

Duquesne University Mary Pappert School of Music

Health and Safety Recommendations for Musicians

1) Introduction

- a) The following information provides a basic overview of the health and safety issues and hazards related to music practice, performance, teaching, and listening.
- b) It includes information regarding hearing, vocal and musculoskeletal health; injury prevention; and the use, proper handling, and operation of potentially dangerous materials, equipment, and technology.
- c) This information is basic in nature and is not a substitute for medical advice or treatment. Please consult a licensed medical professional if you are concerned about your health and safety as it relates to your life as a musician or contact the Mary Pappert School of Music Ombudsperson for Health and Safety, [Dr. Elaine Abbott](#).
- d) The Mary Pappert School of Music attends to the health and safety of musicians; the suitable choices of equipment and technology for specific purposes; the appropriate and safe operation of equipment and technology; and the acoustic and other conditions associated with health and safety in practice rehearsal, performance, and facilities.
- e) This being said, each musician's health and safety depends in large part of the personal decisions of informed individuals. While the Mary Pappert School of Music has health and safety responsibilities, the fulfillment of these responsibilities cannot and will not ensure any specific individual's health and safety. Individuals are not relieved from personal responsibility for appropriate, prudent and safe behavior or action, nor do they shift such responsibility and liability for the consequences of inappropriate, imprudent, and/or unsafe behavior or action in any instance or over time to Duquesne University or to the National Association of Schools of Music.

2) Hearing Health & Injury Prevention

a) National Association of Schools of Music & the Performing Arts Medicine Association Guidelines for Protecting Your Hearing Health

- i) Hearing health is essential to your lifelong success as a musician. Your hearing can be permanently damaged by loud sounds, including music. Technically, this is called Noise-Induced Hearing Loss (NIHL). Such danger is constant.
- ii) Noise-induced hearing loss is generally preventable. You must avoid overexposure to loud sounds, especially for long periods of time.
- iii) The closer you are to the source of a loud sound, the greater the risk of damage to your hearing mechanisms.
- iv) Sounds over 85 dB (your typical vacuum cleaner) in intensity pose the greatest risk to your hearing.
- v) Risk of hearing loss is based on a combination of sound or loudness intensity and duration.
- vi) Recommended maximum daily exposure times (NIOSH) to sounds at or above 85 dB are as follows:
 - (1) 85 dB (vacuum cleaner, MP3 player at 1/3 volume) – 8 hours
 - (2) 90 dB (blender, hair dryer) – 2 hours
 - (3) 94 dB (MP3 player at 1/2 volume) – 1 hour
 - (4) 100 dB (MP3 player at full volume, lawnmower) – 15 minutes
 - (5) 110 dB (rock concert, power tools) – 2 minutes
 - (6) 120 dB (jet planes at take-off) – without ear protection, sound damage is almost immediate
- vii) Certain behaviors (controlling volume levels in practice and rehearsal, avoiding noisy environments, turning down the volume) reduce your risk of hearing loss.

Be mindful of those MP3 earbuds. See chart above.

The use of earplugs and earmuffs helps to protect your hearing health.

Day-to-day decisions can impact your hearing health, both now and in the future.

Since sound exposure occurs in and out of school, you also need to learn more and take care of your own hearing health on a daily, even hourly basis.

It is important to follow basic hearing health guidelines.

viii) It is also important to study this issue and learn more.

ix) If you are concerned about your personal hearing health, talk with a medical professional.

x) If you are concerned about your hearing health in relationship to your program of study, consult the Health & Safety Ombudsperson, Dr. Elaine Abbott.

b) Hearing Health & Injury Prevention Resources

i) [NASM-PAMA hearing health documents](#),

ii) Occupational Safety & Health Administration: [Occupational Noise Exposure](#)

3) Vocal Health & Injury Prevention:

a) Texas Voice Center [Advice for Care of the Voice](#)

i) Hydration

(1) The vocal folds need to be lubricated with a thin layer of mucus in order to vibrate efficiently. The best lubrication can be achieved by drinking plenty of water. A good rule of thumb (if you have normal kidneys and heart function) is to drink at least two quarts of water daily. Dr. Van Lawrence, world renowned Laryngologist, often said, "Drink until you pee pale."

(2) Caffeine and alcohol pull water out of your system and deplete the vocal folds of needed lubrication. Caffeinated drinks include coffee, tea, and soft drinks. Small amounts of these beverages are acceptable but must be counterbalanced by drinking more water.

(3) Another factor that can affect lubrication is a dry air environment. The cause can be from gas furnaces, air conditioners, and climates with a low amount of moisture in the air. Using a humidifier at night can compensate for the dryness.

(4) The air in airplanes is extremely dry. It is recommended that you avoid alcoholic, caffeinated beverages and drink at least 8 ounces of water per hour while flying.

(5) Dr. Lawrence often recommended a favorite gargle recipe: 1/2 tsp. of salt, 1/2 tsp. of baking soda, 1/2 tsp. of clear corn syrup, and 6 oz. of warmed, distilled water. Gargle quietly and gently for two long, boring minutes. Do not rinse and use as often as necessary to help your dry, irritated throat.

(6) In addition, Entertainer's Secret[®] (800 308-7452) throat spray is an effective way to help moisturize the vocal folds (follow the directions on the label).

ii) Throat Clearing & Harsh Coughing

(1) Throat clearing and harsh coughing are traumatic to the vocal cords and should be reduced as much as possible. One of the most frequent causes for throat clearing and coughing is thick mucus (due to dry vocal folds) or too much mucus (as with a cold) on or below the vocal folds. The safest and most efficient way to clear mucus is by using a gentle, breathy productive cough where there is high airflow with little sound. This can be achieved by using the following strategy: take in as deep a breath as possible, momentarily hold your breath, and produce a sharp, silent "H" sound while you expel the air.

iii) Drugs

(1) **Antihistamines:** Antihistamines are sometimes prescribed to treat allergies and are present in some over-the-counter cold medications. Antihistamines should rarely be used because they tend to cause dryness. Prescription nasal steroid sprays such as Nasacort[®] (Phone-Poulenc Rorer), Nasonex[®] (Schering), Flonase[®]

(Allen & Hansburys), etc. will often relieve the symptoms of nasal allergy without the drying side effects of antihistamines.

- (2) **Analgesics:** Aspirin products and non-steroidal anti-inflammatory drugs (ibuprofen) should be used with caution as they cause platelet dysfunction and this may predispose to bleeding. Tylenol[®] (McNeil Consumer Products) is the best substitute for pain relief.
- (3) **Mucolytic Agents:** The most common expectorant is a preparation of long-acting guaifenesin to help liquefy viscous mucus and increase the output of thin respiratory tract secretions. Drugs, such as Mucinex[®], may be helpful for singers who complain of thick secretions, frequent throat clearing, or postnasal drip. Awareness of postnasal drip is often caused by secretions that are too thick rather than too plentiful. Mucolytic agents need to be used with a lot of water through the day, to be effective.
- (4) **Local Anesthetics:** Avoid the use of over-the-counter local anesthetic preparations for the throat. Singing under their influence is like trying to play the piano with gloves on.
- (5) **Progesterone:** Question the use of progesterone-dominant birth control pills. They may cause virilization of the female larynx and a loss in the upper vocal range. There may be no other alternative for your individual situation, however, so consult your gynecologist.

iv) **Laryngopharyngeal Reflux Disease and Recommendations to Prevent Acid Reflux**

- (1) **What is Reflux?** When we eat something, the food reaches the stomach by traveling down a muscular tube called the esophagus. Once food reaches the stomach, the stomach adds acid and pepsin (a digestive enzyme) so that the food can be digested. The esophagus has two sphincters (bands of muscle fibers that close off the tube) to help keep the contents of the stomach where they belong. One sphincter is at the top of the esophagus (at the junction with the upper throat) and one is at the bottom of the esophagus (at the junction with the stomach). The term REFLUX means “a backward or return flow,” and refers to the backward flow of stomach contents up through the sphincters and into the esophagus or throat.
- (2) **What are GERD and LPRD?** Some people have an abnormal amount of reflux of stomach acid that goes up through the lower sphincter and into the esophagus. This is referred to as GERD or Gastroesophageal Reflux Disease. If the reflux makes it all the way up through the upper sphincter and into the back of the throat, it is called LPRD or Laryngopharyngeal Reflux Disease. The structures in the throat (pharynx, larynx, vocal folds and the lungs) are extremely sensitive to stomach acid, so smaller amounts of reflux into these areas can result in much more damage.
- (3) **Why Don't I have Heartburn or Stomach Problems?** This is a question that is often asked by patients with LPRD. The fact is that very few patients with LPRD experience significant heartburn. Heartburn occurs when the tissue in the esophagus become irritated. Most of the reflux events that can damage the throat happen without the patient ever knowing that they are occurring.
- (4) **Common Symptoms of LPRD.** Hoarseness, chronic (ongoing) cough, frequent throat clearing, pain or sensation in throat, feeling of lump in throat, problems while swallowing, bad/bitter taste in mouth (especially in the morning), asthma-like symptoms, referred ear pain, post-nasal drip, singing difficulties (especially with high notes).

(5) **Medications for LPRD.** The most effective treatment for LPRD may be drugs in the class known as proton pump inhibitors. Included in this group are Prilosec[®], Prevacid[®], Protonix[®], Aciphex[®], or the new medication known as Nexium[®]. Ask your physician which may be appropriate for you.

v) **V. Self-Destructive Behaviors**

(1) Avoid smoking cigarettes. They are bad for the heart, lungs, and vocal tract. Also, avoid other irritant inhalant substances and mind-altering drugs. Tobacco and marijuana are irritants to the vocal tract. When you sing you must be in control of all body systems: physical, spiritual, and mental. Smoking is disastrous for the speaking and singing voice.

vi) **VI. Requirements For A Healthy Voice**

- (1) Try your best to maintain good general health. Get adequate rest to minimize fatigue. If you do become ill, avoid "talking over your laryngitis" - see your physician and rest your voice.
- (2) Exercise regularly.
- (3) Eat a balanced diet, including vegetables, fruit and whole grains.
- (4) Maintain body hydration; drink two quarts of water daily.
- (5) Avoid dry, artificial interior climates and breathing smoggy, polluted air.
- (6) Limit the use of your voice in high-ceilinged restaurants, noisy parties, cars and planes.
- (7) Avoid throat clearing and voiced coughing.
- (8) Stop yelling – avoid calling from room to room.
- (9) Avoid hard vocal attacks on initial vowel words.
- (10) Use the pitch level in the same range where you say, "Umm-hmm?"
- (11) Speak in phrases rather than in paragraphs, and breath slightly before each phrase.
- (12) Reduce demands on your voice – don't do all the talking!
- (13) Learn to breathe silently to activate your breath support muscles and reduce neck tension.
- (14) Take full advantage of the two free elements of vocal fold healing: water and air.
- (15) Vocal athletes must treat their musculoskeletal system as do other types of athletes; therefore, vocal warm-ups should always be used prior to singing. Vocal cool-downs are also essential to keep the singing voice healthy.

vii) **Some additional suggestions for good vocal care are:**

- (1) If you need to get someone's attention, use non-vocal sounds such as clapping, bells or whistling.
- (2) Move closer to those with whom you are speaking.
- (3) Face the person(s) with whom you are speaking.
- (4) Use amplification, as needed, if possible.
- (5) Reduce your speaking time in noisy environments, such as in automobiles and airplanes.

viii) **Optimal Speaking Techniques:**

- (1) Use good abdominal/diaphragmatic breathing and support.
- (2) Learn to use your voice with as little unnecessary effort and tension as possible.
- (3) Take frequent breaths when speaking long sentences.
- (4) Maintain a smooth legato speech pattern with clear articulation.
- (5) Allow the neck, jaw, and face to be relaxed.
- (6) "Place" or "Focus" the voice appropriately.

(7) Speak at a normal rate of speed.

(8) Use good vocal inflection.

b) Vocal Health & Injury Prevention Resources

- i) [Fit to Sing](#) from the British Association for Performing Arts Medicine
- ii) [Self-Help for Vocal Health from The National Center for Voice and Speech](#)
- iii) [Vocal Health Guidelines from the Lions Voice Clinic of the University of Minnesota](#)
- iv) [The Musician's Way: A Guide to Practice, Performance, and Wellness](#)
- v) [Special Tips for Performers from the Duke Voice Care Center](#)

4) Musculoskeletal Health & Injury Prevention

a) Overuse or Repetitive Stress Injuries

- i) Musicians are most likely to develop overuse or repetitive stress injuries (RSIs)
- ii) The repetitive movements involved in practicing and playing music create these injuries.

b) Some Risk Factors for Overuse Injuries (Norris, 2011, pp. 2-5)

- i) Inadequate physical conditioning
- ii) Sudden increase in the amount of playing time
- iii) Errors in practice habits
- iv) Errors of technique
- v) Change in instrument
- vi) Inadequate rehabilitation of previous injuries
- vii) Improper body mechanics and posture
- viii) Stressful nonmusical activities

c) Symptoms of Overuse Injuries (Norris, 2011, p. 6)

- i) Pain at one site only, and only while playing
- ii) Pain at multiple sites
- iii) Pain that persists well beyond the time when the musician stops playing, along with some loss of coordination
- iv) All of the above; in addition, many activities of daily living begin to cause pain
- v) All of the above, but all daily activities that engage the affected body part cause pain

d) Prevent Repetitive Stress Injuries

- i) Eat well (Shafer-Crane, 2006).
- ii) Hydrate adequately (Shafer-Crane, 2006).
- iii) Avoid caffeine, nicotine, and other stimulants (Shafer-Crane, 2006).
- iv) Engage in aerobic exercise (Shafer-Crane, 2006).
- v) Engage in stretching and strength training (Frederickson, 2002).
- vi) Engage in pre-practice and performance warm-ups (Shafer-Crane, 2006).
- vii) Interrupt long practices with frequent sessions of gentle stretches and range-of-motion exercises (Shafer-Crane, 2006).
- viii) Maintain a regular practice schedule (Guptill & Zaza, 2010), but vary repertoire from practice to practice (Dawson, 2006).
- ix) Practice smart. Minimize stressful repetition of passages (Dawson, 2006). Practice short phrases when learning a new piece. Identify where problems arise in the music. Practice problem areas slowly until they are accurate. Use cognitive rehearsal and imagery techniques (Guptill & Zaza, 2010).
- x) Modify the instrument to decrease physical stress. Use neck straps, seat straps, harnesses, floor pegs as appropriate to your instrument. (Dawson, 2006)
- xi) Take frequent rest breaks. Dawson (2006) recommends five minutes of rest for every 25 minutes of practice. During rest, change position and do an activity that does not involve the muscles or postures that are involved in playing (Guptill & Zaza, 2010).
- xii) Be aware of appropriate postures as they relate to your instrument (Dawson,

2006).

- xiii) Create a clear line of sight between yourself, your music stand and the conductor during rehearsal and performance (Dawson, 2006).
- e) Musculoskeletal Health & Injury Prevention Resources**
- i) Brandfonbrener, A. (2006). [Things are seldom what they seem](#). Retrieved from Polyphonic.org
 - ii) Dawson, W. J., (2007). *Fit as a Fiddle: The Musician's Guide to Playing Healthy*. Lanham, MD: MENC/Rowman & Littlefield Education.
 - i) Dawson, W. J. (2006). Playing without pain: Strategies for the developing instrumentalist. *Music Educators' Journal*, 93(2), 36-41.
 - ii) Frederickson, K. B. (2002). Fit to play: Musicians' health tips. *Music Educators' Journal*, 88(6), 38-44.
 - iii) Guptill, C., & Zaza, C. (2010). Injury prevention. *Music Educators' Journal*, 96(4), 28-34. doi:10.1177/0027432110370736
 - i) Horvath, J. (2010). *Playing (less) Hurt: An Injury Prevention Guide for Musicians*. Milwaukee, Wisconsin: Hal Leonard.
 - ii) Iranzo, M., Perez-Soriano, P., Camacho, C., Belloch, S. L., & Cortell-Tormo, J. M. (2010). Playing-related musculoskeletal disorders in woodwind, brass and percussion players: A review. *Journal of Human Sport and Exercise*, 5(1), 94-100. [Link to .pdf]
 - iii) Llobet, J. R., & Odam, G. (2007). *The Musician's Body: A Maintenance Manual for Peak Performance*. England: Ashgate.
 - iv) McGuire, P. A. (2009, Fall). [Musician, heal thyself](#). Retrieved from *Peabody Magazine*
 - v) Norris, R. (2011). *The Musician's Survival Manual: A Guide to Preventing and Treating Injuries in Instrumentalists*. Kindle Edition: ISBN: 978-1-4657-0938-7
 - vi) Shafer-Crane, G. (2006). Repetitive stress and strain injuries: Preventive exercises for the musician. *Physical Medicine and Rehabilitation Clinics of North America*, 17, 827-842.
 - vii) [Wellness Resources from MusiciansWay.com](#)
 - viii) Workman, D. (2006). *The Percussionists' Guide to Injury Treatment and Prevention: The Answer Guide for Drummers in Pain*. New York, NY: Routledge.
- 2) Use, proper handling, and operation of materials, equipment, and technology**
- a) Occupational Safety & Health Administration Computer Workstation Guidelines**
- i) Ensure that the:
 - (1) Top of monitor is at or just below eye level
 - (2) Head and neck are balanced and in-line with the torso
 - (3) Shoulders are relaxed
 - (4) Elbows are close to the body and supported
 - (5) Lower back is supported
 - (6) Wrists and hands are in-line with forearms
 - (7) Area allows adequate room for the keyboard and mouse
 - (8) Feet are flat on the floor
- b) Computer Workstation Resources**
- i) [Occupational Safety & Health Administration](#)
- 3) [Duquesne University Health Services](#)**
- 4) Mary Pappert School of Music Health & Safety Ombudsperson**
- a) [Dr. Elaine Abbott](#)