

Puréed Foods and Fiber¹

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Fiber is important to good health. Inadequate fiber intake may lead to constipation and other gastrointestinal complaints. Diets high in fiber may help to lower cholesterol and blood glucose, reducing the risk of heart disease (1). Although fiber is found in all plant foods such as fruits, vegetables, beans, grains, nuts, and seeds, most people do not consume enough fiber. Recommended fiber intakes are shown in Table 1.

Table 1. Fiber recommendations by age (1)*

Age	Fiber Recommendation
Children 1–3 years	19 g per day
Children 4–8 years	25 g per day
Female 9–18 years	26 g per day
Males 9–13 years	31 g per day
Males 14–50 years	38 g per day
Females 19–50 years	25 g per day
Men > 50 years	30 g per day
Females > 50 years	21 g per day
*Fiber recommendations are based on 14 g of fiber per 1,000 kcal of energy intake (1).	

Do people with swallowing problems get enough fiber?

People with swallowing problems who require a puréed diet may not meet their recommended intake of fiber. Studies have shown that older women living in long-term care consume only about 8 g of fiber per day and men only



Figure 1. Puréed black beans
Credits: UF/IFAS photo

12 g (2), and it would be expected that those who consume puréed diets have similar intakes.

Many puréed foods naturally contain dietary fiber. Puréed beans, peas, and lentils are good sources of fiber. For example, a ¼-cup serving of hummus, prepared from puréed chickpeas, provides 2.5 g of fiber. Puréed fruits and vegetables are also sources of fiber, with ½-cup servings providing, on average, about 2 g of fiber. Cooking does not change the amount of fiber in foods; cooked and puréed vegetables contain the same amount of fiber as raw vegetables do. Table 2 shows the fiber contents of some common puréed foods. Animal products such as milk, meats, fish, poultry, and eggs do not naturally contain fiber.

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Table 2. Fiber contents per serving size of common puréed foods (3)

		Serving Size	Fiber Content
Protein Foods	Baked beans – vegetarian, canned, puréed	½ cup (125 mL)	5.2 g
	Hummus	¼ cup (60 mL)	3.7 g
	Refried beans – puréed	½ cup (125 mL)	6.1 g
Vegetables	Squash – cooked, mashed	½ cup (125 mL)	3.2 g
	Sweet potato – canned, mashed	½ cup (125 mL)	2.2 g
	Mashed potatoes with butter and milk	½ cup (125 mL)	1.6 g
	Beets – canned, mashed	½ cup (125 mL)	1.5 g
	Creamed corn – canned, puréed	½ cup (125 mL)	1.5 g
	Carrots – cooked, puréed	½ cup (125 mL)	3.2 g
	Green beans	½ cup (125 mL)	2.8 g
	Peas	½ cup (125 mL)	2.4 g
	Spinach purée	¼ cup (60 mL)	1.1 g
	Vegetable juice	1 cup (250 mL)	1.9 g
Fruits	Applesauce – unsweetened	½ cup (125 mL)	1.3 g
	Avocado – puréed	¼ cup (60 mL)	3.9 g
	Banana – mashed	½ cup (125 mL)	2.9 g
	Peach purée	½ cup (125 mL)	1.4 g
	Apricot purée	½ cup (125 mL)	3.1 g
	Mango purée	½ cup (125 mL)	1.8 g
	Pear purée	½ cup (125 mL)	3.2 g
Grains	Oatmeal porridge	1 cup (250 mL)	4.0 g
	Cream of wheat porridge	1 cup (250 mL)	1.9 g
	Corn grits	1 cup (250 mL)	2.4 g
	Bread purée*	1/3 cup (85 mL)	2.0 g

*Darlington Puréed Bread & Bakery Mix

How do we achieve a high-fiber puréed diet?

Puréed diets can be planned to achieve fiber recommendations by choosing higher-fiber puréed foods often. See Table 3 later in this document for an example of a high-fiber puréed foods menu. Alternatively, the fiber content of a puréed diet that is prepared at home or in a care facility can be increased by adding fiber ingredients.

A variety of fiber ingredients are available that can be added to puréed foods. Fiber ingredients can be soluble or insoluble. Soluble fibers dissolve in water. These fiber ingredients can be easily mixed into beverages and most have little to no effect on taste. As puréed foods are high water (see *Puréed Food, Thickened Beverages and Water Needs*), soluble fibers are easily added to most puréed foods.

Examples of **soluble fiber ingredients** include:

- Chicory root fiber (also called inulin, oligofructose)
- Fructooligosaccharide
- Corn dextrin
- Hydrolyzed guar gum
- Soy fiber
- Sugar beet fiber
- Wheat dextrin

Insoluble fibers also can be added to some puréed foods, particularly purée-texture grains. For example, the fiber level in oatmeal porridge can be enhanced by adding fiber. Puréed meats and fish are other good choices for the addition of insoluble fiber, as the texture and flavor of the puréed meat and fish tend to mask the added fiber.

Examples of **insoluble fiber ingredients** include:

- Bamboo fiber
- Cellulose
- Corn bran
- Cottonseed fiber
- Oat hull
- Pea hull fiber
- Rice bran

- Sugar cane fiber
- Wheat bran (finely ground)

Which fiber ingredients are best?

If prevention of constipation is the goal, insoluble fibers are the best choices. Insoluble fibers work to bulk the stool. Although many soluble fibers have been shown to have some effect on stool bulking, a much higher intake is

Table 3.

HIGH-FIBER MENU			LOW-FIBER MENU			
	Fiber Content (grams)		Existing Fiber Content (grams)	Fortification (fiber grams added)	Fiber Content Yield (grams)	
Breakfast	Oatmeal	4.0	Cream of Wheat	1.9	2.0	3.9
	Scrambled egg purée	0	Scrambled egg purée	0	–	0
	Blueberry Yogurt*	0	Blueberry Yogurt*	0	3.0	3.0
	½ cup mashed banana	2.9	Orange Juice	0	–	0
Lunch	Salmon Salad	0	Salmon Salad	0	2.0	2.0
	Puréed Bread†	2.0	Puréed Bread†	2.0	–	2.0
	Creamed Spinach Purée	1.1	Creamed Spinach Purée	1.1	–	1.1
	Puréed Peaches	1.4	Puréed Peaches	1.4	–	1.4
Snack	Cottage Cheese with Pears	3.2	Supplement Pudding*	0	3.0	3.0
Dinner	Refried Beans	6.1	Puréed Chicken	0	3.0	3.0
	Whole Grain Corn Grits	2.4	Mashed Potatoes	1.6	–	1.6
	Avocado and Salsa Purée	3.9	Puréed Corn	1.9	–	1.9
	Vegetable Cocktail	1.9	Apple Juice	0	–	0
	Vanilla Pudding	0	Vanilla Pudding	0	–	0
Evening Snack	Peanut Butter & Jelly Bread Purée†	3.0	Bread Pudding†	2.0	–	2.0
	Fruit Smoothie	2.0	Milk	0	–	0
Total Fiber (grams)		33.9	Total Fiber (grams)	11.9	13.0	24.9

*Blueberry yogurt without fiber can be substituted for a brand that contains added fiber. A nutritional supplement pudding without fiber can be substituted for one with added fiber. †Darlington Pureed Bread & Bakery Mix

required—bran or hull fiber may bulk the stool five times as much as would a soluble fiber (4).

If a prebiotic effect is the goal, however, a soluble fiber such as chicory root fiber is best. Prebiotic fibers promote the growth of what are considered good bacteria in the large intestine, and may enhance health and wellness (5).

If the goal is lowering cholesterol and blood glucose, such as for individuals with diabetes, viscous soluble fibers work best. These fibers, when added to water or when eaten, cause thickening. It is this viscosity or thickening that works best to lower cholesterol and blood glucose. However, these fibers, when added to a puréed food, will cause the food to become too thick (and too sticky) for safe swallowing and should not be used. An example of a viscous fiber is psyllium. Psyllium poses **a serious risk for choking** for those with swallowing disorders and is not recommended (6). Instead, a food such as oatmeal that naturally contains viscous fiber, can be included in the puréed diet.

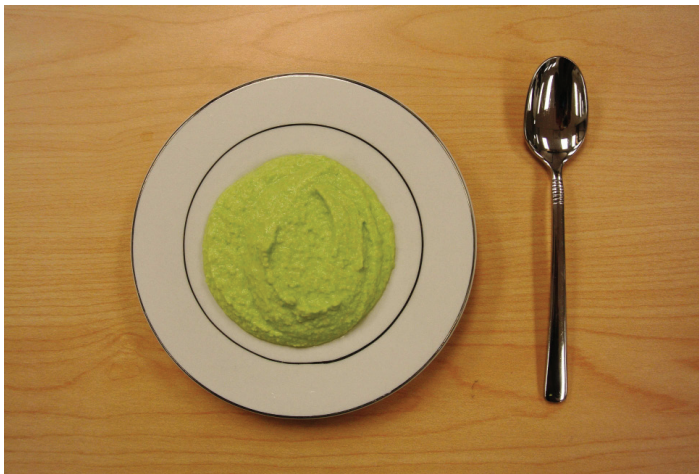


Figure 2. Purée of edamame
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How much fiber should be added to puréed foods?

The addition of 10–15 g/day of fiber to a puréed diet would help those consuming the diet in meeting their fiber recommendations. However, adding as little as 4 g/day of fiber to a long-term care menu has been shown to improve bowel function, particularly in those with constipation (7). Table 3 presents data for a high-fiber puréed menu, along with a lower-fiber puréed menu with and without fiber fortification.

The dietary fiber content of the high-fiber puréed menu is nearly 34 g, exceeding the recommendations for older men and women. The typical low-fiber puréed menu provides only 12 g of fiber. Substituting yogurt and pudding with similar commercial products containing added fiber, as well

as fortifying three foods with an additional 7 g of insoluble fiber ingredients, brings the fiber level of the low-fiber menu up to nearly 25 g.

The type and amount of fiber added to a puréed food may impact a food's acceptability by changing its taste and texture. It is important to ensure that all foods fortified with fiber are taste-tested for acceptability. See for a guide to evaluating puréed foods for acceptability.

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 to you.

References

1. Food and Nutrition Board, Institute of Medicine. 2002. Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids. Washington, DC: National Academy Press.
2. Lengyel CO, Whiting SJ, Zello GA. 2008. Nutrient inadequacies among elderly residents of long-term care facilities. *Can J Diet Pract Res*;69:82–88.
3. U.S. Department of Agriculture, Agricultural Research Service. 2012. USDA National Nutrient Database for Standard Reference, Release 25. Nutrient Data Laboratory Home Page, <http://www.ars.usda.gov/ba/bhnrc/ndl>
4. Cummings JH, Beatty ER, Kingman SM, Bingham SA, Englyst HA. 1996. Digestion and physiological properties of resistant starch in the human large bowel. *Br J Nutr*;75:733–747.
5. Roberfroid M, Gibson GR, Hoyles L, McCartney AL, Rastall R, Rowland I, Wolvers D, Watzl B, Szajewska H, Stahl B, Guarner F, Respondek F, Whelan K, Coxam V, Davicco MJ, Léotoing L, Wittrant Y, Delzenne NM, Cani PD, Neyrinck AM, Meheust A. 2010. Prebiotic effects: Metabolic and health benefits. *Br J Nutr*;104:S1–S63.
6. NIH. Daily Med Current Medication Information. Available at: <http://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?id=76906> Accessed January 2, 2013.
7. Dahl WJ, Whiting SJ, Healey AD, Zello GA, Hildebrandt SL. 2003. Increased stool frequency and fecal output occurs when finely processed pea hull fiber is added to usual foods consumed by elderly long-term care residents. *J Am Diet Assoc*;103:1199–1202.