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Puréed Foods, Thickened Beverages, and Water Needs[1]

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Adequate water intake may be a problem for some people who have trouble swallowing, particularly for those who have difficulty swallowing thin liquids. Examples of thin liquids include water, milk, coffee, tea, and most fruit juices. Normally, these beverages contribute significantly to total water intake and serve to prevent dehydration. However, thin liquids move very quickly during the swallowing process, and those with delayed or uncoordinated swallowing may have problems swallowing them. Some of the liquid may get into the lungs and cause coughing and possibly choking. Thickened liquids are often recommended for individuals who have problems swallowing thin liquids.

Thickened liquids

Thickened liquids are prepared by adding starch or gum thickeners to thin liquids. The recommended thickness for liquids is specific to the individual with a swallowing problem. Common consistencies are nectar, honey, and pudding. Nectar-like liquids can be sipped through a straw and drip slowly off of a spoon. Examples of nectar-like thickness include eggnog and tomato juice. Honey-like liquids can be sipped from a cup or eaten with a spoon. An example of honey-like thickness is a thick cream soup. Pudding-like liquids can be eaten with a spoon and hold their shape when on a spoon. Examples include yogurt and milk pudding.

Juice, milk, water, and even coffee can be thickened. Prethickened beverages are available commercially, or they can be prepared with various commercial thickeners. Directions

Figure 1. Nectar Credits: UF/IFAS

for preparing a thickened beverage depend on the type of thickener used. Product-specific preparation guides are available for nectar, honey, and pudding consistencies. However, as individual patient needs differ, it is important to consult with health professionals and create standardized recipes for each food and beverage for each individual with a swallowing problem (also known as dysphagia). Following a recipe produces a consistent thickness. This is especially important if more than one person is involved in the day-to-day preparation of thickened liquids. Examples of thickened liquid preparation guides are as follows:

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Figure 2. Honey Credits: UF/IFAS

Figure 3. Pudding Credits: UF/IFAS

Thickening with starch

http://www.thickitretail.com/Portals/0/TIR-001-ThickIt-UsageChart.pdf

http://www.hormelhealthlabs.com/1coltemplate.aspx?page=te_mixing_chart

Thickening with gums

http://www.simplythick.com/0C5F070C-C34F-2ED0-B55A3FDDE04ABEE4

How much water do foods contribute?

Although thickened beverages are served to ensure that individuals with certain swallowing problems receive adequate hydration, it is important to note that foods also provide water and, therefore, contribute to hydration. Many people who require thickened beverages also may require puréed foods. Puréed foods are particularly high in water, typically 70%–90%. Puréed foods are not only sources of water, but they may also provide more nutrients and may be more acceptable than thickened beverages.

Let's consider thickened milk. Fluid milk with 2% fat contains about 89% water. This means that an 8 oz serving (1 cup or 250 mL) of milk provides about 7 oz (220 mL) of water. The addition of starch thickener to the milk has only a small effect on the percentage of water, but it may have a significant effect on taste and acceptability because starch thickeners tend to suppress flavor. Alternatively, reduced-fat, flavored yogurts contain about 85%–87% water, so an 8 oz serving also provides about 7 oz (220 mL) of water. As yogurts are naturally thick, it is not necessary to add a thickener to ease swallowing. Yogurts offer not only acceptable flavor but also reliable consistency, whereas the consistency of thickened milk may vary with each preparation. It is important to note that water can be provided through a variety of commercially available, flavored yogurts instead of thickened milk. Choose yogurts with added vitamin D to ensure optimal nutrition. Providing water through usual foods such as yogurt is a good option for those who find thickened milk less acceptable.

Another example to consider is thickened juice. Apple juice is considered a beverage, but does it provide more water than applesauce? In fact, both apple juice and applesauce contain about 88% water! A 4 oz (125 mL) portion of either provides about 3½ oz (110 mL) of water. The preparation of thickened apple juice requires the addition of a thickener such as starch, whereas applesauce is already thick because of its fiber content. A disadvantage of thickened apple juice is that it provides very little fiber. Carefully consider the need for providing thickened fruit juices versus fruit purées. While both provide water and other nutrients, only the fruit purées provide a significant amount of fiber. Table 1 lists the water and energy contents of common puréed foods and beverages.

The sample menu below meets the MyPlate guidelines (ChooseMyPlate.gov) (see also *MyPlate for Dysphagia* [http://edis.ifas.ufl.edu/fs207]). It provides about 1800 mL of water and 1800 kcal given typical portion sizes, meeting

Table 1. Water content of common puréed texture foods and beverages

Dairy	Serving size	Water content	Energy (kcal)
Milk – 2%	1 cup (250 mL)	89%	122
Chocolate milk – reduced fat	1 cup (250 mL)	82%	190
Yogurt, plain, low fat	¾ cup (375 mL)	85%	116
Puréed cottage cheese – 2%	½ cup (125 mL)	81%	110
Pudding, vanilla, ready-to-eat	½ cup (125 mL)	72%	143
Vegetables			
Beets – canned, puréed	½ cup (125 mL)	91%	37
Carrots – cooked, puréed	½ cup (125 mL)	90%	36
Creamed corn – canned, puréed	½ cup (125 mL)	79%	92
Peas – cooked, puréed	½ cup (125 mL)	82%	60
Mashed potatoes with butter and milk	½ cup (125 mL)	76%	119
Sweet potato – canned, mashed	½ cup (125 mL)	74%	129
Squash – cooked, mashed	½ cup (125 mL)	90%	42
Fruits			
Apple juice	¾ cup (375 mL)	88%	86
Applesauce – unsweetened	½ cup (125 mL)	88%	51
Avocado – puréed	¼ cup (60 mL)	83%	92
Banana – mashed	½ cup (125 mL)	84%	112
Orange juice	¾ cup (375 mL)	88%	92
Peach purée	½ cup (125 mL)	89%	88
Protein foods			
Baked beans – vegetarian, canned, puréed	½ cup (125 mL)	72%	119
Chicken – canned	½ cup (125 mL)	67%	187
Refried beans – puréed	½ cup (125 mL)	78%	108
Egg – scrambled	½ cup (125 mL)	76%	164
Hummus	¼ cup (60 mL)	67%	102
Salmon – canned	3 oz (85 g)	71%	117
Tuna – canned	3 oz (85 g)	78%	73
Tofu – soft	½ cup (125 mL)	87%	76
Grains			
Bread – puréed	1/3 cup (85 mL)	49%	80
Cream of wheat porridge	1 cup (250 mL)	88%	132
Corn grits	1 cup (250 mL)	83%	182
Oatmeal porridge	1 cup (250 mL)	84%	146
Pasta – puréed	½ cup (125 mL)	86%	50
(*Source:* USDA, n.d.)			

the minimum fluid requirements of 1 mL/kcal (Holiday and Seager 1957). The addition of beverages (thickened if needed) to the menu would provide more water. Although the recommended Adequate Intake (AI) of water for healthy, active women is 2700 mL per day and 3700 mL per day for healthy, active men, individuals with swallowing problems may be much less active and may live in comfortable, temperature-controlled environments, and thus may have lower fluid requirements.

Sample Puréed Menu

Breakfast

Oatmeal with Milk and Brown Sugar
Scrambled Eggs
Blueberry Yogurt
Banana

Lunch

Salmon Salad
Puréed Bread
Creamed Spinach Purée
Puréed Peaches

Snack

Cottage Cheese with Pears
Light Lemonade (thickened if required)

Dinner

Refried Beans
Corn Grits
Avocado and Salsa Purée
Vegetable Cocktail (thickened if required)
Vanilla Pudding

Evening Snack

Peanut Butter and Jelly Bread Purée
Fruit Smoothie

Where can I get more information?

The Family and Consumer Sciences (FCS) agent at your county Extension office may have more written information and nutrition classes for you to attend. Also, a registered dietitian (RD) can provide reliable information.

References

Holiday, M. A., and W. E. Seager. 1957. "The Maintenance Need for Water in Parenteral Fluid Therapy." *Pediatrics* 19: 823.

USDA (United States Department of Agriculture). n. d. "National Nutrient Database for Standard Reference." Accessed December 28, 2012. http://ndb.nal.usda.gov/.