

Dysphagia

Dysphagia is a general term that describes difficulty swallowing and is caused by disease or dysfunction in one or more areas of the swallowing mechanism.

Purpose

- **Nutrition Indicators**

The presence of dysphagia indicates that there is a delay in the passage of food or fluids from the mouth to the stomach. The incidence of dysphagia can be determined by swallowing ability such as:

- Pocketing of food
- Drooling, excessive secretions
- Poor control of tongue movements
- Facial weakness/difficulty chewing
- Slurred speech
- Coughing before, during, or after swallowing food or fluids choking
- Frequent throat clearing
- Delayed swallow reflex
- Poor control of head/body position
- Nasal regurgitation
- Presence of oral lesions
- Wet, "gurgly" voice after swallowing foods or liquids
- Hoarse or breathy voice
- Absent swallow reflex
- Complaints of food getting "stuck"
- Poor control of head/body position
- Mucositis
- Xerostomia

- **Criteria to Assign the Dysphagia Diet**

Assessment and treatment of dysphagia should be completed by a team comprised of the physician, registered dietitian, speech language pathologist, and occupational therapist. Initial screening for dysphagia can be done using patient's history and physical, bedside screening, and observation of the patient while eating. Normal swallowing is divided into three distinct phases: oral, pharyngeal, and esophageal. All stages of swallowing must be adequate, if not a dysphagia diet must be prescribed.

Signs of oral dysphagia:

- Drooling
- Spillage of food or liquid from the mouth
- Slow eating
- Inability to complete meal due to weakness or fatigue
- Pocketing food in the mouth
- Repetitive rocking of tongue from front to back

- Reduced lip closure
- Reduced range of tongue motion, shaping, coordination

Signs of pharyngeal dysphagia:

- Repeated swallowing
- Frequent throat clearing
- Wet sounding voice
- Complaints of food or liquid stuck in the throat
- Coughing before, during, or after swallowing food, liquids, or medications
- Repeated pneumonia
- Increased temperature
- Chest/lung congestion

Signs of esophageal dysphagia:

- Pressure or discomfort in the chest
- Lump or fullness in the throat
- Chronic heartburn

- **Rationale for Dysphagia Diet**

The purpose of nutrition care with dysphagia is:

- To provide appropriate nutritional intake and fluids to maintain weight or produce weight gain if losses have occurred
- To progress the meal plan to include a wider variety of foods as the patient's swallowing function improves
- To provide foods that stimulate the swallow reflex
- To support eating independence
- To improve any nutrient deficits

Population

- **Overview**

Patients with these conditions are at risk for dysphagia:

- Alzheimer's disease
- Parkinsons disease
- Cancers of the central nervous system
- Multiple sclerosis
- Amyotrophic lateral sclerosis
- Myashenia gravis
- Sjogrens syndrome
- Head and neck cancer
- Radiation to the head and neck or thoracic region
- Esophageal stricture

- Achalasia
 - Scleroderma
 - Amyloidosis
 - Diabetic neuropathy
 - Xerostomia
 - Mucositis
- **Disease Process**
 - Grade 1:** Symptomatic, able to eat regular diet
 - Grade 2:** Symptomatic and altered eating/swallowing (altered dietary habits, oral supplements); intravenous fluids indicated <24 hrs
 - Grade 3:** Symptomatic and severely altered eating/swallowing (inadequate oral energy or fluid intake); intravenous fluids, tube feedings, or total parenteral nutrition indicated \geq 24 hrs
 - Grade 4:** Life-threatening consequences (obstruction, perforation)
 - Grade 5:** Death

- **Biochemical and Nutrient Needs**

Dietary guidelines for people with dysphagia, with the exception of those who have outstanding medical issues, are similar to those for the healthy population. You will need to choose and prepare soft, moist food options. A blender or food processor will facilitate the provision of a food consistency of familiar foods that is appropriate for the dysphagia patient. Consistencies are categorized by:

- Thin: Regular liquids, no adjustments needed
- Nectar: Falls slowly from spoon and can be sipped through a straw or from a cup
- Honey: drops from a spoon, but too thick to be sipped from a straw
- Spoon: Maintains shape, needs to be taken with a spoon, too thick to drink
- Commercial thickeners: Use for hot or cold foods. Follow manufacturer instructions to achieve desired consistency.

General Guidelines

- **Nutrition Rx**

There are three levels to the national dysphagia diet (NDD):

- Level 1 Pureed:
This diet consists of pureed, homogenous, and cohesive foods. Food should be “pudding-like.” No coarse textures, raw fruits or vegetables, nuts, and so forth are allowed. Any food that require bolus formation, controlled manipulation, or mastication are excluded. This diet is designed for people who have moderate to severe dysphagia, with poor

oral phase abilities and reduced ability to protect their airway. Close or complete supervision and alternate feeding methods may be required.

▪ Level 2 Mechanically Altered:

This level consists of foods that are moist, soft-textured, and easily formed into a bolus. Meats are ground or are minced no larger than one-quarter-inch pieces; they are still moist, with some cohesion. All foods from NDD Level 1 are acceptable at this level. This diet is a transition from the pureed textures to more solid textures. Chewing ability is required. The textures on this level are appropriate for individuals with mild to moderate oral and/or pharyngeal dysphagia. Patients should be assessed for tolerance to mixed textures. It is expected that some mixed textures are tolerated on this diet.

▪ Level 3 Advanced:

This level consists of food of nearly regular textures with the exception of very hard, sticky, or crunchy foods. Foods still need to be moist and should be in “bite-size” pieces at the oral phase of the swallow. This diet is a transition to a regular diet. Adequate dentition and mastication are required. The textures of this diet are appropriate for individuals with mild oral and/or pharyngeal phase dysphagia. Patients should be assessed for tolerance of mixed textures. It is expected that mixed textures are tolerated on this diet.

Fluid intake is often limited in patients with dysphagia, leading to an increased risk of dehydration. This decrease in fluid intake can lead to decreased salivary flow, promoting altered colonization of the oropharynx and this may lead to lethargy and mental confusion, increased potential for aspiration, and increased susceptibility to infection due to a depressed immune system. Special efforts may be necessary to ensure adequate hydration.

Fluid needs are dictated by the patient's disease state. Adequate fluid is important for all patients, but can be difficult to maintain for people receiving thickened liquids. It is important to remember that there is some fluid content in many foods, especially those that are pureed; however, special efforts may be needed to assure adequate hydration. Considering the patient's fluid preferences can be helpful in achieving this end.

- $Wt (kg) \times 30 \text{ mL} = \text{normal daily fluid requirement}$

• **Does it Meet DRI**

Guidelines for the number of servings of each food group recommended within MyPyramid are key to maintenance of optimal health. The only target nutrient levels that may be exceptions to the Dietary Reference Intake are those that would be affected as a result of the disease state or prescribed drugs, which may be limited

due to drug-nutrient interactions. These targeted levels need to be identified on an individual patient basis as a result of a patient's medical condition and/or medications.

Education Material

- **Nutrition Therapy**

Provide client with education and guidance as to how to modify foods so that the client can enjoy favorite flavors, and also to eat safely. Provide client with lists of recommended and non recommended foods. Provide client with sample meal plans.

- **Ideas for Compliance**

Nutritional monitoring should be an ongoing process for all patients. 24-hour recall, food diary, food frequency questionnaire can be used to monitor for acceptance and nutritional adequacy of the meal plan, as well as hydration status of the patient. If a variety of appropriate foods are not consumed, nutrient deficiencies can result. Alternative ways of approaching the food plan may need to be tried.

LEVEL 1 PUREED DIET: Recommended & Non recommended Foods, **Sample Meal Plan**

Recommended Foods – Level 1		
Food Group	Daily Servings	Foods Allowed
Dairy	2-3	Milk and milk beverages, yogurt drinks, juices; cottage cheese, cheese sauce
Desserts and sweets	Have in moderation	Smooth custards and puddings, sherbet, shakes, gelatin,; jelly, honey, sugar, sugar substitutes, chocolate syrup, maple syrup
Fats	Use in moderation	Butter or margarine; cream and cream substitutes; cream cheese; cooking fats and oils; smooth sauces and gravies; whipped cream
Fruits	2-4	All cooked or canned fruits without skins or seeds; fresh peeled apples; apricots; bananas; melons; peaches; pears; fruit juices; nectars
Grains	6-11	Breads and crackers without nuts, seeds or dried fruits; cooked or ready-to-eat cereals; pancakes; waffles; French toast; pasta
Meat and meat substitutes	2-3	Cooked, tender meat, fish, and poultry; infant-strained meats; cooked legumes; tofu; eggs
Soups	Use as desired	Broth; bouillon; all blended, strained stock-based or cream soups
Vegetables	3-5	Vegetable juices; well cooked or canned vegetables; cooked and peeled potatoes

Other	Use as desired	Ground seasonings and spices, tomato paste, mustard, ketchup
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Non Recommended Foods – Level 1	
Food Group	Foods Not Allowed
Dairy	Milk or yogurt foods made with nuts or seeds; hard cheeses
Desserts and sweets	Baked goods made with nuts, seeds, or coconut; chocolate, butterscotch, or peanut butter chips; marmalade
Fruits	Fruits with seeds, membranes, or tough skins, such as strawberries, raspberries, pineapple, orange and grapefruit sections, cherries, seeded grapes; dried fruits
Grains	Coarse, whole grain breads or breads with nuts, seeds, or dried fruit; granola; fried rice; fried noodles; potato skins
Meat and meat substitutes	Fried meats; sausages or other products with tough skins; poultry skin; fish with bones; anchovies; fried eggs; nuts; crunchy peanut butter
Vegetables	Raw or fried vegetables; vegetables with seeds, membranes, or tough skins, such as corn; celery, or tomatoes
Miscellaneous	Nuts, coconut, seeds, popcorn, relishes

Sample 1 Day Meal Plan – Level 1	
Breakfast	<p>½ cup orange juice at the prescribed liquid consistency</p> <p>½ cup farina-type cereal made with milk for a pudding-like consistency sprinkled with lump-free brown sugar</p> <p>1 pureed scrambled egg</p> <p>½ gelled, slurried, or pureed muffin with butter or margarine</p> <p>1 cup smooth drinks at the prescribed liquid consistency. Milk may be one of the drinks, if it doesn't cause you any problems.</p>
Lunch	<p>1/2 cup pureed tomato soup made with milk at the prescribed liquid consistency.</p> <p>3 pureed or slurried saltine crackers</p> <p>½ cup pureed meatloaf with ketchup drizzled on top</p> <p>½ cup mashed potatoes with gravy</p> <p>¼ cup pureed carrots and ¼ cup pureed peas, swirled together to look appealing</p> <p>½ cup vanilla pudding</p> <p>½ cup pureed peaches</p> <p>1 cup smooth drinks at the prescribed liquid consistency. Milk may be one of the drinks, if it doesn't cause you any problems.</p>
Evening	<p>½ cup pureed potato soup made with milk at the prescribed liquid consistency.</p> <p>3 pureed or slurried saltine crackers</p>

Meal	1 cup pureed chicken noodle casserole
	½ cup pureed green beans
	6 ounces smooth, whipped, fruit-flavored or custard-style yogurts
	½ cup pureed applesauce
	1 cup smooth drinks at the prescribed liquid consistency. Milk may be one of the drinks, if it doesn't cause you any problems.

LEVEL 2 Mechanically Altered: Recommended & Non recommended Foods, Sample Meal Plan

Recommended Foods – Level 2		
Food Group	Daily Servings	Foods Allowed
Dairy	2-3	Milk and milk beverages, yogurt drinks, cottage cheese, soft cheeses, cheese sauce
Desserts and sweets	Have in moderation	Smooth custards and puddings, sherbet, shakes, gelatin, jelly, honey, sugar, sugar substitutes, chocolate syrup, maple syrup
Fats	Use in moderation	Butter or margarine; cream and cream substitutes; cream cheese; cooking fats and oils; smooth sauces and gravies; whipped toppings; salad dressings; mayonnaise
Fruits	2-4	Cooked or mashed ripe fruits without seeds or skins; applesauce; mashed bananas; cantaloupe; stewed prunes; fruit cocktail; canned peaches or pears; watermelon with seeds removed; fruit juices
Grains	6-11	Soft breads; pancakes; muffins without seeds or nuts; waffles; stuffing; breads and plain crackers softened in soup or a beverage; mashed, baked, or creamed potatoes; sweet potatoes; noodles; soft pastas
Meat and meat substitutes	2-3	Soft, cooked meat and poultry with gravy or sauces added to moisten; soft, flaked fish without bones; casseroles made of ground meat; meatloaf; legumes in a mashed and moist form; tofu; smooth peanut butter; scrambled eggs and egg substitutes
Soups	Use as desired	Broth; bouillon; consommé, blended strained soups, cream soups
Vegetables	3-5	Well-cooked, soft vegetables without skin or seeds; mashed carrots; cooked beets; finely chopped, cooked greens; mashed squash; vegetable juices
Other	Use as desired	Ground seasonings and spices, tomato paste, mustard, ketchup

Non Recommended Foods – Level 2	
Food Group	Foods Not Allowed

Dairy	Hard cheeses
Desserts and sweets	Any with coconut, seeds, nuts, or whole or dried fruits; fried, tough or chewy items; granola bars; pies; chewy candy; hard, crunchy cookies; licorice; taffy; caramel
Fruits	Citrus fruits, blueberries, cherries, grapes, pineapple, apples, dates, figs, dried prunes, raisins
Grains	Rye crisps; whole wheat crackers; popcorn; chow mein noodles; taco shells; cake and breads with nuts, seeds, raisins, or dates; pita bread; rye or pumpernickel bread with seeds; bagels; French or sourdough bread
Meat and meat substitutes	Dry or tough cuts of meat or poultry; fried fish; fish with bones; hot dogs; sausage; bratwurst; pork chops; steak; crunchy peanut butter
Vegetables	Hash browns, fried potatoes, potato skins, French fries
Miscellaneous	Nuts, coconut, seeds, popcorn

Sample 1 Day Meal Plan – Level 2	
Breakfast	½ cup orange juice, at the prescribed liquid consistency.
	½ cup oatmeal that is moistened with 1/4 cup of milk
	1 soft, scrambled egg
	1 muffin with butter or margarine
	8 ounce drinks that have minimal texture at the prescribed liquid consistency
Lunch	½ cup tomato soup made at the prescribed liquid consistency.
	3 slurried crackers
	3 ounces moist meatloaf with tomato sauce topping
	½ cup moist hash-brown potatoes
	½ cup well-cooked mix of carrots and peas (note: should be easy to mash with a fork.)
	½ cup vanilla pudding with soft, canned, peach slices
	1 moist cookie
8 ounce drinks that have minimal texture at the prescribed liquid consistency	
Evening Meal	½ cup potato soup made to be the prescribed liquid consistency.
	3 slurried crackers
	1 cup moist chicken noodle casserole
	½ cup well-cooked, moist, green beans without strings
	½ cup apple cobbler with ½ cup ice cream (if thin liquids don't cause you any problems)
8 ounce drinks that have minimal texture at the prescribed liquid consistency	

LEVEL 3 Advanced: Recommended & Non recommended Foods, Sample Meal Plan

Recommended Foods – Level 3		
Food Group	Daily Servings	Foods Allowed
Dairy	2-3	Milk and milk beverages, yogurt drinks, cottage cheese, ricotta, soft cheeses, cheese sauce, sour cream
Desserts and sweets	Have in moderation	All soft desserts; avoid nuts and hard candies
Fats	Use in moderation	Gravy, sauces, margarine, butter
Fruits	2-4	Most fresh, canned, or frozen fruits and fruit juices
Grains	6-11	Soft breads; graham crackers; cooked and cold cereals in milk; waffles; pancakes; rice; pasta; toast without crust, if tolerated
Meat and meat substitutes	2-3	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
Soups	Use as desired	Well cooked with small pieces
Vegetables	3-5	Well-cooked or canned vegetables; skinless soft potatoes; chopped/grated spinach and lettuce; sliced cucumber
Other	Use as desired	Honey, sugar, syrup, fruit jellies

Non Recommended Foods – Level 3	
Food Group	Foods Not Allowed
Dairy	Hard cheeses
Desserts and sweets	Any with nuts or coconut, fried foods, jams, marmalades, hard or sticky candies
Fruits	Uncooked or dried fruits; any fruits with seeds or tough skins
Grains	Coarse, whole grains; any grain foods with nuts or seeds
Meat and meat substitutes	Any tough, fried, or stringy meat; hot dogs; cold cuts; sausage; chunky peanut butter; dry beans and peas; raw or fried eggs
Vegetables	Any fried vegetables; raw vegetables if not tolerated
Miscellaneous	Nuts, coconut, seeds, popcorn

Sample 1 Day Meal Plan – Level 3	
Breakfast	½ cup orange juice, at the prescribed liquid consistency.
	½ cup well-moistened dry cereal with 1/4 cup of milk.
	1 scrambled egg with cheese on a moist biscuit
	8 ounces milk and other drinks that have the prescribed liquid consistency.
Lunch	1 cup moist beef stew in small chunks that has a variety of well-cooked vegetables.
	1 slice moistened bread with butter or margarine
	½ cup canned fruit salad
	½ cup pudding with a moist cookie
	8 ounces milk and other drinks that have the prescribed liquid consistency.
Evening Meal	½ cup potato soup made with milk, at the prescribed liquid consistency
	1 slice moistened bread with butter or margarine
	3 ounces moist chicken on ½ cup soft-cooked rice
	½ cup green beans
	1 slice apple pie with a moist crust, cheese wedge, and ice cream (if thin liquids don't cause you any problems)
	8 ounces milk and other drinks of the prescribed liquid consistency

Websites

- **Organizations with Websites**
 - <http://www.mayoclinic.com/health/difficulty-swallowing/DS00523/rss=1>
 - <http://www.dysphagia.com/>
 - <http://www.merck.com/mmpe/sec02/ch012/ch012b.html>
 - <http://www.cincinnatichildrens.org/health/info/abdomen/diagnose/dysphagia.htm>
- **Government Websites**
 - <http://www.nidcd.nih.gov/health/voice/dysph.asp>
 - <http://www.nlm.nih.gov/medlineplus/swallowingdisorders.html>
 - http://www.ninds.nih.gov/disorders/swallowing_disorders/swallowing_disorders.htm
 - <http://health.nih.gov/topic/Dysphagia/DigestiveSystem>

References

- **Journal articles references**
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