

TOPIC: FIBER

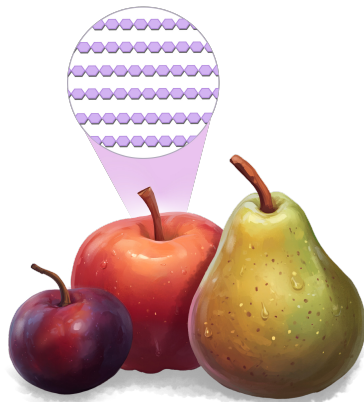
- ◆ Recall: **Fiber:** a group of _____-digestible compounds with health benefits; most are plant-based polysaccharides.
 - Fibers can be classified in several ways.

Dietary vs Functional Fibers

- ◆ Fibers can be classified by their source (*how* they got into your food):

- **Dietary Fiber:** _____-occurring in food.
 - **Functional Fiber:** _____ to food for health benefits.
- _____ Fiber

Dietary Fibers



Pectin is _____
present in fruits

Functional Fibers



Pectin _____ thickens yogurt,
jams, and marmalades.

NOTE: A single type of fiber could be _____ dietary or functional, depending on its source.

EXAMPLE

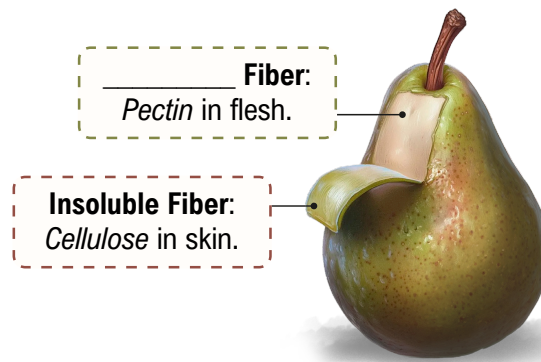
Fill out the blanks to indicate if the following are examples of dietary (D) or functional (F) fibers:

- Cellulose in the skin of an apple: _____
- Psyllium added to breakfast cereal to help promote regular bowel movements: _____
- Pectin added to jam to enhance its texture: _____
- Hemicellulose in sweetcorn: _____
- Xanthan gum added to a salad dressing to prevent ingredients from separating: _____

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Soluble vs Insoluble Fibers

Property	Soluble Fiber	Insoluble Fiber
Definition	Fiber that <i>dissolves</i> in H ₂ O to form a _____, viscous gel.	Fiber that does _____ dissolve in H ₂ O. NOT viscous.
Digestibility/ Fermentability	Often <i>fermentable</i> by gut bacteria.	Usually <i>resist</i> fermentation; mostly passes through digestive system intact.
Speed in Digestive Tract	Moves _____ in digestive tract.	Moves _____ in digestive tract.
Health Benefits	Helps _____ blood glucose & cholesterol by slowing nutrient absorption & binding cholesterol-rich bile acids.	Adds bulk to stool. Promotes bowel regularity. Prevents constipation & hemorrhoids.
Examples	Pectin, beta-glucans, inulin, psyllium	Cellulose, hemicellulose, lignin
Sources	Oats, barley, apples, citrus fruit, legumes	Whole grains, vegetables, nuts, seeds



EXAMPLE

Which of the following substances is NOT absorbed into the body via the small intestine?

- a) Soluble fibers (such as pectin).
- b) Insoluble fibers (such as cellulose).
- c) Fructose.
- d) Galactose.
- e) Both a) & b).
- f) a), b), & d).

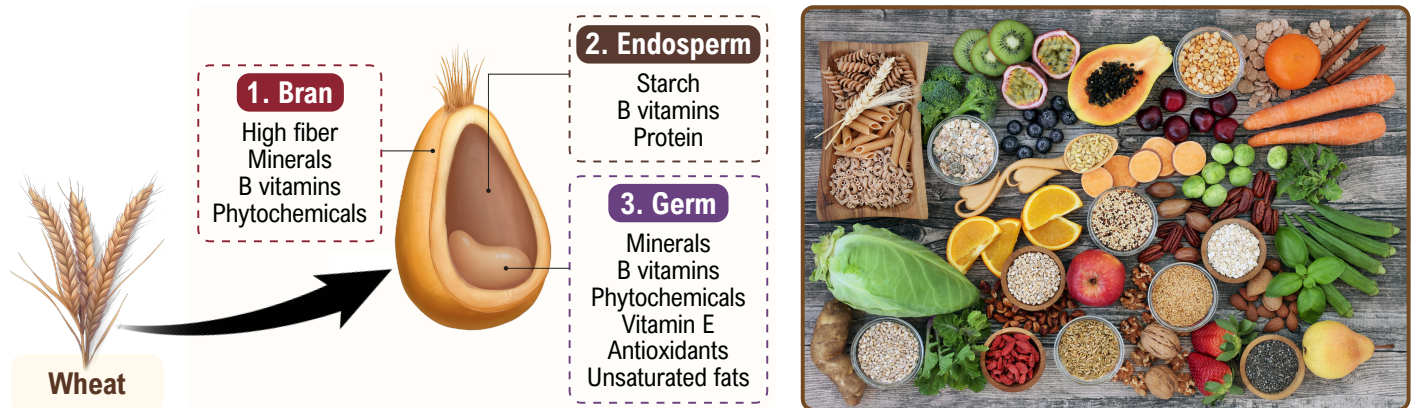
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Grains are Fiber-Rich Carbohydrates

◆ In addition to fruits, vegetables, legumes, & nuts, _____ can also be an excellent source of fiber.

▪ **Grains:** refers to the edible seeds of grasses, also called _____.

- Grain kernels tend to have _____ edible components, each with a set of nutrients:



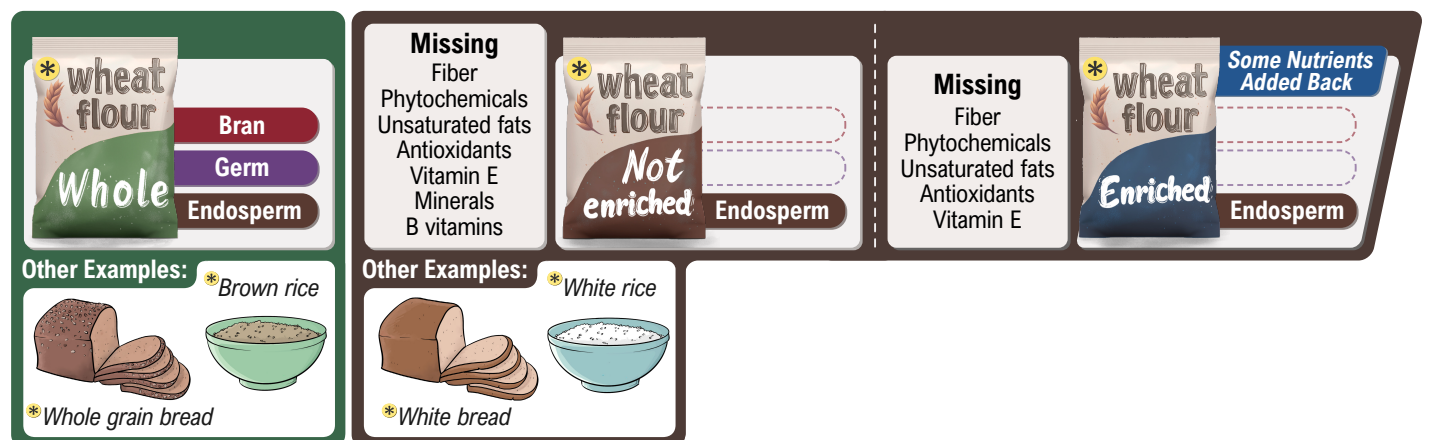
Whole Grains vs Refined Grains

Whole Grains: contain the _____ edible grain kernel (have more fiber + nutrients).

Refined Grains: bran & germ are _____ during processing for desired texture/quality.

▪ **Enriched Grains:** refined grains that have had *some* nutrients ____-added after their removal.

*** Fortified Grains:** any grain that has had “new” nutrients added _____ what was originally present.



* Can become fortified with the addition of “new” nutrients.

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EXAMPLE

Which of the following is an example of a whole grain?

- a) Food made with only the bran of the wheat kernel.
- b) Food made with both the bran and the germ of the wheat kernel.
- c) Food made with the bran, germ & endosperm of the wheat kernel.
- d) All of the above are examples of whole grain foods.

PRACTICE

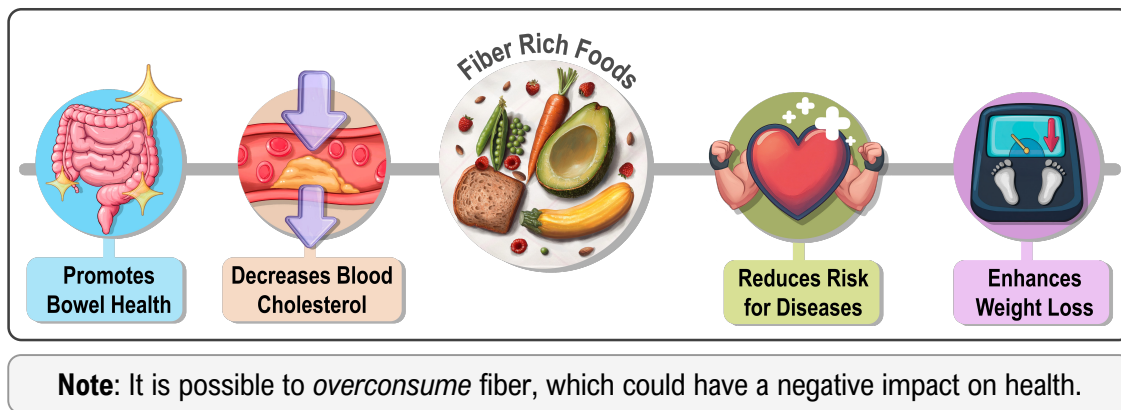
Which of the following types of grain provides the most fiber per serving?

- | | |
|--------------------|---|
| a) Whole grains. | c) Enriched grains. |
| b) Refined grains. | d) They all provide equal amounts of fiber. |

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Health Benefits of Consuming Fiber

- ◆ Despite being indigestible by humans, fiber consumption has many health benefits!
 - **Promotes Bowel Health:** prevents constipation, hemorrhoids, and other digestive issues.
 - **Decreases Blood Cholesterol:** soluble fibers _____ cholesterol-rich bile acids, helping them get excreted.
 - **Reduces Risk for Diseases:** *reduces* risk of diabetes, colon cancer, diverticulitis, & cardiovascular disease.
 - **Enhances Weight Loss:** causes you to feel more _____; affects speed of food movement & absorbs water.



EXAMPLE

Which of the following foods is most likely to reduce the risk of diverticulitis?

- a) Highly processed white bread.
- b) Chicken legs.
- c) Pure sucrose (table sugar).
- d) Whole grain bread.

PRACTICE

Which of the following is a health benefit of appropriate fiber consumption?

- a) Reduces likelihood of constipation.
- b) May reduce risk of colon & breast cancer.
- c) Promotes bowel health.
- d) All of the above.