



## **Aging Voice**

### **Background:**

- Presbylaryngis is the term given to a larynx showing signs of senescence. Changes in the voice secondary to aging, or presbyphonia, may prompt a patient to seek medical attention. Presbyphonia is usually characterized by vocal inconsistency, weakness, breathiness, roughness, vocal fatigue, odynophonia, low intensity or low volume. It can be worsened by hearing impairment in the patient or the patient's companions and it can adversely impact social participation and mental health. The prevalence of pathologic presbyphonia is still unknown (varying in our literature from 5-60%), but the elderly patient population has a growing presence in voice clinics in developed countries. Why some elderly people seek medical care for vocal difficulties and some do not is poorly understood, but may be related to additional deficits including respiratory, physical and psychological health or social situation. The severity of the presbyphonia can certainly be influenced by other medical comorbidities and hospitalizations, pulmonary reserve, cognitive function, and medications. These other factors make isolating presbyphonia as a target for study extremely challenging

- **References**

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Lyberg-Åhlander V, Rydell R, Fredlund P, Magnusson C, Wilén S. Prevalence of Voice Disorders in the General Population, Based on the Stockholm Public Health Cohort. *J Voice*. 2018 Aug 17.

Marino JP, Johns MM 3rd. The epidemiology of dysphonia in the aging population. *Curr Opin Otolaryngol Head Neck Surg*. 2014 Dec;22(6):455-9. PMID: 25160616

**Anatomy and physiology:** the larynx, upper aerodigestive tract, and respiratory system all contribute with age-related changes.

- Superficial lamina propria: Thickening of the superficial layer, loss of elastic fibers, decreased myofibrils, decreased cellularity, decreased extracellular matrix production



- Cricoarytenoid joint: surface irregularities and collagen fiber disorganization
- Cartilage: increasing ossification
- Muscles: loss of mass (not supported by recent imaging studies) with changes in innervation
- Supraglottic: teeth, mucosa, salivary gland function, facial muscle elasticity
- Respiratory: decreased pulmonary compliance, decreased lung volumes, impaired coordination
- References

Kost KM, Sataloff RT. Voice Disorders in the Elderly. Clin Geriatr Med. 2018 May;34(2):191-203.

Vaca M, Mora E, Cobeta I. The Aging Voice: Influence of Respiratory and Laryngeal Changes. Otolaryngol Head Neck Surg. 2015 Sep;153(3):409-13. PMID: 26156424

### **Evaluation:**

- On video stroboscopy, a medial concavity of bilateral vocal folds is usually the hallmark feature (vocal fold “bowing”), resulting in prominent vocal processes with vocal process contact preceding vocal edge contact and leaving a spindle-shaped gap. The mucosal waveform can be altered or irregular. Sometimes the arytenoids overlap or wrap one over the other and sometimes they are limited in their abduction.
- The laryngoscopic exam usually suggests a diagnosis of glottic insufficiency and this may or may not be accompanied by supraglottic hyperfunction.
- Hearing screening may be important as this can affect the severity of presbyphonia.
- Swallowing screening may also be important as occult dysphagia may be present.
- References:

Martins RH, Gonçalves TM, Pessin AB, Branco A. Aging voice: presbyphonia. Aging Clin Exp Res. 2014 Feb;26(1):1-5.

### **Treatment:**

- Voice therapy can be extremely effective for patients with presbyphonia, though supportive research remains somewhat limited. Several techniques are applied to approach this problem, with success.
- Many patients benefit from injection laryngoplasty with synthetic products or autologous fat. This treatment decreases the glottal incompetence and improves vocal fold contact.



- Bilateral medialization (type 1) thyroplasty is an effective option for patients with presbyphonia, especially if they wish to pursue a more stable solution than a temporary injection.
- References
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