



**CLEVELAND
INSTITUTE
OF MUSIC**

ABOVE

Clarinet student Ben Chen using biofeedback to monitor his muscle activity while playing. (story page 12)

ON THE COVER

Many views of the complete musician. (story page 8)

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Keeping the mind and body sound for a long career

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CIM employs multiple methods to ensure its students remain in good physical health.



ATHLETES

OF THE **C** *oncert*
H *all*

Keeping the mind and body sound for a long career using both state-of-the-art technology and hundred-year-old muscle movements.

“Musicians are athletes of tiny muscles,” says CIM faculty member Kathleen Riley, PhD. Current research estimates that 80 percent of musicians experience physical problems during their careers, often caused by tiny muscles that need to be warmed up, worked out and properly taken care of—just like an athlete’s. With many musicians clocking over 10-hour days of practicing or rehearsing, how can they remain physically healthy while continuing to play and perform?

Using the latest techniques, including state-of-the-art biofeedback, CIM students are learning to recognize potential physical problems and are building a toolkit to minimize or avoid injuries.

Riley’s Optimal Performance Health class at CIM hosts an all-star cast of guest lecturers from the Cleveland Clinic that includes chiropractors, acupuncturists and audiologists. In her class, Riley touches on many performance-related issues such as muscle strain and hearing health, as well as performance anxiety, depression, nutrition and even breathing techniques and heart rate. But Riley’s *pièce de résistance* is the work she does with her students using biofeedback.

By means of video cameras; surface electromyography (sEMG), a medical device that measures muscle activity; and a piano equipped with a musical instrument digital interface (MIDI), which records the instrument and communicates with a computer; Riley is able to ease muscle strain by adjusting things like posture, hand and finger alignment and arm height while students play.

Dr. Kathleen Riley works with clarinet student Ben Chen on his hand and finger alignment using biofeedback. Photos: Robert Muller





Samantha Damouliakis and Russell Hall teach the Feldenkrais Method® to students and alumni on Monday nights during the summer at CIM.

This year, all students were required to read informational modules regarding neuromusculoskeletal, hearing and vocal health on CIM's website, and all incoming first-year students were tested on their physical health using biofeedback. The Cleveland Clinic also came by to do baseline hearing assessments and even offered custom earplugs at a special price for CIM students.

"With these custom, high-fidelity earpieces, musicians can still hear the intervals necessary to play, but their ears are protected," says Associate Dean for Student Affairs

David Gilson. "CIM is in a remarkably good place because of the Cleveland Clinic and its Center for Performance Health Medicine."

“Musicians are athletes of tiny muscles!”

Biofeedback in Action

Riley's bright classroom in Cutter 101 has a few chairs, a glossy black piano, a video camera, speakers and a large computer monitor. When two students appear at her door, she quickly shepherds them in and begins to unwrap a series of small round sticky pads. She applies the pads to the shoulders and forearms of her first subject, Ben Chen, a clarinetist, who has worked with Riley previously.

"I think the most helpful thing for me was to see the lines move up and down on the screen in the gray boxes. They tell you objectively how much muscle tension you're using, which is something you might not realize by just playing," Ben says as he wraps a belt with the sEMG machine around his waist. Riley clips the yellow and red wires sprouting from the back of the machine to each of the small pads on his muscles.

Riley brings many years of experience and training expertise in neuromuscular re-education. All of her training protocols are based in biomechanics and scientific validation. "This is not a critique of someone's technical approach. A teacher can explain the same concept to ten students and it will be interpreted ten different ways into their physiological profile, muscularly and mentally," Riley explains. "Here we have irrefutable proof of what is happening inside the body as they play, and can make corrections that yield different results. Seeing is believing!"

When performers sit down at a piano bench or lift a violin to their chin, muscles tend to tense and harden, and performers ultimately have to use more force to achieve the desired result. It's difficult to undo these muscular responses, which are often engrained in a musician's technique. In this case, muscle memory is not a good thing.

Riley positions the video camera to face Ben. When the camera starts rolling, Ben is able to see himself on the screen at angles he usually can't see while playing. "It's really neat when you put the camera behind someone and they notice they're tilting one way or another. Then they start working with the screen and correcting their movement," says Riley as she clicks away on her wireless mouse.

Ben plays a few scales on his clarinet to get warmed up, and blue and red lines spring across gray boxes on the computer screen. When Ben shrugs his shoulders, the blue lines move, and when he opens and closes his fingers, the red lines move.

As he begins playing, the lines move together, forming peaks and valleys. Riley explains that when the lines are so high they spike off the chart, injuries can occur. And it can be dangerous to practice at

The more comfortable way to do something physical is ultimately going to be the better way to make music.

that level of intensity for too long. It's important to see dips in the lines because those indicate a breath taken or a muscle released. This technology also tells the performer what level of muscle activity is optimal.

When pianist Shicong Lu tries out the equipment, Riley adjusts his posture and hand position and the lines on the screen dip low. Riley records Shicong using the MIDI-equipped piano, and upon playback the notes and muscle activity align together on the screen. This allows Shicong to pinpoint, to the measure, which part of the piece strains his muscles the most.

Developing a Mind-Body Connection

Electronics aren't the only tools to keeping a musician's muscles healthy. Strengthening the connection between physical movement and the thought behind those movements is an important component of maintaining physical health. On Monday nights during the summer at CIM, room 113 is typically filled with alumni and students lying on foam mats, letting their jaws go slack, relaxing their eyes and making slow movements with their bodies. They are practicing the Feldenkrais Method® in a class presented by CIM's Alumni Association.

The Feldenkrais Method of learning and movement develops the ability to explore and use the wide spectrum of internal sensations of movement, while recognizing that everything in the body is connected. "It's about learning how to attend to yourself better," explains instructor Russell Hall. "The more comfortable way to do something physical is ultimately going to be the better way to make music." Hall alternates teaching summer classes with fellow Feldenkrais-certified instructor Samantha Damoulakis.



Feldenkrais-certified instructors
Samantha Damoulakis and
Russell Hall.

The Feldenkrais Method was created by Moshé Feldenkrais in the early 20th century as a way to improve the body through precise movement and awareness. Although the method was not specifically created for musicians, performers of all kinds have found that it supports lifelong improvement in ease and mastery. The skills learned from practicing the method can also help in the practice room. "When musicians get stuck in one part of a piece they think they need to just practice it over and over again," says Damoulakis, "but maybe they need to shift their attention to something else inside to change. Feldenkrais is about this process, not the end result itself."

Students receive a half-price discount when they sign up for the summer class, and so far every summer has seen an increase in student attendance. During the fall and winter months, Damoulakis and Hall offer a course for credit to students called Awareness Through Movement®.

Learn More About Performance Health

National Association of Schools of Music (NASM)
nasm.arts-accredit.org

Performing Arts Medicine Association (PAMA)
artsmed.org

Athletes and the Arts
athletesandthearts.com

American Academy of Physical Medicine and Rehabilitation
aapmr.org

The American Occupational Therapy Association, Inc.
aota.org

The Feldenkrais Method
feldenkrais.com