

The Evolving Singing Voice

Changes Across the Lifespan

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1

Introduction



“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” (Brunssen, 2010, p. 45). We come into this world with vocal folds whose primary purpose is to allow air in and out of our lungs, keep foreign substances out of our lungs, and aid in lifting heavy objects. For those of us who sing, we are the power source, the vibrator, and the resonator of our musical instrument, playable only by its owner without ever seeing it. It requires no limbs to play. It not only has tone but can form words and express emotions, ideas, stories, and poetry. It is a living, growing, changing instrument.

The roots for *The Evolving Singing Voice: Changes Across the Lifespan* began as an entertaining, autobiographical skit, during

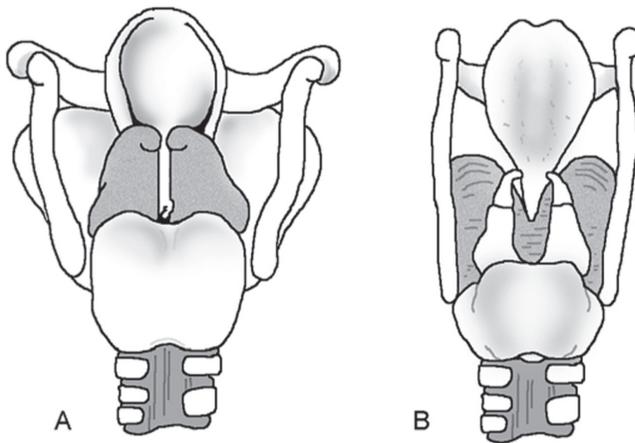


FIGURE 2-3. Posterior adult and child larynx.

each other. They will separate as the larynx descends (Isaacson, 2003; Prakash & Johnny, 2015; Sataloff & Linville, 2006).

At birth, the floppy epiglottis is attached to the arytenoid cartilages by prominent aryepiglottic folds (Wilton, Lee, & Doyle, 2015). This can give the epiglottis an omega (Ω) shape. The stroboscopic view of the infant larynx is much different than what is seen when looking at adult vocal folds. It is often difficult to see the glottis due to the omega shaped epiglottis, as in Figure 2-4 (Hartnick & Prasad, 2005). The curvature of the epiglottis increases until 3 years of age and then begins to flatten.

Babies are not miniature adults. This is obvious in the proportions of their bodies on the outside. They are different on the inside as well. Vocal folds of newborns are unlike those of adults. They have a thin layer of skin that covers a gel-like mucosal material that can withstand deformation and contains what is needed to repair itself quickly if injured, such as hyaluronic acid (HA) (Titze, 2012). They are approximately half ligamental and half cartilaginous at birth. These proportions change with age (Beck, 2010). The membranous portion is the part that vibrates. It is two and a half times smaller than in adults, which limits capabilities to control phonation (Stathopoulos & Sapienza, 1997). Hirano found that the length of the newborn vocal fold is 2.5 to 3.0 mm. (Hartnick & Prasad, 2005) Total vocal fold length

11 and in boys at age 12. After the peak, excess connections that are not used are pruned. From puberty into the adult years, there is important “brain sculpting” that continues into the third decade of life as each person gravitates away from some interests and toward particular areas of focus in their lives (Spinks, 2002).

RESPIRATION

During adolescence, there are significant changes in the structures of the respiratory system (Tanner, 1971). As the skeleton, lungs, trachea, larynx, and vocal tract grow, there is a point when the capabilities and coordination for breath control shift. Breath support methods employed by a 10-year-old singer will no longer produce the same results at age 14. The ages of 12 to 14 are a critical period when young singers need guidance, which is paced alongside anatomical changes, to incrementally establish breath control that will evolve through their teen years and into adulthood.

As the lungs and airway grow, respiratory function will begin to reach adult levels (Bhatti, Rani, & Memon, 2014; Hoit & Hixon, 1986; Stathopoulos & Sapienza, 1997). Growth and function continue to develop as adolescents increase in height, through the age of 20 (Lanteri & Sly, 1993). Vital capacity increases continually until adulthood in both males and females (Narayanan, et al., 2012). Up until the age of 15, elastin fibers in lung tissue increase more than connective tissue, so that the lungs develop a higher potential for elastic recoil (Loosli & Potter, 1959; Mansell, Bryan, & Levison, 1977; von der Hardt, Logvinoff, Dickreiter, & Geubelle, 1975). Airway resistance is reduced as the trachea grows in diameter (Stathopoulos, 2000). The increase in relative mediolateral dimension of the upper thorax, compared to a relative narrowing of the lower thorax throughout ontogeny, begins the transformation from the pyramidal infant thorax to the eventual barrel-shaped thorax of an adult (García-Martínez, Recheis, & Bastir, 2016).

Nonlinear growth and development is evident in lung function changes during adolescence. The timing is different between male and female. Sudden growth spurts coincide with the Tanner male and female pubertal stages (see Tables 3–1 and 3–2).

the evaluation each semester or quarter offers the possibility of a longitudinal evaluation process that is informative and educational for both teacher and student.

FIRST GIGS

The young adult years are about training the voice and accumulating musical and peripheral skills important for the singing genres being pursued. The next step requires a true passion, creativity, and an enterprising entrepreneurial spirit that looks for opportunities. Some colleges and universities include courses for credit that teach young singers about the business side of singing. They learn about making contacts, how to present themselves, do mock auditions, how to keep track of income and expenses, prepare a website, use of social media, time management, keeping a journal of auditions, and how to create an appropriate resume.

Classical singers rely on websites like YAP Tracker to find audition opportunities for summer programs, opera apprenticeships, training programs, opera chorus auditions, voice institutes, and competitions. These vary from “pay-to-play” experiences to being paid. Many are appropriate for young adults who want to acquire singing and performing skills alongside a special experience nearby or in other countries. Some are considered prestigious resume and networking builders, and a few are associated with world-class opera companies (YAP Tracker Opportunities, 2018).

Young adults in music theater can register and pay to audition for organizations that sponsor combined auditions where many producers and directors come to audition performers for summer stock, cruise ships, theme parks, faires, dinner-theatres, college summer theatres, children’s theatres, touring companies, and special events. Auditionees must be 18 years or older and non-equity performers. StrawHat Auditions is New York City’s premier combined audition service. (StrawHat Auditions—How It Works, 2018). New England Theatre Conference (NETC) represents an average of 35 companies who come to hear auditions annually. Auditions tend to be 2 minutes, or a dance call and 16 bars of a song. (NETC Theatre Auditions 2017, 2018)

formal education with doctorates and PhDs. Vocal careers can be manifested with a mixture of all these areas. They can be full or part-time and semi-professional or professional. They may include a rich combination of performing opportunities as soloists, ensemble singers, stage performance, teaching, and entrepreneurial initiatives “outside the norm.” Such “portfolio careers” can be extremely fulfilling. Some may even cross, or blur, the lines between classical and CCM. Academic and personal trajectories can include additional elements of scholarship, creative activity, and leadership important to furthering the development and future of the singing world.

For those who leave their singing behind, it is not uncommon to reengage in singing activities later, as they have time and inclination. The vocal instrument is always there to be called on. Fond memories of singing during younger years may eventually be a reminder of musical camaraderie, a disciplined intellectual activity, and the sheer enjoyment of singing. Singing and musical literacy can be learned, improved, maintained, or renewed any time during the lifespan. Singing can be for pleasure, for a purpose such as worship or community choir, for continuing music education, or as a therapeutic change of pace.

For those who choose to earn a living by singing or teaching singing, all of these enjoyable qualities can continue, with the caveat that it becomes an adult business with adult rigor, expectations, and accountability. The quality of the singing voice among serious avocational and professional singers must be, at a minimum, maintained to stay competitive in the “select” world of adult singing. The rigors of regularly singing alongside fellow excellent singers in rehearsal and performance, being under the baton of great conductors, and preparation with teachers and coaches for auditions and singing engagements influence the professional standards they measure themselves against. It is important to stay active within such a cumulative, comparative environment that continually stimulates, informs, evaluates, exercises, and challenges virtuosic musical and vocal requirements of sophisticated professional singers. The requirement for vocal and musical fitness is equivalent to the level at which one is singing in classical and nonclassical styles.

Adult professional CCM singers often perform in numerous singing styles, with or without microphones, and in a variety of performance venues. Their vocal timbre, repertoire, and stage

larynx on stroboscopic examination is an anterior or spindle-shaped gap during phonation (Linville, 1992; Pontes, Yamasaki, & Behlau, 2006). This is often attributed to bowing of the vocal folds and has been confirmed by examination of extirpated cadaveric larynges (Mueller, Sweeney, & Baribeau, 1985). The degree of bowing, however, is not necessarily directly related to the size of the glottal gap (Bloch & Behrman, 2001). Other age-related changes in videostroboscopic measures include increased aperiodicity of vibration, slower speed of vocal fold opening during phonation, alterations in the mucosal wave, and protuberance of the vocal prominences (Biever & Bless, 1989; Murty, Carding, & Kelly, 1991; Pontes, Brasolotto, & Behlau, 2005). Some of these changes observed in vocal fold vibration, however, are not only a result of changes to the vocal folds themselves but also because of reduced respiratory ability (D'Haeseleer et al., 2011).

RESONANCE

Continued growth and development of the head, face, and structures surrounding the vocal tract result in alterations of vocal tract resonances in older age (Linville, 2002; Linville & Rens, 2001). The facial skeleton expands constantly throughout life from front to back, side to side, and top to bottom. Males and females, however, differ in the timing and nature of this expansion. Men have larger jaws, more prominent eyebrow ridges, and different shapes in the orbital rims around the eyes. Additionally, specific parts of the facial skeleton are subject to “resorption.” Resorption is a continual lifelong process of tissue in the bones breaking down to transfer calcium to the blood. In childhood, ossification outpaces resorption, resulting in growth and development. During adult years, ossification and resorption keep an equal pace. In later years, resorption outpaces formation around the eye in the orbital rim and in the maxilla. In some ways, the mandible continues to expand, although the ramus height and mandibular body height and length decrease. This results in an increased mandibular angle, so the chin juts out a little or a lot (Mendelson & Wong, 2012). Overall, the vocal tract shape and volume change approximately 3% to 5% due to facial skeleton growth. See Figure 6–1.

10a

[a] - [u] - [ga] [a] - [u] - [ga] [a] - [u] - [ga]

10b

[e]
[o]
[a]

VOCAL BUNDLING

The idea of bundling was inspired by a marketing strategy that puts services and products together so that consumers will buy them all. The goal of “vocal bundling” is to put together a five-part fact-based plan to address a particular vocal issue or concept. Vocal bundles provide a structure, strategy, and thought process for teachers and students with a vocal objective in mind. They can be applied in the home, classroom, studio, rehearsal, and practice room.

1. Vocal issue or concept that merits attention
2. Reason for the issue
3. Exercise or activity to address the issue
4. Concepts behind the issue and the strategy
5. 5-Day Mini-Challenge

Infant Vocal Bundle

1. Vocal play
2. Following the lead of infants is important and a joy. They experiment with sounds and movement with their ever-increasing abilities. Parents usually instinctively communicate