

# Singing and Medicine

By Adjunct Associate Professor Timothy Lee



*Busking for a good cause: Prof Lee singing out his heart at the Wheelock Place underpass.*

**U**nderstanding the anatomy of the body helps tremendously in learning how to sing.

Firstly, a nice singing tone is characterised by having multiple higher harmonics such that it has a rich tone instead of sounding "thin". This is produced by having a bigger "resonance box" like that of a musical instrument by increasing the space at the oro-pharynx. Elevation of the soft palate and keeping the tongue down by touching the lower teeth with the tip of the tongue increase such space. Understanding the anatomy makes it easy to execute these maneuvers. Nevertheless, as these muscle movements are not under voluntary control normally, most singing teachers resort to using metaphors to try to teach their students to do these. For example, "open your throat", "imagine having an apple in the throat" and "imagine a horn in front of you and sing from there". While these metaphors may help some students to produce the correct tone, it also results in much difficulty in learning how to sing and unnecessary anxiety in both the students and the teacher when the right manoeuvres are not carried out.

Another area where understanding the anatomy and physiology helps with singing is in the breathing technique. The rib cage with its bucket handle mechanism is designed for rapid exhalation, and over-expansion of the chest wall initiates a reflex to exhale. Therefore chest breathing is not suitable for singing a long note. Furthermore, the use of accessory respiratory muscles in the neck for chest breathing causes tension in the laryngeal muscles producing a tensed voice which should be avoided. For these reasons, diaphragmatic breathing is encouraged in singing as it produces slow sustained exhalation for singing a long note. As the diaphragm is attached to the lower ribs, exhalation is associated with lateral movement of the lower ribs. Therefore, one can place a hand on the lower rib cage and observe the lateral movement of the hands to learn how to breathe with the diaphragm.

It is never too late to start learning singing, in contrast to learning a musical instrument which may require coordination

of the left, right hands and legs. I started learning in my late 30s when I was asked to lead singing in church. At that time, I could not even reach a "C" comfortably. I asked a medical colleague who had some singing training before. He highly recommended me to take up singing lessons as it would help me reach a few notes higher. It did indeed and I started enjoying singing. However, without really understanding the anatomical principles behind singing, I struggled for a few years. With further reading, I came to understand the anatomical principles and singing became easier than before.

Performing in front of an audience may be associated with anxiety and even stage fright but one main satisfaction is in being able to communicate the meaning of the song to the audience in a nice musical manner. This probably is the joy which most performers experience whether in singing or playing an instrument. One of the performances that I enjoyed most was singing the song "Bring Him Home" in front of an audience, which included a patient whom I had operated on for a challenging brain arterio-venous malformation. The 24-hour operation took place when his wife was expecting. He broke down and cried when I was singing "Bring him home, bring him peace..." and the crowd spontaneously clapped halfway through the song.

Another memorable performance was in front of a large audience which included President Nathan. Prior to the performance, I was anxious and kept asking myself "why on earth do I want to stress myself out like this?" Then, before I stepped on the stage, I thought: "We all live only once and this is a kind of once in a lifetime experience to treasure". This calmed my nerves and I was able to express the meaning of the song with little technical errors.

There are goals and dreams about singing too. Inspired by a busker, probably an alcoholic judging from his ruddy face and constant excuse to go for a "cuppa", who sang "Ave Maria" most beautifully in a shopping mall in Perth, I sometimes dream about busking in the streets. This came true two years ago during a fundraising event at the Wheelock Place Underpass. A yet-to-be fulfilled dream includes singing in a pub or a bar. I would also like to teach singing and share the singing techniques I have learnt. I have two students at the moment and it is a joy to see them improve. I passed the Grade 8 singing exam with merit last year after a previous failed attempt about four years ago. The aural part of the examination was a bit too difficult for someone with little musical training. The examinations ahead include the Performer's Certificate, Diploma in Singing and Diploma in Teaching.

If you like singing, I do encourage you to take up some training. It can make a lot of difference, and certainly, understanding the anatomy and physiology helps. ■

## About the author:

Adjunct A/Prof Timothy Lee graduated with honours in both medicine and surgery from University of Melbourne in 1981. He obtained FRCS (Edin) in 1986 and FRCS (Surgical Neurology) in 1990. He joined National University Hospital in 1985. From 1987-1990, he did his neurosurgical residency at Oxford. Upon return to Singapore, he formed and headed the division of Neurosurgery from 1990 to 2002. He is now Consultant Neurosurgeon at Mount Elizabeth Hospital, Gleneagles Hospital and Co-ordinator of the Mount Alvernia Brain Centre. He has published 40 articles in mostly international journals. He has been invited to operate in Indonesia, Shanghai, Ho Chi Minh City and Christchurch, New Zealand. He is married with two children.