angle with the torso (9).

Be sure the table height is at an appropriate level so the person can easily reach the food, and range of motion is comfortable for self-feeding.

Positioning for a Safe Swallow (9)
Seat individual in a dining room chair with arms if possible

Remember ***"90 X 4"***

If at all possible, create 90° angles at the:
1. Feet and lower legs
2. Lower legs and thighs
3. Lap and torso
4. Torso and head

- **Feet on the floor**
- Small of back against the chair
- Head upright
- Chin *slightly* tucked
- **Support as needed to maintain positioning**
- **Appropriate table height**

For a person who is confined to bed, achieve as close to ***"90 X 4"*** position as possible. Prop the individual up with pillows if needed. Use pillows under the knees to achieve 90° hip flexion. It is most important to try to achieve a 90° angle with the head to torso.

Avoid the incidence of the head tipping back at any time unless recommended by an SLP who has evaluated the individual. A nosey cup (cup with the side cut out for the nose to fit in to keep the head from tipping back) may be helpful for drinking liquids. Straws may be unsafe for those with poor mouth control (may suck too hard on the straw and propel the liquid to the back of the throat too quickly - causing the possibility of choking and/or aspiration). The services of the SLP, PT and OT may be helpful to achieve the best positioning and for strategies for compensation.

After eating, provide good oral hygiene to remove any food debris from the mouth. It is best for the individual to remain upright for at least 30 minutes to reduce the incidence of aspiration of any food or fluid that is pocketed or pooled in the mouth. Keep the head of the bed elevated at least 6 inches or 30 degrees at all times to reduce the incidence of aspiration.

Refer to the table on the next page for *Recommendations for Specific Problems or Concerns with Dining.*

©2019 Becky Dorner & Associates, Inc.

Recommendations for Specific Problems or Concerns with Dining (9)

Problem	Recommendations
Position for Optimum Independence with Eating, and Safety for Swallowing	• The individual should be seated in a dining room chair or wheelchair positioned so that the arms of the chair or wheelchair fit under the table. • Position the individual to easily reach the food and utensils. • The individual's arms should rest comfortably on the table, so that the table can be used to support the elbow and assist with range of motion for eating. • The individual should be positioned forming four 90-degree angles: 1) feet flat on the floor and at a 90 degree angle with the lower legs; 2) lower legs and upper legs at a 90 degree angle; 3) upper legs and torso at a 90 degree angle; and 4) the head held as close to a 90 degree angle as possible. • Some individuals may need additional support to achieve these 90-degree angles (referral to a physical or occupational therapist may be needed).
Cannot Reach Table	• If the individual is in a dining room chair with arms or in a wheelchair, check to see if the arms of the chair or wheelchair prohibit moving the chair under the table. • Table height may need to be adjusted to be able to move the chair or wheelchair in to the table so the individual may enjoy a comfortable reach.
Table Too High or Too Low	• The goal is for the individual to be able to rest the forearms on the table comfortably to promote independence and ease of eating. • Table height may need to be adjusted to achieve this goal.
Feet Don't Touch the Floor	• Individuals should be able to rest their feet at a 90-degree angle with the lower legs. This cannot be achieved if the feet cannot touch the floor. • A small wooden box or stool placed under the feet or if in a wheelchair, the foot rests may achieve the goal. • A different chair may be needed (if appropriate height to table can be achieved).
Head/Neck Hyper-Extended (Tilted Back) or Head Tilted to Side	• For most individuals, it is extremely difficult to achieve a safe swallow with the head/neck hyper-extended or tilted to the side. • The goal is to have the head as close to a 90-degree angle in relationship to the torso as possible. • It may be necessary to work with a PT or OT to achieve these results. • Assistive feeding devices may help to keep swallowing safe. A custom head support may be recommended by PT or OT. Sip cups or nose cutout cups may help to keep from having to tip head too far back.
Consumes Meals in Bed	• To achieve the ideal 90-degree angles when eating in bed, pillows must be used in addition to positioning the head of the bed. • Pillows placed to support head and shoulders, and also under the knees, can help to achieve the safest position for swallowing. Be sure that the bedside table is in the correct position so that the individual is at the most comfortable level to self-feed.
Leans to the Side or Forward in the Chair	• Pillows or towels may be needed to help the person maintain an upright position. • Assess activities and medications prior to the meal to see if fatigue or drowsiness plays a role in the individual's ability to sit up straight. • Simple changes in routine or medications may help the individual to position correctly. • Strengthening exercises may also assist (refer to PT or OT if needed).
Poor Mouth Control	• Refer to a speech language pathologist (SLP). • The SLP can teach the individual and staff strengthening exercises, positioning for safe swallowing, work with the RDN on safe textures and thickness of liquids, etc. • Assistive devices may help to a point (sip cups for better control of liquids, and plastic covered spoons if the individual tends to bite down on the silverware for example).

Note: Please work very closely with the SLP on positioning that is appropriate for the individual. Be aware that the techniques noted in this manual are not appropriate for everyone, and should be customized by the SLP to best meet the individual's needs.

©2019 Becky Dorner & Associates, Inc.

Sources of Dysphagia Products

- Darlington Farms (pureed bread and bakery mix)
  www.darlingtonfarms.com
- Hormel Health Labs
  www.hormelhealthlabs.com
- Lyons Magnus
  www.lyonsmagnus.com
- Nestle Nutrition
  www.nestlehealthscience.com/
- Nutra Balance
  www.nutra-balance-products.com
- Precision Foods
  www.precisionfoods.com
- Rubicon Foods
  http://www.rubiconfoods.com/
- Simply Thick
  www.simplythick.com
- Thickit
  www.thickit.com/

In addition to the companies above, there may be house brands of thickened liquids, thickeners, and other dysphagia food products available from each food service supplier.

Oral nutritional supplements may also be helpful and may be purchased by the following companies:

- Abbott Nutrition
  www.abbottnutrition.com/
- Hormel Health Labs
  www.hormelhealthlabs.com/
- Lyons Magnus
  www.lyonsmagnus.com
- Nestle Nutrition
  www.nestlehealthscience.com/
- Nutricia North America
  www.nutricia-na.com/

Also see *Chapter 1: Regular Diet* and Alterations for *Calorie Boosters* and *Protein Boosters* (be sure to use the proper consistency and thickness for each individual).

©2019 Becky Dorner & Associates, Inc.

References and Resources

References

1. Swallowing Difficulty. US National Library of Medicine, National Institute of Health. Medline Plus Medical Encyclopedia. http://www.nlm.nih.gov/medlineplus/ency/article/007543.htm. Updated October 14, 2013. Accessed September 20, 2018.
2. Dysphagia. Mayoclinic web site. https://www.mayoclinic.org/diseases-conditions/dysphagia/symptoms-causes/syc-20372028. Accessed September 20, 2018.
3. Robbins J, Banaszynski K. Swallowing problems in older adults. In: Chernoff R ed. *Geriatric Nutrition: The Health Professional's Handbook*. 4th ed. Burlington MA: Jones and Bartlett Learning; 2014: 211-233.
4. Academy of Nutrition and Dietetics Nutrition Care Manual. http://www.nutritioncaremanual.org/content.cfm?ncm_content_id=81215. Accessed September 20, 2018.
5. Dysphagia. National Institute on Deafness and Other Communication Disorders web site. https://www.nidcd.nih.gov/health/dysphagia Updated March 6, 2017. Accessed September 20, 2018.
6. Paik MJ. Dysphagia. Medscape web site. https://emedicine.medscape.com/article/2212409-overview#a3. Updated February 23, 2018. Accessed September 20, 2018.
7. Matsuo K, Palmer JB. Anatomy and physiology of feeding and swallowing-normal and abnormal. *Phys Med Rehabil Clin N AM*. 2008 November;19(4) :691-707. doi:10.1016/j.pmr.2008.06.001.
8. Neidert KC. *Nutrition Care of the Older Adult: A Handbook for Nutrition Throughout the Continuum of Care*. Chicago IL: Academy of Nutrition and Dietetics; 2016: 39-49, 147-153.
9. Dorner B. *Diet and Nutrition Care Manual: A Comprehensive Nutrition Care Guide.* Naples FL: Becky Dorner & Associates; 2016.
10. Thomas DR. Hard to Swallow: Management of dysphagia in nursing home residents. *JAMDA*. 2008 Sep;9(7):455-8. doi:10.1016/j.jamda.2008.06.009
11. Campbell-Taylor I. Oropharyngeal dysphagia in long-term care: misperceptions of treatment efficacy. *JAMDA*. 2008; 9(7):523-531.
12. Varkey AB. Aspiration Pnuemonitis and Pneumonia. Medscape Reference. https://emedicine.medscape.com/article/296198-overview. Updated August 15, 2018. Accessed September 20, 2018.
13. Tada A, Miura H, Prevention of aspiration pneumonia (AP) with oral care. *Archives of Gerontology and Geriatrics*. 2011; 55:16-21.
14. van der Maarel-Wierink CD, Vanobbergen JNO. Bronkhorst EM, Schols JMGA, de Batt C. Oral health care and aspiration pneumonia in frail older people: a systematic literature review. *Gerontology*. 2013;30:3-9.
15. Pace CC. McCullough GH. The association between oral microorganisms and aspiration pneumonia in the institutionalized elderly: review and recommendations. *Dysphagia*. 2010;25(4):307-22.
16. Choking-adult or child over 1 year. Medline Plus web site http://www.nlm.nih.gov/medlineplus/ency/article/000049.htm. Updated August 31, 2018. Accessed September 20, 2018.
17. Kramarow E, Warner M, Chen Li-Hui. Food-related choking deaths among the elderly. *Inj Prev*. 2013;0:1-4.
18. Messinger –Rapport BJ, Morley JE, Thomas D, Gammack JK. Clinical update on nursing home medicine: 2010. J*AMDA*. 2010; 11(8):543-566.
19. Murray J, Doeltgen S, Miller M, Scholten I. A descriptive study of the fluid intake, hydrations and health status of rehabilitation inpatients without dysphagia following stroke. *J Nutr Gerontol Geriatr.* 2015;34(3):292-304. doi:10.1080/21551197.2015.1054573.

©2019 Becky Dorner & Associates, Inc.

20. Cichero JAY. Thickening agents used for dysphagia management; effect on bioavailability of water, medication and feelings of satiety. *Nutrition Journal*. 2013;12:54.
21. New Dining Practice Standards. Pioneer Network Food and Dining Clinical Standards Task Force. 2011. https://www.pioneernetwork.net/wp-content/uploads/2016/10/The-New-Dining-Practice-Standards.pdf. Accessed September 20, 2018.
22. Panther K. Frazier Free Water Protocal. KentuckyOne Health web site. http://www.kentuckyonehealth.org/frazier-water-protocol. Accessed September 20, 2018.
23. Gillman A, Winkler R, Taylor LF. Implementing the free water protocol does not result in aspiration pneumonia in carefully selected patients with dysphagia: a systematic review. *Dysphgia.* 2017 June. 32(3);345-361.
24. Andersen UT, Beck MA, Kjaersgaard A, Hansen T, Poulsen I. Systematic review and evidenced-based recommendations on texture modified foods and thickened fluids for adults (> 18 years) with oropharyngeal dysphagia. *European Society for Clinical Nutrition and Metabolism.* 2013;e127-e134.
25. Loeb MB, Becker M, Easy A. Walker-Dilks C. Interventions to prevent aspiration pneumonia in older adults: a systematic review. *J Am Geriat Soc*. 2003;51(7):1018-22.
26. Painter V, Le Couneur L, Waite LM. Texture-modified food and fluids in dementia and residential aged care facilities. *Clin Interv Aging.* 2017 August 2;12:1193-1203. doi:10.2147/CIA.S140581.
27. American Medical Directors Association. Altered Nutritional Status in the Long-Term Care Setting Clinical Practice Guidelines. Columbia MD: AMDA, 2010.
28. Centers for Medicare and Medicaid Services. Appendix PP-Guidance to Surveyors for Long Term Care Facilities. Rev 173, 11-22-17. https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/som107ap_pp_guidelines_ltcf.pdf. Accessed September 20, 2018.
29. Garcia JM, Chambers E, 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.
30. National Dysphagia Diet Task Force, National Dysphagia Diet: Standardization for Optimal Care. Chicago IL: The American Dietetic Association. 2002.
31. The International Dysphagia Diet Standardization Initiative web site: https://iddsi.org/. Accessed September 20, 2018.
32. Castellanos VH, Butler E, Gluch L, Burke B, Use of Thickened liquids in skilled nursing facilities, *JADA.* August 2004;104: 1222-1226.
33. Dorner B. *End of Life Nutrition and Hydration.* Dunedin FL: Becky Dorner & Associates; 2016.
34. U.S. Department of Health and Human Services and U.S. Department of Agriculture. *2015 – 2020 Dietary Guidelines for Americans*. 8th Edition. December 2015. http://health.gov/dietaryguidelines/2015/guidelines/. Accessed September 20, 2018.
35. ChooseMyPlate. United States Department of Agriculture's ChooseMyPlate web site. http://www.choosemyplate.gov. Accessed September 20, 2018.

Resources

- American Speech-Language-Hearing Association: http://www.asha.org/publications/.
- Dysphagia Online (Nestle Nutrition): http://www.dysphagiaonline.com/en/Pages/Home.aspx.
- United States Department of Agriculture and Department of Health and Human Services, Center for Nutrition Policy and Promotion. Dietary Guidelines for Americans. Available at http://health.gov/dietaryguidelines/.
- National Institutes of Health, Swallowing Disorders: http://www.nlm.nih.gov/medlineplus/swallowingdisorders.html.
- National Institute on Deafness and Communications Other Disorders (National Institutes of Health): https://www.nidcd.nih.gov/health/vocal-fold-paralysis.

©2019 Becky Dorner & Associates, Inc.