

# Releasing the Body's Potential

Laying the Foundations for Healthy Singing in Male  
Adolescents

Resource Booklet

Calvin Peter Baker, 2018

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# Releasing the Body's Potential

*Laying the foundations for healthy singing in adolescents*

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# Definition of Terms

- MAVC – Male Adolescent Voice Change
- Morphometry – the measurements of an object, in this case the cartilages of the larynx
- NCEA – National Certificate of Educational Achievement
- NZQA – New Zealand Qualifications Authority
- HoD – Head of Department
- HoLA – Head of Learning Area

# Aims of the Study

- Describe the physiological and acoustic characteristics of male adolescent voice change.
- Provide a base of research that combines scientific and educational disciplines from which teachers can further their own research.
- Assess whether or not there are discrepancies between the physiological capabilities of the male adolescent voice student and the NCEA solo performance assessment criteria, and .
- Initiate discussion surrounding such discrepancies and possible ways to mitigate such issues.

“In the maintenance of pitch and stability of pitch, the internal-laryngeal tensors and adductors, external laryngeal muscles, and other muscles of the hyoid/laryngeal complex are involved... We hypothesize that the reason for instability in the voice (specifically in pitch) in adolescence is the rapid growth of the speech apparatus, gradually followed by the adaptation of the nervous control of the apparatus.”

- Boltežar, Burger, and Žargi, 1997, p. 188

# Female Voice Change

- VF length increase of 34% (Kahane, 1978).
- Greatest laryngeal growth seen in posterior height of thyroid (7.81 mm increase. Kahane, 1978).

## Summarised from Gackle, 1991:

- Incomplete glottal adduction resulting in a 'posterior glottal chink' - acoustically manifested in breathiness of tone and lowered phonatory duration.
- Lowered range due to thickening and lengthening of the bulk of the vocal folds (thyroarytenoid).
- Insecurity of pitch - caused by inappropriate muscle tension as well as new or weak neurological connections required for matched pitch production and pitch maintenance.
- Voice cracks due to incoordination between breath and the developing phonatory processes.
- Hoarseness - can result from swelling of the vocal folds during menstruation, as well as from vocal misses.



# Male Adolescent Voice Change

## Vocal Science - Summary

- Age of Onset (Hollien, 2012)
  - Range: 10 to 16 (6)
  - Mean: 13.5
- Duration of voice change (Hollien, 2012)
  - Range: 18 months
  - Mean: 18 months
- Vocal Fold length increase: 63% (Kahane, 1978)
- Laryngeal weight increase: 10.7 g (Kahane, 1978)
- Most significant decrease in  $F_0$ : 14 to 18 years (Curry, 1940; Hollien, 2012)
- Skeletal age more closely correlates with voice maturation than chronological age (Jerome, 1937)



# Pedagogy - The Director and the Choir



# United concepts across voice change models

## - Cooksey, 1977

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- 1) The voice change occurs at the onset of puberty, and is directly related to the development of primary and secondary sexual characteristics.
- 2) Most currently published literature is inadequate to fit the range and tessitura of the male changing voice.
- 3) Irregular growth rates in the vocal mechanism can make the voice unpredictable and difficult to control, particularly if it is forced into the wrong pitch range.
- 4) In groups of boys between the ages of 12 and 15, one might expect to find voices in many different stages of growth.
- 5) The rate in which voice changes occur vary with individuals.
- 6) Individual and group voice testing is necessary.
- 7) Teachers should help students to understand their voices during the change.
- 8) It is very important to establish good singing habits during this time.

## Statement of Tenets and Concepts for the Contemporary, Eclectic Theory on the Junior High Male Changing Voice - Cooksey, 1977

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- The individuality and uniqueness of the voice and persona should be recognised during the period of adolescent voice mutation. Healthy concepts about singing arise from the young man's increased understanding about his vocal capabilities and limitations.
- The speaking voice changes faster than the singing voice...
- The newly changed voice usually appears between 14 and 15, but "settles" for one to two years afterwards.
- At any one grade level, one might expect to encounter boys experiencing any of the first four stages of voice mutation.
- It is important to consolidate the comfortable middle range through each stage of mutation so that vocal problems and hyper-functional disorders will not occur. One should let the voice quality, flexibility develop gradually. The proper exercise of the voice in its comfortable range will eventually result in an extended range, but it will not speed up the mutation process!

*“When entering voice change, boys may exhibit attributes of less healthy phonation as a consequence of the rapid growth of the larynx, and not as a result of unhealthy voice use. This has implications for voice assessment practices of voice health professionals and singing teachers.”*

-Williams, 2010, p. 297

*“In order for the singing teacher, music teacher, or choral director to facilitate healthy singing and voice learning in adolescent males, a thorough understanding of all physical processes involved is essential. Pedagogues must understand what changes, how it changes, and how such changes affect the sound being produced.”*

- Baker, 2018.

# Pedagogical Literature

## Surrounding MAVC - Summary

- Primarily written around the choral context.
- As vocal science advancements were made, it became obvious that vocal retirement through MAVC is not necessary and that it could potentially hinder singing voice development.
- Voice teachers should have a comprehensive understanding of the physical processes of MAVC and be able to explain these to their students.
- Singing students should be informed about voice change processes by their voice teacher.
- The focus of singing should be vocal exploration rather than strict music making based on a mature sound aesthetic.

# The Study

- Participants included secondary school voice teachers and male singing students, and a tertiary focus group.
- Data was collected using online questionnaires, observations, and a focus group interview.
- Data collection focused on:
  - challenges faced in teaching through/singing through MAVC, and the implication of such challenges in NCEA solo performance assessments.
  - teacher efficacy in teaching through MAVC.

# Summary of Data

- Onset of voice change
  - Mean - 14
  - Youngest onset - 10
  - Oldest onset - 15
  - Range - 5
- Majority of student participants reported that their voice was still 'unsettled' during Level one.
- Vocal strain due to inappropriate repertoire was commonly reported among the tertiary focus group.
- Majority of students reported never having been told about MAVC during their singing lessons.
- Majority of teachers found that the fairness of the NCEA criteria depended on how it was interpreted by the school, HoD, or HoLA.



# Summary of Discussion

- The onset of voice change occurs on average at 14 years old, but is highly variable between students.
- Due to the variability of voice change stages in any one year level, it cannot be expected that all male voice students will be at the same level of vocal production, even with the same amount of voice training.
- Some voice teachers are still unfamiliar with the physiological processes of male adolescent voice change and either do not know how to explain them to their students or choose not to.
- The NCEA assessment criteria for solo performance voice can result in high variability across schools depending on the administration of such assessments and the values and practices of each school, HoD, or HoLA.

# Ways Forward

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- Only voice specialists who are aware of the particular issues surrounding voice change and their acoustic correlates should be permitted to assess voice performances.
- A new set of instrument specific guidelines should be compiled that is more aligned with the physiological capabilities of male adolescents who are undergoing MAVC.
- Further research must be undertaken considering how assessment practices can be reformed in order to reduce variability between schools, nationally.

*“No student should ever be discouraged from singing by a grade, comment, or experience at school. Voice change is a normal, healthy, and exciting period in the boy’s (and girl’s) life. The singing teacher should embrace the changes that come, and view them as an opportunity to release the body’s potential and lay the foundations for healthy singing in adolescents.”*

- Baker, 2018.

