

Cal Poly Pomona Music

Musician Health and Safety

Information and Resources

The Music Department is proud to offer faculty, staff, students and area musicians information on “Musician Health and Safety” as part of its website. Accreditation standards established by the National Association of Schools of Music (NASM) require that musicians be aware of performance health and health concerns. We are pleased to promote increased awareness of musician health and safety.

The health and safety awareness on this site includes information regarding the maintenance of hearing, vocal, and musculoskeletal health and injury prevention. Hearing concerns, vocal health and muscle injury are an every day part of our profession. Musicians must take an active part in their own health and safety. Health and safety depends largely upon personal decisions made by informed individuals. Each individual is personally responsible for avoiding risk and preventing injuries to themselves before, during, and after study or employment at Cal Poly Pomona. The policies, protocols and procedures put in place at Cal Poly Pomona do not alter or cancel any individual’s personal responsibility, or in any way, shift personal responsibility for the results of any individual’s personal decisions or actions now, or over time, to the University.

Hearing Health

The information in this document is generic and advisory in nature. It is not a substitute for professional, medical judgments. It should not be used as a basis for medical treatment. If you are concerned about your hearing or think you may have suffered hearing loss, consult a licensed medical professional.

According to the American Academy of Audiology, approximately 26 million Americans have hearing loss. One in three developed their hearing loss as a result of exposure to noise. As you pursue your day-to-day activities, both in the Department of Music and in other educational, vocational, and recreational environments, remember:

1. Hearing health is essential to your lifelong success as a musician.
2. Your hearing can be permanently damaged by loud sounds, including music. Technically, this is called Noise-Induced Hearing Loss (NIHL). This danger is constant.
3. Noise-induced hearing loss is generally preventable. You must avoid overexposure to loud sounds, especially for long periods of time.
4. The closer you are to the source of a loud sound, the greater the risk of damage.
5. Sounds over 85 dB (your typical vacuum cleaner) in intensity pose the greatest risk to your hearing.
6. Recommended maximum daily exposure times to sounds at or above 85 dB are as follows: 85 dB (vacuum cleaner, MP3 player at 1/3 volume) - 8 hours 90 dB (blender, hair dryer) - 2 hours 94 dB (MP3 player at 1/2 volume) - 1 hour 100 dB (MP3 player at full volume, lawnmower) - 15 minutes 110 dB (rock concert, power tools) - 2 minutes 120 dB (jet planes at take-off) - without ear protection, sound damage is almost immediate
7. Certain behaviors (controlling volume levels in practice and rehearsal, planning rehearsal order to provide relief from high volume works, avoiding noisy environments) reduce your risk of hearing loss.
8. The use of earplugs (Sensaphonics, ProGuard, Sensorcom) helps to protect your hearing health.

9. Day-to-day decisions can impact your hearing health, both now and in the future. Since sound exposure occurs in and out of the Department of Music, you also need to learn more and take care of your own hearing health on a daily, even hourly basis.
10. If you are concerned about your personal hearing health, talk with a medical professional.
11. If you are concerned about your hearing health in relationship to your study of music at CPP, consult with your instructor, ensemble conductor, advisor, or Department Chair.

Noise-Induced Hearing Loss (NIHL)

We experience sound in our environment, such as the sounds from television and radio, household appliances, and traffic. Normally, we hear these sounds at safe levels that do not affect our hearing. However, when we are exposed to harmful noise-sounds that are too loud or loud sounds that last a long time, sensitive structures in our inner ear can be damaged, causing noise-induced hearing loss (NIHL). These sensitive structures, called hair cells, are small sensory cells that convert sound energy into electrical signals that travel to the brain. Once damaged, our hair cells cannot grow back. NIHL can be caused by a one-time exposure to an intense "impulse" sound, such as an explosion, or by continuous exposure to loud sounds over an extended period of time. The humming of a refrigerator is 45 decibels, normal conversation is approximately 60 decibels, and the noise from heavy city traffic can reach 85 decibels. Sources of noise that can cause NIHL include motorcycles, firecrackers, and small firearms, all emitting sounds from 120 to 150 decibels. Long or repeated exposure to sounds at or above 85 decibels can cause hearing loss. The louder the sound, the shorter the time period before NIHL can occur. Sounds of less than 75 decibels, even after long exposure, are unlikely to cause hearing loss. Although being aware of decibel levels is an important factor in protecting one's hearing, distance from the source of the sound and duration of exposure to the sound are equally important. A good rule of thumb is to avoid noises that are "too loud" and "too close" or that last "too long."

It is very important to understand that the hair cells in your inner ear cannot regenerate. Damage done to them is permanent. There is no way to repair or undo this damage.

Prevention is key!

1. Wear hearing protection when using loud machinery, such as lawn mowers, weed eaters, chainsaws.
2. Wear hearing protection during recreational noise exposure, such as riding all-terrain vehicles, or shooting firearms.
3. Determine the necessity to acquire musician earplugs. Several different manufacturers and attenuation values are available. Here are a few:
 - a. Etymotic - three models that provide 9, 15, or 25 dB attenuation while maintaining the sound spec true of the music
 - b. Fender - one model provides 22 dB attenuation
 - c. Emtec - three custom models that provide 9, 15, or 25 dB attenuation
4. Do not use personal stereo devices, such as iPods, mp3 players, etc., with earphones at levels that are high enough for other people to hear the music coming out of your system. The development of earpieces that seal the ear canal puts the onus on the listener to control effectively the sound level to which they are listening. Users of these devices are encouraged to check published information (easily accessible on the web) regarding the sound levels associated with different earphone types, and music players.

5. If you experience pain from a sound, or ringing in the ears from a sound, it is important to take a break from the noise. If you cannot leave the area in which the noise occurs, you should move as far away from the noise source as you can.
6. If you experience ringing in the ears that persists into the next day after you have heard a sound, you should seek services from an audiologist in order to determine whether your hearing has changed.
7. If you believe your hearing has changed suddenly, it is essential to seek the services of an Ear, Nose, and Throat doctor within 48 hours.
8. Many medications increase susceptibility to noise exposure, and therefore heighten the need to use protection when anticipating the presence of high-level sounds. These can be as simple as aspirin, diuretics, and some antibiotics. Contact your doctor regarding these medications.

Resources on Hearing Health

National Association of School of Music (NASM)

<http://nasm.arts-accredit.org/>

Performing Arts Medicine Association (PAMA)

<http://www.artsmed.org/index.html>

PAMA Bibliography (search tool)

<http://www.artsmed.org/bibliography.html>

Vocal and Musculoskeletal Health

Anyone who practices, rehearses or performs instrumental or vocal music has the potential to suffer injury related to that activity. Instrumental musicians are at risk for repetitive motion injuries. Sizable percentages of them develop physical problems related to playing their instruments; and if they are also computer users, their risks are compounded. Instrumental injuries often include carpal tunnel syndrome, tendinitis, and bursitis. Incorrect posture, non-ergonomic technique, excessive force, overuse, stress, and insufficient rest contribute to chronic injuries that can cause great pain, disability, and the end of careers.

What Instrumentalists Should Do

The Cal Poly Pomona Department of Music wishes to thank the Associated Board of the Royal Schools of Music and the Canadian Network for Health in the Arts for the following information:

1. Evaluate your technique. Reduce force, keep joints in the middle of their range of motion, use large muscle groups when possible, and avoid fixed, tense positions.
2. Always warm up. As an athlete would not begin a vigorous physical activity without warming up, a musician must warm up carefully before practice or performance.
3. Take breaks to stretch and relax. Take short breaks every few minutes and longer breaks each hour. Two or more shorter rehearsals each day are more productive than marathon single sessions. Even in performance, find those opportunities to relax a hand, arm, or embouchure to restore circulation.
4. Pace yourself. No pain, no gain is a potentially catastrophic philosophy for a musician. Know when enough is enough, and learn to say 'no' to certain performances or lengths of performing that might result in injury.
5. Check out your instrument. Does your instrument place undue stress on your body? Is your instrument set up optimally for you to relieve pressure on hands, joints, etc.? Is there a strap, carrier, or stand available to relieve the stress?
6. Evaluate other activities. Pains and injuries affecting your music making could be caused by other activities in your daily life. Computer use is notorious for causing afflictions including carpal tunnel syndrome and tendinitis.
7. Pay attention to your body. Pain is the mechanism by which your body tells you that something is wrong. Listen to your body; if it hurts, stop what you are doing.
8. Maintain good general health. Get adequate rest to minimize fatigue.
9. Exercise regularly.
10. Eat a balanced diet. Including vegetables, fruit and whole grains, and avoid caffeinated drinks (coffee, tea, and soft drinks) and alcohol. Avoid spicy, acidic, and dairy foods if you are sensitive to them.
11. Maintain body hydration; drink two quarts of water daily.

12. Get medical attention. Do not delay in seeing a doctor. A physician may prescribe a minor adjustment or, in worst-case scenarios, stipulate not performing for a period of time. As drastic as this may sound, a few months of rest is better than suffering a permanent, career ending injury. Likewise, the demands placed on singers' voices are immense. Hardly a month goes by where a top singer is not forced to interrupt a tour, take a break, or undergo a medical procedure due to problems with their voice. Medical professionals are making the case that the demands put on one's voice when singing one to three hours is as intense as those made on an Olympic marathon runner's body. Additional factors such as nutrition, smoking, drug use, noisy environments, and proper voice training (or the lack of it) all play a role in a singer's ability to perform at her/his best.

What Singers Should Do

The Cal Poly Pomona Department of Music wishes to thank The Singer's Resource, the Texas Voice Center, Houston, and the University of Michigan Vocal Health Center for the following information:

1. 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, and avoid caffeinated drinks (coffee, tea, and soft drinks) and alcohol. Avoid spicy, acidic, and dairy foods if you are sensitive to them.
4. Maintain body hydration; drink two quarts of water daily.
5. Avoid dry, artificial interior climates. Using a humidifier at night might compensate for the dryness.
6. Limit the use of your voice. High-ceilinged restaurants, noisy parties, cars and planes are especially damaging to the voice. If necessary, use amplification for vocal projection.
7. Avoid throat clearing and voiced coughing.
8. Stop yelling, and avoid hard vocal attacks on initial vowel words.
9. Speak in phrases rather than in paragraphs. Breath slightly before each phrase.
10. Reduce demands on your voice - don't do all the talking!
11. Learn to breathe silently to activate your breath support muscles and reduce neck tension.
12. Take full advantage of the two free elements of vocal fold healing: water and air.
13. 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.

Additional Information and/or Resources

It is important to be aware and informed. Like many health-related issues, prevention is much easier and less expensive than cures. Take time to read available information concerning injuries associated with your art.

Musicians will find the following books helpful:

- Conable, Barbara. *What Every Musicians Needs to Know About the Body* (GIA Publications, 2000)
- Horvath, Janet. *Playing (Less) Hurt* - www.playinglesshurt.com
- Klickstein, Gerald. *The Musician's Way: A Guide to Practice, Performance, and Wellness* (Oxford, 2009)
- Norris, Richard N. *The Musician's Survival Manual* (International Conference of Symphony and Opera Musicians, 1993)

The following websites may be useful:

Associated Board of the Royal Schools of Music (ABRSM)

<http://www.abrsm.org>

The world's leading authority on musical assessment, actively supporting and encouraging music learning for all.

Performing Arts Medicine Association (PAMA)

<http://www.artsmed.org>

An organization comprised of dedicated medical professionals, artists educators, and administrators with the common goal of improving the health care of the performing artist.

Texas Voice Center

<http://www.texasvoicecenter.com>

Founded in 1989 for the diagnosis, treatment, and prevention of voice disorders.

National Center for Voice and Speech (NCVS)

<http://www.ncvs.org>

Conducts research, educates vocologists, and disseminates information about voice and speech.

Vocal Health Center, University of Michigan Health System

<http://www.med.umich.edu>

Recognized locally, regionally and nationally as a leading institution for the treatment and prevention of voice disorders. At the heart of the Center is a professional team comprised of experts from the University of Michigan Health System and U-M School of Music, encompassing the fields of Laryngology, Speech Pathology, and Vocal Arts.

Department-Owned Instruments

The Music Department maintains a collection of musical instruments for checkout and use by members of the music faculty and students enrolled in our courses and performing ensembles. As with other items we use in the course of our daily lives, musical instruments must be cared for properly and cleaned regularly. Each instrument in the department's collection receives a thorough inspection at the conclusion of the academic year. Every year, thousands of dollars are spent to clean, adjust, and return instruments to full playing condition.

Antiseptically Clean

More and more our society is pushing for products that are anti-fungal, anti-bacterial and anti-viral. Some even go the next step further aiming to achieve sterile. However, our bodies by design are not meant to live in a sterile environment. As kids we played in the dirt, ate bugs and countless other things and became stronger because of it. Keep in mind that total sterility is a fleeting moment. Once a sterile instrument has been handled or exposed to room air it is no longer considered to be sterile. It will however remain antiseptically clean until used.

Most viruses cannot live on hard surfaces for a prolonged period of time. Some die simply with exposure to air. However, certain groups are quite hardy. Therefore, musicians must be concerned with instrument hygiene. Users of school owned and rented musical equipment might be more susceptible to infections from instruments that are not cleaned and maintained properly.

If the cleaning process is thorough, however, musical instruments will be antiseptically clean. Just as with the utensils you eat with, soap and water can clean off anything harmful. Antibacterial soaps will kill certain germs but all soaps will carry away the germs that stick to dirt and oils while they clean. No germs/no threat.

Infectious Disease Risks

Sharing musical instruments is a widespread, accepted practice in the profession. However, recent discussion in the profession has included concern regarding shared musical instruments and infectious disease, especially HIV. The Centers for Disease Control (CDC), has confirmed that there is no risk of transmission of HIV (the virus that causes AIDS), or Hepatitis B (HBV) through shared musical instruments. The reasons for this are that these diseases are passed via a blood-to-blood, sexual fluid or mucous membrane contact. There has been no case of saliva transmission of HIV (the virus that causes AIDS), or Hepatitis B (HBV).

Instrument Hygiene

While the possibility of transmission of the above bacteria and viruses is not a real consideration, it is apparent that there should be a protocol with regard to shared musical instruments. Sharing of instruments is routine in music schools, where students practice and perform on borrowed instruments throughout the year. In our discussion with our consultants, certain basic considerations and recommendations for standard operating procedures regarding shared instruments were recommended as follows:

1. All musicians or students should have their own instrument if possible.
2. All musicians or students should have their own mouthpiece if possible.
3. All students and faculty sharing reed instruments **MUST** have their own individual reeds. Reeds should **NEVER** be shared.
4. If instruments must be shared in class, alcohol wipes or Sterisol germicide solution should be available for use between different people. When renting or using a Department-owned musical instrument, each user must understand that regular cleaning of these musical instruments is required in order to practice proper hygiene. The student must initial and date the following statement upon checkout of the institutionally owned wind instrument.

Mouthpieces

The mouthpiece (flute headjoint), English horn and bassoon bocal, and saxophone neck crook) are essential parts of wind instruments. As the only parts of these instruments placed either in or close to the musician's mouth, research has concluded that these parts (and reeds) harbor the greatest quantities of bacteria.

Adhering to the following procedures will ensure that these instrumental parts will remain antiseptically clean for the healthy and safe use of our students and faculty.

Cleaning the Flute Head Joint

1. Using a cotton swab saturated with denatured, isopropyl alcohol, carefully clean around the embouchure hole.
2. Alcohol wipes can be used on the flute's lip plate to kill germs if the flute shared by several players.
3. Using a soft, lint-free silk cloth inserted into the cleaning rod, clean the inside of the headjoint.
4. Do not run the headjoint under water as it may saturate and eventually shrink the headjoint cork.

Cleaning Bocals

1. Bocals should be cleaned every month with a bocal brush, mild soap solution, and running water.
2. English Horn bocals can be cleaned with a pipe cleaner, mild soap solution, and running water. Be careful not to scratch the inside of the bocal with the exposed wire ends of the pipe cleaner.

Cleaning Hard Rubber (Ebony) Mouthpieces

12. Mouthpieces should be swabbed after each playing and cleaned weekly.
13. Select a small (to use less liquid) container that will accommodate the mouthpiece and place the mouthpiece tip down in the container.
14. Fill the container to where the ligature would begin with a solution of half water and half white vinegar (50% water and 50% hydrogen peroxide works too). Protect clarinet mouthpiece corked tenons from moisture.
15. After a short time, use an appropriately sized mouthpiece brush to remove any calcium deposits or other residue from inside and outside surfaces. This step may need to be repeated if the mouthpiece is excessively dirty.
16. Rinse the mouthpiece thoroughly and then saturate with Sterisol germicide solution. Place on paper towel and wait one minute.
17. Wipe dry with paper towel.
18. Note: Metal saxophone mouthpieces clean up well with hot water, mild dish soap (not dishwasher detergent), and a mouthpiece brush. Sterisol germicide solution is also safe for metal mouthpieces.

Cleaning Saxophone Necks (Crooks)

1. Swabs and pad-savers are available to clean the inside of the saxophone neck. However, most saxophonists use a flexible bottlebrush and toothbrush to accomplish the same results.
2. If the instrument is played daily, the saxophone neck should be cleaned weekly (and swabbed out each day after playing).
3. Use the bottlebrush and mild, soapy water to clean the inside of the neck.
4. Rinse under running water.
5. Sterisol germicide solution may be used on the inside of the neck at this time, if desired (not necessary). Place on paper towel for one minute.
6. Rinse again under running water, dry, and place in the case.
7. If using pad-savers, do not leave the pad-saver inside the neck when packed away.

Cleaning Brass Mouthpieces

1. Mouthpieces should be cleaned monthly.
2. Using a cloth soaked in warm, soapy water, clean the outside of the mouthpiece.
3. Use a mouthpiece brush and warm, soapy water to clean the inside.
4. Rinse the mouthpiece and dry thoroughly.
5. Sterisol germicide solution may be used on the mouthpiece at this time. Place on paper towel for one minute.
6. Wipe dry with paper towel.

Other Instruments

String, percussion, and keyboard instruments present few hygienic issues that cannot be solved simply by the musician washing their hands before and after use.

More Resources

Resources and General Information on Acoustics

Acoustical Society of America

www.acousticalsociety.org

Acoustics.com

www.acoustics.com

Acoustics for Performance, Rehearsal, and Practice Facilities

Available through the [NASM Web site](#)

Health and Safety Organizations

American National Standards Institute (ANSI)

www.ansi.org

The National Institute for Occupational Safety and Health (NIOSH)

www.cdc.gov/niosh

Occupational Safety and Health Administration (OSHA)

www.osha.gov

Medical Organizations Focused on Hearing Health

American Academy of Audiology

www.audiology.org/Pages/default.aspx

American Academy of Otolaryngology

Head and Neck Surgery

www.entnet.org/index.cfm

American Speech–Language–Hearing Association (ASHA)

www.asha.org

Athletes and the Arts

www.athletesandthearts.com

House Research Institute - Hearing Health

www.hei.org/education/health/health.htm

National Institute on Deafness and Other Communication Disorders

Noise-Induced Hearing Loss

www.nidcd.nih.gov/health/hearing/noise.html

Dangerous Decibels

www.dangerousdecibels.org

National Hearing Conservation Association

www.hearingconservation.org

Cal Poly Pomona Campus Resources

Environmental Health and Safety (EH&S)

<http://www.cpp.edu/~ehs/>

EH&S is responsible for planning, implementing, and administering the University Environmental health and Safety program and for providing technical consultation, training, and inspection to ultimately ensure compliance with established laws.

CPP Hearing Conservation Program

<http://www.cpp.edu/~ehs/portals/occupational/hearing.shtml>

It is the policy of Cal Poly Pomona to establish and maintain an effective Hearing Conservation Program designed to eliminate or control, overexposure to harmful noise levels and to prevent occupational noise induced hearing loss to faculty, staff and students. The University shall provide a place of employment that is safe and healthful and will not subject the campus community to avoidable hazards associated with harmful noise levels.

Student Health Services

<http://www.cpp.edu/~healthcounseling/what-we-do/student-health-fee-insurance.shtml>

Operating similarly to a family medical clinic, Student Health Services (SHS) places an emphasis on preventive medical and health education programs to help you stay healthy and fully productive in school. A wide range of services are offered to students, including early treatment of illnesses and injuries; diagnostic and preventive care; and health promotion programs/outreach services through the Wellness Center, located in the same building but accessible via the West Entrance off of our patient parking lot.

Counseling and Psychological Services

<http://www.cpp.edu/~healthcounseling/what-we-do/mental-health-services/index.shtml>

The mission of Counseling and Psychological Services (CAPS) is to advance student success by promoting community wellness, removing psychological barriers, and cultivating the personal strengths of Cal Poly Pomona students through culturally relevant mental health services designed to transform their personal, social and academic lives.