

Plain English Summary of the Results

This study looked at how older adults with **presbyphonia** (age-related voice changes that cause a weaker, quieter, or more effortful voice) use their breathing when they speak, compared to similar-aged adults with healthy voices.

What was measured (in simple terms)

Speech relies on breath. The researchers measured:

- How full the lungs were when people started speaking
- How much air they used while speaking
- How fast they breathed in and out
- How long and how fast they spoke

Some key terms:

- **Lung Volume Initiation (LVI):** how much air is in the lungs at the start of speech
- **Lung Volume Excursion (LVE):** how much air is used during speech
- **Inspiratory flow:** how quickly air is breathed in
- **Expiratory flow:** how quickly air is breathed out

Main findings

1. People with presbyphonia start speaking with less air

Older adults with presbyphonia consistently began speaking with **less air in their lungs** than healthy older adults.

This means they are starting speech with less “fuel” available.

2. They use less air overall when speaking

They also used **less total air per sentence or phrase**, meaning their breathing range during speech was smaller.

3. They speak in shorter bursts but at a faster pace

Compared to healthy peers, they:

- Spoke in shorter phrases
- But spoke faster within those phrases

This suggests they may be trying to “fit more in” before running out of breath.

4. Breathing pattern differences

- Breathing out (expiration): faster than normal
- Breathing in (inspiration): much slower than normal

In simple terms, they let air out quickly but take it in slowly.

5. They are quieter overall

Their voices were less loud than those of healthy older adults. This was expected as lacking in loudness is a primary symptom of presbyphonia.

What happens when they speak louder?

When participants spoke in background noise (which naturally makes people speak louder):

- They took slightly bigger breaths before speaking
- They used more air while speaking
- Their breathing became closer to normal patterns

However, these improvements were only partial.

Do they still plan their breathing properly?

Yes. Both groups adjusted their breathing depending on how long they were about to speak:

- Longer sentences → bigger breaths beforehand

This shows that people with presbyphonia still plan and control their breathing, but they are working within a more limited system.

Overall interpretation

Taken together, people with presbyphonia show a clear pattern:

- Start speaking with less air
- Use less air overall
- Speak in shorter, faster bursts
- Have less efficient breathing patterns

These changes likely reflect a mix of:

- Physical changes in the lungs and voice box with age
- Possible learned or habitual breathing patterns

Why this matters

Traditionally, treatment for presbyphonia focuses on the voice box (larynx). This study shows that breathing plays an important role too.

The results suggest that therapy might be more effective if it includes:

- Training people to take bigger breaths before speaking
- Improving how quickly and efficiently they breathe in
- Coordinating breathing better with speech

Key takeaway

Presbyphonia is not just a voice box problem. It also involves how breathing is used during speech, and addressing this may improve voice outcomes.