Injury prevention

The Problem

A 2015 study by John's Hopkins Center for Music and Medicine found that 4 in 5 professional musicians will experience injury with violinists and violists being the most prone. Furthermore, the study, as published by the Baltimore Sun states, "Two will continue to play but never fully recover. One will quit and do something else. Only one of those will recover quickly and completely enough to return to playing."[1] Dr. Kris Chesky of the Texas Center for Music and Medicine reported in a 2007 Wall Street Journal article that "86 percent of piano majors who participated in a study at the University of North Texas reported having pain associated with their playing."[2] He goes on to say in the article that at a recent Northwestern University conference, "100 percent of their entering music majors reported having some physical difficulty."[3] Janet Horvath, cellist in the Minnesota Orchestra and author of *Playing Less Hurt*, says "The true extent of our problems may be surprising…I know only too well how many of my orchestral colleagues are suffering."[4] The risks are noteworthy as preparation for orchestral violin auditions entails many repetitive motions as one refines the same excerpts repeatedly. Gerald Klickstein comments that "Few seem to realize that practicing, performing, and teaching can trigger life-changing injury. Musicians themselves aren't well informed about their occupational health risks."[5]

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[1] Willoughby, Laura Jane. "Advances Help Musicians with Repetitive Stress Injuries Continue to Play." Baltimoresun.com. September 28, 2017. Accessed November 16, 2018. https://www.baltimoresun.com/features/bs-fe-musicians-health-20170825-story.html.

[2] Horvath, Janet. *Playing (less) Hurt: An Injury Prevention Guide for Musicians*. New York: Hal Leonard Books, 2010, 8.

[3] Ibid.

[4] Ibid., 7-8.

[5] Klickstein, Gerald. *The Musician's Way: A Guide to Practice, Performance, and Wellness*. Oxford University Press, 2009, 230.

Musician's health, still an emerging field as conversation about injury has been taboo among musicians, suffers from a lack of education about the matter. Klickstein comments that this lack of information "blocks musicians from adopting healthier habits."[6] Stefan Jackiw explains, "The stigma around injury among violinists, and in the classical music industry in general, is harmful and misguided."[7] He describes,

> "The majority of musicians I've spoken to who have dealt with an injury have felt pressured to keep their injury a secret. I find that it's usually for one of two reasons. Either the injured musician fears that others will attribute their injury to 'bad technique' and therefore will hold them in lower esteem if word of the injury gets out, or the injured musician worries that employers – whether it's a symphony orchestra looking to hire a soloist or a contractor looking to engage a string quartet for a wedding – will be reluctant to hire them if they learn that the musician is injured."[8]

He explains that this fear of being judged negatively leads to secrecy and prevents problem solving for the matter:

> "So, we keep quiet about the fact that we're injured. We're vague. We say that we have to cancel a gig because we've come down with a cold, rather than because we have tendonitis and might not be able to play for several weeks. Or worse, we force ourselves to play through the pain, thereby compounding the injury. This shame and secrecy prevents musicians from having a healthy, open dialogue about injury prevention and treatment."[9]

Jackiw discovered that nearly all violinists that he spoke with at some "point in their career, struggled with aches and pains and physical issues caused by playing the violin, and have a massage therapist, or physical therapist, or acupuncturist on speed dial to help them deal with the injuries. It's just part of the life of a violinist."[10] He worked with a physical therapist in New York City who told Jackiw that "he had a 'wall of fame' featuring nearly every top violinist from the last half century who had come to him

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[6] Ibid.

[7] Jackiw, Stefan. "VC INSIGHT | VC Artist Stefan Jackiw – 'Physically & Mentally Recovering from an Injury' [ADVICE]." The Violin Channel. August 21, 2018. Accessed February 17, 2019. https://theviolinchannel.com/violinist-stefan-jackiw-physically-mentally-recovering-injury-insight-blog/.

[8] Ibid.

[9] Ibid.

[10] Ibid.

looking for treatment and relief."[11] The topic of injury is important to this guide as it is not a subject discussed in typical musical education (at least in my experience), despite the prevalence of injury. Moreover, a long career in music requires the prevention of disabling ailments.

Contributing Factors

Several factors contribute to the risk for injury. One logical conclusion is that faulty violin technique may be to blame. However, the causes of physical injury may not be limited to violin technique as it is taught traditionally, as seemingly distant parts of the body affect other seemingly unrelated parts of the body. A more wholistic perspective may be needed to understand the elements that contribute to injury. According to Carol Porter McCullough, author of the book *Alexander Technique and the String Pedagogy of Paul Rolland*, "The total pattern of coordination and use that a student possesses in daily living will show up in his string playing."[12] She goes points out that thoughtful violin instruction, like that of Paul Rolland, may be limited in scope to address all physical aspects that contribute to overall use of the body, and subsequently, violin playing: "While they are a major breakthrough in the teaching of string playing, Rolland's action studies carry a student only as far as the student's overall coordination and 'use of themselves' permit."[13]

In a similar vein, Jorja Fleezanis, at a Starling-DeLay Symposium masterclass tells the audience about her experience of taking Alexander Technique classes from non-musicians: "Since they did not play the violin themselves, they would question every physical thing she would do that didn't seem to make

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[11] Ibid.

[12] McCullough, Carol Porter. "The Alexander Technique and the String Pedagogy of Paul Rolland." The Life and Discovery of F.M. Alexander. Accessed February 17, 2019. http://www.alexandercenter.com/mobile/strings-1.html.

[13] Ibid.

sense. It made her question how much of her playing was hindered by what we traditionally do, as violinists, with the body."[14]

Misusing elements of the total body can cause inefficient violin technique that can lead injury, but it can also work the other way around, with violin playing causing one's use of body to deteriorate.[15] McCullough explains, "In some cases, students with good use and coordination intact will show a deterioration after taking up the study of a musical instrument. Violin and Viola are particularly perilous, as the instrument being tucked close to the next affords great opportunity for interference with the head-neck relationship and thus for interference of what F. Matthias Alexander termed 'primary control.'"[16]

Mental factors are potent in contributors to injury. Horvath cites research that shows the correlation of emotional strain with physical injury and points out that musicians' exposure to criticism may put them at additional risk: "Injury risk increases with emotional tension and current research indicates that the history of criticism is correlated to a higher risk of injury. The role of stress in setting the stage for injury cannot be overstated."[17] Alice Brandfonbrender Md., a leading expert in performance injury and treatment says, "There is a mind- body connection…Depression not only makes people more injury-prone, but also it increases with pain and if not recognized, tends to prolong illnesses, injuries and musculoskeletal pain syndromes."[18] Horvath also explains how tough auditions can be to navigate mentally: "The nature of our profession is to strive to excel, to compete, to win auditions. We may be unaware that as a byproduct, our lives are under constant scrutiny permeated with criticism, often negative, initially from our parents and teachers and later from colleagues, conductors, newspaper

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[14] Niles, Laurie. "2013 Masterclass With Jorja Fleezanis." Violinist.com. Accessed February 18, 2019. https://www.violinist.com/blog/laurie/20135/14688/.

[15] Ibid.

[16] Ibid.

[17] Horvath, 8.

[18] Ibid.

reviewers, and audiences."[19] She explains how this pressure can lead to unrealistic expectations that lead to self-blame: "We expect the highest of standards. We place demands and sometimes unrealistic expectations on ourselves and in so doing, get caught in the guilt and blame game. If something goes wrong 'We didn't practice enough!' If we hurt, 'We must be doing something wrong.'"[20] Musicians between 35 and 45 were shown to be the most prone to injury, which Horvath speculates may be due to the many life stresses occurring in this stage of life:

> "The highest rate of injury was found to be in musicians between the ages of 35 and 45. Musicians over the age of 45 were injured less often. This may be a reflection of the fact that during our twenties and thirties we encounter many life stresses as well as those of our musical work. We're getting our first jobs, and trying to learn an immense amount of repertoire. Many of us are moving, trying to establish ourselves, and rearing young children. It's a time in our lives when sleep deprivation is common, as are poor physical condition and inefficient warm up time before practicing, rehearsing, and performing. Freelance musicians may go weeks without a day off."[21]

Self-care will be discussed in the next chapter, and this is all the more reason to do so.

Reinjury is likely to occur as Summer Jones, creator of an original method for physical rehabilitation (Whose classes are frequented daily by many San Diego Symphony Musicians – One violinist, a daily regular of Jone's studio, reports not being able to play when she does not attend.), points out: "After an injury, the body learns to repeat dysfunctional movement patterns for self-preservation. These dysfunctional patterns are the source of most of our pain and repeat injuries."[22] This is all the more reason to take care not injure ourselves in the first place. Klickstein points out that "nearly all musicians' injuries are preventable."[23] However, "most music students receive scant information about in occupational health, and workplaces often expose performers and teachers to long hours and extreme sound levels. Even when musicians recognize that music making can have adverse effects, many either

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[19] Ibid.

[20] Ibid.

[21] Ibid.

[22] Jones, Summer. "SUJO." SUJO. Accessed February 17, 2019. https://www.sujomethod.com/.

[23] Ibid.

feel powerless to take corrective action or are unaware of what to do."[24] Thus, the next section of this document will discuss preventative measures.

Prevention

There are several elements to examine with regards to preventing injury. These include getting acquainted with violin pedagogy that has been influenced by experts of kinesiology, setting up the violin correctly, adopting healthy mindsets, and structuring practice time to include self-care.

Today, the pedagogical workshops offer to impart the knowledge of teachers who have done some legwork to further reconcile physiology with violin technique. The most prominent of these are that of Paul Rolland and Mimi Zweig. Rolland devoted much of his career to analyzing the movements of violinists. Rolland had studied with Imreh Wildbauer who had been heavily influenced by Friedrich Adolf Steinhausens' *The Physiology of Bowing on Stringed Instruments*; "Rolland was in turn convinced of the importance of freedom and ease in playing."[25] In 1966 he launched "the five-year government funded University of Illinois String Research Project, which was documented in his most famous text, *The Teaching of Action in String Playing*. This was supplemented by a series of 17 educational films, which demonstrated his methods in practice."[26]

This project's aim was "to develop a course of study which will systematically present the requirements necessary to establish tension-free and a natural playing movements good tone production, a firm basic technique for the string student" Rolland examined every muscle and movement to "devised what he termed 'good motion patterns' and breaking down violin technique into separate gestures and games that emphasized healthy posture and comfortable instrument and bow hold."[27] Rolland's students

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[24] Ibid.

[25] Ibid., 32.

[26] Ibid.

[27] Ibid.

discovered ease when they studied with him.[28] Former student Nancy Kredel makes a common remark of his students, "I had no idea it could be so comfortable to play my instrument."[29]

As discussed in the previous chapter, mental representations can aid in deliberate practice. Thus, filling in any "holes," in one's mental representations, which most students undoubtedly have, may be helpful in the endeavor of preparing for auditions in a physically healthy manner. Mimi Zweig (professor at Indiana University) reports that even after working as a professional violinist/violist (Indianapolis Symphony) she still had many questions about violin technique. Though she never met Rolland in person, she was profoundly inspiring by his String Research Films in 1970: "I remember watching them over and over again because even though I had been playing professionally for a few years, I still had so any questions about technique…These tapes soon began to answer all of these questions in such an understanding way. Since then, I have shown the films to my pedagogy students and even today I pick up new things."[30] Mimi Zweig's pedagogy courses are heavily influenced by Paul Rolland and other body experts to provide future teachers with the knowledge to establish "a healthy technical and musical foundation."[31] Even after countless years of violin lessons and conservatory training, these courses provide useful information for most violinists, even as performers.

How one goes about planning practice sessions can also significantly contribute to prevention of injury. Horvath advises, "warm up, take breaks, vary your repertoire, increase your practice load gradually, reduce your practice intensity prior to performance, avoid heavy practice on the day before and day of concert or audition."[32] For Horvath, allocating time wisely involves categorizing works according

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[28] Smith, Charlotte. "Paul Rolland." *The Strad*, November 2018, 31.

[29] Ibid., 32.

[30] Ibid., 37

[31] Ibid., 37.

[32] Horvath, 180

to their physical demands. For string players this involves placing "left hand—intensive pyrotechnical works in Column I, and right-hand intensive works in Column II. If these are mutually inclusive, as they sometimes are, put slower, less challenging repertoire in Column I."[33] Works from each column are then paired "so that each practice will be sure to include contrasting types of repertoire."[34] She advises, "budget your time to include the works you need to cover and alternate from column to column. By alternating different works with different challenges, you use different muscles and allow your body some respite. Alternate slow and fast passages and use variety in the passages you choose."[35]

Horvath also advises musicians to practice intelligently to avoid ingraining any bad habits or doing more physical practice than one absolutely needs. Klickstein warns his readers to "limit repetition as overuse can spring not only from an escalation in the quantity of playing but also from too much repetition."[36] Horvath cites that studies are underway to "investigate whether all that repetition creates an 'overdose' of representation in the brain, or an overused series of pathways that doctors may be one of the underlying causes of focal dystonia."[37]

For Horvath, recording oneself not only aids in solving problems efficiently, but it also gives one's body a break. Video-taping can provide insight into one's physical aspects of playing. Horvath also advises to take time to study the music away from the instrument.[38] Avoiding "erratic fluctuations" in one's practice schedule is also advisable. Consistently putting in a little practice time every day "is

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[33] Ibid., 181.

[34] Ibid.

[35] Ibid.

[36] Klickstein, Gerald. *The Musician's Way: A Guide to Practice, Performance, and Wellness*. Oxford University Press, 2009, 242.

[37] Horvath, 181.

[38] Ibid., 182.

more productive and safer for your body than skipping days at a time and then launching into a marathon sessions." Most importantly, Horvath advises, "if something hurts, stop!"[39]

It may be of benefit for many violinists to visit specialists like those of Alexander Technique and Feldenkreis to further understand what a "good posture" entails. Horvath advises, "keep your lower back in a natural curve (lordosis): neither exaggerated nor flat."[40] She mentions that "body awareness experts use imagery to help with correcting posture."[41] Andrew McCann, astounded by the amount of repertoire the Minnesota Orchestra "tore through," asked Jorja Fleezanis "How are you not in pain? How do you avoid injury? Do you stretch? Yoga? Massage? What?"[42] Fleezanis disclosed to him that "she had studied the Alexander Technique for six years and that she had learned to sit and to move in ways that didn't wear on her body."[43] Similar to Horvath's advice on finding the natural curve of one's back, McCann reports, "I have a memory of [Fleezanis] standing in the restaurant and putting her hands on her hips and talking about finding the connection from the back to the hips to the chair when she played."[44]

Horvath also recommends other various activities during practice that can help violinist remain physically healthy. Horvath also points out that musicians should be mindful of how they sit: "When sitting, avoid twisting or learning to either side, backward or forward. Your center of gravity should be forward and your body weight should be on your sitting bones and your feet…To test your sitting posture, put your instrument aside and sit with your feet flat on the floor. Now try to get up. You weigh, if

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[39] Ibid., 183.

[40] Ibid., 34.

[41] Ibid.

[42] McCann, Andrew. "Part 1: A Problem with Pain: Why I Started Studying the Alexander Technique." Alexander &. November 12, 2014. Accessed February 28, 2019. https://www.alexanderand.com/blog/2014/11/12/a-problem-with-pain.

[43] Ibid.

[44] Ibid.

balanced far enough forward, will allow you to get up without any major re-shuffling in your position."[45] Most students who have been exposed to Alexander Technique also know: "Bring the instrument to you rather than compromising your posture to reach for your instrument."[46] Horvath also advises musicians to alternate between sitting and standing, if possible, during practice but warns, "Make sure while standing that you are maintaining a natural curve or lordosis by keeping your knees slightly bent instead of locked or hyperextended…when sitting, shift leg position frequently."[47] Violinists should also "be vigilant about…music stand placement…Place it directly in front of you at a height that allows you to keep your head level…Move your chair and body so that you do not have to turn your head or twist your torso to see your music."[48] Taking breaks is advisable for both the mind and body. Horvath points out that "even after arduous exercise, the metabolic recovery in muscles is ten to fifteen minutes. Research shows that there is an 80 percent recovery in your muscles even after one minute of rest when a muscle is not over-fatigued."[49] Horvath also recommends a variety of stretches.[50]

[45] Ibid.

[46] Ibid.

[47] Ibid.

[48] Ibid.

[49] Ibid., 36.

[50] Ibid., 47.