

Athletes and the Arts®

# Integrating the Science of Sport and the Performing Arts



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Athletes and the Arts® links the communities of sport athletes and performing artists through collaborative exchange and programs focusing on wellness, training and performance research. Athletes and the Arts® recognizes that many performers are athletes whose health and performance can benefit from knowledge, programs and techniques developed for sport athletes.

## Goals:

- Create opportunities for performing artists and sport athletes to access and benefit from the established research, training and education of each discipline.
- Provide access to resources that meet the unique wellness, health care and performance needs of performing artists.
- Create a sustainable national initiative addressing the needs of performing artists.

## Both Athletes and Artists:

- Practice or play every day
- Play through pain
- Perform at all times of day or night
- Compete in challenging environments
- Enjoy little “off-season”
- Feel strong pressure to succeed
- Risk career-threatening injury

## Artists Face Additional Challenges:

- Noise-induced hearing loss
- Focal dystonia
- Performance anxiety



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## Key Areas of Research:

- How to measure optimal performance?
- How much practice is too much?
- Metabolic aspects of performing (To better tailor nutrition and physical training needs)
- Can basic core, aerobic exercise and flexibility increase longevity and performance? (Consider the instrument weight and posture needed to play)
- Applicable cross-training to minimize overuse
- Hearing safety and prevention

## How You Can Get Involved:

- Help one of the 600+ schools certified by the National Association of Schools of Music develop health and wellness standards
- Write a blog for the Athletes and the Arts® website
- Use Athletes and the Arts educational information within your local community
- Spread the word within your social media networks



[www.athletesandthearts.com](http://www.athletesandthearts.com)

**Athletes and the Arts®** - Integrating the science of sport and the performing arts for mutual benefit.

A collaborative initiative of: American College of Sports Medicine (ACSM), Center for Music Arts Entrepreneurship, Loyola University (New Orleans), Performing Arts Medicine Association (PAMA) and supporting organizations—American Academy of Podiatric Sports Medicine (AAPSM), American Medical Society for Sports Medicine (AMSSM), American Osteopathic Academy of Sports Medicine (AOASM), Drum Corps International (DCI), Music Teachers National Association (MTNA), MusiCares, National Association for Music Education (NAFME), National Association of Teachers of Singing (NATS), National Athletic Trainers' Association (NATA), National Hearing Conservation Association, New Orleans Musicians Clinic, and The Voice Foundation.

# Athletes and the Arts®

## What's the Issue?



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There is limited peer-review epidemiology research on performing arts injuries. However, from what exists and many anecdotal reports, it is obvious there is a need for awareness and appropriate medical support for prevention efforts. Long hours of repetitive motion are real threats for overuse injuries. The competitive nature of the profession incents many to “perform through pain” in order to sustain their careers.

### Dance

67 to 95% of professional ballet and modern dancers report at least one injury (mostly foot and ankle overuse) per contract year.

### Orchestra

75% of orchestra instrumentalists will develop performance-related musculoskeletal disorders (PMRD) during their lifetimes,

- Only 40% reported full recovery.
- High levels of performance anxiety and other psychological issues also were reported.

### Piano

- 33% of keyboard players in one study suffer from upper extremity musculoskeletal disorders
- 65% of 341 professional and amateur pianists currently suffered from or previously had a repetitive strain injury

### Marching Band/Drum Corps

64% of a 2013 World Class Drum Corps reported stress fractures, due in part to intricate marching maneuvers and choreography at speeds exceeding 200 beats per minute.

- More than 66% of these stress fractures occurred in the foot and pelvis

- Color guard members had twice as many individual pain sites as wind players in marching band.
- Marching bands can produce sounds at the same decibel level as a construction site

### Voice

>50% of surveyed occupational voice patients reported that voice problems had negatively affected past (53%) and current (49%) work abilities

- 76% of these respondents believed voice problems would negatively affect future work
- 65% of these patients described moderate to severe depression due to vocal impairment

### Hearing Loss

Musicians are at risk for Noise-Induced Hearing Loss (NIHL) (up to 45% of all musicians according to one study).

- Professional orchestra musicians exhibit a greater incidence of NIHL than the general population.
- 53% of surveyed professional orchestra members would have exceeded permissible daily noise exposure during their 2.1 hours per day/5 days a week practice—with volumes ranging between 60-107 and peaks between 101 and 130 decibels.

### New Orleans Musicians Clinic (NOMC) data

83% of all NOMC patients receive medication for at least one chronic condition.

- Top chronic diagnosis for over 2,500 musician patients: Hypertension, Depression and Diabetes.
- 67% of NOMC patients did not have a regular health provider before becoming an NOMC patient.
- 56% of these patients went to the ER when sick and did not seek follow-up care before becoming NOMC patients.



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# Musicians and Noise-Induced Hearing Loss



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## Issue

As an art form, music is a human expression performed solo or in groups, un-amplified or amplified. Musical sounds can exceed daily exposure limits, and musical activities can be dangerous to hearing. Artistic freedom is both appreciated and valued. However, this freedom must not be used as a distraction from concerns related to musician health and safety. Sound levels in both the public domain and U.S. music school programs are currently not governed by regulatory policies. In response, the CDC is now calling for policies designed to protect musicians from excessive exposure to musical sounds produced during band, choir, and orchestra classes because:

- 50% of musicians may have problems with hearing loss.
- Listening to music, live or recorded, in performance or rehearsal, can result in significant exposure to high sound levels.
- Risk of injury is based on a combination of sound intensity and duration.
- Hearing loss is cumulative: all sources (24/7) of elevated sound levels contribute.
- Permanent noise-induced hearing loss is irreversible.
- Temporary noise-induced hearing loss is reversible with adequate rest and recovery.

## Safe Levels

In the US, experts recommend a daily exposure limit to sound that is no greater than the equivalent to 85 decibels (dB) over an 8-hour period with a 3 dB time/intensity exchange rate. This means for every 3 dB increase over 85 dB, the time exposure is halved to prevent Noise Induced Hearing Loss (NIHL) - 88 dB

for 4 hours max per day, 91 dB for 2 hours max per day or 94 dB for 1 hour max per day. 80 dB = alarm clock or busy street, 90 dB = lawn mower, 100 dB = snowmobile

## Guidelines

The Athlete and the Arts Coalition recommends that:

- All musicians, teachers and music schools should be informed/educated about hearing health and the above recommended daily exposure sound levels.
- Sound levels should be monitored by teachers and musicians with the use of dosimeters.
- Rehearsal and performance habits should incorporate the recommended daily exposure sound levels; use ear plugs if necessary.
- A musician should alert any health care professionals of his/her profession during any routine exam and report any NIHL.
- Health care professionals should pay particular attention to hearing when examining musicians and other performing artists.

*"It's not just music. I drive my motorcycle, mow the lawn, waterski, power boats ... all the fun stuff can damage your ears. Don't stop doing them. Just protect yourself while doing them. I now wear ear protection and wished I got them years ago. Earplugs are essential."*

—Paul Dean, *Loverboy*

## More Information

1. Chesky K. 2010. Measurement and Prediction of Sound Exposure Levels by University Wind Bands. *Medical Problems of Performing Artists*: 25(1). 29-34.
2. National Center for Chronic Disease Prevention and Health Promotion—CDC. Noise induced hearing loss - Promoting hearing health among youth. <http://www.cdc.gov/HealthyYouth/noise/index.htm>



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# Athletes and the Arts® The Teacher



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As a teacher you play an integral part in the health of the performing artist athlete. Athletes and the Arts® wants to equip you with an arsenal of tools to ensure your students have a long and healthy life with their art.

What you can do:

## **Promote Joy of Performance:**

- Performing can be daunting for some of your students, show them the benefits of performing
- Provide a range of performance opportunities. When a student experiences various performance environments they will feel comfortable during future endeavors.

## **Care for the "Core Instrument:"**

- Educate on the importance of hydration, sleep and nutrition
- Caring for the body will maximize health and longevity of the performer

## **Select an Appropriate Repertoire:**

- It is important to challenge the student for growth in their work
- Selection should take performers physical and mental well-being into consideration, do not push them to extremes



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## **Exercise is Medicine®:**

- Encourage core strength, aerobics and flexibility to optimize performance

## **Show Students Effective Practice Strategies:**

- Encourage students to problem-solve and avoid mindless practice: Practice with Purpose
- Break up practice sessions to enhance concentration & avoid overuse

## **If a Student is Injured:**

- Ask appropriate questions to steer medical consultation if needed
- Work with medical professionals to determine the best process for their return to play



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