How NOT to Sound Old.
Caveats
What we will cover today.

- Voice production
- What happens to the voice production system as we age
- Things that you can do to alter the aging of your voice.
Voice Production System

Breathing (Power)

Larynx (Sound)

Articulation (Filter)

Bellows

Spring
Sound Source: Larynx
**Phonation**

- Laryngeal output variables

<table>
<thead>
<tr>
<th>Perceptual Variables</th>
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<tbody>
<tr>
<td>Pitch</td>
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<tr>
<td>Loudness</td>
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<tr>
<td>Quality (Timbre)</td>
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Vocal Folds (Cords)
Imaging

Rigid-Oral
Vocal Tract: Filter

- Output Variables
  - Length
  - Cross-sectional Area
GETTING OLDER IS JUST ONE BODY PART AFTER ANOTHER SAYING. ‘HA HA, YOU THINK THAT’S BAD? WATCH THIS.’
Laryngeal ventricle
Ventricular fold
Thyroarytenoid m.
Deep layer
Intermediate layer
Superficial layer
Epithelium
Vocal fold

LARYNX, ANTERIOR VIEW
Viscosity and the Cover
Voice Changes with Age:

- **Presbylaryngis**
  - Physical changes to Larynx
    - Loss of vocal fold mass
    - Reduction of collagen
  - Muscle
    - Arthritis in the laryngeal joints - lack of closure
    - Vocal fold bowing - lack of complete closure

- **Presbyphonia**
  - Speaking Pitch
    - Women – decrease
    - Men – increase
  - Loudness and Quality Change
    - Softer, breathier, rougher
Pitch
Vocal Fold Bowing
What can you do?

- Health habits
  - Systemic hydration
  - Maintain healthy environmental humidity (40% or more)
  - Adequate sleep
  - Avoid drying agents (e.g., alcohol, caffeine)
  - Stop smoking
- Be physically fit
  - Biological age vs Chronological age
- Increase Loudness
  - Take in more air
  - Increase mouth opening
- Increase closure
  - “Speak with intent”
- Sing
  - Join a choir
  - Take singing/voice lessons
Vocal Exercises

- Sustaining the vowels “eeee”, “ahhh” while pulling or pushing

- Pitch glides up and down.
THANK YOU

QUESTIONS?