



## Jr. Chef Club II

### Cooking for a Healthy Digestive Tract

#### Lesson 4



## Educator Information

### Preparing to Teach the Lesson

#### Basics of Digestion

There are a number of Internet websites on which accurate, useful and animated information about the digestive system can be found. You may wish to visit such sites to glean background information on digestion, or preview them then let your students explore them.

One such site: <http://www.innerbody.com/image/digeov.html> has interactive pictures with basic facts as well as unusual facts that kids love such as:

- The lining of the stomach must be replaced every three days due to the strong acid needed to digest food.
- It takes about 8 seconds for food to travel down the esophagus.
- A meal of carbohydrates takes about 2 hours to digest.
- A high fat meal takes about 6 hours to digest. (This is why a meal with a combination of carbohydrates, protein and healthy oils will keep you satisfied longer than a simple meal of carbohydrates.)
- Food makes its way through the small intestine in about 2–4 hours.
- Food takes longer to travel through the colon, anywhere from 4 hours–several days.

To access information, click on “Digestion” on the left hand menu bar and choose various organs of the digestive tract.

A site geared specifically for students is:

<http://yucky.discovery.com/flash/body/pg000126.html> which has information, pictures, animations, and even sounds of digestion, etc. for “your gross and cool body.”

#### Additional book options

If you cannot get the preferred book, you may like to try one of the following:

Brynie, Faith Hickman. 101 Questions About Digestion. Twenty-First Century Books, Brookfield, CT 2001.

Haub, Joan. I Have A Weird Brother Who Swallowed A Fly. Albert Whitman & CO. Morton Grove, IL 1999.

Llewellyn, Claire. The Body In Action: Eating. A & C Black Publishers, London 2004.

Morrison, Ben. Insider's Guide To The Body: The Digestive System. Rosen Publishing Group, New York, NY. 2001.

Simon, Seymour. Guts: Our Digestive System. HarperCollins Publishers, New York, NY. 2005.

Royston, Angela. Body Systems: Eating and Digestion. Rigby Interactive Library, Crystal Lake, IL 1997.

## **Fiber**

Fiber is found in plant foods. There is no fiber in foods derived from animals, such as meats, milk or eggs. In general, whole grains, fruits, vegetables, beans, nuts and seeds have fiber that sweeps the colon clean as it travels through our intestinal tract.

There are two types of fiber. "Insoluble fiber," is the kind that acts like a broom and keeps the colon healthy. Some sources of fiber also contain "soluble" fiber, which is useful for lowering blood cholesterol levels. Most fiber sources have at least a little of both types of fiber but usually have more of one type than the other. The important thing to impart to the students is that eating the recommended amounts of whole grains, vegetables and fruits will provide the fiber needed to keep the colon healthy.

As fiber intake increases, it is very important to drink the recommended amount of 7–8 cups of fluid per day to avoid constipation. Fiber is 'hydrophilic' (hydro = water; philic = loving). Its chemical properties make it hang on to water molecules. This allows fiber to expand; becoming soft and large. This, in turn, stimulates peristaltic motion (movement down the gut).

## **Intestinal Microflora**

Bacteria, sometimes called intestinal microflora, live in the large intestine. "Friendly" bacteria in the colon help to keep the "unfriendly" bacteria under control. Unfriendly bacteria produce by-products that can irritate and harm the wall of the colon over time. By keeping it in check, the colon is healthier. Consuming sources of friendly bacteria daily, or at least several times per week, will improve intestinal health.

These friendly bacteria also help to break down undigested portions of food, such as fiber. This process produces nutrients that the bacteria themselves might use, or that can be absorbed in the colon. The bacteria produce small amounts of several B vitamins and vitamin K. The bacteria also produce gas, which causes flatulence.

Sources of friendly bacteria include yogurt, as long as the label says, "Made with live, active cultures" or a similar statement. Acidophilus milk also contains friendly bacteria. For people who do not like yogurt, this is a good way to get the helpful bacteria. The flavor of the milk is not changed by the addition of the acidophilus.

Friendly bacteria are also available in supplement form. However, it is recommended to eat foods containing friendly bacteria rather than taking supplements.

Taking antibiotics will kill not only the bacteria that might be making us ill, but will also kill off much of the good and bad bacteria in our colon. After and during a course of antibiotics, it is a good idea to consume foods rich in friendly bacteria in order to help the good bacteria become established again.

### **Names of Friendly Bacteria**

Common bacteria you are likely to find listed on yogurt and acidophilus milk labels include:

- *Bifidobacterium species*
- *Lactobacillus bulgaricus*
- *Lactobacillus acidophilus*
- *Lactobacillus casei*
- *Streptococcus thermophilus*

Encourage students to eat high-fiber foods and foods with friendly bacteria often to maintain the integrity of a healthy intestinal tract.