

# Protect Your Neuromusculoskeletal and Vocal Health Every Day

## Information and Recommendations for Student Musicians

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National Association of Schools of Music  
Performing Arts Medicine Association



# Protect Your Neuromusculoskeletal and Vocal Health Every Day

## Introduction

In working toward a degree in music, you are joining a profession with a long and honored history. Part of the role of any professional is to remain in the best condition to practice the profession.

For all of you, as aspiring musicians, this involves safeguarding your neuromusculoskeletal and vocal health. Whatever your plans after graduation – whether they involve playing, teaching, producing, or simply enjoying music – you owe it to yourself and your fellow musicians to do all you can to protect yourself.

The neuromusculoskeletal system refers to the complex system of muscles, bones, tendons, ligaments, and associated nerves and tissues that support our body’s physical structure and enable movement.

In this resource document, the term “neuromusculoskeletal” is used to encompass not only overt physical movements (the pressing of a key, the strumming of a string) and overall body alignment, but also the small internal movements our bodies make, for example to produce breath and modify vocal sounds.

Therefore, vocal health is referred to as a component of neuromusculoskeletal health. When the term “neuromusculoskeletal” is used, vocal health is included. A number of direct references to vocal health are interspersed throughout this guide. Special attention is devoted to issues of vocal health in the sections neuromusculoskeletal issues affecting the voice and vocal protection

The work of musicians, like that of athletes, is physically demanding. And musicians, just like athletes, need to warm up. They need to utilize proper form. They need to take breaks. They need to avoid “overdoing it.” And they need to take the proper precautions to safeguard their neuromusculoskeletal and vocal health, so that they can continue to play and sing the music they love for years to come.

Some of you may have already been diagnosed with some sort of neuromusculoskeletal or vocal condition or disorder. It may be tied to your genetic makeup. It may be linked to a past injury or infection. Or it may be linked to a particular repeated behavior, your posture, or something else.

The purpose of this resource document is two-fold. First, it’s intended to inform you about some of the most common neuromusculoskeletal and vocal conditions and disorders that affect musicians. And second, its contents can help to empower you to take control of your own neuromusculoskeletal and vocal health. The majority of these conditions are preventable. But you’ve got to be proactive and protective of your health. Avoid putting yourself at risk.

The bottom line is this: If you’re serious about pursuing a career in music, you need to treat your body with respect. You need to demonstrate proper form and technique when playing and singing. And you need to recognize your physical limitations. Sometimes, the most important thing you can do is take a deep breath and take a break.

### **Disclaimer**

The information in this presentation is generic and advisory in nature. It is not a substitute for professional, medical judgments or advice. It should not be used as a basis for medical treatment. If you are concerned about your physical dexterity or your voice, or think you may be experiencing the symptoms of a particular neural, musculoskeletal, or voice disorder, consult a certified or licensed medical or healthcare professional.

### **Purpose of this Resource Document**

The purpose of our presentation is to share with you some information on neuromusculoskeletal and vocal health, conditions, and disorders and to let you know about the precautionary measures that all of us should practice daily.

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

So, for most of you, practice is paramount to your success as a musician. It’s likely that the days when you practice are few and far between. It takes a lot of time, dedication, and skill to be a successful musician. The act of practicing our music gradually takes a toll on us, especially when practice involves long hours and infrequent breaks.

We practice alone, we practice with others, we practice for concerts, we practice for juries, and we practice for competitions. In other words, we practice a lot. We practice to be the best we can be. And f vact(i)vds, wxpori n(t)4(i)4(c)1(e)1(t)4h5(be)1( hTJ--2-16.d2 )5(w)h4n4 xd2 4(t)9.318 e n





force. It can also involve a physical mismatch between player and instrument. For singers, it can involve singing too loudly or singing out of range.

Remember, good posture and technique are important. They'll make playing and singing easier, and you'll be less likely to hurt yourself.

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Abuse is related to both overuse and misuse. We abuse our own bodies when we perform an activity not only excessively or improperly, but also in a conscious, willful manner, over a sustained period of time. A common example is “playing through the pain.” Football players can be frequent perpetrators, but so are some musicians. In their quest to be the best, they let their own physical well-being take a back seat, and end up hurting themselves.

Playing or singing through the pain is not an acceptable option. If you're hurting, stop. Tell your instructor that you're not okay. Your instructor will likely have a protocol in place. This may include asking you to sit on the sidelines and make notes in your music, or you may be excused from class to seek treatment. Ultimately, if you are experiencing chronic pain, consult with a medical professional, and follow the treatment plan they provide. Your health is too important to be playing through the pain.

Abuse can also involve the use of alcohol or other dangerous substances. Don't smoke or use any drug not prescribed by a medical professional licensed to do so.

## **2. Genetic Factors**

There are also some genetic predispositions that can increase a person's risk of developing one or more behavior-related disorders.

One of the most common genetic factors in this category is double-jointedness. Medically known as “hypermobility,” people with this condition have joints, ligaments, and tendons with an extended range of motion. Such joint instability can increase a person's risk of developing various muscle pain syndromes. It can also lead to tendinitis, an inflammation of the tendon. (Tendons, as you may know, are the tough bands of fibrous tissue that connect muscle to bone.)

Individuals with hypermobile joints tend to compensate for this instability by over-tensing their muscles. While this extra muscle tension can help them to better control their movements, it can also increase their risk of damaging or straining a muscle.

People with hypermobility are generally encouraged to monitor and actively reduce the amount of tension that they carry in their muscles in order to reduce the risk of future pain and discomfort.

Specific strengthening exercises may be recommended, or they may employ external methods of joint support, such as small ring splints or tape.

## **Neuromusculoskeletal Issues Affecting the Body**

Below are a number of neuromusculoskeletal complications and disorders that are likely to affect the musician's body.

## **1. Muscle Pain**

For musicians, muscle pain can be the result of overuse, misuse, poor posture, tension, technical problems, or poor conditioning.

Muscles that are fatigued are less able to contract as strongly and frequently as “normal” muscles. With continued use, fatigued muscles are placed under greater stress, and this can lead to





Also, as is the case with carpal tunnel syndrome, repetitive movements, especially those that are painful, seem to be a trigger for dystonia.

In the instrumental musicians, these sustained muscle contractions frequently affect the upper arm. This is especially true for keyboard, string, percussion, and woodwind players. In brass and woodwind players, the embouchure may be affected.

## **Neuromusculoskeletal Issues Affecting the Voice**

There are also a number of neuromusculoskeletal issues that can adversely affect the musician's voice.

Some common medical conditions affecting the voice are phonatory instability, vocal strain, and vocal fold motion abnormalities.

### **1. Phonatory Instability**

Phonation, as you may know, is the process by which air pressure, generated by the lungs, is converted into audible vibrations. One method of phonation called "voicing" occurs when air from the lungs passes along the elastic vocal folds at the base of the larynx, causing them to vibrate.

Production of a tonal, pleasant voice with smooth changes in loudness and pitch depends upon the symmetrical shape and movement of the vocal folds.

Phonatory instability occurs when there is asymmetrical or irregular motion of the vocal folds that is superimposed on the vocal fold vibration.

Short-term causes of phonatory instability include fatigue, effects of medication, drug use, and anxiety. These problems tend to resolve rapidly if the cause is removed. Fatigue is another common cause of short-term phonatory instability.

Additionally, over-the-counter allergy medications, anti-depressants, and highly caffeinated drinks, which stimulate the nervous system, can often cause vocal tremors, a form of phonatory instability.

Drug use, alcohol use, and smoking all adversely affect our control of vocal folds and should be avoided.

### **2. Vocal Strain**

Another issue for vocal musicians is vocal strain. Overuse of the voice in any capacity – singing or speaking – can produce vocal strain.

Singers must be aware of problems associated with 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. In other words, avoid overdoing it.

Singers should also avoid attempting repertoire that is beyond their individual

### **3. Vocal Fold Abnormalities**

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





American Speech-Language-Hearing Association  
(<http://www.asha.org>)

National Center for Complementary and Alternative Medicine  
(<http://nccam.nih.gov>)

### **Other Resources on Neuromusculoskeletal and Vocal Health**

Athletes and the Arts  
(<http://athletesandthearts.com>)

National Association of Teachers of Singing  
(<http://www.nats.org>)