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## Your Voice Can Get Old, Too

Doctors are searching for more permanent ways to help voices maintain their loudness and pitch

By **ANDREA PETERSEN**

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Is your voice making you seem old?

Just like every other part of the body, the voice ages. It can become softer and scratchier. It can waver and simply conk out after a few hours of speaking. Men's pitch tends to rise, while women's tends to get lower.

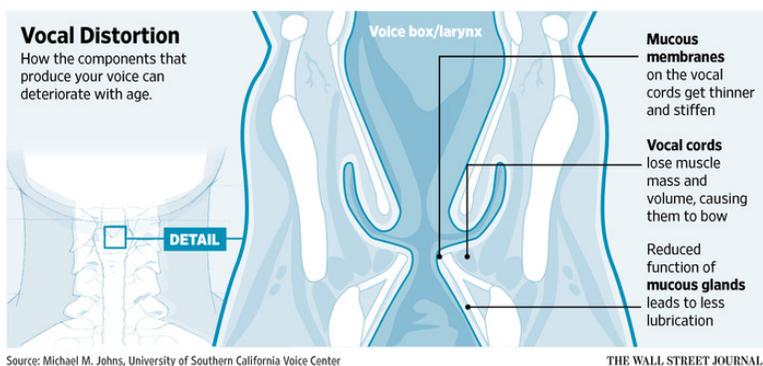
Age-related voice problems can begin as early as age 50. Changes in the respiratory system can mean less air to power the voice. And to make strong and stable sounds, the two vocal cords—which are made up of tiny, precise bits of muscle, ligament and mucous membrane—need to touch and vibrate.

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But as people get older, they lose muscle mass in the voice box (or larynx), just as they do elsewhere. The vocal cords (what doctors call vocal folds) lose volume and strength. The mucous membranes on the vocal cords stiffen and get thinner. These changes can cause the vocal cords to bow, leaving too much space between them.

“It is like working with a leaky valve,” says Stacey Halum, a research professor at Purdue University and director of the Voice Clinic of Indiana. “Patients

complain that they have to use a lot of effort to get loud enough.”



But there are treatments that can improve the function of the voice and restore a younger sound. Doctors can inject the vocal cords with fillers like Restylane or Juvederm—the same

drugs used to plump up aging faces—to increase volume and help the cords meet. (These treatments last only a few months.) They can also inject fat or surgically insert permanent implants into the vocal cords.

Patients are usually encouraged to first try voice therapy. It is a noninvasive treatment in which they are taught how to breathe and use their muscles to best support their voices, says Clark Rosen, professor of otolaryngology at the University of Pittsburgh School of Medicine.

Allan Lipton, a 77-year-old oncologist in Hershey, Pa., says he began noticing problems with his voice about three years ago. They progressively worsened, and by earlier this year his voice was “very scratchy, very low, like a severe case of laryngitis,” he says. “You would have difficulty hearing me. I couldn’t project.”

Dr. Lipton, who is semiretired but still maintains a medical lab, was having trouble getting through lectures and conversations with patients and friends. His doctor in Oregon, where he lives part-time, diagnosed him with age-related bowing of the vocal cords and suggested voice therapy.

Dr. Lipton did three training sessions with Aaron Ziegler, a Portland, Ore., speech language pathologist, as well homework. He started with exercises like saying “Ma” over and over in a loud voice and then progressed to speaking sentences and long passages. After the treatment, Dr. Lipton says his voice isn’t totally restored to what it was in his younger days, but it is louder and he can speak strongly for longer periods. “My wife says I’m definitely better. Sometimes I could barely squeak before, while now I’m heard.”

Anyone who has vocal changes that last more than a couple of weeks should see an ear, nose and throat doctor, says Michael M. Johns, director of the University

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## A WORKOUT FOR YOUR VOICE

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Aaron Ziegler, a speech-language pathologist at Oregon Health & Science University, co-created a therapy, PhoRTE, specifically for aging voices. Here are a few of the exercises:

- Breathe from low in the abdomen, not the throat. Coordinate this breath with the sound 'Ah' using a strong, energetic voice. Repeat. This increases the power of your voice and brings the vocal cords together.
- Using the same strong voice, say 'Ah' while sliding from a low pitch to a high pitch and back down again. This stretches and contracts the vocal cords.
- Create 10 or so phrases that you typically use when speaking. Practice saying them using a slightly higher pitch than normal, as if you were calling to someone in the next yard over. Then try using a lower pitch, using a voice of authority.
- Speak in this strong, energetic voice for 30 seconds, as if you were having a conversation in a noisy restaurant. Then try a minute. This builds endurance.

of Southern California Voice Center. Voice problems can be symptoms of cancer or neurological disorders such as Parkinson's disease. Certain medications, including antidepressants and some heart drugs that cause dryness can also affect the voice. So can fungal infections that may occur with the use of inhaled steroids for asthma or chronic obstructive pulmonary disease.

New, more permanent treatments are on the horizon. Scientists are working on various ways to actually restore and rebuild the voice box and vocal cords. The research is preliminary and some treatments may be years away. Researchers in Japan have injected growth factor, a protein that stimulates cell growth, in people with age-related voice problems. In a study with six subjects published in August in the journal *Laryngoscope*, the treatment improved the subjects' voices, increased the volume of the vocal cords and reduced stiffness.

Dr. Halum has used muscle progenitor cells, a type of stem cell, to grow vocal cord muscle in rats. She is planning to extend this research into people. (In humans, muscle biopsies would be taken from the quadriceps muscles.)

Doctors in Austria have implanted devices in elderly sheep that emit electricity to stimulate nerves in the larynx. The approach, which was presented at a conference of the British Laryngological Association this month, built muscle mass in the voice box and shrank the gap between the vocal cords.

Markus Gugatschka of the Medical University of Graz, says he is beginning a pilot study with four people this week, with a larger trial to follow in 2017. (The



Allan Lipton underwent voice therapy after seeing his voice decline over three years. He now says his voice isn't totally restored, but it is louder. *PHOTO: ALLAN LIPTON*

people won't receive implants. Instead, they'll receive electricity through a device placed on the neck.)

Older adults often don't speak as much as younger people, particularly if they've retired or are living alone after the death of a spouse. This lack of use can cause voice problems, too, says Aaron Johnson, an assistant professor at the New York University Voice Center. Dr. Johnson is doing research on rats to understand how voice therapy may affect muscle growth and strength of the vocal cords. (Yes, scientists can make rats "speak," but in a register that humans can't usually hear.)

He is also launching a study in people to see if participation in a weekly singing

group will change the anatomy and quality of the voice. (It is using MRI scans to assess vocal cord changes.) He advises patients to read aloud and Skype with their grandchildren.

“You’ve got to keep those muscles going just like the rest of the body,” he says.

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