# Parkinson's Disease and Swallowing Therapy

*Brandie Herron, MA, CCC-SLP*

*OSU Wexner Medical Center Outpatient Rehabilitation*

The Ohio State University
Wexner Medical Center

# Outline:

- *Steps of Swallowing*
- *Types of Dysphagia and Signs and Symptoms*
- *Dysphagia and PD*
- *What to do if you/someone you know has Dysphagia*
- *The Role of the Speech Language Pathologist*
- *Assessment/Treatment of Dysphagia*
- *Drooling and PD*

***Swallowing is a complex process which involves the coordination and sequence of 50 pairs of muscles within the mouth, pharynx, larynx and esophagus.***

- Includes 5 cranial nerves!
- 3 stages of swallowing: Oral, Pharyngeal and Esophageal

- *Surgical Anatomy and Physiology of Swallowing, 2018*

# Oral Phase:

- **Oral Preparatory phase:**
  - Food is brought to the mouth
  - Bitten off, taken from the utensil, sipped from a cup or straw
- **Oral Transit Phase:**
  - Contractions of the tongue and muscles of chewing
  - Food is chewed and mixed with saliva to form a “bolus”.
  - Bolus is positioned on the tongue for transport
  - As bolus passes the back of the mouth- the 2nd phase of swallowing is triggered: Pharyngeal phase.

# Pharyngeal Phase:

**<u>Two crucial steps</u>**

**Passage of the Bolus (Food/liquids)**

**Airway protection**

# Esophageal Phase:

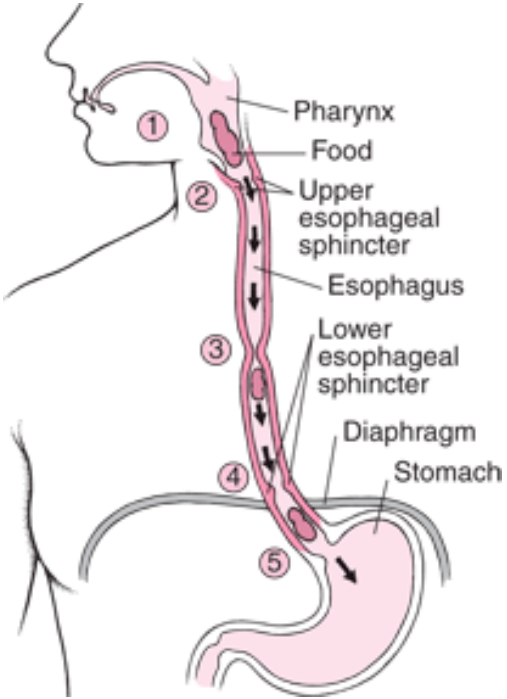


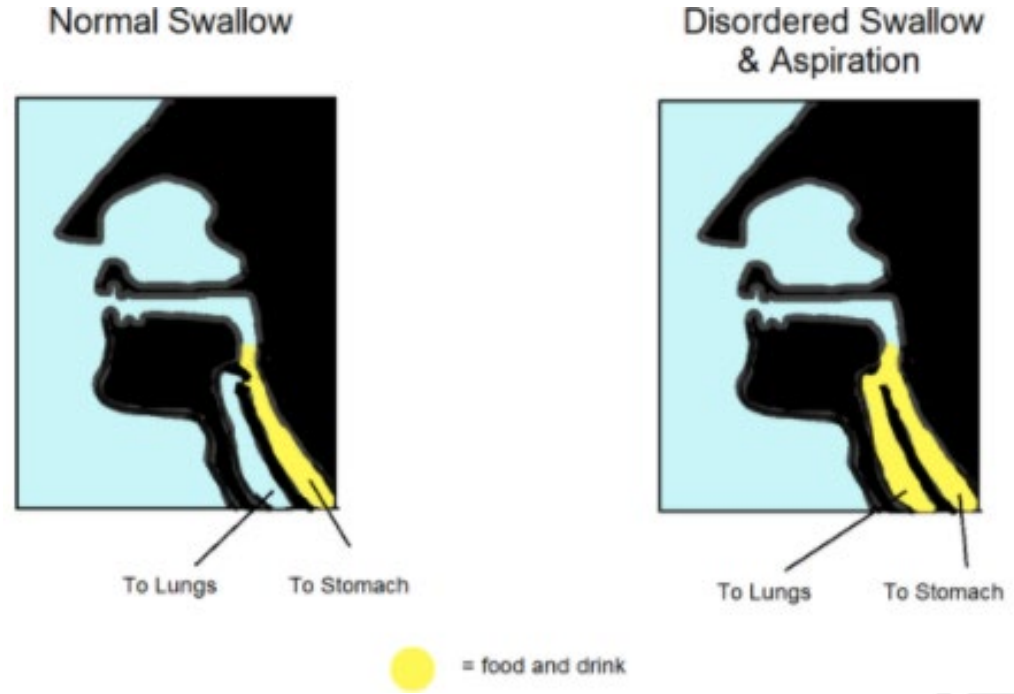

*Image from: Blue Tree Publishing Inc., Swallowing Poster, Anatomy, Dysphagia*

## Esophagus & Peristalsis

The esophagus is an elastic tube about 25cm (10in) long and about 2.5cm (1 in) in diameter.
The esophagus is made up of 4 layers.
a. Lining or mucous membrane to enable food to pass down easily.
b. Submucous layer to hold it in place.
c. Thick layer of muscle.
d. Protective covering.
Peristalsis is a wave of involuntary muscular contractions that force food along the esophagus. This wave travels down the esophagus at about two or three inches per second.

# Dysphagia: Difficulty Swallowing

- Difficulty moving food from the mouth to the stomach (Jerry Logeman, 1998)

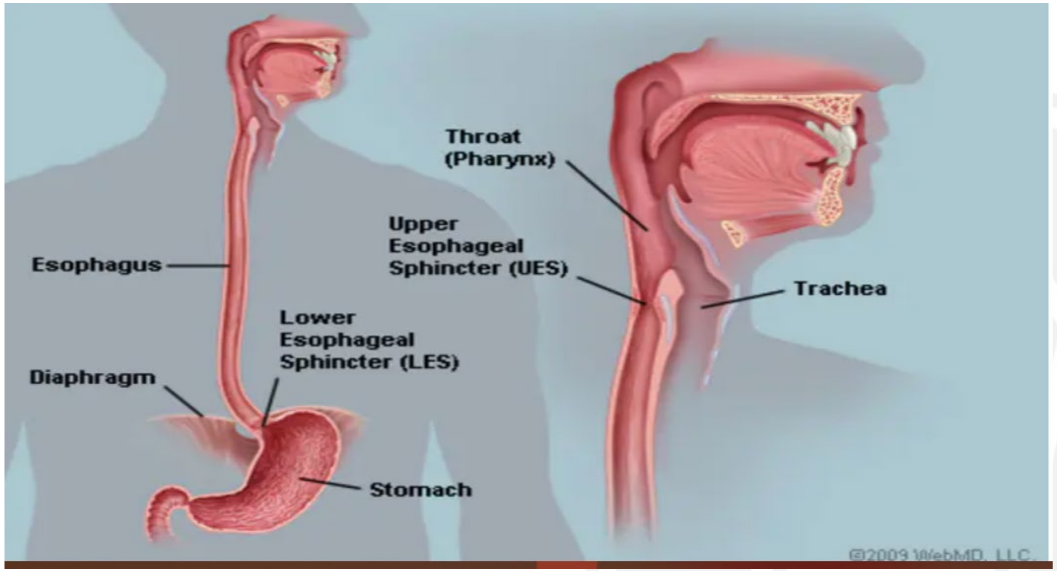


# Dysphagia- Difficulty Swallowing

- **Oral Stage Dysphagia**
  - Difficulty moving food and liquids in/through the mouth.
  - Difficulty chewing solid food.
  - Weakness and discoordination of tongue movements
- **Pharyngeal Phase Dysphagia**
  - There may be decreased ability to “trigger” the actual swallow.
  - The muscles of the throat may become weak.
  - Foods and liquid residue left behind after the swallow.
  - Difficulty closing the vocal folds.
  - When food or liquid is misdirected into the airway and passes the vocal folds, it is referred to as **aspiration.**

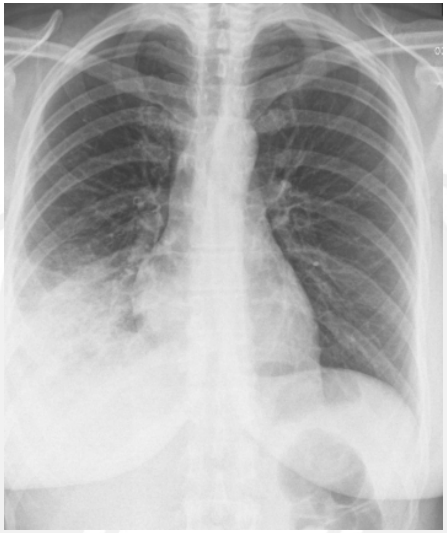
# Dysphagia- Difficulty Swallowing

- **Esophageal Stage Dysphagia**
  - There is dysfunction of peristalsis (the wave that happens so food passes). Individuals feel food “stuck” at some level.
  - Regurgitation
  - Reflux



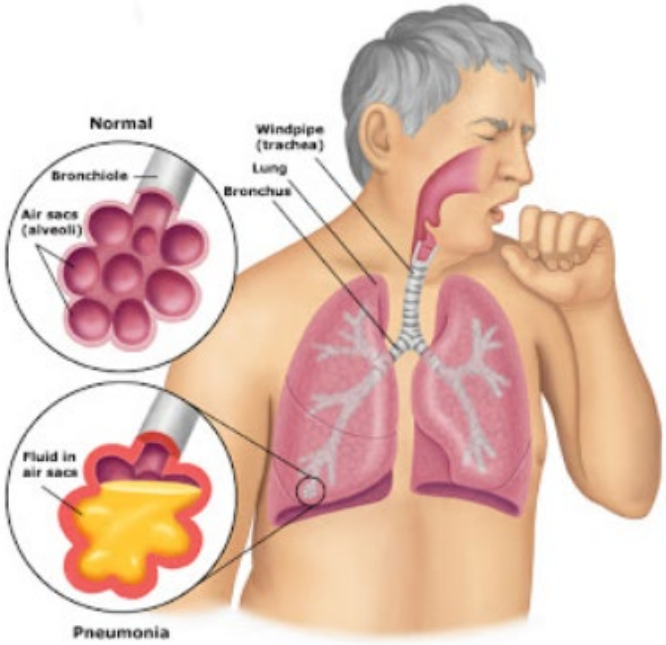
# Signs and Symptoms of Dysphagia

- Wet or gurgly sounding voice during or after eating or drinking
- Coughing during/right after eating/drinking
- Difficulty coordinating breathing & swallowing
- Recurring aspiration pneumonia/respiratory infection
- Extra effort/time needed to chew or swallow
- Weight loss or dehydration from not being able to eat enough.



- ***From: "Adult Dysphagia"- ASHA.org***

# Aspiration Pneumonia




- **Aspiration pneumonia** is a type of pneumonia that happens when you inhale food/liquids, stomach acid, or saliva into your lungs. You can also **aspirate** food that travels back up from your stomach to your esophagus

- ***From: Healthline.com***

# Dysphagia and PD

- Frequency:
  - Varying numbers: 11%-100% of patients with PD experience difficulty swallowing
  - Wide range in numbers due to patients being asymptomatic or patients not being aware of their swallowing problems
  - Dysphagia can be present in preclinical stages
  - Increased prevalence as the disease progresses

# Dysphagia and PD

- Causes:
  - The pathophysiology of dysphagia in PD is not fully understood
  - Thought to be the disturbance of dopaminergic and non dopaminergic mechanisms, brainstem dysfunction and muscle atrophy
  - Decrease in cough and swallow reflex

# Dysphagia and PD

- Complications:
  - Malnutrition
  - Dehydration
  - Aspiration pneumonia
  - Decreased quality of life
  - Eventually increasing mortality rate

# Dysphagia and PD

**Table 1.** Characteristics of dysphagia in patients with parkinsonism

| Phases of swallow | Frequent findings |
|---|---|
| Oral phase | Repetitive pumping movement of the tongue |
| | Rocking-rolling festination movement of the tongue |
| | Oral residue |
| | Piecemeal swallow |
| | Difficulty of bolus formation |
| | Premature falling |
| Pharyngeal phase | Reduced tongue retraction and pharyngeal constriction |
| | Regurgitation of food into the nasal cavity or upper pharynx |
| | Difficulty in initiating and completing airway closure |
| | Penetration/aspiration |
| | Residue in valleculae and pyriform sinuses |
| | Reduced pharyngeal and laryngeal sensitivity |
| Esophageal phase | Reduced esophageal peristalsis |

- Kwon, et al, 2019

# So what do I do if I think I or someone I know, has Dysphagia?

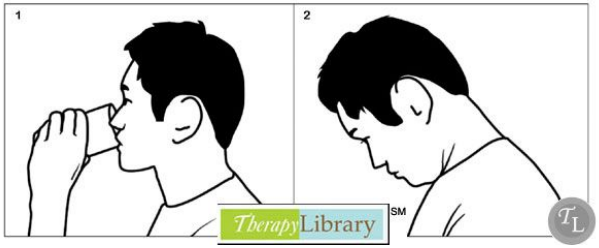
- ***Talk to your doctor about getting a consultation to see a Speech Pathologist for a Swallow Evaluation***

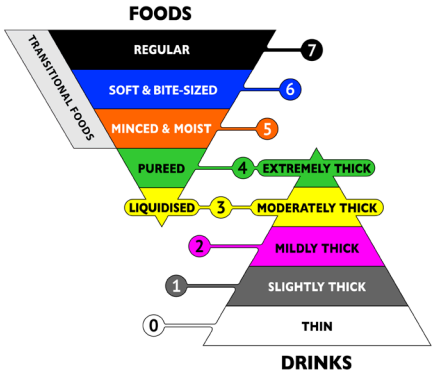
# What will the Speech Pathologist do?

- **Bedside Swallow Study**
  - Outcome measures
  - Tongue strength measures
  - Thorough case history
- **Instrumental Assessment**
  - Modified Barium Swallow Study
  - Fiberoptic Endoscopic Evaluation of the Swallow
- **Treatment**
  - Exercises
  - Compensatory Strategies
  - May recommend diet recommendations

# Treatment of Dysphagia

- **Dysphagia Therapy**
  - Exercises
  - Changes in head or body position
  - Teaching strategies to improve eating
- **Dietary modifications**
  - Modifying the consistency of food or liquids
- **Medical intervention**
  - Medications
  - Dilation of a narrowed area

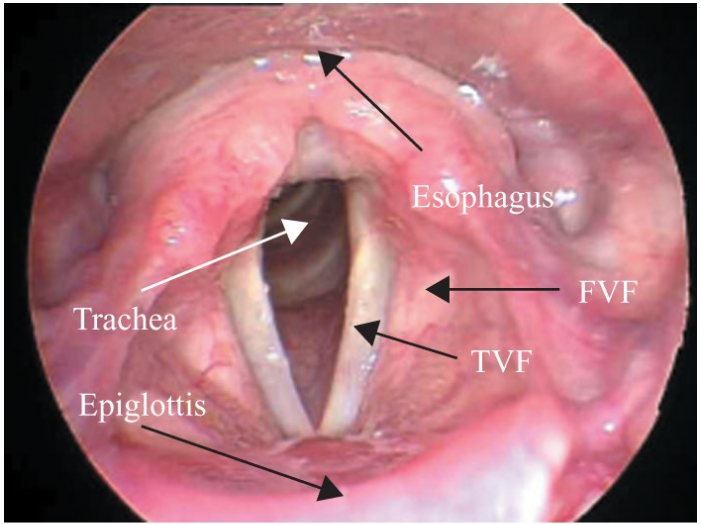


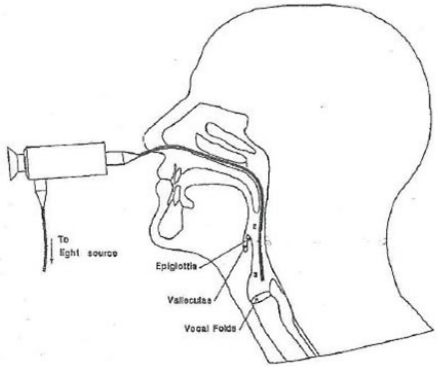
# Modified Barium Swallow Study

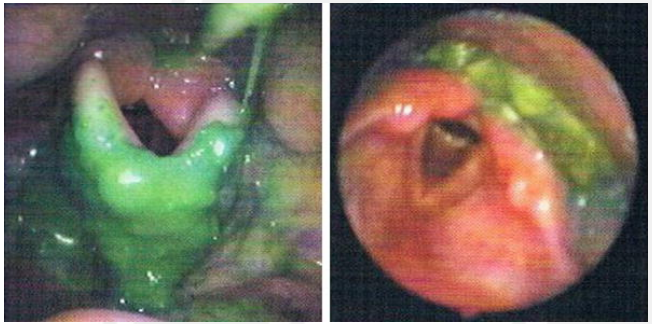
Normal vs Abnormal swallowing - YouTube


# Fiberoptic Endoscopic Evaluation of Swallow (FEES)




Source: Usatine RP, Smith MA, Mayeaux EJ, Chumley HS: *The Color Atlas of Family Medicine, Second Edition:* www.accessmedicine.com

# General safety precautions when eating

- Stay upright at 90 degrees while eating and drinking
- Keep an eye on rate a bite/drink size
- Minimize distractions
- No talking while food in your mouth!
- Have a beverage wit your meal
- Good oral care: clean mouth = clean lungs!

# Drooling and PD:

- The cause of drooling in PD is not completely clear
  - Suspect due to impaired saliva clearance, meaning difficulty initiating swallows regularly enough to clear saliva.
- **There are no standard diagnostic criteria nor standard severity assessment tools for evaluating drooling in PD.**

- **<u>Treatments/Recommendations:</u>**
  - Dopaminergic agents/medicines
    - *These are not completely effective*
  - Local injection with botox into salivary glands
    - *Has been most effective treatment to reduce drooling*

- Make a consistent effort to swallow. However, swallowing issues (dysphagia) are common in PD.

# Summary

- Swallowing is a complex process with varying degrees of normal
- Impaired swallowing can lead to malnutrition, dehydration, aspiration pneumonia and decreased quality of life
- Speech language pathologists can help manage dysphagia
- Often times, an instrumental assessment will be recommended

# Thank You

wexnermedical.osu.edu