

on the Voice

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The Evolving Voice: Profound At Every Age

by

Karen Brunssen

Editor's note: The article is based on the author's 2008 ACDA Central Division interest session presentation titled *Ages of the Voice*.

The human voice is magnificent at every age. The chronological life of our singing voices begins with the first cry as a newborn baby and continues throughout our entire lives, as an infant, a child, an adolescent, a college student, a young adult, a middle-aged adult, a senior citizen, and as a geriatric blessed with long life. At every age, function is dependent on where the body is within progressive and constant changes. At every age, exercising the singing voice regularly increases the elasticity of the muscles of breathing and of the larynx.

The roots for this article began while on Nordic Choir tour in 1974. It was Edith Copley's and my turn to provide the traditional evening's entertainment that always came just after a delicious "Lutheran church basement supper" and before the evening choral concert. We worked out all the particulars of our skit on the bus that day as we travelled

to our next Lutheran church concert site. When dinner was over, we sang "Danke, danke dem Herrn" to thank everyone who served us such a good supper and then it was time for the entertainment. I reenacted my own singing life through the various ages of the voice from a three year old with a big bow in her hair; to a toothless seven year old, using blackjack gum to cover my front teeth, to a breathy, unconfident junior high student, to an overzealous chest voice dominated high school singer and, finally, as a Luther College Nordic Choir member. Edie's narration, explaining the qualities of the voice within the various ages, was hilarious, and Weston Noble and those in the choir roared with laughter; which may be why we sharpened the entire concert.

That was the start of my interest in the age-related evolution of the singing voice. Thirty-five years later, it is interesting to reflect on how singers sounded before, and how they sound now. Fourteen-year-old voice students from my first years of teaching are now forty-seven. I remember what my own singing felt like throughout my own fifty-five years. The ground-breaking book by William Vennard *Singing: The Mechanism and the Technique*, published in 1967, challenged teachers to include information about physiology and acoustics with their more empirical approach of teaching. It stimulated decades of research and writing by such people as Robert Sataloff, Jean Abitbol, Ingo Titze, and many others. Here we are today with years of experience with fellow singers and students whose voices have aged, alongside a far greater body of knowledge to explain what has gone on in our bodies

to cause these dramatic changes in the voice.

The goal of this article is to provide sample comparisons of the sounds of singing from individuals ranging in age from three months to 103. Facts about changes in the body that affect the voice are provided by way of explanation. Students, friends, and relatives provided me with recordings of themselves throughout their singing lives. I have recordings of myself going back to the age of seventeen.

As you read this article, listen to the recordings provided on the ACDA Web site. Most of the voices you will hear belong to people I know very well, who have pursued classical vocal training. In some cases, you will be able to hear the same singer at multiple ages. The recordings have been converted to sound only files. The quality will vary as they were taken from children's cassette players, homemade VHS recordings, homemade reel-to-reel tape recordings, and homemade DVDs. Not every voice type or age is provided, but a wide enough cross-section is represented so you will experience the progression of the human singing voice from cradle to old age. Notice commonalities and variances within each age group as well as within a specific individual's vocal lifespan.

The Evolving Voice

The primary function of our vocal mechanism is to keep foreign substances out of the lungs and to aid in lifting heavy objects by closing off the trachea.¹ Mankind has gone far beyond the primary functions of the tissue halfway down the throat and has turned it into a musical instrument ca-

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pable of virtuosic beauty. Unlike any other instrument, the singer's instrument is his/her own respiratory system. It reflects emotion, hormones, colds, flu, medication, muscular training, youth, and maturity. No two people have the same brand instrument. No two people sound alike. Their instruments can only be played by themselves and therefore only when they are alive. Their instruments are born and then change constantly throughout life.

Newborn

The pitch of a newborn child's voice is around 500 Hertz, which we can think of as C5 on the treble staff.² The larynx is positioned near the second vertebrae, higher than it will be later in life. The neonatal vocal folds are not yet fully formed. The undeveloped tissue of the vocal folds is single-layered, very loose, elastic, and able to absorb the shock of persistent crying that averages about two hours a day for the first three months of life. Such crying in adults would result in vocal fold swellings and fatigue. The vocalis muscle has not yet formed, and the cricoid is small in relation to the larger epiglottis. There is no distinction between male or female voices at this young age. The chin is tucked under the upper lip at an angle that is shaped like // . By the first birthday, as teeth come in and the jaw changes shape, the chin will be more pronounced at an angle with the upper lip that is shaped more like \. ³ A baby's head seems to be proportionately larger than the rest of its body. The neck is short and narrow. The shoulders, previously not as wide as the rib cage at birth, will broaden significantly during the first year. The coos and cries of a baby cover a wide range of pitches. They begin to imitate pitches sung to them, but in a more approximate, non-sustained, siren-like fashion. Before the age of one, babies do not intentionally match pitch, and there is no discernable rhythm. Their first songs are referred to as "babbling songs."⁴

The developing muscles and ligaments of the vocal folds, the cartilages of the larynx, the overall respiratory system, the development of the brain, and the nerves that send signals causing vocalism will develop and co-

ordinate extensively during the first year of life. As babies grow into infancy they begin to match pitches with ever-widening intervals displaying tonal and metric organization. At eighteen months they can be heard "composing" their own songs with evidence of recognizable rhythms and pitches.⁵ Gradually intervals, pitches, and rhythm are clearly discernable and sustained as they are joined with an ever-increasing vocabulary. Babies' singing voices are clear with a penetrating timbre as they experiment with resonance, vowels, consonants, pitches, and rhythms in an organized fashion we call "song."

Listen to three-month-old Katie. Imagine the low breath taken before the onset of another round of clear voiced crying. Notice the range of the voice and the different vocal textures. (Example 1. Three-month-old Katie. <http://www.acda.org/evolving-voice-audio-examples>).

Next, listen to eighteen-month-old Greta singing with her mother, Laura (twenty-six years old). Note the clarity of Greta's sound, how the imagination is triggered and reinforced by her mother, and how the rhythm is organized. You will hear Greta again. (Example 2. Eighteen-month-old Greta. <http://www.acda.org/evolving-voice-audio-examples>).

By the age of five a child can sing at the level of an untrained adult.⁶ By the time a child reaches seven or eight years of age, his/her voice lowers to around 275 Hertz (C#4), just above middle C. It is now possible to hear differences between male and female voices. The position of the larynx drops from the second vertebrae to the third vertebrae. While the size of the larynx is the same for male and female, the airway is anatomically "adult" in most ways other than absolute size.⁷

Children have a useful vocal range of approximately one and a half octaves. It is important not to overdo the range at this point as it can be damaging to the voice.⁸ Children are capable of different vocal textures and all the divisions of a beat making it possible, even at this young age, to present interesting musical interpretations. They can facilitate terraced dynamics far better than a longer gradual crescendo or diminuendo. Their English vocabulary is well-developed,

and they are extremely receptive to all the noises of languages they hear. Bi- and multi-lingual children sing songs in other languages from the start. Some children hear other languages in the songs of their ethnic or religious traditions, while others learn them in school.

Listen to three-year-old Karl. Notice he sings even while adding percussion and is "composing" a song. The sound is mostly clear, until the end, when he seemingly imitates his mezzo-soprano mother's sound. You will hear Karl again shortly. (Example 3. Three-year-old Karl. <http://www.acda.org/evolving-voice-audio-examples>).

Listen to four-year-old Brian. He is able to sing approximate words in Hebrew to a learned melody. The voice is clear with a bit of strain as he stretches for higher notes. (Example 4. Four-year-old Brian. <http://www.acda.org/evolving-voice-audio-examples>).

Listen to five-year-old Anne Marie. What you cannot see are her hand motions. Notice how her attention floats in and out as she sings this well-known Christmas music. (Example 5. Five-year-old Anne Marie. <http://www.acda.org/evolving-voice-audio-examples>).

Listen to seven-year-old Karl and eight-year-old Erika. Notice they are able to approximate the sounds of the Norwegian language, and follow with the English translation of this folk song. It is easy to tell the voices apart and even to tell which is the boy and which is the girl. You will hear Karl, Brian, and Anne Marie again. (Example 6. Seven-year-old Karl and eight year old Erika. <http://www.acda.org/evolving-voice-audio-examples>).

Adolescence

The hormonal influence on the vocal folds is seen clearly during puberty. Female vocal fold cells are now receptors for estrogens and progesterone, while male vocal fold cells are receptors for androgens. The larynx is positioned about two vertebrae lower approximately the fourth, fifth, or sixth vertebrae. The epiglottis flattens while tonsils and adenoid tissues atrophy. The thoracic cage, lungs, and brain increase in size. The vocal tract and the larynx of adolescents

begin to grow in length and circumference at rates significantly different between the two sexes. The third and final layer of epithelium cells grow on the vocal folds and the final development of the striated muscle of the vocal folds causes the voice to sound more mature.⁹

Voice mutation for girls happens anytime between eight and fifteen years of age over a period of one and a half to three years. The female voice range lowers by approximately the interval of a third. The vocal folds show evidence of the hormonal variation between estrogen and progesterone within the menstrual cycle, much the same as what happens on the cervix. Although the larynx does not increase in size by very much, the angle drops to 120 degrees. The adolescent female brain develops equally on both sides.¹⁰

A twelve-, thirteen-, or fourteen-year-old female voice normally has a better developed chest voice than head voice. The chest voice can be pushed up to a certain point when it breaks into a breathy head voice sound. This is an ideal time to introduce the idea of gently expanding the head voice and bringing the fine, heady ring down into the lower part of the voice; however, this is not initially gratifying for the young female singers, as they do not feel the same lower register clarity up in the top of their voices. Typically, changing voices have a mutational chink. It is weakness of the interarytenoid muscles that causes a gap between the arytenoids and therefore an airy tone.¹¹ Young females should not be forced to eliminate this wispiess, but rather allow the vocal folds to naturally strengthen with

the new surge of hormones and resulting changes to the length and thickness of the vocal folds. It is hard to imagine that such sweet, sometimes airy head tones have great potential for optimum ring and vibrancy in the years ahead.

The male larynx undergoes substantial change between the ages of eleven and fifteen. The "voice change" can be a frustrating time for a young male whose voice cracks unexpectedly. It can happen slowly and gradually or suddenly and drastically. The cartilages grow significantly, with the thyroid dropping 90 degrees, so its tip (commonly referred to as the "Adam's Apple") is prominent in the middle of the neck. The vocal folds double in length and become thicker. The cavities in the sinuses, nose, and pharynx grow bigger, allowing a larger space for



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resonance.¹² The voice, in many instances, is one octave lower than it was previously as a child. Some speculate that the quicker changing voices happen among the suddenly taller, long necked, and thinner sorts of males, who were sopranos and now become baritones or basses. The rounder male with a shorter, thicker neck who was an alto as a child has a less noticeable voice change as he shimmies a shorter distance into a tenor. During this time, the adolescent male brain develops more on the left side than on the right.¹³

Some adolescents may benefit from weekly one-on-one voice lessons. Group lessons or a choral experience that includes basic, healthy concepts about posture, support, breathing, and relaxing the throat within a stimulating, safe musical environment may be more beneficial. It is important to remember that cracks for young males, the breathiness

for young females, the limited and changing tessitura, and overall unpredictable tone is normal and temporary.

Listen to twelve-year-old Brian and friends in "I Thought about the Game" from *Damn Yankees*. His voice has just started to change. This selection has a limited range and therefore allows the best possibility for Brian to have a positive performing experience. You will hear Brian again. (Example 7. Twelve-year-old Brian and friends. <http://www.acda.org/evolving-voice-audio-examples>).

Listen to fourteen-year-old Greta in "Turn Back, O Man" from *Godspell*. Notice a rather gutsy sound on the bottom that makes a noticeable shift to a breathier, yet pretty quality in the upper part of the voice. (Example 8. Fourteen-year-old Greta. <http://www.acda.org/evolving-voice-audio-examples>).

We hear that both young singers are capable musicians. Do we hear glimmers of vocal potential?

High School

Change and growth slows down during the junior and senior years of high school, and if purposefully developed, voices become more reliable and gratifying to the singer. We often see students "discover" their vocal talent during this time. Although many still prefer a chestier vocal production, they are able to begin more serious work on the headier quality as their facial structure, pharyngeal opening, and muscles of support—once working hard to keep up with growth spurts—can now coordinate with enough air pressure to foster vibrato. The female head voice begins to strengthen, and it is possible to hear evidence of the singer's formant, or ring, in some voices. The male voice is often more limited in range, but it is possible to find the first semblance of a vibrato, though often more unpredictably than in the female voice. In both male and female voices, tone presents identifiable qualities unique to each individual.

During these years, one-on-one vocal training is useful from numerous perspectives. Mentoring; building individual confidence; noting uniqueness of each voice; developing vocal textures; developing overall concepts about support and space; developing musical skills; and fostering performance opportunities all help ignite the discipline, mindset, and enthusiasm for singing.

Listen to sixteen-year-old Anne Marie sing "The Boy Next Door" from *Meet Me in St. Louis*. Notice her chesty sound and keep this in mind when you hear her later. (Example 9. Sixteen-year-old Anne Marie. <http://www.acda.org/evolving-voice-audio-examples>).

Listen to seventeen-year-old Brian in his senior year sing "The Impossible Dream" from *Man of La Mancha*. (Example 10. Seventeen-year-old Brian. <http://www.acda.org/evolving-voice-audio-examples>).

Listen to seventeen-year-old Karen singing *Sweet Little Jesus Boy*. You will hear Karen again. (Example 11. Seventeen-year-old Karen. <http://www.acda.org/evolving-voice-audio-examples>).

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audio-examples).

Listen to eighteen-year-old Karl (baritone) and twenty-one-year-old Chris (tenor) as they sing the duet "The Lord is a Man of War" from Handel's *Israel in Egypt*. Can you detect the age difference between these two voices? (Example 12. Eighteen-year-old Karl (baritone) and twenty-one-year-old Chris (tenor). <http://www.acda.org/evolving-voice-audio-examples>).

College

The undergraduate college years are an excellent time for intensive vocal and musical training. The exuberant high school student gives way to a discerning young man or woman, able to see the benefit of each voice lesson and diction class, one who will profit from study in vocal health and pedagogy. These young singers will have the ability to pursue wider and gradually more complicated repertoire and an ever more dependable vocal quality rich with the ring of the voice. Impressive vocal development is possible during the college years.

Yet, the voice is still not fully mature. For both male and female voices, it will take until approximately age twenty-two before the vocal tract has grown to its full length and circumference. I often notice that male college juniors need to buy new shirts because of significant neck growth since their freshman year. The male vocal folds are approximately 15–20 mm in length. Females vocal folds are 10–15 mm.¹⁴ The length of the larynx is 44 mm for males and 36 mm for females. Circumference of the larynx is 136 mm for males and 112 mm for women.¹⁵ The vocal folds are pearly white in color and are whiter in females than in males.

In college, singers yearn to know what their respective voice type is so they can prepare appropriate repertoire. This is a somewhat easier task for lighter, higher voices. For others, it can still be too early to determine what voice type they are or will become. A young man's voice that changed abruptly down to bass or baritone can very gradually transition to tenor over a period of years. A mezzo-soprano may develop into a soprano. Generally, the larger the voice, the longer it may take to determine what voice type it will be.

Listen to twenty-one-year-old Brian sing *Bella siccome un angelo*. Notice the richer sound. (Example 13. Twenty-one-year-old Brian. <http://www.acda.org/evolving-voice-audio-examples>).

Listen to twenty-one-year-old Karen sing the soprano aria "I Know that my Redeemer Liveth" from Handel's *Messiah* (Example 14. Twenty-one-year-old Karen. <http://www.acda.org/evolving-voice-audio-examples>).

Listen to twenty-one-year-old Ken sing the baritone aria "The Count's Aria" from Mozart's *Marriage of Figaro* (Example 15. Twenty-one-year-old Ken. <http://www.acda.org/evolving-voice-audio-examples>).

Listen to twenty-two-year-old Anne Marie sing Schubert's *Die Forelle*. Is this what you expected, considering what she sounded like just five years earlier at sixteen? You will hear Karen, Ken, and Anne Marie again. (Example 16. Twenty-two-year-old Anne Marie. <http://www.acda.org/evolving-voice-audio-examples>).

Adult

Young and middle-aged voices experience overall hormonal stability within this time period. The adult body offers strong muscle mass, quick nerve impulse, flexible joints, and a quick, sharp mind. The cartilages of the larynx gradually start to ossify, making them a stronger support for greater vocal fold tension.¹⁶ Given good physical and mental health, good vocal hygiene, and healthy personal habits, every vocal texture has the potential of being trained and, once developed, able to stand the demands of the great repertoire. Unlike most athletes whose athletic bodies peak in the twenties, voices do not reach their prime until the thirties and forties.

For women, estrogen results in a thickening of the mucosal membranes of the vocal folds, creating a greater vibratory amplitude. It also fosters permeability of the many blood vessels and capillaries in the vocal folds, increasing oxygenation.¹⁷ Women learn quickly what to expect monthly with the cyclical imbalance between estrogens and progesterone as they affect the singing voice. The vulnerable time for the voice is during the few days before menses. Because of the premenstrual syndrome, an increase

in progesterone causes cells on the surface of the mucous membrane to slough off. The voice feels thicker, less agile, and drier; which can be a sign of swelling, usually minimal, of the vocal folds. This varies from person to person and aggressive singing, despite symptoms of swelling, can result in hemorrhage, vocal fold swellings, or nodes. There is no cycle during pregnancy. The vocal folds are more consistent, healthy, and the tone is often fuller and richer. As of the eighth month, breathing is harder due to the growing baby. For many pregnant women, this is a time of increased vocal beauty. After delivery, it is important to strengthen the abdominal muscles starting with breathing exercises.¹⁸

Hormones secreted by the adult male are called androgens. They cause men to be strong skeletally and muscularly and to be more aggressive mentally. These changes are inherently reflected in their singing. Men secrete no progesterone at all but do have small amounts of estrogen. The tall, strong, and angular male has higher levels of androgens and is often a lower voice type. The shorter, rounder male may have higher levels of estrogen, which can account for their voices being higher. Men do not experience monthly hormonal changes like women do, so their vocal folds remain in a more constant condition through these years.¹⁹

Listen to Anne Marie sing one of the *Brentano Lieder* by Strauss. The voice is fuller and has a dependable and extensive range. Notice the impressive growth in her top range. However, the bottom of the voice still has recognizable qualities we heard at the age of 16. (Example 17. Twenty-five-year-old Anne Marie. <http://www.acda.org/evolving-voice-audio-examples>).

Listen to twenty-five-year-old Ken in his first attempts at *Donna non vidi mai*. His new-found upper register tells us he is not a baritone, but rather a tenor. (Example 18. Twenty-five-year-old Ken. <http://www.acda.org/evolving-voice-audio-examples>).

Listen to Ken in his thirties sing *Reconquita armonia*. His voice has settled into a dependable tenor fach capable of difficult tenor arias. (Example 19. Ken in his thirties. <http://www.acda.org/evolving-voice-audio-examples>).

Next, hear Ken at the age of forty-six sing *E lucen van le stelle*. We hear more fullness

of tone and a hearty, dare-devilish zest in his presentation. (Example 20. Forty-six-year-old Ken. <http://www.acda.org/evolving-voice-audio-examples>).

Next, we will hear Karen at twenty-six in an excerpt from Verdi's *Requiem*. (Example 21. Twenty-six-year-old Karen. <http://www.acda.org/evolving-voice-audio-examples>). Finally, we will hear Karen at thirty-five in Mozart's *Laudamus te* from the C Minor Mass, and then at forty-five in an excerpt from Verdi's *Requiem*. Notice the expansion of range and quality in Anne Marie, Ken, and Karen. (Example 22. Thirty-five-year-old Karen. <http://www.acda.org/evolving-voice-audio-examples>) (Example 23. forty-five-year-old Karen. <http://www.acda.org/evolving-voice-audio-examples>).

Fifty-Plus

Singing may not be as easy to control as nerve signals slow down. The epithelium begins to atrophy. The jaw begins to change, and the joints or jaw hinge start to show signs of arthritis, making it less mobile and harder to raise the palate for a higher tessitura. Cartilages progressively harden, the lungs weaken, and bronchial efficiency decreases by 40 percent between the ages of forty and eighty.²⁰ Musical phrases executed easily before may require an extra breath. The vagus nerve signals begin to slow so that muscles respond more slowly, effecting a slower vibrato and slower coloratura. Hearing difficulties can affect how we hear ourselves and therefore how we talk or sing.

Menopause

At approximately fifty years of age, women experience menopause. During menopause, women produce much less estrogen and no progesterone, therefore their monthly cycles stop. This change in hormonal levels signals a wide variety of other physical changes. For the voice, the vocal folds are not as well-lubricated and are less elastic as the epithelium atrophies. The voice lowers in the absence of these hormones, and there is sometimes a sudden drop in the upper range of the voice. Treatment for this and other symptoms of menopause may include hormone replacement therapy. Hormone replacement therapy should be considered

carefully while in the care of a physician so that all health consequences are considered before beginning treatment. Some women who choose to take estrogen in hormone replacement therapy experience a rapid retrieval of lost high notes. The length of maintaining those notes will vary from person to person, but there is no question that some vocal careers have been lengthened with the help of hormone replacement therapy. Sometimes testosterone is recommended for a variety of reasons, including increasing the female libido. This can cause irreversible lowering of the voice. Thin women often show more symptoms of menopause. The higher amount of fat cells in plumper women make it possible for fat cells to turn androgens into estrogens, so there is less need for hormone substitutes.²¹

Men

Men do not go through such a drastic hormonal changes, and, when there is a change, it is not until their seventies when they produce far less androgens. As they notice the effects of aging on the voice, they will benefit greatly from exercise and conditioning. Hormone replacement therapy is rarely a good option for vocal purposes in males. Typical age-related health issues can be a challenge and have an effect on the quality of the voice.

Listen to Karen at fifty-five sing the end of *Bon Appetit* by Lee Hoiby. (Example 24. Fifty-five-year-old Karen. <http://www.acda.org/evolving-voice-audio-examples>)

Listen to Plácido Domingo on YouTube as he sang *Panis Angelicus* for Senator Ted Kennedy's funeral. (Example 25. <http://www.acda.org/evolving-voice-audio-examples>)

Notice that the voices still have identifiable traits of each individual's vocal quality, even though they sound deeper and darker than previously heard. The vibrato rate is somewhat slower and wider than in earlier years.

Eighty-Plus

The most significant changes of the vocal folds happen from birth to puberty and then again in old age.²² Presbyphonia is the word used to describe the condition of the vocal folds for the geriatric aging voice. The vocal

folds lose suppleness as they atrophy; they show signs of inflammation; and arthritis and reflux is more common. The jaw decalcifies and joints of the larynx and jaw are less supple. Less movement affects overall oxygenation. The vocal folds do not approximate as perfectly, so there is less intensity and a shorter range. As a woman continues to age, her vocal folds become thinner and finer, and the once menopausal-deepened voice becomes higher, more delicate, and sometimes even shrill.

Listen to eighty-eight-year-old Emma singing *What a Friend We Have in Jesus*. Notice the high pitched sound lacking in the lower fundamentals. (Emma lived to be ninety-eight years old.) (Example 26. Eighty-eight-year-old Emma. <http://www.acda.org/evolving-voice-audio-examples>).

Listen to Thora, age 103, as she sings *Children of the Heavenly Father*. Note the heady vocal quality and the very necessary extra breaths. (Thora lived to be 106.) (Example 27. 103-year-old Thora. <http://www.acda.org/evolving-voice-audio-examples>).

There can be no denying that age-related changes affect the entire body and therefore will affect the ability for the voice to function. The jaw changes shape as teeth and gums deteriorate, causing a change in the buccopharyngeal resonator. Not only is our skin drier, but also our larynx is less hydrated and therefore more vulnerable to injury. Heart problems and high blood pressure affect oxygen levels, so we may find it takes an extra breath to get through a musical phrase. Arthritis even appears in the synovial joint within the laryngeal structure or the mandibular joint of the jaw. Even having bad knees that need replacing can affect the ability to stand and sing comfortably. It is amazing to see the fortitude and determination at every age for those who feel they just "must" sing, despite age-related deterioration.

None of us breezes through life unscathed. As a voice teacher and singer, I have seen people of all ages go through vocal frustrations from typical colds and flu to estrogen depletion, various cancers, knee-replacement, hearing loss, vision problems, nerve damaging viruses, hysterectomies, horrendous injury from car crashes, emotional problems, heart problems, and so many others; yet, every person is still singing. Sometimes it is in a slightly different way

or a little lower in range, but these singers still are driven to read the music, take that breath, engage the support muscles, open the throat, and emit sounds as beautifully as they can make them.

The most effective method in promoting longevity in our singing lives is good physical and vocal conditioning.²³ When one considers how quickly any unused muscle in the body can atrophy, one understands the importance of "using it or losing it."

The study of presbyphonia is new for understandable reasons, principal among others being the delayed emergence of scientific advancement/technologies and our rising life expectancy and resultant vocal lifespan. In 1796, the average human lifespan was twenty-four years; in 1896, it doubled to forty-eight years. Thus, most women never experienced menopause, or post-conditional singing. Presently, men live on average until seventy-two years of age and women until seventy-nine, and there is a substantial rise in the number of people who live to be over one hundred years old.²⁴ Those who research the voice admit there is still much to learn about changes in the singing voices of geriatrics.

Exceptions

There are exceptions to every age described in this article. Some sing extremely well earlier than others, while others' voices have more vocal difficulties to work out. Some sing into their seventies and still sound good, while others are become limited at the age of fifty. I have heard thirteen-year-old sopranos who already sing with a clarity and ring enviable by twenty-six-year-old sopranos who have studied extensively. History tells us that numerous great singers of the past and present made important debuts as early as their late teens. I have sung professionally with singers up to seventy-two years old whose voices are as fresh as a middle-aged singer.

Conclusion

As I have presented this information to a wide variety of audiences over the years, the reaction is always the same. People are empathetically engaged by the sound of the human voice at every stage in its development.

They have either been there, are there, or know they are going there next. When audiences hear the sounds and songs of babies, infants, and children, they seem touched by their unaffected innocence and purity. The audience senses the vulnerability reflected in the youthful efforts of the adolescent voices. The seasoned college and professional singers evoke a more critical reaction. When listening to examples of singers over fifty years of age, the most powerful reactions come from those audience members who are themselves over fifty. They know firsthand that vocal suppleness begins to wane at this point in life. Finally, rarely is there a dry eye when they listen to the voice of eighty-eight-year-old Emma and 103-year-old Thora. We hear in their voices a sense of mortality and vulnerability, tempered with a wisdom and experience that few of us will know.

How interesting it would be if we had recordings of Emma and Thora from their neonatal cries through adolescence, middle age, old age, and on through their eighty-eighth and one hundred and third year. It is only now that we have easy access to recording technology that enables voices to be recorded and preserved for a comprehensive look at the entire chronological life of a person's singing voice. There will be much to learn once there are people whose voices have been scientifically and musically chronicled from birth to old age.

NOTES

¹ Ralph D. Appleman, *The Science of Vocal Pedagogy* (Bloomington: Indiana University Press, 1967), 41.

² Dorlands and Elsevier, *Vocal Folds on Right Health*, <http://www.righthealth.com> (accessed September 1, 2009), 7.

³ Jean Abitbol, "Normal Voice Maturation: Hormones and Age," in *The Performer's Voice*, ed. Michael S. Benninger and Thomas Murray (San Diego: Plural Publishing, 2006), 36.

⁴ Ellen Winner, "Development in the Arts: Drawing and Music," in *Handbook of Child Psychology, Volume 2*, ed. Richard M. Damon and William Lerner, John Wiley & Sons, 2006, 891.

⁵ Ibid.

⁶ Ibid.

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