

**REVIEW OF DYSPHAGIC PROBLEMS AND DIETARY
MANAGEMENT STRATEGIES (cont)^{3,10}**

TABLE 57.3

Problem/Condition	Signs and Symptoms	Dietary Considerations
Pharyngeal Transit Phase—cont		
Dysfunctional/hypertonic cricopharyngeus	Food may collect in the pyriform sinuses and overflow into the airway, resulting in risk for aspiration after the swallow.	Use thickened liquids and pureed foods. Medical follow-up.
Esophageal Transit Phase		
Weakened or lazy cricopharyngeus	Food material returns from the esophagus into the pharynx and may spill into the airway, resulting in aspiration after the swallow.	Use semisolid, moist foods that maintain a cohesive bolus. GERD precautions.
Reduced esophageal peristalsis	Food bolus remains in the esophagus.	Avoid sticky and dry foods. Try dense foods followed by liquids. Medical follow-up.
Esophageal obstruction from fistulas, soft bone growth, or tissue growth.	Narrowing of esophageal passage	Use thin liquids and pureed or soft solids; avoid sticky, dry foods. Medical follow-up.
NOTE: Coughing and/or wet/"gurgly" vocal quality are potential symptoms associated with pharyngeal phase disorders.		

The FEES is another diagnostic tool for dysphagia that involves inserting an endoscope transnasally to the hypopharynx to allow a direct view of the laryngeal/pharyngeal region. Controlled amounts of food and/or liquid, mixed with green food coloring for contrast, are presented and viewed on a monitor. The FEES offers an alternative for patients who cannot readily undergo videofluoroscopic examination.

The VFSS and FEES are videotaped for clinical review and interpretation, while also providing an excellent teaching tool for the individual, family, and/or caregiver. The videotapes may demonstrate the unique characteristics of an individual's swallowing ability and motivate him or her to follow recommendations. Detailed BSA procedures and swallowing evaluation study techniques are described elsewhere.¹²

DIET CONSIDERATIONS

The purpose of modifying the texture of foods and/or the viscosity of fluids for a dysphagic patient is to maintain or achieve a normal nutritional and hydration status while reducing the risks of aspiration and choking. Defining a precise dysphagia diet is difficult. The diet is highly individualized and progressive (ie, can fluctuate over time), and may change based on the individual's changing swallowing capabilities. (Table 57.3 summarizes suggested dietary strategies for various dysphagic problems.)

Various diets for dysphagia and terminology related to the texture characteristics of food have been described.¹³⁻¹⁸ Although the following definitions have not been standardized, knowledge of the terminology related to foods' texture, viscosity, or consistency is useful in managing dysphagia.

Consistency

Consistency is defined as the empirical measure of the flow of a liquid or a semiliquid during a given time and temperature when under the sole force of gravity. When measured with the Bostwick Consistometer (CSC Scientific Company, Inc; see Resources), consistency is usually expressed as inches or centimeters per 30 seconds. Consistency is often described by the appearance of the food/fluid.

Viscosity

Viscosity is defined as the internal friction of a liquid or its resistance to flow. It is measured by a viscometer in controlled settings (temperature, pressure, force applied, and time). It is usually expressed in centiPoises or milliPascalseconds (1cP = 1mPas).

Texture

Texture is defined as the way in which the structural components of a food are arranged in a microstructure and macrostructure and the exterior manifestations of this structure.¹⁹ The International Organization for Standardization has also defined texture as all the rheological and structural parameters of foods perceived by the mechanical, tactile, and, when possible, visual and audiologic receptors.²⁰ Texture should be considered for its overall attributes and not as an independent element of food.²¹

Textural properties have been detailed into three main categories: mechanical characteristics (primary and secondary), geometrical characteristics, and other characteristics.²² These categories are further defined by standard rating scales to correlate the objective evaluation of texture and the sensory methods used to evaluate food texture.²¹ These scales use anchor foods (examples of foods) to describe the textural parameters.²²⁻²⁴

Mechanical Characteristics of Texture (Primary)

Hardness. The energy necessary to attain a given deformation is defined as hardness. It can be judged as the force required to penetrate a substance with molar teeth. The anchor food scale presents foods ranging from cream cheese to olives to rock candy. It can also be illustrated by oatmeal cookies—very tender to very hard—according to the recipe used. Popular terms for describing hardness include soft, firm, and hard.

Cohesiveness. The strength of the internal bonds making up the body of the product is described as cohesiveness. It can be illustrated by comparing firm yogurt and stirred yogurt products. Stirred yogurts present less internal strength and are less capable of maintaining their shape. They demonstrate a higher flowability and therefore have less cohesiveness than firm yogurt.

Viscosity. The rate of flow per unit of force, such as the force required to draw a liquid from a spoon over the tongue, is defined as viscosity. The scale

ranges from water to condensed milk and can also be illustrated with the presentation of foods such as juices in the range from regular juice to those thickened to nectar-like juice, honey-like juice, and spoon-thick/pudding-like juice. When evaluated at a certain temperature and shear rate, viscosity of a product is also affected by the quantity of solids in it. As it becomes saturated with starch, a thickened juice, ranging from nectar-like to pudding-like, will present a higher viscosity at the pudding-like consistency because of the increased internal chemical bonds that apply an increased resistance to flow. Popular terms for describing viscosity include thin and viscous.

Elasticity. The rate at which a deformed material goes back to its undeformed condition after the deforming force is removed is called elasticity. This can be illustrated by frankfurters and cream cheese. When compressed between two fingers, a frankfurter has the capacity to go back to its original shape once the force is withdrawn, whereas the cream cheese, once the compression is removed, will keep the mark of the fingertip and will not bounce back to its original shape. Popular terms for describing elasticity include plastic and elastic.

Adhesiveness. The work necessary to overcome the attractive forces among other materials with which the food comes in contact (eg, tongue, teeth, palate, etc) is known as adhesiveness; it is also the force required to remove the material that adheres to the mouth. This scale is illustrated by foods ranging from vegetable oil to cream cheese to peanut butter and is also demonstrated by comparing the mouthfeel when eating peanut butter and when eating whipped cream products. Peanut butter is characterized by the sticky coating it leaves on the teeth, palate, and tongue, whereas whipped cream flows steadily in the mouth to the pharynx with very little residue left behind. Popular terms for describing adhesiveness include sticky, tacky, and goey.

Mechanical Characteristics of Texture (Secondary)

Brittleness. The force with which a material fractures is known as brittleness. It is related to the primary parameters of hardness and cohesiveness. This scale applies to foods ranging from corn muffins to graham cookies to the candy part of a peanut brittle. It is demonstrated by crackers and chips, which are highly fracturable when pressure is applied and will crumble into several pieces. Popular terms for describing brittleness include crumbly, crunchy, and brittle.

Chewiness. The energy required to masticate a *solid* food product to a state ready for swallowing and the length of time (seconds) required to masticate a food product at the rate of 1 chew per second in order to reduce it to the consistency satisfactory for swallowing define chewiness. Chewiness is related to the primary parameters of hardness, cohesiveness, and elasticity. The anchor food scale ranges from rye bread to steak to Tootsie Rolls® (or jellyrolls). Another illustration is the comparison of the force required to masticate a steak vs a hamburger. The steak requires much more work before reaching the appropriate texture for swallowing than the hamburger meat. Popular terms for describing chewiness include tender, chewy, and tough.

Gumminess. The energy required to disintegrate a *semisolid* food product to a state ready for swallowing is its gumminess. It is related to the primary parameters of hardness and cohesiveness. The samples used to determine the anchor food scale were laboratory samples made of flour and water in different ratios. A beverage thickened to spoon-thick/pudding-like consistency will require more

work than a beverage thickened to nectar-like consistency to clear the mouth after the bolus is formed and swallowed. Popular terms for describing gumminess include mealy, pasty, and gummy.

Geometrical Characteristics of Texture

- Related to size and shape of the particles. Examples include gritty, grainy, and coarse.
- Related to shape and orientation. Examples include fibrous, cellular, and crystalline.

Other Characteristics of Texture

- Moisture content. Popular terms for this parameter are dry, moist, wet, and water.
- Fat content. Secondary parameters include oiliness and greasiness.

Particle Size

The literature does not define what is considered a proper particle size for pureed foods and ground foods for the treatment of dysphagia. However, a recent publication suggests particle sizes for pureed and ground foods.²⁵ Ongoing research is being conducted to establish food particle sizes for various pureed menu items to further establish an industry-wide standard for these items.

Other Factors Affecting Suitability of Foods

Strong flavors such as sweet, spicy, or sour may stimulate salivation, swallowing, and/or mastication. Hot or cold temperatures, especially when alternated, may help to stimulate the swallowing response. Although it was once thought that cold boluses do not affect or improve swallowing ability, certain bolus characteristics such as volume and taste (sour) have been shown to cause changes in the onset of the oral and pharyngeal stages of swallowing. Foods that are moist and evenly textured are better tolerated than sticky foods, dry foods, or foods that crumble and fall apart easily. Thick liquids and foods that easily form a bolus in the mouth, such as semisolids or pureed foods, are usually easier to swallow.

Two consistencies in a single food/bolus, such as liquids along with solids, may be difficult to manage and may increase the risk of aspiration and or choking. The foods are called "mixed consistencies" or "double consistencies." Examples include vegetable soup, cold cereal with milk, watermelon, and creamed corn.

COMPENSATORY STRATEGIES

To prevent the complications of dysphagia, compensatory strategies focusing on eating/feeding techniques and the environment may be required, in addition to diet and texture modifications. These strategies may include:

- Chewing on the strong side of the mouth
- Tucking the chin and turning the head to assist closure of the airway
- Applying external pressure to the affected side of the mouth to decrease pocketing of food in the cheeks
- Encouraging lip closure during chewing and swallowing to prevent spillage of food and to assist with bolus formation
- Encouraging coughing to clear pooled residue to minimize aspiration

Positioning:

- Adjust seating position for mealtime to ensure correct positioning. Unless contraindicated, the individual should be sitting upright with the hips at a 90° angle, shoulders slightly forward, and feet flat on the floor or firmly supported.
- After eating, the individual should remain upright for approximately 30 minutes to reduce the risk of aspiration and prevent reflux.

Self-feeding or assisted feeding:

- If possible, individuals should self-feed, since there is a higher risk of aspiration when a person is fed by someone else.
- If the individual is fed by someone else, that person should be trained in appropriate feeding techniques. The feeder should sit at or below eye level so that the individual's head remains flexed downward.

Environment:

- During mealtime there should be a pleasant dining atmosphere to promote socialization, enhance awareness, and stimulate the appetite.
- Individuals should rest before meals since mealtime can be tiring. (Note: check with the swallowing therapist.)
- Minimize distractions, such as radios, TV, and windows overlooking busy scenes.
- Eliminate nonfood items from the tray.
- Allow sufficient time for eating, but avoid mealtimes >30 to 40 minutes because such a timeframe may increase fatigue.

Amount and rate:

- Encourage small bites and heap teaspoons, especially if the ability to manage food is impaired. (Bite size is dependent on an individual's ability at a particular point in time.) Most individuals can facilitate a safer swallow and minimize their risk of aspiration by consuming smaller boluses. A heap teaspoon provides approximately 7.5-10 mL (compared to a normal bolus, which is usually 18-25 mL for nondysphagic individuals).^{26,27} A bolus that is too small may increase meal time and fatigue, and reduce stimulation of the sensations.
- Do not use liquids to clear the mouth of food, unless instructed by the swallowing therapist.
- Check to see if food is cleared by assessing voice quality (ask the individual to say "Ah"). A wet or gurgly voice indicates that liquids and/or food may be resting on the vocal cords.
- Allow for frequent, dry swallows to help clear the mouth of food between bites. This may not be appropriate if the patient has xerostomia or cognitive impairment.

Patient orientation:

- Assess functional capacity to self-feed (ie, gross-motor and fine-motor function, ability to process/coordinate information in order to proceed with feeding).
- If necessary, cue the patient to help him or her prepare for eating.
- Review medication types and schedules for those which may cause drowsiness or decrease alertness.

Assistive and Adaptive Feeding Equipment

The following equipment is available to assist the individual with dysphagia:

- Dycem—secures objects in place
- Built-up handles—assist with limited grasp, limited fine-motor coordination, and decreased strength
- Weighted utensils—assist with coordination and ataxia (tremors)
- Rocker knife—allows for one-handed cutting
- Swivel spoon or fork—assists the individual who is unable to turn his or her palm up to bring a utensil to the mouth via an adjustable swivel head
- Plate guard—assists in scooping up food; prevents excess spillage over the edge of the plate
- X-long straw—assists individual with little upper extremity usage and/or limited head and trunk movement
- Universal cuff—assists individuals with little or no hard grasp
- Nosey drinking cup—cut out portion fits over the nose
- Adaptive cutlery, straws, bowls, etc

DIETS FOR DYSPHAGIA

There are many challenges in defining a standardized dysphagia diet.²⁸⁻³³ The objective of the diets is to safely optimize nutritional and hydration status. Foods and liquids are categorized based on their texture, consistency, and other properties. Depending on the physiological, neurological, or mechanical impairment, solid foods and liquids need to be evaluated separately and modified based on texture, cohesiveness, density, viscosity, consistency, temperature, and taste.

Dietitians and meal planners need to give special attention to the nutritional adequacy of any mechanically altered diet, especially the pureed diet. It is important to offer variety and, when possible, items similar to a regular diet. (Refer to Chapter 61, High-Calorie, High-Protein Diet, for ways to enhance the energy and protein content of food items.) The Resource section contains lists of manufacturers of specialized foods and liquids for the dysphagic population.

Liquids

Researchers have recently published the following standards for liquid viscosities related to dysphagia.¹⁷

Thin	1-50 cP
Nectar-like	51-350 cP
Honey-like	351-1,750 cP
Spoon-thick (pudding-like)	not <1,751 cP

(cP = centipoise, a standard unit of measurement for viscosity)

All values are at a shear rate of 50-s. Shear rate is the speed at which a substance flows while a force is applied to it. Manufacturers are now adopting these standards in product development and literature.

Sample food items reflecting viscosity levels follow:^{34,35}

- Thin: regular, no changes necessary
- Nectar-like: fluids that can be sipped from a cup or through a straw and will slowly fall off a spoon that is tipped. Examples include buttermilk, cold tomato juice, and eggnog.

- Honey-like: fluids that can be eaten with a spoon but do not hold their shape on a spoon. They may be sipped from a cup but are too thick to be taken through a straw. Examples include thick yogurt, tomato sauce, and honey.
- Spoon-thick (pudding-like): very thick fluids that must be eaten with a spoon. They hold their own shape on a spoon and are too thick to be sipped from a cup. Examples include thickened applesauce and thick milk pudding.

Stage 1: Pureed Diet

This diet consists of thick, smooth, homogeneous, semiliquid textures (see *Table 57.4*). The pureed diet is appropriate for persons with severely reduced oral preparatory stage abilities, impaired lip and tongue control, delayed swallow reflex triggering, oral hypersensitivity, reduced pharyngeal peristalsis, and/or cricopharyngeal dysfunction. Foods that are sticky (adhesive) or require bolus-intensive formation or controlled manipulation in the mouth (eg, melted cheese, peanut butter) are omitted. General description of the diet is as follows:

- Thick, homogeneous textures are emphasized.
- Pureed foods should be “spoon-thick” or “pudding-like” consistency.
- No coarse textures, nuts, raw fruits, or raw vegetables are allowed.

TABLE 57.4

RECOMMENDED FOODS FOR STAGE 1: PUREED DIET

Food Group	Recommended Foods
Breads and cereals	Cream of wheat, cream of rice, smooth cereals; gelatin; slurried white and whole refined-wheat bread (crust removed); slurried pancakes; pureed bread products; pureed pasta and rice; pureed congee
Eggs	Pureed scrambled eggs
Milk products	Milk; smooth yogurt; smooth custard; pudding
Fruits	Pureed fruits without seeds or skins; juices; applesauce
Vegetables	Pureed vegetables without seeds or skins; juices
Fats	Gravy; margarine, butter; sauces or broths; cream mixed with pureed fruit
Meats and meat substitutes	Pureed, cohesive meats or casseroles with gravy or broth to moisten; pureed legumes
Soups	Pureed soups
Desserts	Smooth custard and pudding; ice cream; sherbet; gelatin if allowed by swallowing therapist
Beverages	All; thickened as needed with a commercial thickening agent
Sugars and sweets	Honey; sugar; syrup; fruit jellies, etc, in allowed foods

TABLE 57.5

PUREED DIET SAMPLE MENU

BREAKFAST	LUNCH	DINNER
Orange juice*	Pureed curried pea soup*	Pureed chicken noodle soup*
Cream of wheat sprinkled with cinnamon sugar	Pureed saltine crackers or prepared with slurry	Pureed mesquite-roasted beef or pureed casserole
Pureed scrambled egg drizzled with hollandaise sauce	Pureed tarragon-roasted chicken or pureed casserole	Moist mashed potato
Butter or margarine	Tarragon chicken gravy	Roast beef gravy
Sugar to sweeten cereal	Pureed gingered carrots	Pureed lemon green beans
Pureed apple bran muffin	Pudding or custard	Fruit-flavored yogurt without fruit
	Pureed peaches	Pureed blueberry muffin
	Pureed pears drizzled with strained raspberry sauce	
Liquids as tolerated to satisfy nutrition needs, served after the meal, if necessary		
*Specify consistency of liquid: thin, nectar-like, honey-like, spoon-thick		

- Liquid or crushed medications (refer to physician or pharmacist for pharmoefficacy of the medications) are required and may be mixed with pureed fruits.
- Liquids and water are thickened as needed to the recommended consistency with a commercial thickening agent.

Quantity of intake may be limited due to the increased time required to eat or to a decreased appetite. Therefore, the pureed diet may require supplementation to meet the Dietary Reference Intakes (DRI), Recommended Dietary Allowances (RDA), and the Canadian Recommended Nutrient Intake (RNI) (Appendixes 3-5). Additional enteral feeding may be required. Monitor fluid intake. (See *Table 57.5* for a sample menu.)

Stage 2: Ground/Minced Diet

This diet is designed for patients who can tolerate a minimum amount of easily chewed foods (see *Table 57.6*). It may be appropriate for persons with moderately impaired oral preparatory stage abilities, edentulous oral cavity, decreased pharyngeal peristalsis, and/or cricopharyngeal muscle dysfunction. General description of the diet is as follows:

- No coarse textures, nuts, raw fruits (except very ripe or mashed banana), or vegetables are allowed, except as noted.
- Pureed or slurried bread, if necessary.
- Liquid or crushed medications may still be required. (Refer to physician or pharmacist for pharmoefficacy of the medications.)
- Liquids and water are thickened as needed to recommended consistency with a commercial thickening agent.

TABLE 57.6

RECOMMENDED FOODS FOR STAGE 2: GROUND/MINCED DIET

Food Group	Recommended Foods
Breads and cereals	All smooth cooked cereals (ie, cream of wheat, cream of rice, oatmeal); pancakes with syrup if tolerated; slurried bread, if necessary, or soft, bite-size pasta or rice, if tolerated
Eggs	Soft poached, soft scrambled
Milk products	Milk, yogurt with soft fruit; pudding, smooth custard, cottage cheese (creamy, small curd); soft cheese (eg, processed) or grated cheese
Fruits	Mashed, minced fruits without seeds or skins; applesauce; ripe, mashed bananas; thickened juices or nectars
Vegetables	Mashed, minced, or soft vegetables without seeds or skins; moist mashed potatoes; mashed winter squash; vegetable juices
Fats	Gravy; sauces; margarine, butter; seasonings as tolerated
Meats and meat substitutes	Ground meats or soft casseroles with gravy or broth to moisten; macaroni and cheese if tolerated
Soups	Soups with allowed ingredients
Desserts	Pudding and smooth custard; soft, moist desserts and baked goods; shakes; ice cream; sherbet; gelatin if allowed by swallowing therapist. Avoid hard candies, nuts, seeds, and dried fruit.
Beverages	All; thickened as needed with a commercial thickening agent
Sugars and sweets	Honey; sugar; syrup; fruit jellies, etc

Depending on individual selection and amounts consumed, this diet is designed to provide an adequate quantity of nutrients as indicated by the DRI/RDA/RNI (Appendixes 3-5). Supplementation may be required. More frequent feedings are recommended and fluid intake should be monitored. (See *Table 57.7* for a sample menu.)

Stage 3: Soft/Easy-to-Chew Diet

This diet is designed for patients who may have difficulty chewing, manipulating, and swallowing certain foods. It is based on a mechanical diet and consists of soft food items prepared without blenderizing or pureeing (see *Table 57.8*). It may be appropriate for persons beginning to chew or with mild oral preparatory stage deficits. General description of the diet is as follows:

- Textures are soft with no tough skins.
- No nuts or dry, crispy, raw, or stringy foods are allowed.
- Meats should be minced or cut in small pieces (diced pieces should be 1 cm (0.4 in) cubes or less.

TABLE 57.7

GROUND/MINCED DIET SAMPLE MENU

BREAKFAST	LUNCH	DINNER
Orange juice*	Curried pea soup* with	Strained cream of chicken noodle
Oatmeal with maple	saltine-type crackers, crumbled	soup
syrup and 2% milk	(or other crackers with no seeds)	Finely ground mesquite-roasted
Soft, scrambled egg with	Finely ground tarragon-roasted	beef or pureed casserole,
hollandaise sauce	chicken, or pureed	
Butter or margarine	casserole	Moist mashed potato with grated
Sugar to sweeten cereal	Moist, mashed winter squash with	horseradish
	brown sugar and butter	Roast beef gravy
	Tarragon chicken gravy	Minced lemon green beans
	Minced gingered carrots	Fruit-flavored yogurt without fruit
	Pudding or custard	
	Chopped pears drizzled with	Pureed peaches
	strained raspberry sauce	Blueberry muffin
Liquids as tolerated to satisfy nutrition needs, served after the meal, if necessary		
*Specify consistency of liquid: thin, nectar-like, honey-like, spoon-thick		

- Liquid or crushed medications may still be required. (Refer to physician or pharmacist for pharmoefficacy of medications.)
- Liquids and water are thickened as needed to recommended consistency with a commercial thickening agent.

Depending on individual selection and amounts consumed, this diet is designed to provide an adequate quantity of nutrients as indicated by the DRI/RDA/RNI (Appendixes 3-5). Monitor fluid intake. (See *Table 57.9* for a sample menu.)

Stage 4: Modified General Diet

This diet is designed for patients who chew soft textures (see *Table 57.10*). This is based on a soft diet and may be appropriate for persons with mild oral preparatory stage deficits.³⁵ General description of the diet is as follows:

- Soft textures that do not require grinding or chopping are used.
- No nuts or crisp, deep-fried foods are allowed.
- All liquids and medications are used as tolerated.
- Liquids and water may need to be thickened as needed to recommended consistency with a commercial thickening agent.

Depending on individual selection and amounts consumed, this diet is designed to provide an adequate quantity of nutrients as indicated by the DRI/RDA/RNI (Appendixes 3-5). Nutritional supplementation may be required. (See *Table 57.11* for a sample menu.)

TABLE 57.8

RECOMMENDED FOODS FOR STAGE 3: SOFT/EASY-TO-CHEW DIET

Food Group	Recommended Foods
Breads and cereals	Soft breads, cookies without nuts or seeds, and graham crackers; cooked and cold cereals in milk; waffles, pancakes; rice, pasta; toast without crust if tolerated Avoid Grape Nuts®, granola, and whole-grain crackers or crackers with seeds.
Eggs	Poached, scrambled; egg salad
Milk products	Yogurt, pudding, smooth custard, cottage cheese, soft cheese, ricotta, and cream cheese
Fruits	Soft fresh or canned fruit without seeds or coarse skins: applesauce, bananas, canned seedless cherries, canned apricots, peeled or canned peaches and pears, crushed pineapple; juices, nectars
Vegetables	Well-cooked or canned vegetables; skinless soft potatoes, chopped/grated spinach and lettuce; sliced cucumber, no skin/seeds
Fats	Gravy; sauces; margarine, butter; seasonings as tolerated
Meats and meat substitutes	Moist, shaved, tender meats with gravy or products made with ground meats, meat salads; macaroni and cheese; soft sandwiches; casseroles made with allowed foods; smooth peanut butter if tolerated
Soups	Well cooked with small pieces
Desserts	All soft desserts; avoid nuts and hard candies
Beverages	All; thickened as needed with a commercial thickening agent
Miscellaneous	Honey; sugar; syrup; fruit jellies, etc

TABLE 57.9

SOFT/EASY-TO-CHEW DIET SAMPLE MENU

BREAKFAST	LUNCH	DINNER
Ripe banana	Vegetable soup* with	Chicken noodle soup* with
Cold crisped-rice cereal	saltine-type crackers (or other	saltine-type crackers (or other
Soft, scrambled egg drizzled	crackers with no seeds)	crackers with no seeds)
with hollandaise sauce	Finely chopped tarragon chicken	Finely chopped mesquite-roasted
Whole-wheat bread	or finely chopped casserole	beef or finely chopped casserole
Butter or margarine	Steamed rice	Mashed potato with grated horse-
Sugar to sweeten cereal	Tarragon chicken gravy	radish
*2% milk for cereal	Cooked gingered carrots	Roast beef gravy
	Pudding or tapioca	Cooked lemon green beans
	Diced canned pears	Diced canned peaches
		Flan
Liquids as tolerated to satisfy nutrition needs, served after the meal, if necessary		
*Specify consistency of liquid: thin, nectar-like, honey-like, spoon-thick		

TABLE 57.10

RECOMMENDED FOODS FOR STAGE 4: MODIFIED GENERAL DIET

Food Group	Recommended Foods
Breads and cereals	Soft or lightly toasted breads and crackers; cooked or cold cereals in milk; waffles, pancakes; pasta Avoid crunchy or chewy foods such as hard bagels or English muffins, hard breadsticks, unleavened bread, or melba toast.
Eggs	All eggs
Milk products	Any milk and dairy products; pudding, custard, cheeses
Fruits	Any fresh or canned fruit without coarse skin; juices, nectars; peeled fresh fruits in small pieces; soft dried fruits if tolerated
Vegetables	Tender, cooked vegetables, grated or soft raw vegetables and salads
Fats	Any as tolerated
Meats and meat substitutes	Moist, shaved, tender meats; meat loaf; meat salads; any other soft foods; smooth peanut butter, if tolerated
Soups	Any soups
Desserts	Soft desserts and candies Avoid chewy desserts such as hard marshmallow or caramel.
Beverages	All; thickened as needed with a commercial thickening agent
Miscellaneous	Any as tolerated Avoid chips, popcorn.

TABLE 57.11

MODIFIED GENERAL DIET SAMPLE MENU

BREAKFAST	LUNCH	DINNER
Ripe banana	Vegetable soup* with saltine-type crackers (or other crackers with no seeds)	Chicken noodle soup* with saltine-type crackers (or other crackers with no seeds)
Cold, crisped-rice cereal	Moist and tender tarragon-baked chicken or casserole,	Moist and tender sliced roast beef, or casserole
Soft, scrambled egg drizzled with hollandaise sauce	Steamed rice	Mashed potato with grated horse-radish
Whole-wheat bread	Tarragon chicken gravy	Roast beef gravy
Butter or margarine	Steamed carrots with fresh ginger and orange juice	Cooked green beans seasoned with lemon juice and thyme
Sugar to sweeten cereal	Pudding or custard	Sherbet or fruit-flavored yogurt without fruit
*2% milk for cereal	Canned pears	Canned peaches
		Chocolate cream pie or fruited cobbler

Liquids as tolerated to satisfy nutrition needs, served after the meal, if necessary

*Specify consistency of liquid: thin, nectar-like, honey-like, spoon-thick

**SPECIAL
CONSIDERATIONS****Food Preparation**

The use of blenders and food processors assists in altering solid foods to an acceptable consistency. Blenders require the addition of fluids for processing, resulting in increased volume, which may be a concern for malnourished or appetite-depressed patients. Food processors do not require as much liquid but may require some additional liquid for altering the consistency of food. (Refer to Chapter 55, Blended Liquid Diet, for more information on blenders and food processors.)

Thickening Agents

Thickened liquids can be used in any stage of the dysphagia diet.³⁶ Clinically appropriate thickening combinations for foods and liquids are as follows:

Commercial thickeners. In order to provide a smooth texture for hot or cold foods, commercial thickeners can be used. These thickeners offer reliability in achieving a desired consistency time after time. Commercial thickeners are best used with meats, soups, beverages, and breakfast and dinner breads. A thickener slurry (thickener dissolved in liquid) can be used to thicken or gel meat, chicken, and fish purees, bread, cake, and cookies (following manufacturers' guidelines/directions). Commercial thickeners can usually be obtained through community pharmacies. These products should be used according to manufacturers' directives, and some trials and standardization will have to be done to obtain a final product that corresponds to the specific need. (See Resource section for available commercial thickeners and thickened products.)

Pureed thick vegetables. This type of thickener can alter flavor depending on the pureed vegetable used. They are best used with soups and meat-based dishes. Do not include asparagus or corn because of their fibrous nature.

Pureed fruits or applesauce. These thickeners alter the flavor of foods and separate when used with thin liquids. They are best used with fruit juices and more appropriately used as a flavoring agent with thickened products.

Baby rice cereal. This thickener is excellent at high viscosity levels, but not at low viscosity levels. Fortified cereals can be a significant source of iron. They alter the texture, giving a grainy feeling, and are not recommended for beverages.

Baby apple flakes. This thickener is excellent at all viscosity levels. It alters the texture, giving a grainy feeling, and is not recommended for beverages.

Other possible food thickeners may include baby strained bananas or banana flakes, potato flakes, finely chopped crackers, powdered fat-free milk, pureed tofu, heavy cream, and bread crumbs.

Secretion Control

The association between milk products and mucus production is poorly documented in the literature, although it is frequently implicated by some health professionals. It may be that the opaque quality of milk makes mucus more appar-