So You Want to Sing? Presented by Barbara Tate

At the end of last year, Andrew Mear suggested to me that I might like to give the girls and their parents/caregivers a talk on singing. I thought you might be interested in me sharing with you some of my experiences teaching the female adolescent changing voice including information on the vocal characteristics and the vocal development of this age group and how you can best support your daughters in their vocal studies.

I don't know how much you listen to your daughter's singing but you are probably aware that towards the end of her primary schooling and during her secondary schooling, her voice has undergone some changes. You may have noticed that she likes to sing much lower than she used to, or that her higher voice is not as clear as it used to be and has taken on a breathy quality or even more likely she has become reluctant to sing in her higher voice. Her lower voice may be much heavier in quality and she then "flips up" into a breathy quality once she reaches an area in a song which has a higher range. Many of these changes can be attributed to changes in your daughter's physiology during adolescence and I hope that some of the information I am going to give to you will go some way to explaining why this is so.

Much prominence has been given to the boys' changing voice but less so for that of the girls' other than a recognition and reluctant acceptance of a colourless breathy vocal quality. Why is this so? One reason is due to the dramatic change a boy's voice undergoes. Another reason is that young boys have been involved in singing in church choirs over the last 1500 years and choirmasters have always struggled with how to deal with the male changing voice. This has resulted in a move towards research in this area initially into the boys' changing voice but more recently this has begun to include research into the adolescent female changing voice. Research into the adolescent changing voice supports the view that if students are happy with their voice they can "sing through the change".

Since the 1990s, there has been an increasing recognition that the female voice also undergoes various physical changes and a growing body of research has been produced to support this view. Much of the research has been done in the United States and was instigated by the American education system where much attention has been given to the teaching of singing to both boys and girls in the classrooms of both elementary and secondary schools. The inclusiveness of the North-American education system prevented teachers from excluding girls

or removing boys with changing voices from public school music programmes. The most recent contributions in the area have been by a very eminent researcher by the name of Dr Lynne Gackle. Although her work in the area of choral music, it is pertinent to one on one teaching. Kenneth Phillips has also written a most useful book entitled "Teaching Kids to Sing". I have drawn upon the work of both these authors when preparing this presentation and have used a number of diagrams from their publications to illustrate specific points.

The pre-adolescent voice has a similar range and quality irrespective of gender. During adolescence both boys' and girls' voices start to change – with boys it is often around 7th grade or early high school years whereas with girls it can be around the ages of 10-11 but this varies considerably from individual to individual. The passage from childhood to adulthood is a time of great physical, psychological and emotional upheaval for both girls and boys and we must be sensitive to this when teaching this age group.

In order to explain these changes more fully, we need to understand the mechanics of singing which involves five elements:



Breathing – using abdominal muscles, diaphragm, ribs, lungs and intercostal muscles

Image courtesy of Intranet.tdmu.edu.au

Figure 1: Parts of the body involved in breathing or respiration are ribs, diaphragm, abdominal and inter-costal muscles

Phonation – takes place in voice box/larynx; vocal folds/cords (Figures 2, 3,4 and 5)

Figure 2: Image courtesy of andrewglover.net: Vocal folds abducted with clear view of windpipe and epiglottis

Figure 3: Vocal folds abducted during breathing and adducted during phonation/speech



Abducted Vocal Folds

Adducted Vocal Folds







Figure 7.91. Intrinsic muscles of the larynx.

Image courtesy of <u>www.med.uc.edu</u>

Resonance (Figure 6) – throat and mouth (pharynx and laryngopharynx), nasal passages (nasopharynx), sinuses, articulators (tongue, teeth, soft palate, lower jaw, lips)





Example from Phillips, Kenneth H., *Teaching Kids to Sing*, New York: Macmillan, Schirmer, 1992

The act of singing involves the coordination of these elements

- The breath/air passes from the lungs(Figure 1) up through the trachea and vocal folds (Figure 2) which are set in motion as the air passes between them (Figure 3)
- Vibrations caused by motion of vocal folds pass up through throat where they are amplified in the pharynx, mouth and nasal passages (Figure 4)
- Articulators form speech/singing sounds (Figure 8-7)

During adolescence, the main area of physiological change occurs during phonation or the vibration of vocal cords. Both boys and girls vocal cords grow – boys up to 1cm and girls up to 3-4mm. The cords grow lengthways and also thicken. This growth is accompanied by the drop in pitch of the speaking voice – in boys about an octave, and in girls about a third. At the same time there is a change to vocal range: The upper and lower limits of the girls' voice increase whereas the lower limit of the boys' voice increases and the upper limit lessens. This lowering of the speaking and corresponding lowering of the singing voice goes someway to explaining one of the first changes I referred to in my introduction – many girls start to favour the lower part of the voice over the higher part of their voice.

Register breaks or changes in vocal quality. In order to explain this characteristic, I need to explain vocal registers more fully. Many of you will be aware that the singing voice displays a number of different qualities of resonance and we generally identify three different qualities. In the lower part of the voice we identify a sound more located near the chest and we called it the chest register. The middle or modal register spans from c4 to c5/f5 depending on the stage of vocal development and is often called "mix" as it is a mix of warm quality of chest and lighter quality of head register. Lastly, the higher notes in the voice are called head register and they span from f5 to c6 again depending on stage vocal development. Register breaks or changes in vocal quality occur in different places in the voice and are again dependent on stage of vocal development. Dr Lynne Gackle has identified specific stages of vocal development of adolescent female changing voice.

APPROXIMATE REGISTER CHANGES (LIFT POINTS) FOUND AT VARIOUS STAGES IN THE FEMALE ADOLESCENT VOICE



Diagram from Gackle, Lynne, "The Adolescent Female Voice: Characteristics of Change and Development" *Choral Journal*, 31 (8)

In my introduction I referred to breathy quality in higher voice or breathy quality throughout the voice. During this period of physical change, not only do the vocal cords grow but muscles around the larynx which are involved in phonation also grow. This can sometimes result in a mutational chink or gap at one end of the cords which lets air pass through. This results in increased breathy or colourless vocal quality. Voice cracking and hoarseness are less common although I do have a few students who experience voice cracking. This seems to be more common in students with "rich" soprano voices. There are changes to breathing and resonance but these are due largely to an increase in lung capacity and the development of facial structure.

How can we help students through this period of uncertainty/change? We can REASSURE AND GUIDE -- reassure students that what they are experiencing is temporary and with guidance and perseverance their voice can be managed and improved throughout this period in their vocal development. Explain to them what is happening is normal and don't categorise voices – refer to voices as "rich" or "light" sopranos. Exercise voices throughout their vocal range and develop a well-established middle register. Assist students to produce a sound which has a consistent tone quality throughout the vocal range irrespective of vocal style be it classical, contemporary, music theatre. Choose songs with variety of tessituras. Research supports view that students, both male and female, should sing through the change by exercising the whole voice and establishing the middle register with a 50/50 mix of head and chest resonance (Figure 3-1). This has been borne out by my own experience. The girls I have taught who have exhibited virtually no symptoms of the female changing voice are those who have sung in "good" school or community choirs. Reassure students they do not sound "phony" or "false" when singing in their high register. Help them to find sound both teacher and student is happy with.



Example from Phillips, Kenneth H., *Teaching Kids to Sing*, New York: Macmillan, Schirmer, 1992

What should we avoid at this time in this period of vocal development? Avoid singing only in

chest register and forcing this quality into middle/upper registers can result in permanent damage to the voice (Example 3.3). Failure to address register breaks can result in these continuing to present in adult voice. Gently remind your students not to oversing.



EXAMPLE 3.3. All Lower Registration (incorrect) for Children's Singing.

Example from Phillips, Kenneth H., *Teaching Kids to Sing*, New York: Macmillan, Schirmer, 1992

What is the best way to choose appropriate repertoire? It is very important to consider the personality and age of the singer ; the student's vocal quality – is it "rich" or "light"; the technical needs of the voice and, in particular, its registration; and why the student is learning singing – is it for exams or pleasure.

We need to take a number of things into consideration when we are working with singers as every voice is unique. The physiology and cultural background of the singer are important considerations and it is important to remember that there is a strong correlation between speaking and singing voices. Remember that you are you are teaching an instrument that neither you nor your student can see and the voice is affected by the physical and emotional well-being of its owner. The voice matures when the singer is in their mid-thirties so it is important to treat it carefully at this early stage of its development.

Finally:

Top 10 Tips for a Healthy Voice (thanks to Australian Voice Association)

- **Use your voice well!** Learn to optimize healthy voice production. If you do a lot of talking or singing, learn to produce voice well without strain or damage.
- Keep your voice hydrated! Adequate hydration is very important for healthy voice and vocal folds. Drink at least 2 – 3 litres of water per day. Steaming helps vocal wellness.
- Warm up your voice! (As you would the rest of your body) if you're going to embark on prolonged talking or singing – e.g. Teacher, Minister of Religion or Call Centre Operator.
- **Be wary talking or singing above background noise!** This can strain your voice so you need to recognize and avoid high voice risk situations.

- Don't smoke and avoid smoky environments!
- **Don't repeatedly clear your throat and avoid coughing excessively!** These activities damage your voice.
- **Consider using amplification** (microphone or megaphone) where loud voice is necessary.
- **Certain medications and drinks can dehydrate your voice.** These include antihistamines, cold and flu medications, coffee and alcohol. Take these into account when talking or singing.
- Don't scream or shout! Using loud voice without damage requires special skills.
 If you have to use loud voice, get specialist training from a Voice Teacher or Speech Pathologist.
- Especially look after your voice during allergies and upper respiratory tract infections! Your voice is more susceptible to damage at these times.