



Nutrition & Food Services

Managing Dysphagia

Modified Textures & Thickened Liquids

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This education package was adapted from Prairie Mountain Health and SH-SS resources, created by a Dietetic Intern, and mentored by Nutrition and Food Services Managers. It was reviewed by the Regional Dietitian Team, Nutrition and Food Services Team and Regional Rehab Services Team.

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DYSPHAGIA & IMPAIRED SWALLOWING

What is Dysphagia?

Dysphagia is difficulty in moving food from the mouth to the stomach.

Swallowing disorders, also called dysphagia (dis-FAY-juh), can occur at different stages in the swallowing process:

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

What causes dysphagia?

Dysphagia may be the result of reduced muscle strength, sensation, anatomical abnormalities, or awareness of how to swallow.

Common conditions associated with impaired swallowing include:

- Stroke
- Dementia
- Parkinson's, Lou Gehrig's disease and Multiple Sclerosis
- Past surgery to head, neck or GI tract
- Cognitive and/or speech impairment

What are the major concerns of dysphagia?

1. Aspiration (inhaling substances into the airway and/or lungs)
2. Choking
3. Malnutrition
4. Dehydration

What role does Nutrition & Food Service staff have in dysphagia management?

It is the responsibility of Nutrition & Food Service staff to:

1. Provide appropriate texture and consistency as assessed that is safe for the individual to consume
2. Provide foods and meals in appealing way – looks, tastes and smells good
3. Provide a diet to meet the nutritional requirements of the individual
4. Accommodate individual preferences and cultural considerations
5. Set up Test of Texture Modification Diets (TTMD) test trays

Why Do We Modify Textures?

To optimize nutrition and hydration through a diet that is safe for individuals with dysphagia who are at risk of choking or aspiration.

Why do we thicken liquids?

Thin liquids can increase the risk for aspiration in individuals with dysphagia. A thicker consistency gives a person with an impaired swallow more time to control and swallow the liquid. This decreases the risk of fluids entering the airway and lungs.

Hazards of thin liquids:

1. Difficult to sense in the mouth
2. Cannot be controlled easily by the tongue for safe swallowing

We can decrease these hazards through **thickening fluids**.

HIGH RISK FOODS

High Risk Foods are any foods that could either cause obstruction or increase risk for aspiration:

1. Sticky foods

These foods create heavy boluses, mold to the airway and are resistant to dislodging efforts and can quickly fatigue already tired and weak muscles. Examples: peanut butter, fresh bread, bagels and sticky buns, caramels, fudge, butterscotch.

2. Foods with stringy fibers

These foods require extensive chewing to break up the fibers and therefore enter the airway easily. Examples: celery, spinach, broccoli, asparagus.

3. Foods that can block the airway

These foods are difficult to manipulate, may enter the airway and fits well into the airway. Examples: olives, citrus fruits, cherries, grapes, plums, hotdogs, nuts.

4. Foods that do not easily form a bolus





These foods disperse easily in the mouth, are difficult to manipulate with tongue, difficult to chew and enter the pharynx prematurely, quickly fatigue tired and weakened muscles and can easily get lost in the mouth.

Examples: raw fruits and vegetables, thin pureed fruits and vegetables, coconut, nuts and seeds, dry crackers, plain ground meats, bran cereals, plain rice, hard candies.




5. Foods that not compliant with No Fluids Combined with Solids

These foods require extensive blenderizing in the mouth by teeth, making it difficult to handle the fluids while solid pieces get lost in the mouth. Examples: citrus fruits, canned fruits, yogurt with fruit, soups containing vegetables/pasta/rice/meat/legumes, cold cereal with milk.

Please refer to the SH-SS Diet Compendium (DC) to determine what foods are allowed and not allowed for each texture. <http://portal/CRefLib/Nutrition/Ed/Pages/Manual.aspx>

Texture		Definition
Soft DC-202		<ul style="list-style-type: none"> • Fork-tender • Able to cut with the side of a fork • Cooked tender and moist • Easy to chew
Minced DC- 203		<ul style="list-style-type: none"> • All meat, entrees, fruits, and vegetables are minced • Soft breads and baked products are allowed • Sandwiches have minced filling • No raw vegetables • Foods that are minced must be ¼ inch or less in size
Total Minced DC-204		<ul style="list-style-type: none"> • All the entrees, meats, fruits, and vegetables are minced to ¼ inch or less in size. • Bread and baked products are pureed. • No Fluid Combined with Solids.
Pureed DC-205		<ul style="list-style-type: none"> • Foods mechanically modified by blender or Blixer®, or naturally of a cohesive and moist homogenous and/or thick semi-liquid texture • Free of all lumps and bits • Usually eaten with a spoon • Cannot be sucked through a straw • Holds its shape on a spoon • Not sticky

Please refer to the SH-SS Diet Compendium (DC) to determine what foods are allowed and not allowed for each texture. <http://portal/CRefLib/Nutrition/Ed/Pages/Manual.aspx>







Texture		Definition
<p>Soft with Minced Meat DC-206</p>		<ul style="list-style-type: none"> • Fork-tender or soft to chew • Cooked tender and moist • All meat products and meat alternatives are minced, must be ¼ inch or less • Sandwiches have minced filling • No raw vegetables • Items that are not fork-tender should be minced or removed
<p>Blenderized DC- 207</p>		<ul style="list-style-type: none"> • All entrees, meats, fruits and vegetables are blenderize using a blender or Blixer® • A consistency thin enough to pass through a straw • Smooth and no lumps or bits • Can be eaten with a spoon or drunk from a cup with a straw • Cannot be eaten with a fork as drips through slots of the fork • Does not hold own shape on a plate
<p>No Fluids Combined with Solids DC-208</p>		<ul style="list-style-type: none"> • Foods with fluid and solid combined in one mouthful are not allowed • Foods that release fluid when chewed are not allowed • Food containing juice, syrup, broth, other fluids with solid food particles require draining and/or pureeing or blending to achieve smooth texture, free of all lumps and bits.

THICKENED LIQUIDS

Please refer to the SH- SS Diet Compendium to determine what liquids are allowed and not allowed for each thickened liquid consistency.

<http://portal/CRefLib/Nutrition/Ed/Pages/Manual.aspx>

Fluids are grouped together based on their viscosity, or willingness to pour.

Consistency		Definition
Thin Fluids		<ul style="list-style-type: none"> No restrictions Note: Ice cream, sherbet, jello, ice chips – these all melt to thin liquids in the mouth
DC -250 Mildly Thick Level 		<ul style="list-style-type: none"> A liquid thickened to a nectar-like consistency Does not drip off a spoon but flows slowly without separating Thin enough to be sipped through a straw E.g. buttermilk, eggnog, tomato juice
DC-251 Moderately Thick Level 		<ul style="list-style-type: none"> Drips slowly or in dollops/strands through the slots of a fork. Flows slowly without separating Cannot be sipped through a straw E.g. honey, thick yogurt, tomato sauce
DC-252 Extremely Thick Level 		<ul style="list-style-type: none"> Holds shape on spoon; not firm and sticky; little food left on spoon A very thick fluid that must be eaten with a spoon Too thick to be sipped from a cup or sucked through a straw E.g. pudding, thickened apple sauce

PREPARATION METHOD

MINCED

EQUIPMENT REQUIRED: Blixer® or Food Processor

PROCESSING:

Note: Process foods when they are hot.



1. **Mince and serve food items separate from each other.** Do not mix all minced foods together like a casserole. This is to allow people to taste and enjoy each food item separately. If a combined food such as pizza, spaghetti, stew is on the menu, serve them combined in the appropriate texture.
2. Using the pulse feature of your food processor, mince food to a particle size of ¼ inch or less and ensure uniform consistency. If you are unsure if the texture is appropriate, press a particle of food through the space between two tines of a fork. If the particle goes through, the food is appropriately minced; if not, pulse again.
3. Scrape the lid and sides of the food processor to ensure all ingredients are processed and incorporated into the mixture.
4. Add the minimum amount of liquid needed to achieve desired consistency. **See Appendix A for recommended liquids.** If needed, fold liquid in by hand to obtain a moist, cohesive product that forms together well.
5. Avoid further processing at this point to prevent a mushy end product.

SPECIAL CONSIDERATIONS:

Meats: chop or dice larger pieces of meat prior to placing in food processor. Add gravy or sauce AFTER processing to prevent a mushy texture.

Fruit: drain any juice before mincing.

Vegetables: pulse to a minced consistency and add liquid only if needed to make a moist product. Add gravy or sauce AFTER processing to prevent a mushy texture.

PREPARATION METHOD

TOTAL MINCED

EQUIPMENT REQUIRED: Blixer® or Food Processor

PROCESSING:

Note: Process foods when they are hot.

1. Use the same preparation method as the Minced and Pureed textures. It will vary depending on the food items being served as this texture is a combination of both textures.
2. Refer to the Diet compendium for what is appropriate to serve.
3. **Mince or Puree and serve food items separate from each other.** Do not mix all minced or puree foods together like a casserole. This is to allow people to taste and enjoy each food item separately. If a combined food such as pizza, spaghetti, stew is on the menu, serve them combined in the appropriate texture.



PREPARATION METHOD

PUREED

EQUIPMENT REQUIRED: Blixer® or Food Processor

PROCESSING:

Note: Process foods when they are hot.



1. **Puree and serve food items separate from each other.** Do not mix all puree foods together like a casserole. This is to allow people to taste and enjoy each food item separately. If a combined food such as pizza, spaghetti, stew is on the menu, serve them combined in the appropriate texture.
2. When pureeing, mince food items first before adding liquid.
3. Fill bowl to two-thirds only to allow for proper mixing and addition of liquids.
4. Puree to a moist, pudding consistency, adding the minimum amount of liquid to bring to a proper consistency. **See Appendix A for recommended liquids to use when pureeing.** Potato flakes, bread, puree veggies may be added if needed to help thicken. *Tip: Use the pulse feature when adding liquids and powders into the food processor to prevent splashing.*
5. Scrape the lid and sides of the food processor to ensure all ingredients are processed and incorporated into the mixture.
6. Check for proper consistency by ensuring that the end product is moist, cohesive, has no water separation, lumps, bits, or skins in it.

SPECIAL CONSIDERATIONS:

Bread products: bread products are usually pureed into a mixture (e.g. soup) because they may result in an unacceptable sticky product if processed on their own.

Baked goods: for items such as muffins, cookies, and cakes, first process item then add liquid. Allow to let stand for 15-20 mins. Then check for proper consistency.

Oatmeal: process dry before cooking to achieve a smoother consistency.

Fruit: drain the juice before pureeing; add juice if thinning is needed. Some fruit may need to be thickened after being pureed (e.g. mandarin oranges).

Meat: chop or dice larger pieces of meat prior to placing in food processor.

Soups: puree to smooth, mildly thick consistency. Strain if required, for smooth consistency, and prior to any thickening necessary. If needed, add potato flakes or puree veggies to thicken.

PREPARATION METHOD

BLENDERIZED



EQUIPMENT REQUIRED: Blixer® or Blender

PROCESSING:

Note: Process foods when they are hot.

1. **Blenderize and serve food items separate from each other.** Do not mix all blenderized foods together like a casserole. This is to allow people to taste and enjoy each food item separately. If a combined food such as pizza, spaghetti, stew is on the menu, serve them combined in the appropriate texture.
2. When blenderizing, first remove the tough skin and large seeds, and then mince food items before adding liquid.
3. Fill bowl to two-thirds only to allow for proper mixing and addition of liquids.
4. Blenderize to a smooth, consistency thin enough to pass through a straw, adding the minimum amount of liquid to bring to a proper consistency. **See Appendix A for recommended liquids to use when blenderizing.** *Tip: Use the pulse feature when adding liquids into the food processor to prevent splashing.*
5. Scrape the lid and sides of the food processor to ensure all ingredients are processed and incorporated into the mixture.
6. Check for proper consistency by ensuring that the end product is smooth, has no water separation, lumps, bits, skins or hard pieces in it and is thin enough to pass through a straw.

SPECIAL CONSIDERATIONS:

Bread products: bread products are usually blenderized into a mixture (e.g. soup) because they may result in an unacceptable sticky product if processed on their own.

Baked goods: for items such as muffins, cookies, and cakes, first process item, then add liquid. Allow to let stand for 15-20 mins. Then check for proper consistency.

Oatmeal: process dry before cooking to achieve a smoother consistency.

Fruit: drain the juice before blenderizing; add juice if thinning is needed.

Meat: chop or dice larger pieces of meat prior to placing in food processor.

Soups: blenderize to smooth and thin consistency that can pass through a straw. Strain if required, for smooth consistency. Add milk or broth, if needed for appropriate consistency.

REHEATING, PLATING, GARNISHING

REHEATING

Reheat foods in a steamer, microwave or in a double boiler on the stove. **DO NOT** reheat using the oven as this will cause the product to dry out and increase the risk of choking/aspiration.

PLATING

Pureed, minced and blenderized foods must be plated separately to allow for the most visually appealing and best tasting meal possible. Divided plates or separated bowls may be used. Avoid mixing pureed, minced or blenderized foods together.

GARNISHING

Garnishing can add moisture, flavor, and visual appeal to a product. Garnish meats with a sauce or gravy. Garnish vegetables, potatoes, pasta or rice with margarine, sauces, gravy or seasonings.

PREPARATION METHOD

THICKENED LIQUIDS

THICKENED LIQUIDS

When thickened fluids are ordered, remember to thicken soups as well as beverages.

Nutrition and Food Services has pre-thickened liquids available in bulk and individual portions, as well as thickened powder for adding to coffee, tea and plain water. Refer to the Thickened Liquids Formulary.

EQUIPMENT: Container large enough to contain volume of fluid required, measuring spoons or scoop provided with thickener and a wire whisk, fork or spoon.

PREPARATION:

1. For commercial thickeners, refer to directions found on commercial thickener container for measurement amounts.
2. Stir briskly until thickener is completely dissolved.
3. Be sure to wait the specified time to allow thickening.
4. Keep thickened fluid refrigerated until service.

Note: may require additional stir just prior to service.

RECOMMENDED FLUIDS & THICKENERS TO USE WHEN MODIFYING TEXTURES

Food Item	Thickener	Thinner
Meats	Bread, potato flakes if needed	Broth, Gravy
Potatoes	---	Milk
Vegetables	---	Broth
Cream Soups	bread, crackers, instant mashed potato product *corn starch if used during cooking	Broth
Broth Soups	bread, crackers, instant mashed potato product *corn starch if used during cooking	Milk, Broth
Sandwiches	---	Milk, Broth
Eggs	---	Milk
Fruit	---	Juice
Muffins	---	Milk, Juice
Cakes	---	Milk, Juice
Cookies	---	Milk, Juice
Pies/Tarts	---	Milk, Juice

To thicken:

- Drain excess fluid before adding thickener.
- Only use thickener if the liquid separates from solid and can't be drained, or if the pureed or blenderized food separates.

To thin:

To maintain the taste of food, nutrition value, and proper consistency, add the least amount of liquid needed to achieve the desired pureed or blenderized consistency. By adding too much liquid and thickener, it decreases the nutrition value and the taste of the food in the portion.

ORAL NUTRITIONAL SUPPLEMENTS

Oral nutritional supplements may be used as a way to improve nutritional status of residents or patients. However, oral nutritional supplements such as **Ensure, Resource, and Boost** beverages are **not compliant** with thickened liquids for any consistency level according to the guidelines.

Thickener cannot be added to the oral nutritional supplements, because:

- Supplements do not hold viscosity when thickener is mixed in
- Creates lumps and bits that do not dissolve
- Does not reach the appropriate safe consistency

For residents or patients who need thickened liquids *and* nutrition supplementation, **fortified pudding** can be an option, and the Registered Dietitian can provide further options, if needed.

MEDICATIONS AND THICKENED FLUIDS (HEALTHCARE PROFESSIONALS)

For residents or patients on thickened liquids, mix all liquid medications into applesauce. **Do not** add liquid medications to pre-thickened liquids or liquids thickened with thickener as the liquid medication can alter the consistency of the thickened liquids.

Lactulose is naturally Mildly Thick Level 2, but if lactulose is needed for other thickness levels, mix it into applesauce.

For providing **Lax-A-Day (PEG 3350)** to residents or patients on thickened liquids, follow the steps below:

1. Mix Lax-A-Day (PEG 3350) into 1 Tablespoon of applesauce.
2. Following administration of Lax-A-Day (PEG 3350), provide 120 mL to 240 mL thickened liquid for hydration.

*Note: Lax-A-Day (PEG 3350) does not thicken properly with Thicken Up Clear (thickener). **Do not** put PEG into pre-thickened beverages, or attempt to thicken PEG mixed into a thin fluid as it thins if added to thickened liquids.*

CONSEQUENCES OF IMPROPER FLUID CONSISTENCY

Ensure proper thickness is given to prevent consequences of over or under-thickened liquids.

Consequences that can result from **under-thickened** liquids:

- Fever
- Persistent cough
- Aspiration
- Chest Pain
- Recurrent pneumonia
- Reversible airways disease
- Lung abscess
- Convulsions due to suffocation
- In extreme cases, death due to asphyxiation

Consequences that can result from **over-thickened** liquids:

- Malnutrition
- Dissatisfaction with meals
- Dehydration

Note: Dehydration is not caused by the thickener itself. But, residents or patients requiring thickened liquids tend to drink less because:

- Thickened liquids are more filling (thicker texture, higher calorie)
- Dislike the look of the liquid or feel of it in the mouth
- Altered taste depending on type of liquid and type of thickening agent used
- Get less opportunity to drink as people on thickened liquids may not always have thickened liquids available to drink throughout the day. Patients or residents may only have access to thickened fluids when the fluids are offered by a health care professional.

All of these combined can cause decreased motivation to consume thickened fluids and can cause dehydration which can lead to:

- Constipation
- Urinary Tract Infection (UTI)
- Increased frequency of bedsores and wounds
- Prolonged healing time
- Decreased mental status
- Decreased muscle strength
- Decreased renal function

REFERENCES

CLI.6410.PL.005 Safe Feeding & Swallowing Program in PCH TTMD Administration Guidelines
IDDSI – International Dysphagia Diet Standardisation Initiative – <https://iddsi.org/>
Southern Health – Santé Sud Diet Compendium
Thickened Liquids Formulary