Teaching singing and voice to children and adolescents

Vocal physiology and function
Growth and development
Physiological abilities / limitations
Sociological constructs
Teaching implications

Jenevora Williams
Infant Voice 1

• **Small lungs** – $\frac{1}{4}$ to $\frac{1}{2}$ adult proportions
  (e.g. newborn – 87 breaths a minute, adult 16 – 20)

• **Ribs** – horizontal circles, no rib movement

• **Breathing** – diaphragmatic

  Short, strong bursts of sound
Infant voice 2

- High (C3)
- Cartilages softer, less movement
- Vocal fold structure simpler
- Relatively small
- Epiglottis/soft palate coupling for breathing/suckling
- Small pitch range
- Fewer colours/qualities
Child voice – similarities with adult voice

- By 4-7 yrs vocal mechanism adapted for speech
- Breathing action - thoracic and diaphragmatic movement
- Larynx height dropped from C3 to C5/6
- Laryngeal cartilage mobility
  - sustained vocalisations
  - variety of vowel colours
  - range of pitch

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Child voice – differences to adult voice

- Lung volume
  - Shorter phrases
- Larynx size
  - Smaller pitch and volume range
- Larynx height C5/6 (adult C7)
  - Range of vowel differentiation/vocal colours is less
- Vocal fold structure
  - Still no defined vocal ligament, softer laryngeal cartilages
  - Fewer voice qualities and less vocal stamina
  - Different pitch range of vocal registers

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Child voice – pedagogical implications?

• Shorter phrases
• Smaller pitch and volume range
• Range of vowel differentiation/vocal colours is less
• Fewer voice qualities and less vocal stamina
• Different pitch range of vocal registers
Adolescent voice
- growth patterns

• Physical growth is in ‘growth spurts’ or stages
• Growth of larynx mirrors overall growth
• Caused by hormone levels
• Height of larynx C6 pubertal onset, C7 by 20yrs
• Adult lung capacity by 18-20yrs
• Adult laryngeal structure by 22-25yrs
Five developmental stages of adolescent male voice

Extended singing range (unfilled note)
Comfortable modal singing range (filled note)
Speech fundamental frequency (cross)  

(Cooksey 2000)
Voice problems – prevalence, diagnosis and treatment

• What is normal voice for a child?
  Acute respiratory tract infections
  Periodic hoarseness

• At any time, 30 - 40% of boys have dysphonia, ¼ of these have nodules

• Functional vocal disorders in children often resolve without treatment due to change of habit and growth
Male adolescent – to sing or not to sing?

• Late 19c
Manuel Garcia (Italian singing teacher) – rest
Sir Morell McKenzie (English laryngologist) – exercise

• 1930s
Dr Cyril Winn (Inspector of Music for Public Schools) music publishers should produce music for changing voice

• 1933
LCC - statement opposing traditional practice of voice rest
To sing → damage or bad habits?
Three statements / opinions

• Pathological damage caused by singing is rarely long-term in children or adolescents (growth → changing patterns of usage)

• If a boy ‘rests’ his voice, he will quickly lose interest in singing

• Bad vocal habits of ex-choristers are more likely to be from voice use in adolescence not childhood

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Bad vocal habits – voice use in adolescence not childhood?
A story…

• John is a strong and reliable chorister
• John remains singing as a treble for as long as he can manage without cracking – he achieves this mainly with use of falsetto
• He moves down to Alto, reinforcing the muscular habits of falsetto singing
• John cannot manage this any longer and moves to Tenor where his musicianship and reliability are very valuable
• He manages to singing high notes by employing the middle pharyngeal constrictor to give the thyroid cartilage a ‘lift’ at the back
• This eventually becomes too uncomfortable and he moves to Bass but continues to use these muscular habits
• High larynx and pharyngeal constriction
• A familiar voice quality?

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Developmental stages of adolescent female growth

- Sequence of developmental stages not predictable

- Voice change tends to be most noticeable with onset of menses
Symptoms of change in adolescent female voice

- Increased breathiness
- Husky or hoarse quality - both singing and speech
- Occasional voice cracking in speech
- Slight lowering of the fundamental speaking pitch
- Increased pitch inaccuracy during singing
- A temporary decrease in overall pitch range
- Increased incidence of abrupt register transitions in singing

And eventually:
- The upper passaggio occurring at a higher pitch
- An increase in overall pitch range

(Huff-Gackle, 1985)
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Changing voice
– comparisons with adult voice

Child voice

- Lung volume
- Larynx size
- Larynx height C5/6 (adult C7)
- Vocal fold structure – still no defined vocal ligament, softer laryngeal cartilages

→ Shorter phrases
→ Pitch and volume
→ Vowel differentiation and vocal colours
→ Voice qualities, vocal stamina

Adolescent voice

Reduced pitch range (in some cases extreme)

Possible vulnerability of rapidly growing tissues (this subject has not been researched)
Conclusion

• The rules of ‘healthy’ voice use apply to all ages

• Children can sing in any style or range that is possible within this

• All voices have limitations of pitch, loudness, breath sustain and voice quality

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