



AMERICAN PARKINSON DISEASE ASSOCIATION

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EDUCATIONAL SUPPLEMENT 26

What is Dysphagia?

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Dysphagia is a disorder of swallowing that impacts an individual's ability to eat and/or swallow liquids properly. In order to swallow properly, muscle strength and muscle coordination are critical so that the ingested material can be guided appropriately into the stomach tube/esophagus and not be detoured into the airway/trachea. It is important to recognize the symptoms of dysphagia, understand the tests that are used to help you determine if you have dysphagia and learn what interventions are available to help rehabilitate and/or compensate for the dysphagia. Importantly, it should be recognized that if your swallowing disorder is not evaluated and treated, dysphagia can become the main cause of aspiration pneumonia and death in PD due to the widespread muscle deterioration associated with PD. And notably, the presence of dysphagia does not necessarily relate to disease severity, nor is it limited as symptomatic of late stage PD so early evaluation and attention to your swallowing function is important.

The normal swallowing process

The normal swallowing process involves four different stages. See the diagram above:

The first stage is called the *Oral Preparatory Stage*. This is the stage when people place food in their mouths and begin to chew.

The second stage is called the *Oral Stage*. This stage involves moving the food or liquid from the mouth to the throat region.

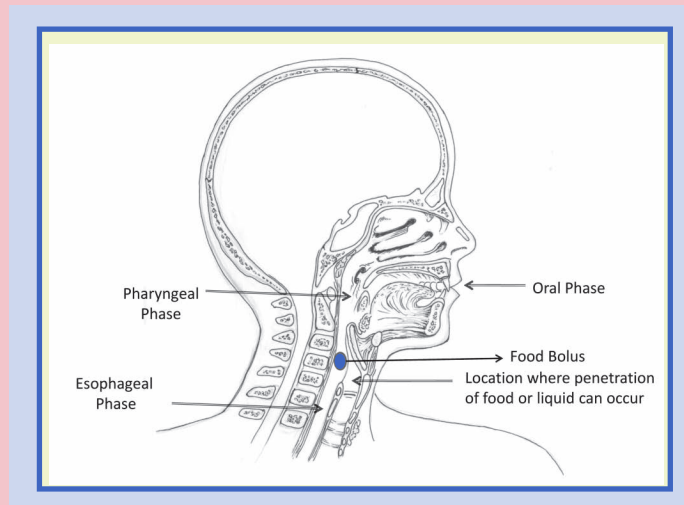
The third stage is called the *Pharyngeal Stage*. This stage is the most complicated stage of the swallow. The food or liquid which has been formed into a ball (bolus) is squeezed through the throat by movement of the structures and muscles. During this phase, the voice box (larynx) elevates, the windpipe (trachea) is covered over to protect it, and the esophagus (the tube that leads to the stomach) opens. The body stops breathing briefly during this phase.

The last stage of the swallow is the *Esophageal Stage*. During this stage, the ball of food or liquid is squeezed down through the esophagus which leads to the stomach.

If you have any of the symptoms listed below you may be having difficulty managing

the oral and/or pharyngeal stages of swallowing:

- Slow rate of eating
- Fatigue while eating
- Choking or breathing saliva into your lungs while swallowing
- Coughing while eating or drinking or after the meal
- Throat clearing during eating or drinking
- Food "sticking" in the throat
- Difficulty swallowing pills
- Regurgitating liquid through your nose
- Breathing in food while swallowing
- Change in voice quality during eating or drinking or shortly after



a meal (i.e the voice sounds 'wet' or 'gurgly')

- Weak voice
- Weight loss

If you have any of the symptoms listed below you may be having difficulty managing the esophageal stages of swallowing:

- Pressure sensation in your mid-chest area
- Sensation of food stuck in your throat or chest
- Chest pain
- Pain with swallowing
- Chronic heartburn
- Belching
- Sore throat

Other swallowing symptoms that can be encountered include:

- Difficulty initiating swallowing
- Unexplained weight loss
- Change in dietary habits
- Fever spikes or low grade fevers
- Recurrent pneumonia

How is swallowing evaluated?

The evaluation of swallowing typically includes a question and answer session with your speech pathologist in order to gather information about your swallowing behavior and the types of foods that you eat. Imaging of your swallowing is typically necessary in order to determine how your structures function during swallowing of foods and liquid. One option for evaluation is an imaging study called a Videofluoroscopic Swallowing Examination, also called a Modified Barium Swallow Study or Rehab Swallow. This x-ray examination is completed on an outpatient basis at a hospital. A moving x-ray picture allows for observation of the mouth and throat during swallowing. Another option would be FEES (Fiberoptic Endoscopic Evaluation of Swallowing), which involves placement of a flexible endoscope in the nasal cavity to view the throat during swallowing. This is also done in an outpatient setting.

How are swallowing problems treated?

As indicated, the impact of dysphagia can negatively impact medical recovery, resulting in longer hospitalizations and increase

the potential of requiring long-term care. In order to improve the health/quality of your life as well as decrease the rate of fatalities caused by aspiration pneumonia, experts in the field of dysphagia rehabilitation are studying the most effective treatment of swallowing disorders.

In the past compensatory strategies were used to help with swallowing disorders. These efforts have been directed at manipulating the head, other oral structures and/or body position or manipulating thickness, volume and consistency of the food and liquid for eating. Some therapists use biofeedback during treatment to encourage patients to modify and monitor swallowing performance in order to swallow efficiently and effectively. Additionally, a variety of exercise treatment regimens to improve swallowing function have been proposed which include range-of-motion exercises, strengthening of various structures or systems directly and indirectly involved in swallowing, and sensory stimulation.

Exercises:

Decreased movement of the structures necessary for swallowing, fatigue, and muscle tightness may result in decreased ability to swallow. Performing swallowing exercises has been shown to help preserve swallowing function during treatment by maintaining or increasing the strength, range of motion, and coordination of the muscles used for swallowing. Please keep in mind that swallowing is the best exercise for swallowing. Below is a list and description of swallowing exercises that might be beneficial prior to, during and after your treatment. Your speech pathologist will review them with you and tell you which exercises are recommended for your individual needs.

Swallowing Exercises

1. Tongue resistance exercises

A. Place a spoon or tongue depressor along the roof of your mouth. Firmly press your tongue against the spoon/tongue depressor toward the roof of your mouth for five seconds.

B. Place a spoon or tongue depressor inside your mouth against your right cheek. Firmly press your tongue against the spoon/tongue depressor providing resistance with the spoon/tongue depressor. Repeat this exercise on the left side.

C. Place a spoon or tongue depressor at the opening of your mouth against your lips. Firmly press your tongue against the spoon/tongue depressor for 5 seconds. Do not let the spoon or tongue depressor come off of your lips while pressing against it with your tongue.

_____ 2. Effortful Swallow

Swallow very hard, squeezing the tongue and walls of the throat together with force. Visualize that you are swallowing a sour lemon. This hard swallow should be done on your saliva or on a very small sip of water.

_____ 3. Mendelsohn Maneuver

To learn this exercise, swallow your saliva. Feel how your voice box goes up and down in your throat when you swallow. Next, try swallowing again. Hold your breath (in your throat) while you swallow. This will hold your voice box up in the raised position for a few extra seconds. Try not to let your voice box go back down immediately after you swallow.

_____ 4. Tongue-Hold Exercise

Stick your tongue out of your mouth. (The farther out you place your tongue, the more difficult this exercise will be to complete.) You can challenge yourself over time to increase your exercise by placing your tongue further outside of the mouth. Close your teeth/gums and lips down on your tongue. Now, swallow while holding your tongue out of your mouth.

_____ 5. Shaker Exercise

- 1.) Lie flat on your back on the bed or floor
- 2.) Raise your head (not your shoulders) off of the floor so that you can see your toes - hold this position for 1 minute
- 3.) Lie with your head flat on the bed or floor and rest for 1 minute
- 4.) Repeat this sequence 3 times

Next:

- 1.) While continuing to lie on your back, raise your head repeatedly (not your shoulders) thirty times.

_____ 6. Base of tongue exercises

A. Touch the back of your tongue to the roof of your mouth as if you were going to say the "k" or "g" sound. Hold it here for the count of three. Relax the tongue, and then repeat.

B. Bring the back of your tongue up and toward the back of your mouth; make a gargling noise. Relax the tongue, then repeat.

_____ 7. Expiratory Muscle Strength Training (EMST).

Expiratory muscle strength training is a new technique recently shown to reduce the degree of penetration and aspiration during swallowing in those with PD. Results on a large randomized clinical trial show that EMST improves swallowing by increasing the muscle strength of some of the swallow muscles, commonly

known as the strap muscles. This strengthening helps raise the larynx and protect the airway during swallowing. It is a 4-week training protocol, during which time you perform expiratory breathing exercises with the EMST device, 5 times per day, 5 days per week. The daily training session is completed at home, and session consists of 5 sets of 5 breaths through the device. A set consists of 5 expirations through the training device, with the expirations lasting about 2-3 seconds. The device is commercially sold as an exercise device and your speech pathologist should be able to counsel you on how to effectively use this to address your symptoms of PD.

Lastly, cough plays an important role in expelling foreign substances or excessive mucus from the respiratory airways through production of high airflow. During cough, the coordinated activity of various respiratory muscles controls cough production. Weakness of the breathing muscles or muscles of the voice box can greatly impact an individual's ability to generate the forces essential for cough. In order to improve cough function, the program of expiratory muscle strength training can also be used.

Other considerations to help with swallowing

1. When you eat, take small bites of food and small sips of liquid (unless otherwise instructed). Chew food thoroughly and do not add any more food until everything from the first bite has been swallowed.
2. Use a double swallow or a sip of liquid to wash things down after a swallow of food.
3. If eating is very tiring, try taking several smaller meals spaced out during the day instead of three large meals. Nutritional supplements can also be helpful in keeping your calorie intake calories high with as little effort as possible. You can put liquid nutritional supplements for the blender and add other foods like ice cream, yogurt, fruit, etc. and blend them into a high calorie smoothie.
4. Moist foods are often easier to swallow than dry particulate ones. Moisten foods with broth, gravy or butter. Soft cooked vegetables instead of raw vegetables, pureed or mashed fruits instead of fruits with seeds or hard outer skins.
5. Complete oral care prior to eating to increase your oral moisture. This will help you to move the food more easily in your mouth when eating.
6. If you are having difficulty swallowing pills, it can be helpful to place the pill in applesauce or pudding rather than taking it with water. It may become necessary to crush medications. Please discuss this with your doctor, as some medications are not effective when crushed.

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