



# THE SCIENCE THAT HEALS

SUCCESSFUL AGING CONCERNING  
COMMUNICATION AND COGNITION

# Department of Speech Pathology and Audiology



- Department offers a Bachelor's degree in Speech Pathology and Audiology and a Master's degree in Speech and Language Pathology
- Speech and Language Pathology (SLP) students achieved 100% pass rate on 2021 Praxis exam
- SLP program recently advanced from #69 to #55 in USN&WR rankings
- Bilingual English-Spanish Certificate and Intensive Aphasia Program



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Introduction



## Emily Patterson, Au.D., CCC-A

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Age-Related Hearing Loss



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Cognitive and Language  
Effects of Aging



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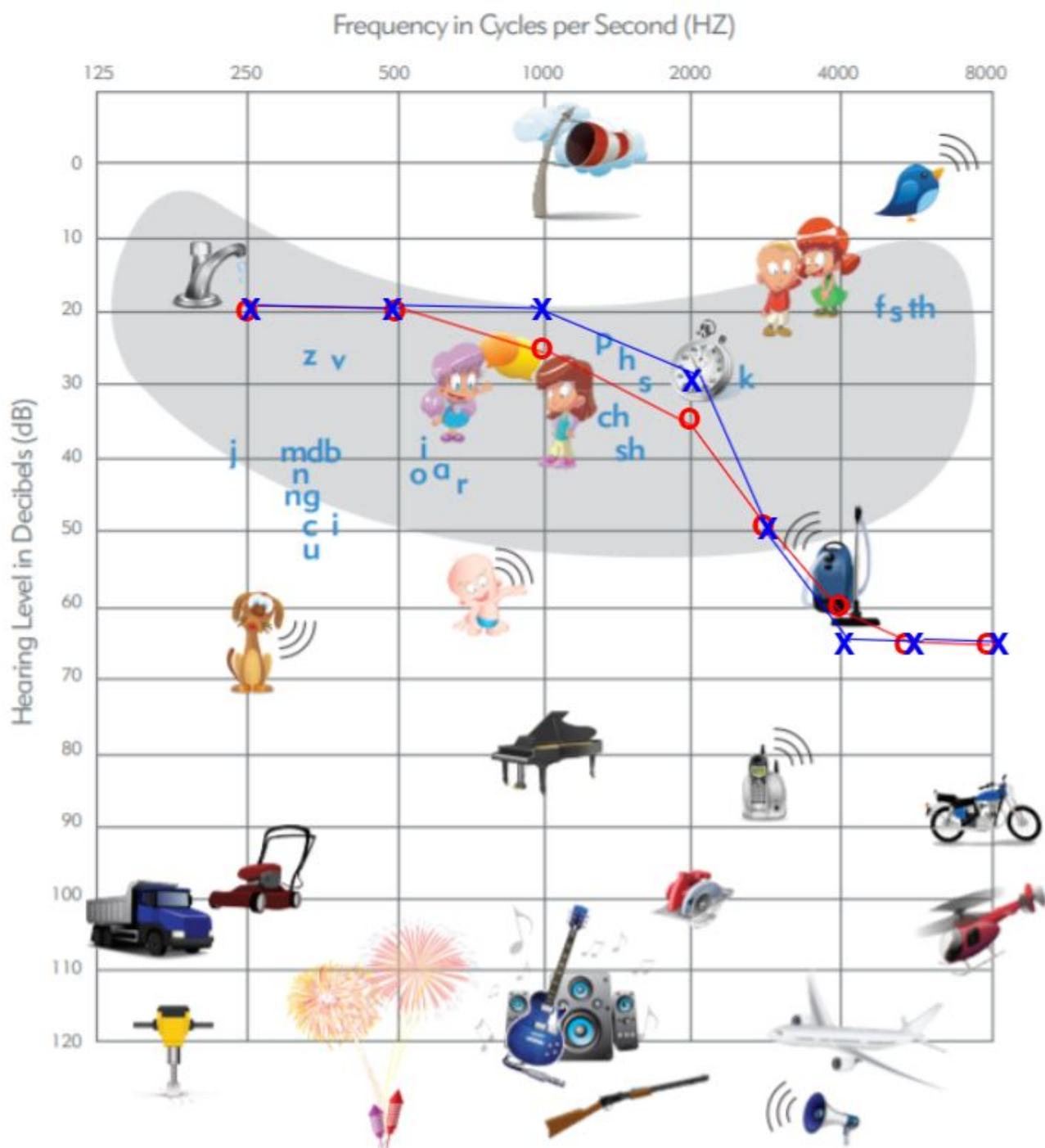
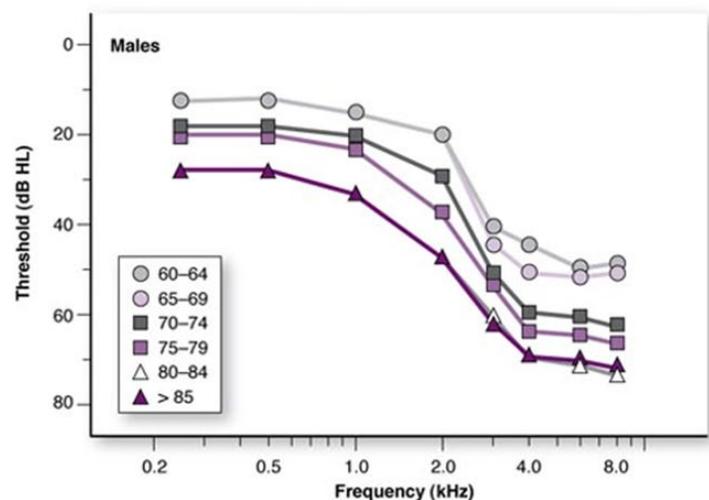
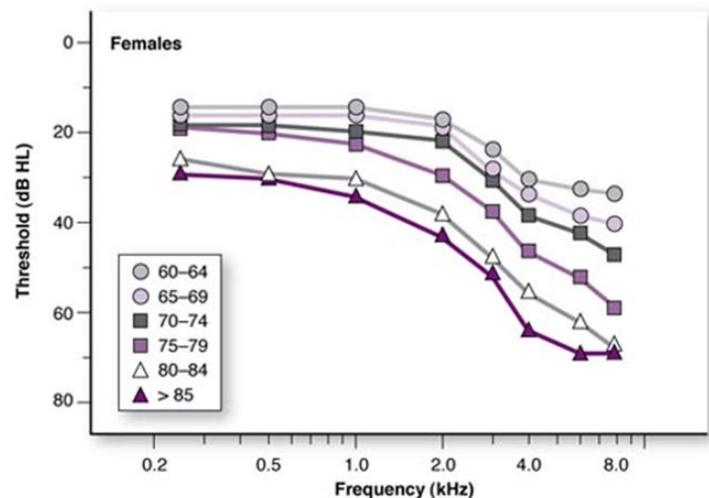
The Aging Swallow

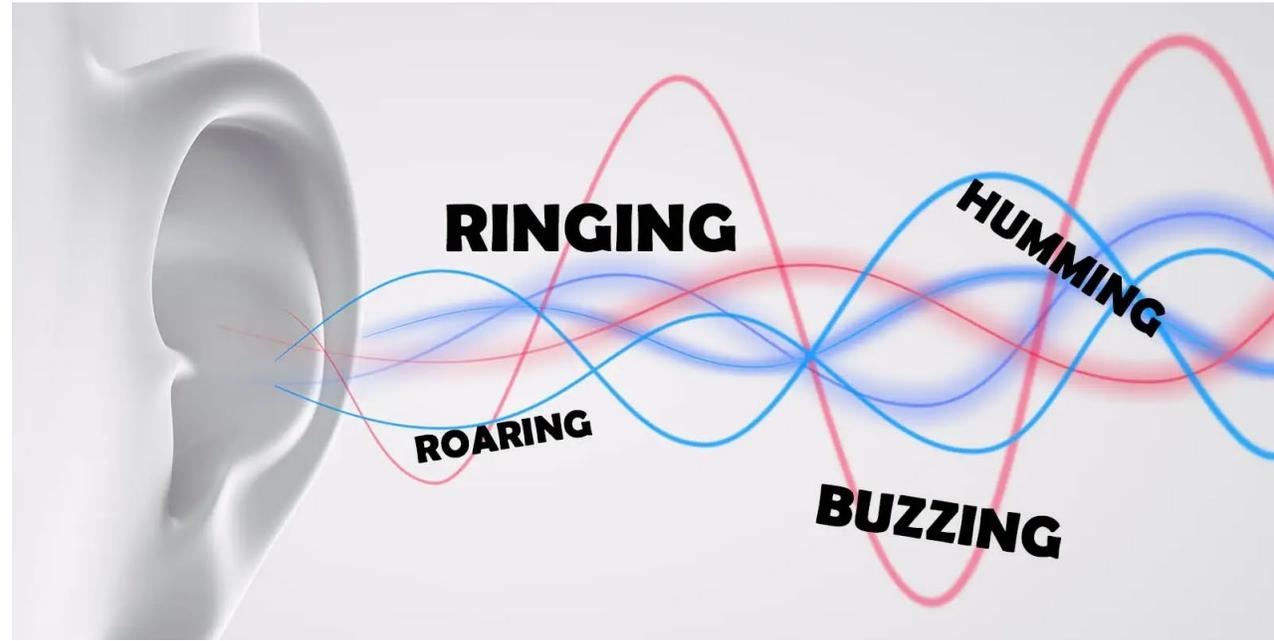
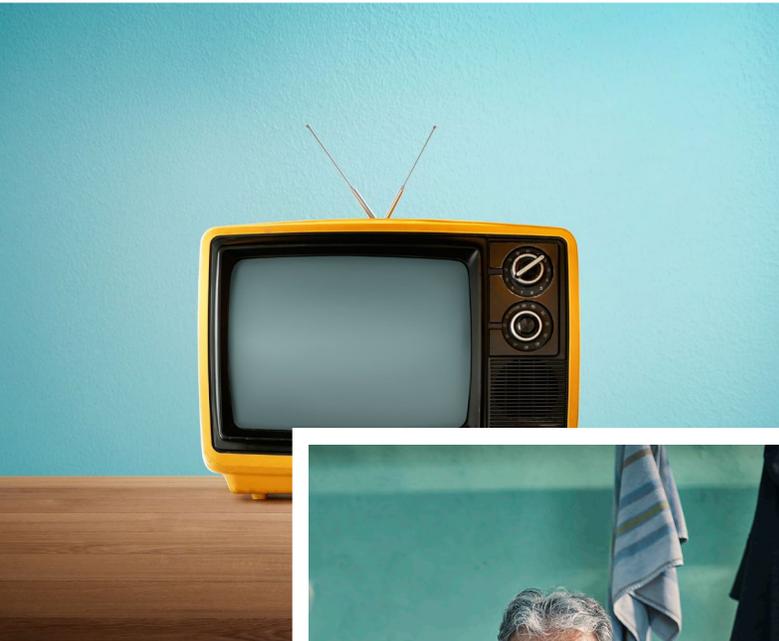
# AGE RELATED HEARING LOSS

# Common Risk factors



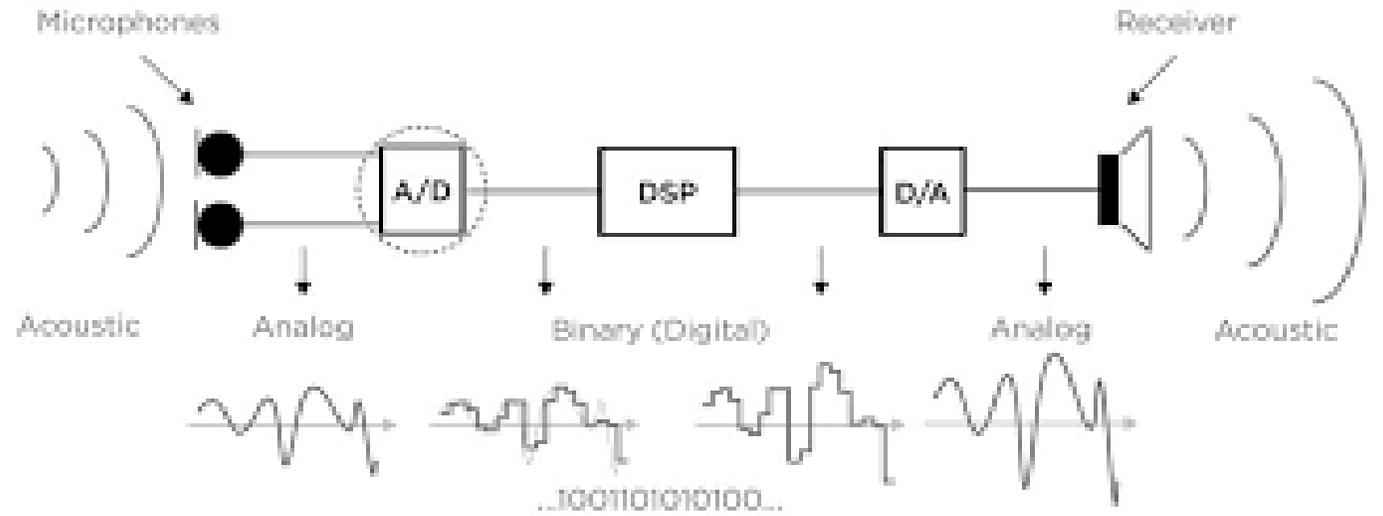
# Presbycusis





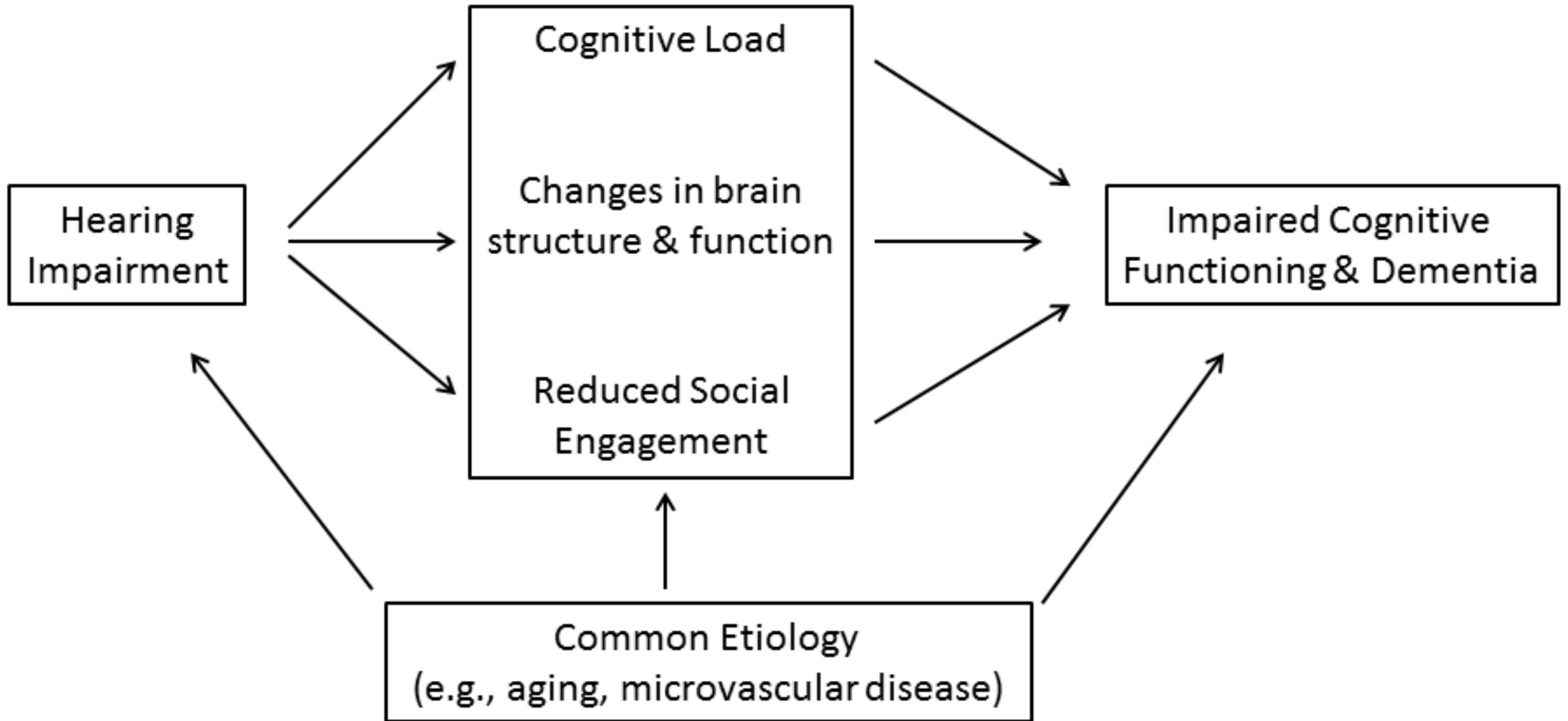
What's normal, what's not?

# Management





# Cognition and Hearing Loss





What's Next?



Thank you!



# Cognitive and Language Effects of Aging

Dr. Sarah Grace Dalton, Ph.D., CCC-SLP

# Healthy Aging

## May see changes in:

- Attention
- Some memory
  - Personal experiences
- Speed of Processing
- Procedural learning
- Word-finding
- Occasional math difficulty

## Typically, won't see changes in:

- Most memory
  - Recent events, “how-to”, personal experiences, past events
- Executive functions
- Social language use
- Language comprehension
  - Unless hearing impairment

# Signs of Concern

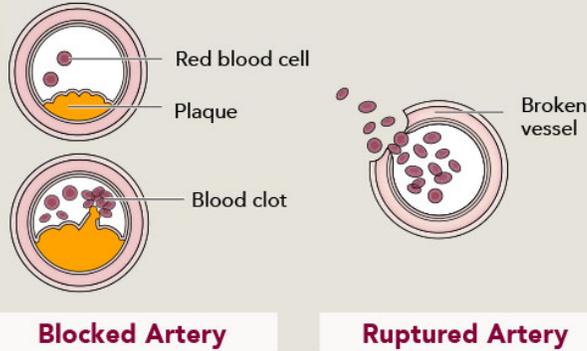
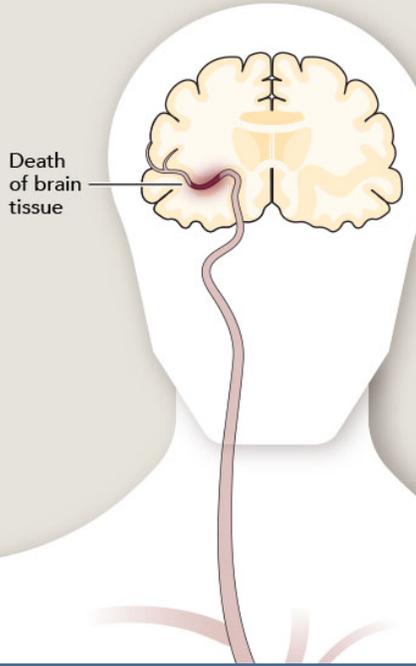
## Major changes in:

- Memory for essential information
- Memory for personal experiences
- Speed of processing
- Word-finding, especially of important names
- Math abilities, especially basics

## Minor changes in:

- Short-term, personal important events, and how-to memory
- Social language use
- Mixing up words in conversation
- Executive functions
- Procedural learning
- Visual and/or auditory processing

# Stroke



# For Stroke Warning Signs BE·FAST

**B**alance



Sudden loss of balance?

**E**ye



Vision loss in one or both eyes?

**F**ace



Smile! Does one side droop?

**A**rm



Hold both arms up. Does one drift downward?

**S**peech



Slurred speech or difficulty speaking?

**T**ime



If you observe any of these signs, call 9-1-1 immediately

## Reconocer un ataque cerebral y llame al 911



# ¡ A H O R A !



¿ Problemas para **andar** ?

---  
¿ Problemas con tú equilibrio y coordinación ?

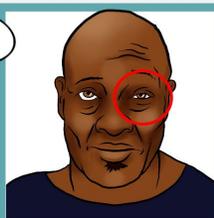
**A N D A R**



¿ Problemas para **hablar** o entender ?

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¿ **Hablar** palabras que no tienen sentido ?

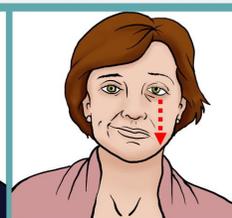
**H A B L A R**



¿ Cambios en sus **ojos** ?

---  
¿ Visión doble ?

**O J O S**



¿ El **rostro** es desigual ?

---  
¿ Está caída la mitad del **rostro** ?

**R O S T R O**



¿ Problemas para levantar **ambos brazos o piernas** de manera uniforme ?

**A M B O S B R A Z O S**

# DEMENTIA

Umbrella term for loss of memory and other thinking abilities severe enough to interfere with daily life.

Alzheimer's:  
60-80%

Lewy Body  
Dementia:  
5-10%

Vascular  
Dementia:  
5-10%

Frontotemporal  
Dementia:  
5-10%

Others:  
Parkinson's,  
Huntington's

Mixed dementia:  
Dementia from more than one cause

## Brain changes in Alzheimer disease

HEALTHY

Cerebral cortex

Hippocampus

Brain nerve cells

SEVERE ALZHEIMER DISEASE

Shrinkage of cortex

Shrinkage of hippocampus

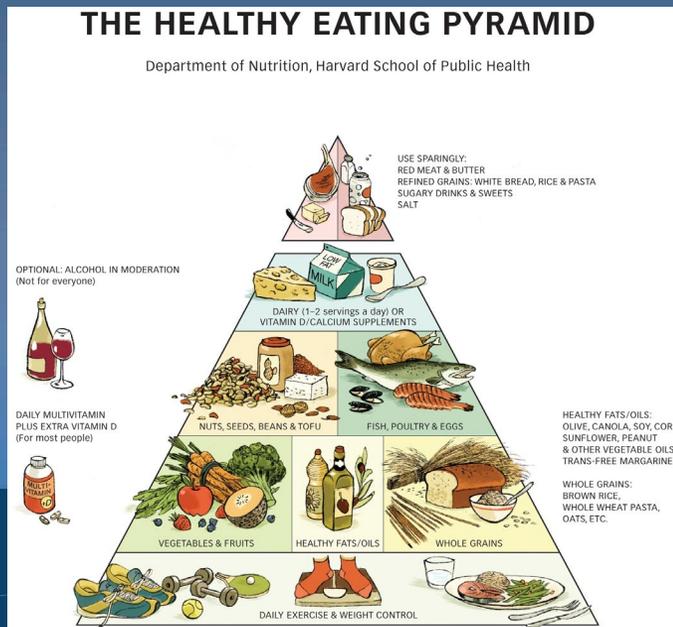
Enlarged ventricles

Damaged and dying nerve cells

Tau tangles

Amyloid plaque

# Tips for Healthy Aging



# If concerned, seek therapy!

- MU SHC offers
  - In depth diagnostic sessions
  - Intensive therapy programming fall, spring, and summer semesters
  - Conversation groups fall and spring
  - Treatment research

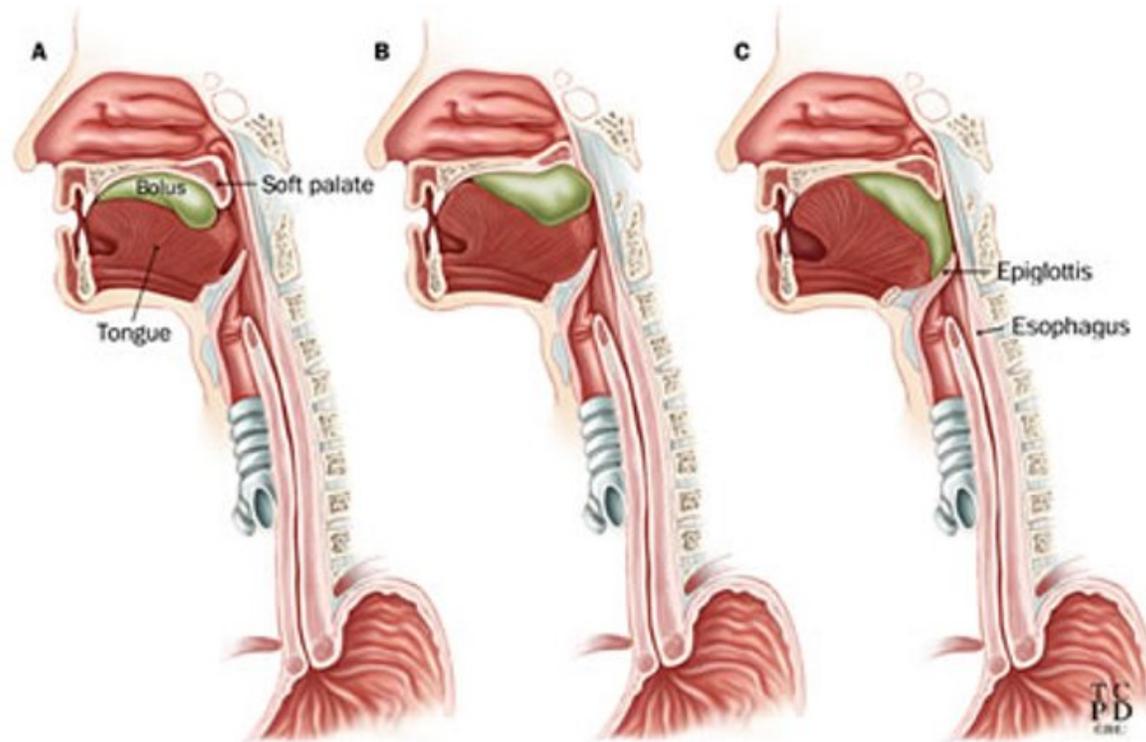
# The Aging Swallow

Heidi Ruedinger, M.S., CCC-SLP  
September 22, 2021

# Dysphagia: Statistics

- **Dysphagia (swallowing difficulties)** is a common consequence of many medical conditions:
  - Stroke (cerebrovascular accident – CVA)
  - Parkinson’s Disease,
  - Head and Neck Cancer
  - Alzheimer’s Disease
  - General Infections (urinary tract infection, pneumonia, sepsis\_
- Patients having dysphagia are found to be at higher risk for other serious illnesses
- Affects approximately 10 to 33% of older adults.
  - 80% of people with Alzheimer’s disease have dysphagia
  - 60% of people with Parkinson’s disease have dysphagia
  - 33.2% of individuals with dysphagia are transferred to a post-acute care facility following hospitalization

# Oral Phase



# Pharyngeal Phase

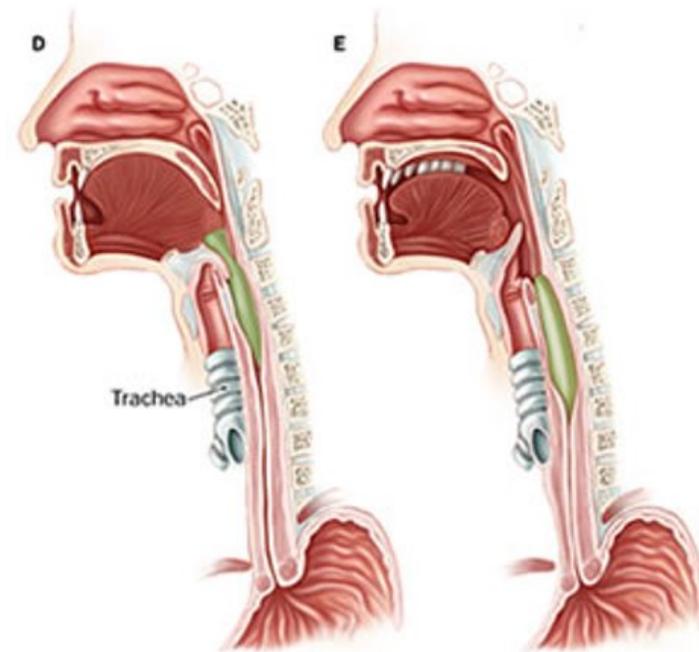
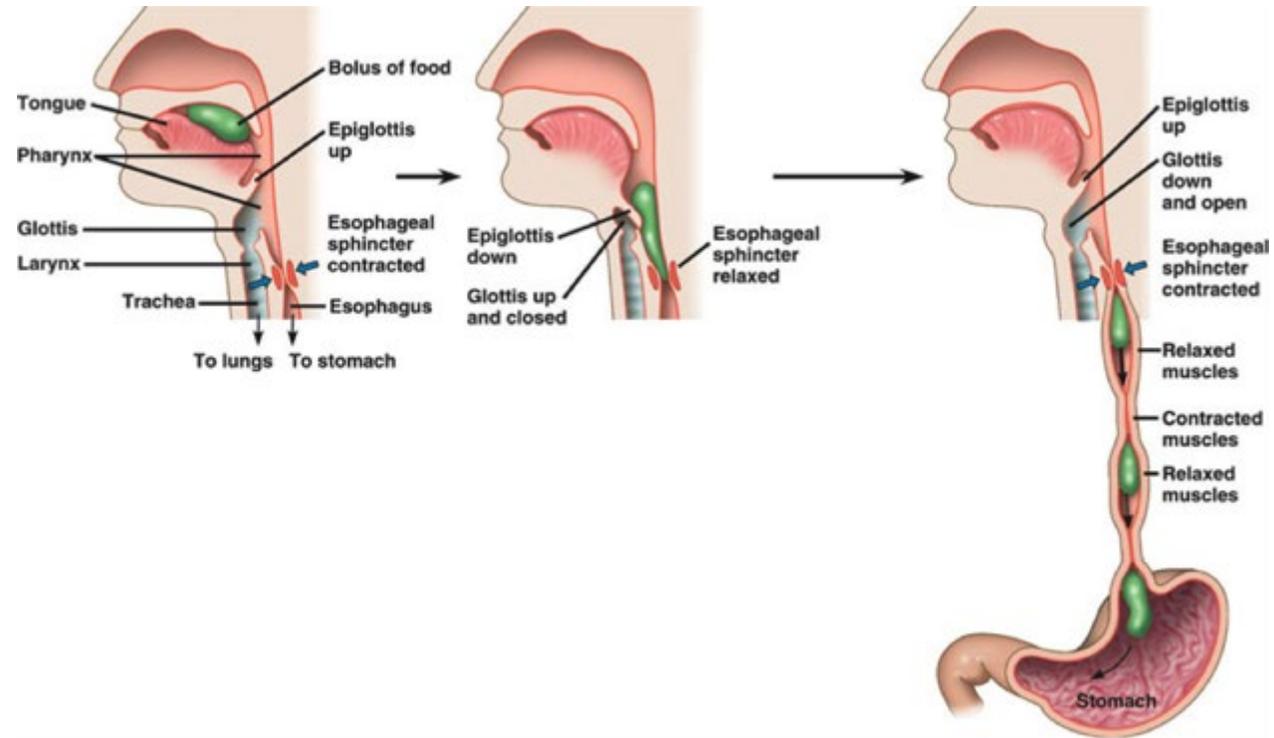
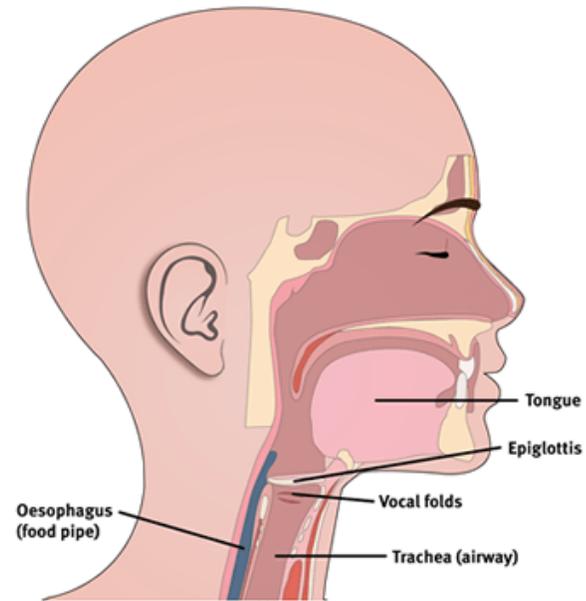


Figure 4 A-E. Pharyngeal phase of swallowing.

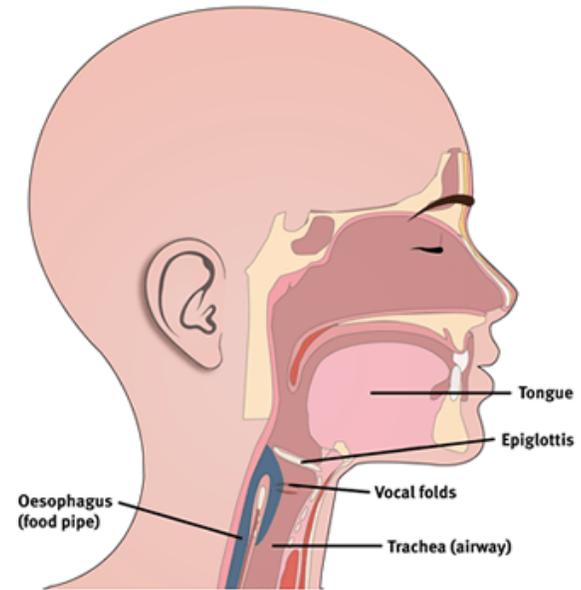
# Esophageal Phase



# Impaired Swallow



**Normal swallow**



**Aspiration**

# The Mechanics of the Swallow

- Apneic onset
- Oral bolus transit
- Hyoid excursion
- Laryngeal closure
- Maximum laryngeal closure
- PES opening
- Maximum hyoid excursion
- Laryngeal opening
- Swallowing inspiration
- Apnea onset
- Last PES opening
- Hyoid return

# Aging and Swallowing

- The Oral Cavity
  - Impaired smell or taste due to changes in dentition, oral hygiene, or salivary flow
  - Reduced muscle mass and contraction leads to poor strength, range of motion, and coordination of the tongue, lips, velum, and jaw.
  - Tongue may become bulkier resulting in reduced mobility and ability to generate power.
- The Pharyngeal Region
  - Delay in initiation of the swallow reflex
  - Decreased movement to allow food to enter esophagus
  - Increased risk of aspiration
- The Esophagus
  - Transfer of food/liquid to stomach is delayed
  - Poor opening of sphincter which allows food/liquid to enter the esophagus
  - Reduced contraction of the esophageal muscles resulting in delayed esophageal emptying.

- Cognition
  - Delirium
  - Playing with food
  - Inappropriate sizes of sips of liquid or bites of food
- Eating Behavior
  - Increased amounts of food and liquid left over following each meal
  - Specific food avoidance
  - Prolonged mealtime
  - Laborious chewing
  - Repetitive swallowing
  - Food pocketing in cheeks
  - Increased need to clear throat

- Impairments
  - Wet, hoarse voice
  - Drooling
  - Slurred speech (dysarthria)
  - Facial asymmetry
  - Coughing
  - Choking
  - Runny nose
- Complaints and Observations
  - Sensation of food stuck in throat or chest
  - Regurgitation of food or acid
  - Unexplained weight loss
  - Impaired breathing during meals or immediately after eating

# Dysphagia: Consequences

- Higher risk for serious illness and aspiration pneumonia
- Dehydration
- Malnourishment
- More likely to transfer to a post-acute care facility after discharge from the hospital
- Longer lengths of stay in the hospital
- Poor overall physical performance due to deconditioning
- Higher mortality rate
- Decreased quality of life

# The Role of the Speech Pathologist

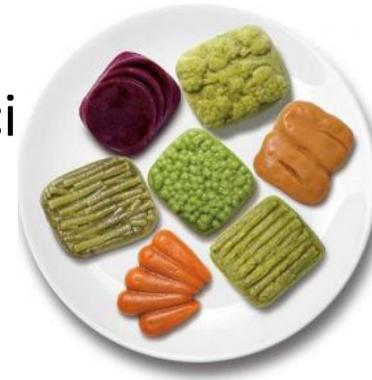


- Consult your physician should you have any of the warning signs of dysphagia
- Consult your physician if your swallowing is adversely impacting your quality of life
- Dysphagia should be evaluated by a speech-language pathologist to determine best course of action.
  - Clinical Bedside Swallow Evaluation
  - Modified Barium Swallow Study (Videoswallow Study or Videofluoroscopic Swallow Study)
  - Fiberoptic Endoscopic Evaluation of Swallowing (FEES)

# The Role of the Speech Pathologist

- We can:

- Evaluate the swallow with different consistencies
- Recommend dietary modifications
- Provide suggestions for oral care
- Provide strategies for safer swallow
- Provide postural changes that may protect the airway
- Determine whether rehabilitative interventions, such as exercises, are beneficial
- Determine whether an alternative source of food and nutrients is recommended
- Improve a person's overall quality of life



liquids



*Thank you so much for your time!*

*Heidi*

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