Vocal Mechanics and Health for Cantors, Choir Directors, and Choir Members

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Topics

Learn about the structure of the vocal instrument (anatomy)
See how the structures interact with each other (physiology)
How do we make sounds? (vowels, consonants, etc.)
How do we care for the voice?
The Larynx

The hollow organ that allows air to move in and out of the lungs and also houses the vocal folds

Protects the voice box
Vocal Cords or Vocal Folds

Both refer to the same structures in the larynx

The vibration which controls pitch occurs here
  ◦ The higher the pitch the higher the vibrations per second.. Hz

Generally, the size of your thumbnail

https://www.youtube.com/watch?v
Vocal Tract

Where sound that originates from the vocal folds is transformed into recognized sounds by changing shapes of primarily the lips and tongue.
Vowels

Formed by coordinated positions of the lips and tongue

Let’s try some combinations of sounds

Choir directors: understanding this relationship can help you achieve the sound you want from your ensemble.
Breathing Video

https://www.youtube.com/watch?v=hp-gCvW8PRY
Breathing

Air from the lungs serves as the “fuel” to make sound from the vibrations of the vocal folds.

Many breathing techniques
- Ideally shoulders should remain still
- Expansion generally felt in ribs and abdomen
- Goal is to slow return of diaphragm to rest (expiration)

We don’t breath or support from our diaphragms
- Misconception!!
- Muscles in ribs (intercostal muscles)
- Abdominal muscles
Semi-Occluded Vocal Tract Postures

AKA: Straw-phonation

Reduces pressure at the glottis (vocal folds/cords)

Facilitates efficient vibratory function of vocal folds

Used also in speech therapy

Wonderful tool for vocal warm-ups.
Let’s Try It!!!!
Vocal Health

MAINTENANCE AND CARE OF THE VOCAL INSTRUMENT
Hydration: Easiest Step to Vocal Wellness
How much?

Most health professionals suggest at least 2 liters (half-gallon) per day.

Possibly more depending on activity levels and weather.
A Few Benefits

Keeps phlegm from becoming “goopy”
- Reduces the need to clear throat

Proper hydration will prolong singing time
- Delays the onset of fatigue due to inefficient phonation
- Contributes to allowing the vocal folds (outer layer is fluid filled) to vibrate
- Helps to reduce and prevent swelling of the vocal folds

Increases flexibility in the vocal folds

Facilitates other normal bodily functions that lead to improved overall health
Environmental Factors
Loud Concerts/Sporting Events

Force us to talk at a higher volume level which quickly will fatigue the voice.

The increased volume leads to swelling of the vocal folds which leads to hoarseness.

When the voice is fatigued or hoarse, it is most susceptible to damage that can take a singer out of the game for weeks, months, years, or worse never regain full ability.
Drug Use

Alcohol
- Dilates blood vessels including those in vocal folds
- Can possibly lead to vocal hemorrhaging
- Impairs the ability to hold accurate pitch
Smoking

Burns the vocal folds
Decreases tidal volume (usable air) in lungs
Decrease in overall range and vocal strength
Causes hoarseness and chronic cough
Known to contribute to lung and throat cancers
OTC and Prescription Drugs

Varying degrees of effect on voice

An exhaustive list of these is available

- [http://www.ncvs.org/rx.html](http://www.ncvs.org/rx.html)
“So I notice something is wrong with my voice, what can I do?”

Rule out and/or treat common possible causes:
- Allergies
- Increased voice use
- Etc.

Vocal rest and hydration

If still persistent (more than a week) schedule an appointment with ENT who specializes in voice, preferably a laryngologist who is aware of the needs of singers.
Questions?
Useful Resources

Index of Voice Related Topics
- http://www.vocapedia.info/

General Voice Hygiene
- http://uthscsa.edu/oto/voice.asp