

Here are some statistics for you: in the year 2019, 15.9% of Australia's population was over the age of 65 years. 515,700 of those citizens were over the age of 85 years. Statisticians predict that by 2027 the over-sixty-fives will have increased to 18% of our population. (In 2019, also, 18.7% of the population was from birth to 14 years of age, and that percentage is falling – an interesting comparison!)

Healthy aging is not just allowing people more years but the possibility of productive and socially enjoyable senior lives; and not just a way to fill out the days but opportunity to make a satisfying contribution to society. Some of these elders are musicians; and some of these are choristers. In the choral community they deserve our enthusiastic and respectful consideration as a significant part of the choral population.

Older singers may provide a proportion of community choirs and the backbone of church choirs, the larger numbers in ensembles such as Welsh choirs, or may make up the full numbers in designated mature age ensembles such as U3A choirs and those formed in retirement villages. The singers will tell you that they love choir, that it gives them a joyous opportunity to be expressive, to learn more about music, culture and the voice, and that it provides a social group of like-minded musicians, among which they may have deep friendships. They will say that they are happy to share their music-making with their family, friends and the community, and that they are glad to be of service in offering their music if a civic or social occasion arises.

Knowledge of the functioning of the voice has taken leaps from the 1960's onward, especially since internal examination of the vocal process has become possible. It was not until the 1990's that specialized attention was given to the mature-age voice. Year by year, now, new science is adding to understanding of that changing voice. It is important for conductors to have a current knowledge of the voice and of the stages of singing of the choristers facing them. It may be that the senior choristers are reliant on you for the support and information that will keep them singing joyously for years to come. This knowledge may also inform the preparation of warm-ups, the selection of repertoire and the running of your rehearsals and concerts.

Aging of the vocal mechanism is inevitable, as part of the aging process. Here are some issues of which your seniors may be aware:

General health

- * Digestion issues, allergies and gastroesophageal reflux, which can affect the voice
- * Change in bone structure in the face, and loss of natural teeth
- * Vision problems, from the annoyance of bifocals to need to have large-print music
- * Hearing problems – about a third of over-seventies will need assisted hearing, and may be surrounded by distorted sound in the choir
- * Body alignment issues, including curvature of the spine
- * Chronic ailments such as heart disease, diabetes and arthritis
- * Slower response from neural pathways; reduced blood flow throughout the body; and dehydration from drying medications.

Some conductor support may include advice to visit a doctor; encouragement of the singer to take singing lessons anew to learn to work with the changing body and changing voice; placement of the singer in the choir to respect vision and hearing issues; encouragement to bring a bottle of water to rehearsal; and a chair available for some sitting, some standing.

Warm-ups with stretching, bending, turning, arm and shoulder movement and body alignment for standing and sitting will be beneficial.

Breath management

Considerable change is taking place in the rib cage (thorax) and singers will be aware that they cannot manage some of the long or slow vocal passages that they used to be able sing.

- * The rib cage is stiffening and will lose some of its past expansion (distensibility); and the cartilages and ribs will become bone (calcify) so will be less agile than previously
- * The abdominal muscle tone will decrease
- * The lung (pulmonary) function will have less muscle elasticity, and there will be less chest wall compliance and tissue recoil
- * There will be a decrease in breath (respiratory) volume
- * There will be a decrease in amount of new air in the breath (vital capacity) and an increase in retained, used air (residual volume).

Seniors will likely have lost 40% of the past natural breath. The conductor will advisedly have several breathing exercises in warm-ups and may encourage singers to use these when beginning home rehearsals. For the seniors, encouragement to do these exercises most days of the week will assist in retaining breath, or slowing down rate of change in breathing skill, or may even make breathing improvements. The conductor may also chat through the music with senior singers and find judicious places for extra breaths. Posture imbalance will affect the breath, so occasional reminders during rehearsal about body balance will assist in full breath intake and may avoid vocal fatigue.

Changes in the structure of the larynx (voice box)

- *The cartilages and joints will be turning into bone (complete in the 80's)
- *The joints may become arthritic and stiffen
- *The cricoarytenoid joint may become uneven and stand out prominently (more likely in men)
- *The ligaments (connective tissues between bone and cartilage) may weaken
- *The larynx position in the neck will move
- *There may be deterioration in the temporomandibular joint (hinge of cranium and jaw).

Some discomfort from the above may benefit from medical advice, and the conductor may well suggest this if she/he notes that a singer is frowning as if in stress or rubbing an ear or jaw as if there is an ache. In general, the singers may not be as flexible in movement as in the past, but warm-up exercises freeing the neck and loosening up the jaw may help.

Muscles and function of the larynx (voice box)

Senior singers may be frustrated that their voice does not sound, to them, like it used to do. It may help them to understand, and work with their current voice, if they are aware of the considerable alterations taking place in the muscles of the larynx.

The loss of bulk in the vocal folds themselves is due to wasting away in their components.

The vocal folds have three parts to them:

The skin (epithelium) of the folds, which becomes drier and less elastic (compare a new and an old rubber band?)

The lamina propria is the middle layer, and is itself in three parts

- . the top (superficial) layer, will become thinner, with fibrous portions altered, reducing elasticity
- . the middle (intermediate) layer, will also become less thick, with changes to the contour of the fibrous protein, and less elasticity
- . the deepest (and closest to the muscle) layer, whose fibrous portion will be denser

The vocalis muscle – the deep, large body of the vocal fold.

In summary, the flexible tissues responsible for vocal fold vibration become thinner, stiffer and less pliable.

The vocal folds, in weakened state, also may not exactly come together, maybe having one gap (bowing), or two (spindle shape). The gap will result in breathy sound. As with voices at other ages there may also be nodules, cysts or polyps with which to contend. These issues may be treated by therapy or, at last resort, surgery, and definitely should be in the hands of a voice specialist. We are fortunate to live at a time when many in medicine are giving their research and expertise to the aging voice (the term is Presbysphonia, for those who like specialist names for medical studies). The conductor's understanding of these changes may result in encouragement for the desirable sound of the oldies to be sweeter and lighter than that of the younger singers in the choir.

There are gender differences in the changes taking place in voices

Men:

- * The vocal folds may be thinner and weaker (atrophied) than in women
- * Men may have greater ossification (calcification) of the laryngeal cartilages
- * Their amplitude of vibration (bottom to top phasing) may decline, and lead to faster vibration
- * There may be uneven flow of breath through the vocal folds, with this variability making roughness in the voice
- * The voice, which dropped in pitch from puberty and continued down through adulthood, will do an about-turn and rise – so may be higher than at any time in the man's adult life. Men may try to compensate for this difference and for the felt changes in their voices by more effort, making the sound louder and less subtle. (Illustration may be by way of having the men give a vigorous, aggressive handshake, then one that is a firm and warm greeting. This might get the concept of overuse of muscles across to them.)

Women:

- * From menopause oestrogen deprivation changes the membrane in the vocal tract
- * There is thickening rather than thinning of the mucous linings (mucosa) in the vocal folds, thus increasing the vibratory mass and making singing harder work
- * There is a higher incidence of glottal gap – scallop or spindle – than in men
- * Some women may need help to identify that the fine vibrato of youth can slacken to a wobble with age. A neat, light vibrato can be acquired with attention. No excuses for age – learn some new tricks.

- * The fundamental frequency drops 10-15 Hertz due to hormonal change, with swelling of the laryngeal mucosa and lowered position of the larynx in the neck. Reduction in range may puzzle singers who used to have spectacular high notes. It is helpful if the conductor can steer women to a somewhat lower range – highest note perhaps down a third – say from A5 to F5; and altos being pleased to just reach C5 or D5.

The changed speaking voice can be an indicator of the change that will be noticed in the singing voice. If a woman's speaking voice was at A3 it may move down even as far as E3. A man's speaking voice that was at F2 may move up to about D#3. The singing voice will have at least some of that shift.

Final thoughts

For seniors:

- * The best of health to you! Walk, swim, exercise, garden, play with the grandchildren. Puff out occasionally. The best health you can maintain will assist in pumping the blood supply around the body. Some of it visits your vocal folds. Planned breathing and neck and jaw exercises will assist freedom and flexibility for singing.
- * Water – drink a lot of it. Remember, you have less saliva and some dryness of the vocal folds. Have a bottle of water at rehearsals. When drinking alcohol or coffee drink more water to counter the dehydration. How about 1 water to 1 dehydrator?
- * You will know best which food choices work for you. Some of them will affect your voice. What of milk, wheat, fructose, spices?
- * Take voice lessons. Remember, your changes may be compared to those of teenage years. Having a teacher's knowledge and listening ears monitoring your singing and speech, and giving you exercises and songs right for you, may be the reason why you sound much more youthful than your non-singing friends! If you fatigue when doing all the right things it may be the sign to make a change. Is the range now wrong? Is there a different way to sing without so much stress? Is body alignment stopping you from breathing as well as you might? Is there something physical that might need the guidance of a voice specialist?
- * Hearing is part of vocal health. Maybe have a partner among the singers with which you can check if you are singing too loudly, or off pitch. Kind support may allow you the assurance that you are making the good vocal contribution that you wish to make, for satisfaction in singing in the ensemble.
- * Bear with some of the inequalities of life. When you were young and had boundless energy you could get away with fluctuating exertion and commitment through sheer talent and bluff. As older singers you cannot. You need to give 70%, 80%, 90% at all times for performance to be acceptable. Enjoy the satisfaction of a job well done!
- * Work with your life changes so you can soar in singing.

For conductors:

- * Consider the mature-age singers you have before you. They will have knowledge that comes from life experiences different to yours – maybe even more wisdom! They might know things if you ask them. They might gladly research works, composers, even the lighting and acoustics of the local hall, if you see them as compatriots.
- * Know that every one of these seniors will carry grief. They will have lost a partner, friends, even children. Their singing is rich in emotional understanding. Teach the spirit of the works – your commitment to interpretation will fall on grateful minds and empathetic

spirits.

- * Respect special needs. Seniors will be glad to work with you if you make it possible for them to do so.
- * Know that there will be some stick-in-the-muds who do not adjust easily to change. “It never used to be done like that.” Easing them into change will require diplomacy and persistence from you – as will courteous determination when you wish to do different repertoire from the old days. Best wishes for grace and sticking to your guns!

For singing teachers:

- * Take senior singers into your singing studio. They will greatly benefit from learning at this stage in life, when the voice is making one of its most significant transitions. Explanations will help. Exercises will help. Your listening ear will help. Your reward will be to give great enrichment to all-through-life learners.
- * As with the voice at other life stages, gain knowledge of the older voice. There is much new information available; and the singers themselves will teach you much.
- * In practical terms consider this too. The young may forget to practice, forget to turn up and forget to pay. Seniors are much more likely, in making the commitment, to practice, to turn up and to pay!

References

Australian Bureau of Statistics. (2019). *Australian Demographic Statistics*. Updated 18 March 2020. www.abs.gov.au

Butler, Abby., Lind, Vicki & van Weeldon, Kimberly. *Research on the Aging Voice: Strategies and Techniques for Healthy Choral Singing*. www.journals.mun.ca

Brown, Oren L. (1997). *Discover Your Voice*. San Diego: Singular Publishing Group.

Davies, D Garfield & Jahn, Anthony F. (2004). *Care of the Professional Voice*. 2nd edition. London: A & C Black

Edwin, Robert. (2012). *Voice Pedagogy for Aging Singers*. Journal of Singing Vol. 68, No 5, pp 561-563. Jacksonville. National Association of Teachers of Singing.

Hoch, Matthew. (2014). *Dictionary for the Modern Singer*. Lanham: Rowman & Littleford.

Lortie, Catherine L., Rivard, Julie & Thibeault, Melanie. (2017). *The Moderating Effect of Frequent Singing on Voice Aging*. The Voice Foundation Vol 31, issue 1, p. 112.

Rosen, Deborah Caputo & Sataloff, Robert Thayer. (1997). *Psychology of Vocal Disorders*. San Diego: Singular Publishing Group.

Sataloff, Robert Thayer. (2005). *Treatment of Vocal Disorders*. San Diego: Plural Publishing.

Sataloff, Robert Thayer. (2005). *Voice Science*. San Diego: Plural Publishing.

Sataloff, Robert T. (1991). *The Aging Voice in Vocal Health and Medicine*. Jacksonville: National Association of Teachers of Singing.

Sataloff, Robert T. (1991). *10 Good Ways to Abuse Your Voice – A Singer’s Guide to a Short Career*. In *Vocal Health and Medicine*. Jacksonville: National Association of Teachers of Singing.

Smith, Brenda & Sataloff, Robert T. (2012). *Choral Pedagogy and the Older Singer*. 2nd Edition. San Diego: Plural.

Sundberg, Johann. (1987). *The Science of the Singing Voice*. Deklab: North Illinois University Press.

Thomas, Lisa B & Stemple, Joseph C. (2012). *The Aging Voice – From Clinical Symptoms to Biological Realities*. www.asha.org

Titze, Inge. (2014). Medications and Their Effects on the Voice. Appendix L in *A Dictionary for the Modern Singer*. Lanham: Rowman & Littlefield.

Willerts, Sandra W. (2009). *The Other Side of Sixty: The Choir and the Conductor*. Choral Journal, December 2009.