

**Basic Information on  
Neuromusculoskeletal and Vocal Health**

**Information and Recommendations  
for Faculty and Staff in Schools of Music**

**National Association of Schools of Music  
Performing Arts Medicine Association**

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a. NASM and PAMA are providing this web resource for institutions that teach music to assist local consideration and action about neuromusculoskeletal and vocal health.

b. The information

is generic, presentational, and advisory in character.

is oriented far more to musicians and lay persons than to medical, scientific, or research professionals concerned with neuromusculoskeletal and/or vocal health.

does not substitute for the professional judgments of medical and other professionals working in their areas of documented expertise.

is not to be considered as professional advice or to be used as a basis for the medical treatment of specific individuals.





This information is to be used in service of a goal in individual institutions to provide conditions that support neuromusculoskeletal and vocal health.

The first essential is information about neuromusculoskeletal and vocal health and preventative action.

Without knowledge of what can happen and how to minimize risk, music students and professionals have little basis for making informed decisions to care for their neuromusculoskeletal and vocal health and that of other musicians with whom they work.

For each school or department of music, neuromusculoskeletal and vocal health are addressed in a multi-faceted context.

Charting an effective course to promote and provide the best environment for neuromusculoskeletal and vocal health means working with many issues and forces beyond providing information for students, faculty, and administrators.

To be successful, a comprehensive neuromusculoskeletal and vocal health program needs to be sustained from year to year.

This resource provides the basis for instructional efforts to provide information and develop a plan for supporting neuromusculoskeletal and vocal health with a particular focus on minimizing conditions that could contribute to singing and playing-related neuromusculoskeletal disorders.

## **Basic Facts**

### ***Music, the Musician, and Neuromusculoskeletal Health***

Musical performance is a physical activity that involves movements both big and small, those we can see and those inside the body.

Musical performance involves the conscious positioning of the body into specified playing and/or singing postures, some of which may seem unnatural at first.

C" o wukekcpøu" r tcevkeg" tqwvkpg" ku" qhvgp" r j { ukecnn { " fg o c p f k p i " c p f " v k o g - i n t e n s i v e .

For serious musicians, especially those studying, singing, and playing music cv" c f x c p e g f " h g x g m u . " ð f c { u " q h h ö " c t g " h g y " c p f " h c t " d g v y g g p 0 "

Like so many issues in music itself, optimum effectiveness depends on balanced applications of knowledge and skill in varying circumstances by thousands of individual student, professional, and amateur musicians day after day.

### ***The Neuromusculoskeletal System***

The musculoskeletal system is a complex system of muscles, tendons, ligaments, bones, joints, and associated tissues that move the body, allow for speech, and that help the human body to maintain its form.

The neuromusculoskeletal system is a complex system of muscles, tendons, ligaments, bones, joints, and associated tissues that move the body, allow for speech, and that help the human body to maintain its form.

The nervous system coordinates voluntary and involuntary actions and transmits signals to different parts of the body.

The nervous system is comprised of the central nervous system (CNS) and the peripheral nervous system (PNS). The central nervous system includes brain and spinal cord. The peripheral nervous system is made up primarily of nerves, which allow the central nervous system to communicate with the rest of the body.

### ***Vocal Anatomy***

The human voice is produced by four component systems: the respiratory system, the larynx, the vocal tract, and the articulators.

The diaphragm, a dome-shaped muscle that extends along the bottom of the rib cage. The diaphragm is assisted by various muscles in the abdomen, ribs, chest, and back.

The larynx and pharynx are two infoldings of mucous membrane. The larynx is the voice box and the pharynx is the throat. When breath regulated by the generator passes along the vocal folds, vibrations occur.

The vocal tract, which includes the pharynx (the throat), the oral cavity, and the nasal passages.

The vocal tract is the pathway through which the sound waves travel. It includes the larynx, pharynx, oral cavity, and nasal passages. The vocal tract is the pathway through which the sound waves travel. It includes the larynx, pharynx, oral cavity, and nasal passages.



Those disorders that are temporary may respond well to rest and/or behavior modification. Others may require medical intervention or therapy.

some instances, people with hypermobil





## **Neuromusculoskeletal Issues Affecting the Body**

### ***Muscle Pain***

Whether one ascribes muscle pain to overuse, misuse, postural factors, tension, technical problems, or poor conditio



Over-the-counter allergy medications, antidepressants, and highly caffeinated drinks, which stimulate the nervous system, can cause vocal tremors, a form of phonatory instability.

### ***Vocal Strain and Vocal Fold Abnormalities***

Overuse of the voice, whether by singing or speaking, can produce vocal strain. Unlike playing an instrument, singers must be aware of problems singing at the extremes of vocal range, especially the upper end. Both duration and intensity of singing are as important as they are for instrumentalists.

Okuwug"cevkkvkgu"ecp"qeewt"cnuq="gzc o rngu"qh"vjku"ctg"cwgo rvkpi"tgrgtvqktg"vjcv"ku"dg{qpf"vjg"kpfxkfwcnøu" stage of vocal maturity and development, and improperly learning and practicing certain vocal styles.

Prolonged overuse, in some cases, can lead to the development of nodules on the vocal folds. The nodules appear initially as soft, swollen spots on the vocal folds, but as vocal abuse continues, they transform into callous-like growths. Vocal nodules require specialized and prolonged treatment and rehabilitation and can be of grave consequence to singers.

### **Basic Protection for All Musicians**

On stage and in life, it is important for musicians to take steps to protect their neuromusculoskeletal health. Musicians and music faculty whose playing-and singing-related behaviors make them susceptible to certain neuromusculoskeletal conditions and disorders may wish to explore the following methods of neuromusculoskeletal health protection:

- Warming up before practice and performance. As appropriate, engage in physical, vocal, and musical warm-up exercises. Mobilize muscles and joints in order to increase blood flow to those body parts that will be moving rapidly and frequently during the playing and performing of music. Lubricate your vocal folds.
- Taking a break from practice and rehearsal whenever possible. A good rule of thumb is a 5-minute rest every half hour.
- Avoiding excessive practice time and stress. Set daily limits, and vary repertoire during practice sessions.





Additionally, training in marching music produces an additional litany of activity-related physical injuries that include lower extremity injuries such as sprained ankles, toe contusions, and knee strains. Carrying heavy instruments places a great physical demand on the neck, torso, lower back, and legs. Training usually occurs outside during the summer, sometimes in high heat and high humidity. Sunburn and dehydration can occur all too easily in the absence of preventative measures. Times of rest and rehydration are vital for marching units. Finally, marching units are usually much larger than most indoor ensembles, and their



- Consider making performance-grade musician support mechanisms available to students, either on a complimentary basis or for purchase.

## **Conclusion**

As educators, you and your colleagues are tasked with preparing the next generation of musicians. Some may go on to play professionally, others may decide to teach, and still others will embrace music as a life-long hobby. Whatever their future, neuromusculoskeletal health is vital to their success as musicians and to their overall happiness.

Neuromusculoskeletal and vocal health are essential, too, for faculty and staff engaged in playing and teaching music.

The playing- and singing-related overuse, misuse, or abuse of certain muscles, joints, ligaments, tendons, and vocal tissues can contribute to the development of certain neuromusculoskeletal disorders. Outside, non-musical behaviors that physically strain the body or the voice, or that compromise psychological health, may also be contributing factors. It is important to understand and avoid those risk factors that can compromise neuromusculoskeletal fitness and ability.

With this document, we hope we have shed some light on an important issue and perhaps inspired you to take new or additional steps in various aspects of your own work.

## Resources Information and Research

### NASM-PAMA Resource Documents and Orientation Materials

#### [Information and Recommendations for Administrators and Faculty in Schools of Music](#)

Protect Your Neuromusculoskeletal and Vocal Health Every Day: Information and Recommendations for Student Musicians

*A Sample Order and Script for Music Student Orientation*

[Standard Version](#)

[Version for Customization](#)

*Student Text Version of the Orientation Script*

[Standard Version](#)

[Version for Customization](#)

Protecting Your Neuromusculoskeletal Health: Student Information Sheet

[Standard Version](#)

[Version for Customization](#)

