

MEMOIR: SUCCESSFUL RETRAINING AFTER MUSICIAN'S DYSTONIA

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Preface

The views expressed in this document often challenge current conventions of brass and music pedagogy. This is not meant to antagonize stakeholders. Instead, it is the view of the author that current pedagogical conventions significantly contribute to the onset of Musician's Dystonia, and in order to recover from dystonia, the player must confront the learned behaviors and concepts which I vehemently believe are in large part responsible for the dystonia. To this end, convention must be turned on its head. This document assumes the perspective of the author with deep personal conviction. However, the opinions and views here do not necessarily represent those of the individuals of the doctoral committee responsible for approving this document.

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Chapter 1: Introduction

Musician's Dystonia (MD) is a mysterious condition which prevents the normal function of a musician to play or sing music. It manifests as a cramp or a tremor of a muscle group essential to the specific type of music-making a musician does. For instance, a brass player may experience cramping of the lips, throat, tongue, or breathing mechanism, while a violinist may experience cramping of the fingers of the left hand interacting with the fingerboard of the violin. The symptoms of MD tend to appear only during the activity of music-making. Therefore, MD is a focal dystonia and a task specific dystonia.¹

Altenmüller et al. conservatively estimate MD appears in roughly 1% of professional musicians. However, Taira et al. describe the prevalence rates for MD in professionals as between 0.5 and 8%.² Musicians far outnumber the general population in which focal dystonias in the United States appear in only 0.0003% or 29.5 out of 100,000.³ Among musicians, cases of MD are not uniformly spread across instrument types, suggesting that unique behaviors within each field of an instrument may have an important role in the onset of dystonia. In addition, musicians who develop MD have a much greater tendency toward perfectionism than healthy counterparts, suggesting that MD may have behavioral associations.⁴

Treatments for the condition are limited in their success. Pharmacological treatments include injections of botulinum toxin-A or trihexyphenidyl and oral administrations of anticholinergics and baclofen.⁵ These serve to inhibit the muscles which cramp or tremor, however, these effects wear off over

¹ Eckhart Altenmüller et al., "Musician's Cramp as Manifestation of Maladaptive Brain Plasticity: Arguments from Instrumental Differences." *Annals of the New York Academy of Sciences* ISSN 0077-8923 (2012): 259.

² Takashi Asahi et al., "Full Recovery from Drummer's Dystonia with Foot and Arm Symptoms after Stereotactic Ventro-Oral Thalamotomy: A Case Report." *Acta Neurochirurgica* 160 (2018): 835. [https://link-springer-com.proxyiub.uits.iu.edu/article/10.1007/s00701-018-3480-5](https://link.springer-com.proxyiub.uits.iu.edu/article/10.1007/s00701-018-3480-5) (Accessed Jan 23, 2021).

³ Eckhart Altenmüller et al., "Musician's Cramp as Manifestation of Maladaptive Brain Plasticity." 259.

⁴ Eckhart Altenmüller and Hans-Christian Jabusch, "Focal Dystonia in Musicians: Phenomenology, Pathophysiology, Triggering Factors, and Treatment." *European Journal of Neurology* Vol. 17 (2010): 4-5.

time with symptoms reappearing. Horisawa et al. report one successful case in which permanent lesions were created in both sides of the brain leading to a removal of symptoms.⁶ Behavioral interventions include sensory retraining, immobilization, biofeedback, and brain stimulation. These interventions show some promise but are generally only useful as part of a larger, long-term retraining process.⁷



Figure 1. Cramping due to Musician's Dystonia⁷

Citing a 2006 article by Nancy Byl, Karen Lynn Marston describes the dystonia retraining process:

Dystonia is a form of maladaptive "neural plasticity," or alteration of the neural circuits in the brain, resulting from the repetition under "stressful and demanding

⁵ Eckhart Altenmüller and Hans-Christian, "Focal Dystonia in Musicians," 6-8.; Shrio Horisawa, "Bilateral Pallidotomy for Embouchure Dystonia." *European Journal of Neurology* Letter to the Editor (August 10, 2018): 1.

⁶ Shiro Horisawa et al., "Bilateral Pallidotomy for Embouchure Dystonia." *European Journal of Neurology* Letter to the Editor (August 10, 2018): 1.

⁷ Image taken from Eckart Altenmüller and Hans-Christian Jabusch, "Focal Dystonia in Musicians: Phenomenology, Pathophysiology, Triggering Factors, and Treatment." 4.

conditions" of the motor functions associated with playing. This means the brain's structure has actually changed to accommodate the dysfunction. Once these neural pathways have been forged, they cannot be corrected by any known medical intervention. Only a complete retraining of the mental, emotional, and physical skills used in playing the instrument can restructure healthy function. Sufferers must relearn how to think and behave around their instruments, especially in terms of correctly interpreting and processing sensory feedback. Successful recovery must also include adopting a positive attitude and managing stress.⁸

With only a handful of successful therapists and coaches, MD retraining is the cutting edge of the treatment of this condition. Given the lack of clear solutions coming from the medical field, successful stories of retraining offer the greatest value in understanding MD.

The strong possibility that MD is influenced by flawed pedagogy and attitudes in the field of music presents an urgent need to gain awareness of what MD is and its viable retraining processes. Steinmetz et al. found that of 585 professional brass orchestra musicians surveyed, “thirty percent... frequently experienced embouchure fatigue.”⁹ The reality in the field of professional orchestra brass playing is that a sizable population of musicians are dealing with chronic embouchure fatigue. I hope to show how the principles and practices of MD retraining can usher in a paradigm shift in the community of non-dystonic brass players, birthing a renaissance of wellness, efficiency, and freedom of expression.

Having successfully retrained my trombone playing after a MD diagnosis with Coach Jan Kagarice, the contribution of this document will be a presentation of my experience of onset of and recovering from MD. It is not within the scope of this document to factually define the cause of MD. I instead accept the mystery inherent in MD and merely offer an anecdote through which others with MD may find commonalities and through which pedagogues may gain an important perspective, serving to minimize potential harm caused by pedagogical approaches and to bolster preventive measures. With this

⁸ Karen Lynn Marston, *Finding the Balance: Jan Kagarice, A Case Study of a Master Trombone Teacher* (Dissertation, Columbia University, May 18, 2011): 65.; Nancy Byl, “To your health - Musician's cramp: An update on focal dystonia.” *International Musician*, 104, no. 12 (2006): 11.

⁹ Anke Steinmetz et al., “From embouchure problems to embouchure dystonia? A survey of Self Reported Embouchure Disorders in 585 Professional Orchestra Brass Players.” *International Archives of Occupational and Environmental Health*. 87 (Dec 12, 2013): 783-792. [https://link.springer-com.proxyiub.uits.iu.edu/article/10.1007/s00420-013-0923-4](https://link.springer.com.proxyiub.uits.iu.edu/article/10.1007/s00420-013-0923-4) (Accessed Jan 5, 2021).

mission in mind, I have chosen to write in the form of a memoir. While unconventional for a doctoral thesis, the advantage of this form is a holistic communication of an experience where so little can be definitively stated. The experience of MD retraining is one of body, emotion, and intellect, and the aim of this document is to personally communicate with all of these modes of understanding.

As with any memoir, this document does not claim to be an objective account of the events surrounding my experience with MD and retraining. Rather, it is a subjective account through the lens of the author. Therefore, the characters of the story are only important in the way that I perceive their involvement in the experience. I am not attempting to paint realistic portraits of any of the people mentioned in the story, and in an attempt to protect those involved I have changed their names. I am certain that the people involved would have something quite different to write than I have.

In this document, I offer what I believe to be true, and I write as if it is so. Though often invoking a provocative style, my convictions are more faithfully conveyed in this way. Frequently, conventions of brass pedagogy are challenged for the purpose of confronting the challenges of MD and its recovery process. My hope is for the sparking of good-faith dialogue as disagreements may arise. Importantly, the views in this document are my own and do not necessarily represent the opinions of the approving doctoral committee.

This document hopes to contribute to the field in a number of ways. Primarily, those facing the loss of their playing to MD, drowning in the dysfunction of their passion, will know a path to healing. These people, who may be told by doctors that there is no real treatment, may find themselves in these words. Perhaps a sense of community may be gained. Second, readers will be able to recognize unhealthy factors such as environments, attitudes, philosophies, and institutions that may contribute to MD. Finally, this document seeks to illuminate shortcomings in the field of brass pedagogy, affecting a significant proportion of brass players.

Chapter 2: Collapse of Playing Ability

I was diagnosed with Musician's Dystonia (MD) in 2017 by a neurologist. The disorder is experienced by musicians of all instruments, including the voice. The condition is characterized by cramping or tremors in essential muscle(s) involved in a specific task, making it a focal dystonia. Typically, these cramps or tremors are task specific, meaning they are only present while performing a particular task such as playing an instrument. In my case, I became unable to play the trombone after a gradual 6-month decline in ability. My symptoms were not obvious to me because I could not visually see them. However, in retrospect, it is clear that there was cramping of respiratory muscles, throat muscles, the tongue, and the lips. My unsuccessful struggle to regain the ability to play normally culminated in a moment of collapse in December of 2016. After my trombone playing became dysfunctional, I struggled desperately to find a solution. Recovering from MD has been the journey of a lifetime – an ineffable transformation.

The collapse of my playing happened catastrophically during a performance of Tchaikovsky's *The Nutcracker*, scored for reduced orchestra, with a reputable full-time orchestra. The singular trombone part is filled with solos taken from the original bass trombone part and was generally exposed, with the only other brasses being two horns and two trumpets. Being the orchestra's second trombone player, I was usually eager for opportunities to move up to the principal role. This particular year I was having some issues in the lower register, but because I had played it the year before and because of the higher pay I agreed to do it.

Bad News

Generally, December is a tough part of the season. This year was especially so. The week before *Nutcracker* we played Beethoven's Symphony No. 9. On the second day of rehearsals, it was reported to me that one of my very dear colleagues, "Tim", with whom I worked very closely had attempted suicide. I never verified that claim, but I believed it to be true. Sadly, it didn't come as much of a surprise. It was devastating news to everyone who was close to this person.

Tim consistently exhibited professionalism, so it was unlike him to miss a rehearsal. I immediately began to suspect something severe had happened. Orchestra management found someone to check in on him. Apparently, he was at home and acting strangely. The next news we received was that he was in the hospital. The interpersonal dynamics and constant conflict that characterized that part of the stage were so extreme and negative that it seemed like a logical progression of the continuous illness.

Because of the interpersonal dynamic at work, I assumed the role of peacekeeper. I felt like a cave diver uncomfortably squirming through tight cracks with no personal space in order to please this person and that person. However, pleasing one person usually meant offending another and vice versa. I was so wrapped up in the dynamics between colleagues that when I heard the news of a suicide attempt, my first thoughts were centered around how it would impact my place in the circus of conflict. The fact that my first response to that news was anything but genuine concern for my colleague is a testament to the dysfunction around me at that time.

In addition to the constant conflict, I was in denial about how constant abuse from one particular colleague in a position of power over me was grinding away my love of music-making and mental health. My strategy had been to ignore my emotions and feelings about the wild events around me in order to keep the peace. I didn't realize those ignored emotions were pressurizing inside of me.

Toxic Personality

My expectation of post-concert ritual, the moment after performance when comments are exchanged during applause, at that time had become unpredictable, particularly from two influential colleagues. At times, one of these colleagues would express such a profound disappointment after concerts that he would not even look at me in response to a compliment. This pattern of behavior often sent other colleagues and me on self-reflection quests to find a hidden offense we had committed to warrant such a miserable state of mind in this person.

Another colleague consistently and frequently attacked my musicianship and performance, particularly following what others and I perceived to be my best performances. Post-concert ritual, which had typically been a rush of good feelings, became a forum for abuse and negativity. The feedback also

served as a significant source of confusion because reactions from these two colleagues were negative in response to what I thought had gone very well. This confusion led to an insecure dependence on them to clarify whether I had played well or not. This subverted my confidence in my own sense of taste, style, and musicianship.

Upon receiving a round of the cyclical pattern of verbal attacks from one of my colleagues, a typical process would begin whereby uncontrollable thoughts spun repeatedly through my mind all day and night for days or weeks. These thoughts included mental rehearsals of responses to his insults. Logical ruminations on the flaws of that person's argument against me, their self-righteous perspective, and the consensus among colleagues surrounding their notable shortcomings in musicianship flooded my mind. Though I tried my best to stop the fixation on these encounters, I simply could not. This reaction to workplace hostility is significant in its relation to dystonia onset. Joaquin Farias writes about the potential link between emotions, thoughts, and movements in his book *Intertwined, How to Induce Neuroplasticity*:

Focal dystonia is thought to be due to a functional anomaly of the basal ganglia in the brain. Presently, the role that the basal ganglia play in its connections to the limbic system and prefrontal cortex is being studied in its relationship to pathophysiologic processes involved in disorders such as anxiety, depression, and obsessive compulsive disorder... The basal ganglia are better known for their role in the planning and execution of movements, but they are also related to other processes such as emotional behavior and cognitive functions for instance, making decisions, monitoring, and inhibitory control. Therefore, a functional anomaly of the basal ganglia could affect the generation, maintenance, and change of emotions, thoughts, and movements. In this way, the borders between that which is emotional, mental, and motion blur, making it imperative to consider these three elements as *one*. In essence, the experience of not being able to stop thinking, feeling, or moving is due to these same processes. We need to explore the interrelationships among emotion, thought, and movement during rehabilitation in order for it to be effective.¹

The uncontrollable thoughts triggered by my colleague's frequent adversarial behavior created some of the greatest pain and discomfort of my life. I tried many different ways to shut them off, going on long runs and things of that nature, but the thoughts persisted. I would go to bed thinking about the conflict,

¹ Joaquin Farias, *Intertwined: How to Induce Neuroplasticity; A New Approach to Rehabilitating Dystonias*. 2012: 37.

dream about it, and wake up thinking about it. It was like being in a prison of the mind. Taking Farias' above words into account, it may be that the genesis of my dystonia first appeared as a disorder in my thinking in response to conflicts at work as they relate to my trombone playing. Farias further writes:

Some recent studies defend a psychogenic hypothesis of dystonias. The term "psychogenic" is used as a general term to designate those pathological processes that originate from a psychological cause... In light of the psychogenic hypothesis, being exposed to psychological traumas could be connected as one of the trigger factors within the complex network of causes leading to the onset of dystonia.²

I feel certain that had I not been subjected to abuse by a coworker in a position of power over me, I would not have fallen into MD. Unfortunately, maintaining my employment necessitated preserving my good standing with this individual. Therefore, I resolved to let the abuse to repeatedly happen to me rather than protect myself from attacks. As a result of this, I learned to close myself off. I refused to react to the insanity, and I thought that was a good thing. Intellectually, I understood the problem at work originated in the colleague, but emotionally, I was being ripped to shreds.

Emotional Trauma

The emotional trauma of my working relationship with the abusive colleague was a primary contributor to the onset of MD. One of my life's passions had been turned into dread. My free and open personality changed to being closed and guarded out of necessity. Going to work was like drinking poison. It felt as if my body was trying to run away from the work situation. The dystonia manifested itself as a literal pulling away from the instrument. My lips and tongue pulled away from the mouthpiece. My throat and chest worked to turn my air away from the instrument. It was as if the dystonia was a manifestation of a need to get out of that scenario of recurring abuse.

Final Performance

The week following the news of a suicide attempt by one colleague, I set out to prepare my part for *The Nutcracker*. As I often did, I went to my father's house to practice late at night. I picked up my trombone and thought, "I really don't want to play trombone right now." I could not focus during my

² Joaquin Farias, *Intertwined: How to Induce Neuroplasticity*. 2012: 37.

practice with all the grief and exhaustion of the previous week. I slugged my way through the practice session, but there was no wind in my sail. I couldn't make any of the music happen, and it was a very difficult part. I thought, "when it counts, I'll be able to play the music as I always do." I had never used sick days or personal leave, and it didn't register as an option in my mind. Warming up for the rehearsals at home with my wife and daughter, I was anxious because I couldn't play my part. I said horrible things about myself in my mind. My wife tried to focus on positive things, but I was so adamantly self-abusive in my thoughts and words. I had internalized the abuse that I had received so frequently at work, and I was feeding it to myself. In retrospect, it is clear that my mental health was severely compromised. The *Nutcracker* rehearsals did not go well. I scrambled, bringing in different instruments and mouthpieces. My playing worsened until I simply couldn't play.

During the first performance I was hacking through the solos. The sound was characterized by struggle and desperation. Compared to my wonderful colleagues, it sounded like a sixth-grade beginning band student was playing the trombone part. At the intermission I told the personnel manager that I needed to use sick days for the rest of the performances. My plan was to take a week off to process everything and use my winter holiday to practice my way out of the playing rut in which I found myself.

Once on holiday, I resolved to take it slowly and make one nice sound after another. The problem was, I could not start a single note well. Every strategy I could think of failed. The anger and pain from my relationships at work had seeped into my playing. I wasn't able to focus well enough to do anything productive during practice sessions. I was consumed with testing my playing and I was probably subconsciously determined to fail. My state of mind was in ruins. Playing the instrument caused distress. Knowing that I couldn't play caused more distress. Dread began to consume all my waking moments. I couldn't avoid thinking about my insurmountable playing problem and its catastrophic consequences. I had to support a family, pay a mortgage, and be a professional trombonist, and I could see that I was not on track to be able to do those things.

Ego Death

During that holiday break, I was visiting my in-laws in the beautiful Rocky Mountain town of Banff, Canada. My sister-in-law and her boyfriend, Andrew, were staying in my in-laws' house with us. It must have been obvious that things were not going well when I practiced in the home, and my wife had mentioned my situation to everyone. Andrew brought it up with me on a walk: "So, Tina said there is something going on with your playing?" It was a strange moment. My typical posture around this person had been confidence and success. To be seen in a vulnerable condition was odd. I sort of explained that I didn't know what was going on. He generously shared a story of one of his own performance flops as a lecturing professor.

The conversation highlighted the weirdness of having my reputation – able and talented – stripped from me. In the place of that vacancy remained only me. Previously, I had been adorned with a societal badge that gave me value in the eyes of others and myself. Probably most who have experienced a disability or disfigurement have had a similar badge stripped from them. Whoever I thought I was began to disintegrate. When the illusion of identity vanishes, the pain of loss is severe. That pain has provided me with a newfound empathy for others experiencing pain. I now see people as people instead of how far they've climbed up a particular career or economic ladder. Similarly, I see myself for the person I am, not for the status I hold. As significant as this epiphany has been to how I see others and myself, it has been equally significant on my musicianship.

The year and a half period of time I was out of work on disability leave was an important opportunity to dissolve my ego. I can't say I was ever especially egotistical; no more so than normal. But the importance of status is pervasive in our society and the field of music. Status doesn't necessarily have anything to do with music making, but it seems important in music education and careers in music. Schools often pedestalize their successful students for their achievements in auditions or competitions at every level. The students who win may become aware of their exceptional qualities and begin to identify with them. Perhaps the value of winning is so highly regarded that winners begin to see themselves as superior to other people. Sadly, it may be the case that those who are not winners begin to see themselves as inferior people.

There are countless times in my musical life when I rode the highs of winning and the lows of losing. As I reached my late 20s without having met my goal of joining a reputable orchestra, I began to feel a sense of shame or dissatisfaction. Financially, I had lived with very little income since graduating high school. I was aware of my gainfully employed friends' lifestyles, and I wanted that for myself. This intensified when my wife became pregnant with our first child. A sense of desperation set in. Suddenly, I became willing to do whatever it took to get work. I flung myself into situations without regard for my health or safety for the sake of money and status.

After winning a major orchestra audition, it felt like I was supposed to magically enter a class of people who knew everything, but I didn't know everything. My phony adherence to what I thought a professional orchestra musician was supposed to be made me feel like a pretender and was isolating. And yet, it elevated me in everyday circumstances. Meeting other parents at the park, or having people interested to be around me because of my new job, income, and status felt good but it was fake. It was like playing some meaningless posturing game. After going on disability leave, some of my colleagues were concerned about my wellbeing and I felt the need to maintain a personal narrative to preserve my standing in their eyes. It was isolating to feel like I could not truthfully share my hardship.

The death of that ego was inevitable. Time passed, and I was completely unable to play the trombone as I used to. Without the phony self-worth derived from my employment status, my true self-worth was revealed. It was a simultaneous process of acceptance and letting go. Acceptance of myself at rock-bottom without the vigilance of maintaining a false projection of myself was liberating. I felt good in my skin. The sheer length of my disability ensured that the ego constructs of the past were gone for good.

I live with much less presumption now. I empathize with others as much as I can, and I don't assign value to people because of their status. Similarly, I don't pretend to be superior to others because of my status. I can't help but be sincere about my situation. I'm not playing the posturing game anymore. These qualities are difficult to acquire, and I consider them a treasure.

Suspecting Dystonia

My winter holiday went on. My playing got even worse and as the clock ticked, desperation set in. I began suspecting dystonia and did some web browsing. I watched this video of Ron Rector demonstrating his dystonia during trumpet playing: <https://youtu.be/BI-nKAZD98A>.³ He has severe and visible tremors and the sounds he makes can only be described as pitiful. I love the man in this video because he shows so much vulnerability. He expresses the bafflement of dystonia quite well when he prefaces his playing with an apology and recognition of how bad his playing is. His tremors are hard for anybody to watch. My thought after viewing that was, “Is this what I am now? Have I been reduced to this level of playing?” I felt my identity shifting from professional trombonist to dysfunctional player. The seriousness of the situation was beginning to set in. All I really knew about dystonia was that there was no available cure and it had ended the playing careers of many famous top players in the classical music field. Because my trombone playing was the centerpiece of my finances, health insurance, and identity, my life was in a state of upheaval.

I had hoped that one of my occasional teachers at UCLA, Pat Sheridan, would be able to help me find a way out because he had a way of freeing my air past in lessons. My first time playing a great high D, a note in the upper register which is essential for the performance of common audition repertoire, was in a lesson with him. There are a lot of great qualities in his one-on-one teaching, and I had been a *Breathing Gym* devotee, which he co-authored. I asked if he had any time to help me. He gave me his availability and asked which hour I wanted. I replied, “all of them.” I wanted to tackle this problem with everything that was available to me.

Disability Insurance

After scheduling sessions with Pat, I called my personnel manager at work. Stepping outside into the snow and freezing mountain air, I explained that I didn’t think I would be able to play the next few weeks. Up to that point I had never used a sick day, so I was unfamiliar with my options. She explained that I had 16 sick days, and I would be able to apply for disability and the sick days would supplement the

³ Rector, Ron, *Playing Trumpet with Dystonia*. Jan 5, 2012. <https://youtu.be/BI-nKAZD98A>. (Accessed Dec 29, 2020).

difference between my salary and disability insurance benefits. This allowed my sick days to last for months. Further, when my sick days ran out, I could accept a round of sick day donations, once per season, from colleagues. Plus, my sick days reappear at the beginning of each season.

During the process I learned quite a bit about the disability system. In my state, there is short-term disability insurance from the state, which we pay into through a payroll tax. That can last up to one year and requires occasional verification by doctors that the benefit recipient is disabled. The process can be complicated as it relies on a doctor's office to timely return paperwork. A further complication was that the soonest available appointment with a neurologist was months away. Initially, I had to use a diagnosis of depression and anxiety to qualify for disability.

Collecting disability because of MD felt unusual. In all other respects of life aside from trombone playing, I was functioning more or less normally, minus the crippling anxiety. Part of me felt like I was scamming the system, but I really could not do my job. I felt that people did not understand my situation well as evidenced by my doctor suggested I switch to another instrument! Walking around neighborhoods with my kids during working hours was weird. My story didn't fit neatly into any assumptions people make.

As I waited months for my neurologist appointment, I came across an opportunity for a diagnosis by participating in a study on MD. I was not accepted into the study, but it was confirmed that I indeed had the condition during a Skype video call in which my trombone playing was observed by the neurologist and lead researcher. During the first year of disability benefits from the state, there was a lot of financial uncertainty. My employer provides long term disability insurance for all the musicians, which involves a separate approval process. As I was desperately trying to recover, I was nervous that I would recover too much to be disabled and not enough to return to work. Or that they would decide that there are other jobs I could take. Eventually, I went in for a verification meeting with an insurance appointed neurologist. He approved me for the disability benefits, and I received a letter stating that I would be eligible to receive long term disability benefits, which was 60% of my salary not including medical benefits, until age 65.

That was a relief, but also a very polarizing option to have. The struggle of retraining after dystonia is so difficult that to have an open exit door waiting for you can serve as a temptation. I weighed my options so many times. The reduced income would come with complete flexibility. I could live anywhere in the world. I could be a stay-at-home dad and support my wife's career ambitions. My understanding was that I could double-dip and do unrelated work, earning up to 80% of my previous salary without losing my insurance benefits. The option of returning to work as before came with extreme challenges, but I discovered that in my case, having professional purpose would lead to greater life fulfilment. As it turns out, performing music means a lot to me. Rationalizing about different options often doesn't account for passion and purpose. When one is removed from that passion, it can be difficult to remember the feeling one gets during a great performance or achievement.

Seeking Help – Pat Sheridan

After my winter holiday was over, I drove to meet with Pat Sheridan for a few days. We initially met at a coffee shop after my road trip and chatted. He had some great perspective on the interpersonal troubles I was having. He immediately recognized that the attacks I was receiving at work were not a response to flaws in my playing but rather an act of sabotage against me because I represented a threat. It was hard for me to believe that such a motive could exist in anyone playing music in ensembles. He told me a story or two about moments when he would sit in with a band and raise the level of the whole group yet get a nasty response from a jealous and/or threatened musician. After much reflection on his stories and on my experience, I've concluded that playing music sincerely and unapologetically without regard for social structures or egos may be subversive to those who are heavily invested in the social structure of the group or their own ego.

While playing in musical ensembles, if players make strong musical statements, musical disagreements are likely to arise, whereas vague musicianship is more agreeable. Although the strong musical statements bring awareness to disagreements, the awareness leads to clarity and specificity, allowing for the group to unify around a shared musical consensus. Such a shared vision has its genesis in sincere and healthy musical dialogue and is one of the main functions of the rehearsal process. However,

it may be that when players can't let go of their insecurity and personal narratives about their rank in the music field, they may not be interested in musical consensus. Instead, they will see strong musical dialogue as a threat or a personal offense, leading to a reaction of conflict. Of the hundreds of musicians I have played with, only a handful have had such a backwards attitude about playing music in ensembles.

Pat and I talked a lot about mental health. If I remember correctly, his mother was a mental health professional. He suggested that in his own experience, playing trouble often arrived during moments of intense stress or pain such as a divorce, etc. It was a compelling argument that one of the keys to my recovery would be in addressing mental health. In particular, he recommended Eye Movement Desensitization and Reprocessing (EMDR) treatment, which he described as a way to reprocess traumatic events by using bilateral brain stimulation via looking left and right, alternating continuously for some time. I'll return to EMDR later. I went to my hotel room after our long chat with great anticipation at the prospect of getting the help I needed.

Very early the next morning I went to his house where a handful of other professional musicians gather regularly to do a group warm up. The group had a good sense of community. I was reminded of similar sessions led by Pat during my undergraduate study at UCLA. It consisted of some exercises from *Breathing Gym* followed by daily routine exercises from *Brass Gym*, both of which he co-authored. I was mostly unable to play the exercises but chimed in for little moments when I was able. I did not want to disclose my condition at that time, but I participated regardless, hoping that something good would come out of it.

After the warm-up session, the others left, and Pat shared some observations he had made during the warm-up. We did a little floor meditation during which he asked me to imagine there was floating a feather above my head. I gave my best effort to understand everything and incorporate it. Pat mentioned he practices yoga and finds it very beneficial. He then told me to make a timeline of significant events in my life, positive and negative, with the suspicion that I might find some trauma correlating to the loss of my playing.

I left his home and attended a yoga class nearby. Then, I wrote my timeline. It didn't seem like there were many traumatic events to add to the list. I was fairly certain that my life had been quite void of trauma. After that I went running in the park at night. My diligence in improving my situation was hardcore. For the first time, I had hope that a path toward recovery was opening.

The next day, I joined the warm-up class again. After the group session we moved on to some playing. He did some typical easy back and forth tones with me, but in many cases I could not reply to his simple tones. I could see by the look on his face that things seemed really bad. He recommended that I get in touch with Jan Kagarice at that point. I drove home and processed the few days I had with Pat. I'm grateful for the perspective he gave me regarding my work relationships. It was validating and allowed me to finally open up to other colleagues about it. The recommendations he made of EMDR and seeking out Jan Kagarice led to major breakthroughs for me. However, it did not lead directly to noteworthy improvement in my playing.

In the weeks following my visit with Pat, I developed a routine based on advice from him and trusted friends paired with meditation and journaling. While I felt I was turning things around initially, my optimism faded quickly. Quitting trombone playing seemed like the only way forward. On the verge of giving up, I spoke with some very good friends who gave me advice that kept me in the game. A friend of mine who is a trumpet player, called me as I was on a late-night walk. We talked for about an hour. As he tried to understand my situation, he shared his playing issues from the past. Among many other things, he told me that when I feel hopeless to just focus on adding one positive thing to the trombone-playing bank every day. Without that encouragement I may have quit trombone that evening. Great support from friends and family were a major factor in saving my trombone playing during those most difficult days when no solution was in sight.

Chapter 3: Improving Mental Health

Before dystonia, I had never experienced depression. The depression that came with MD was like being trapped in a frame of mind with no way to get out. It was crippling in that it disrupted my presence in the moment, constantly drawing me to extreme thoughts of grief and anxiety. Now, after many hours of training, I'm able to recognize the type of thinking that leads to these states of mind, and I have actionable steps I can take to correct course immediately. Previously, without those skills, the walls of my mind caved in on me. My daughter was around 2 years old at the time, and I would have to force myself to smile for her. She probably helped pull me out of mind more than I recognized at the time. My wife was like a saint, being supportive and understanding, even though I was miserable to be around. The support of my family and friends during that time was a saving grace.

I sought a therapist who could administer EMDR therapy. I found Dr. Chang, Psy D., who was listed as an EMDR practitioner. However, her philosophy was that EMDR is a powerful tool to be used as a supplement to talk therapy. She convinced me that talk therapy would be a good idea as well, and I enjoyed the intense bike ride to and from sessions. I met with her weekly for about two years.

Sessions with Dr. Chang were interesting. Each session I was greeted by her Great Dane/Labrador dog that attended all the sessions. Our first few meetings consisted of her taking notes about my family history. She wanted to know about all my significant relationships. That was the first time I had ever communicated so many things of that nature to a stranger, and it may be the first time I've done it with anyone at all.

I was surprised by her reaction to some of my stories about family. She asked how my childhood was generally, and I told her it was a very good childhood with nothing too bad happening in the past. But as she asked more and more questions, stories began to flow out. There were stories of violence, property destruction, and verbal explosions between my family members. I was never a main character in those events, so I sort of chuckled about those. I had forgotten about those very difficult years while I was in high school. I had forgotten how it had felt to witness those events. In high school, I was ashamed of my

family dynamic and preferred to pretend it didn't exist and be elsewhere when it appeared. Dr. Chang observed that I was the peacekeeper in my family. Importantly, my family role established a pattern of behavior in response to conflict. Avoiding conflict and diffusing conflict were my go-to strategies. I never personally caused a stir. Rather than making demands for how I wanted to be treated and how I wanted my home life to be, I settled for conflict avoidance.

At first, I was skeptical of her theory, but as the past kept bubbling up in reflection, it rang true. She noticed also that my family dynamic from high school had recapitulated in my career. There were very similar characters with a different cast. It became clear that changing the way I relate to others was a critical component of healing and living a healthy life.

Dr. Chang taught me about setting boundaries with other people. She would frequently ask how a child would react if someone stepped on their foot on a crowded bus. "They would say, 'Hey! You stepped on my foot!'" she would say. She would then ask how 9 out of 10 people would react in the same situation. She explained that they cede the space to the other person, perhaps in silence or even an apology. At the time, I couldn't imagine being the 1 out of 10 that would say, "Get off my foot!"

I started bringing up my family history with my family members. It led to some confrontations that were difficult. In those moments, some would try to normalize the trauma of the past and I held them accountable. It started to change the way I saw myself and the way others saw me. Over many confrontations, people began to understand my boundaries. They did not like it at first. I was accused of being mean, etc. But I asserted that I am not being mean – I simply deserve to be treated with respect, as I treat others.

It's amazing how the right people seemed to enter my life at precise moments. As I was learning to set boundaries, a neighbor in our condominium complex began yelling out her window at my 2-year-old who was speaking in a normal voice in the courtyard as we walked to our unit. The first two times I didn't realize what was happening, but my daughter was telling me that there was a monster in the courtyard. On third time I challenged the faceless neighbor. She came out of her unit and began to assert that the complex was not family friendly and that it needs to be quiet at all hours. She also threw out some

wild accusations about playing music at 2am and other strange observations. For some reason, this woman had a bone to pick with me. I challenged her assertions and told her not to speak to my daughter again. Afterwards, I wrote a letter to her and to the HOA, whose rules require neighborly conduct. It turns out this woman has a history of mistreating people. Standing up to that woman was one of the most challenging social moments for me. I felt like squirming away, but I faced the discomfort and set boundaries. It caused me anguish as I mulled over my response, but eventually she made a conciliatory gesture and we arrived at a peaceful relationship. Best of all, she did not mistreat my daughter any longer.

Take Away Lessons from Dr. Chang

Three important lessons from Dr. Chang have helped tremendously: self-care, understanding depression, and the DEESC script, described below. Self-care consists of a checklist: sleep, nutrition, medicine/meditation, and exercise. It seems obvious that we need to do these things, but without a checklist, I would oftentimes allow one of the needs of self-care to go unmet. As I tracked my self-care, improvement was not typically noticeable between days, but over longer periods of time I noticed a significant impact on my health.

Dr. Chang helped me understand depression as a trio of hopelessness, helplessness, and worthlessness, characterized by fatalistic thinking in which a small thought moves almost instantly to a thought of the worst possible outcome. Learning to recognize those thought patterns and emotions as they arise and challenging them was very helpful in combatting depression.

The DEESC script is the most important tool and habit I have found to successfully set boundaries with people. DEESC is an acronym for the following:

- DESCRIBE the behavior
- EXPLAIN how it makes you feel
- EMPATHIZE with the behavior
- SOLUTION. Request the desired behavior

- CONSEQUENCES. Explain what will happen if they do not comply with the request and what will happen if they do. These consequences are not spiteful. Rather they are the natural outcome of behavioral choices.

Here is an example of a DEESC script:

Fred, you yelled at me during rehearsal. That makes me feel disrespected and not a part of the team. I understand you think that I was out of tune, but I need you to make suggestions calmly and respectfully. If you can do that, we can keep an open dialogue and enjoy working with each other. If not, I will not be able to take your suggestions constructively, and I will start to withdraw from you.

I have used these scripts countless times with colleagues and family members. They work beautifully because there is no need for an argument. In the case that the intended subject begins to argue, the script can simply be repeated. The first time I used this with a colleague, I had to repeat the script more than 10 times. Finally, they agreed to the solution, sulking, and our relationship at work immediately improved.

I learned that there are people in the world who do not grasp nuance or subtlety. My intended polite, veiled sub-meanings in previous scenarios left all the room in the world for an offender to make changes with grace, but they went unnoticed. I learned to say exactly what I didn't like, how it makes me feel, be empathetic and firm in my request for different behavior, and offer realistic outcomes based on their compliance.

By demanding respect from the people in my life, I felt worthy of respect. It is a therapeutic act. There are times when I am still uncomfortable with confrontations. With constant offenders, I often have to make a choice about the threshold of their offenses. However, there are times when I thoroughly enjoy confrontations. They may either help to create more sustainable relationships or rid you of the unsustainable ones.

EMDR

After Dr. Chang shared her reluctance to administer EMDR therapy, I found Laurie Hall who specialized in EMDR. She was excellent, and she allowed me to take the lead in my healing. My EMDR sessions were revelatory. We began each session by describing a traumatic experience that I wanted help with. I would rate the level of discomfort (1-10) that I would feel in my body while thinking about the experience. I would then put headphones on and watch a horizontal bar of closely spaced green lights.



Figure 2. EMDR lightbar

As the lights moved left to right and back, corresponding tones alternated between left and right speakers of the headphones. She would ask me to think of the traumatic experience while watching the light bar and listening to the beeps. At first, it was difficult to focus on my thoughts with the light and beeps, but it quickly put me into a trance. Her instructions were to allow my thoughts to flow without judgement. There were no wrong thoughts, and there was nothing I was supposed to be specifically focusing on. The spontaneous path of thinking would lead itself down a rabbit hole. After a segment of time (maybe 5-10 minutes), Hall would stop the lights and sounds and ask where my thoughts had arrived. I would report and she would write notes. Then she would say, “Okay good. Keep going with that.” Sometimes she would ask me to find someone to help with the trauma. These helpers would be selected from a group of five individuals who I had chosen at the beginning of the session. Some of them were real and some were imaginary. They were individuals who I identified as wise, courageous, nurturer, protector, etc. At those points she would ask me to meet with them in my mind or she would ask me what they might say in the particular situation I was in. At the conclusion of the oscillating light and beeping part of the journey, she

would ask me to imagine my comfort space, which was chosen at the beginning of the session. I would imagine the fine details of it, and she would ask me to visualize some relaxing things. After spending some time in that comforting space, she would ask me to revisit the traumatic experience. Then she would ask me to rate my discomfort with that experience (1-10). At the start of the session I tended to rate things as an 8, 9, or 10. At the end of the session my ratings were between 0 and 4 consistently.

These sessions were psychedelic journeys into my mind, complete with visions. The pathway of the thought stream went right to the core of my mind, but in a very non-linear way. A hypothetical observer in my mind would have had a difficult time following the strange path. It was as if while viewing a scene, I would notice a tiny, tangential detail of the scene, and that fragment would zoom to become a scene of its own. This process repeated over and over and over, until I would arrive at profoundly deep places in my psyche. I witnessed scenes in the most fundamental spaces of my mind. Every session was profound and visionary. I biked a long and mountainous path to and from every one of these sessions, which seemed to act as a great bookend for the sessions.

One notable EMDR journey took me to an inner sanctuary where I saw a child. It was crouched in fear on the ground inside of a small globe. I knew this child to be myself – myself as a child or the part of myself that is a child. I called on one of my five support individuals to help. The protector that I chose was actually a version of myself – the way I am as a father to my daughter. I brought myself as a father to myself as a child. I experienced the vision of paternal protection, normally reserved for my loved ones, protecting my most innocent self. To see myself as a child through my eyes as a father gave me the insight that I am worthy of love, safety, and protection. Up to that point, I had allowed myself to be a receptacle of abuse in order to keep a job or make a situation less confrontational. I had been an absent protector of myself, and to step up in that role for myself in that vision was exactly what I needed. I don't remember the traumatic experience that served as the prompt for this journey, but I'm sure it was a long way away from where I ended up. In EMDR therapy, it seemed as if the flow of my thoughts knew how to heal. This session changed the way I interacted with others. It took practice and thoughtfulness to

incorporate the insight from EMDR. I view the EMDR sessions I had as a cornerstone of my wellness journey.

High Conflict Personality

The colleague who recurringly attacked me has a history of interpersonal conflict in the orchestra and beyond. The only way one can understand this person is by assuming that he and his ego are the center of the universe. Truth and consistency of values are absent from dealings with him. If he feels threatened by someone in even the slightest way, he will go to extreme lengths to annihilate the social and professional standing of that person. A person who has historically experienced loneliness and lack of friendship, there is a desperate, grasping sense to his relationships outside of his family. He relies on his elite professional standing as a social lure. As a result, and unbelievably, to play in excess of his musical abilities can trigger a threatened response in him because he fears he will lose standing which he relies on to make and keep friends. Because his self-worth is entirely wrapped up in his playing, anything that disturbs his self-concept as the best is an existential threat to him.

Of all the musicians I've ever worked with, he is the only one to consistently assume righteousness with intonation, rhythm, etc. When the music is not unified, he definitively places blame on other people rather than observing that there is a musical difference between ununified sections. This often occurs as a defensive behavior where he feels cornered as a result of criticism from the conductor or from colleagues – even imagined criticism. Therefore, his pointed blame is infused with extreme emotions – usually rage. Most of the time, this person splits colleagues into superior and inferior groups, respecting those in leadership roles while abusing those in subordinate roles. Section players like me were most likely to be subjected to enraged insults and blame without any relation to any musical outcome, although, he would exhibit a subdued version of the same behavior to principal musicians and conductors.

This individual is notorious for this type of behavior. I participated in a summer music festival with him about a decade before, and I remember vividly how his extreme and sharp words caused a peer to break down in tears within the first couple of rehearsals. I've seen him weaponize his sound to punish and damage the hearing of people sitting in front of him for such crimes as using a protective plexiglass

sound shield or for being perceived as the cause of his own inability to play his part well (because he thought that person was playing sharp). His conflicts with other colleagues played a role in those players' termination of employment. He is well-known as a source of intense conflict in musical ensembles.

In a mediation session between this person and me, I was astounded when the professional mediator met first with me and was able to describe the offender's pattern of behavior without ever having the met him. It was like listening to a biography of the offender, only missing the specific details. When the mediator spoke, I just wanted to scream, "YES!" It was healing just to be understood and to have a professional describe how this person has a pattern of conflict where he constantly makes other people the target of blame, even though the problem always lies within himself. Bill Eddy and L. Georgi DiStefano's book *It's All Your Fault at Work: Managing Narcissists and Other High-Conflict People*, was immensely helpful in understanding this person's pattern of behavior and how to get the best results at work despite having a severely difficult colleague.¹

Before working with the offender, I could never have believed that a person could commit sabotage against a section mate or member of an ensemble. It goes against the foundational meaning of music-making in groups. Yet, this person's insecurity and ego caused him to criticize me insincerely for the purpose of his own self-preservation. In fact, his criticism was often his response to what others and I perceived as my best playing. Without recognizing this pattern, madness is inevitable because playing well triggers criticism which is meant to injure the quality of my playing. This ulterior motive being unknown to me, the criticism sent me into a flurry of practice trying to improve my playing in order to avoid criticism. Because his criticism was meant only to divert blame or throw off the threat that he perceived my playing to be, my diligent response of practicing caused me to chase problems that did not exist. The result was significant confusion about my own musical judgement and voice. I began to constantly question my playing as sharp, too soft, out of time, etc. It felt like there was no space for me to exist because no matter what I did I was always being criticized for things I didn't understand. By the

¹ Bill Eddy, L. Georgi DiStefano, *It's All Your Fault At Work: Managing Narcissists and Other High-Conflict People*. Unhooked Books: Scottsdale, 2015.

time I learned that all the criticism was only about the offender's ego and not my playing, my psyche at work was wrecked. Without a doubt, relying on his feedback as a compass for improvement and job security made a significant contribution to a downturn in mental health and the health of my trombone playing.

Another hallmark of the offender's workplace behavior is his volatility. He routinely yells at and insults conductors, other principal players, and section players. If he feels someone is playing sharp, he may intentionally direct his bell into that person's ears and play as loud as possible. More than one person has spoken to me about lasting hearing damage from these sonic attacks. Emotions of rage are commonplace. He speaks in a know-it-all manner and no one dares disagree with him for fear of his reprisal. It's exhausting and rattling. Conflicts with him have become so extreme in the past that colleagues have feared for the safety of themselves and their family, and I have been told security measures were taken. This volatility of the space where I performed trombone playing is significant as far as the onset of dystonia is concerned. Farias writes, "In recent years, lines of research support that being exposed to intense stress can be sufficient cause to trigger some forms of dystonia in those who are susceptible... Emotions could not only play a role in the onset of the illness, but they could also be of maximum importance during the process of rehabilitation."² The habitual experience of a toxic work environment changed the structure and chemical makeup of my mind into one of fear, detachment, and depression. Farias goes on to write:

Let's remember that the operation of the neuroendocrine system involves diverse hormones to regulate key processes during the inducement of plastic changes in rehabilitation. The afferent cholinergic, adrenergic, and serotonergic modulate the reorganization of the cortical plasticity. Taking into account that the behavioral tone regulates these substances, it can be understood how decisive the emotional state of the patient during rehabilitation is, since depression inhibits many of the neuronal recuperation mechanisms.³

² Joaquin Farias, *Intertwined: How to Induce Neuroplasticity*. 2012: 34-35.

³ Joaquin Farias, *Intertwined: How to Induce Neuroplasticity*. 2012: 35.

This emotional aspect of the dystonia story is important to understand because emotions exist physically, affecting the way the brain functions in learning and performance. Therefore, the management of relationships and mental health are crucial in maintaining a successful career as a musician.

As a close to this section, I leave you with a quote from Farias: “I wonder whether musician’s focal dystonia could be some kind of protective response which is generated to prevent more serious harm.”⁴

⁴ Joaquin Farias, *Rebellion of the Body: Understanding Musician’s Focal Dystonia*. Galene Editions: 45.

Chapter 4: Significant Influences

A Mentorship Gone Wrong

After finishing my coursework at Indiana University, I moved to my hometown. My plan was to start a private teaching studio and get as many playing gigs as possible. Even though we had not seen each other for a couple of years, one of the people I contacted first was the principal trombonist of the orchestra in my hometown, “Josh.” I had known Josh from music festivals and previous visits home where we would gather as friends to play trombone quartets. It was from this friendly and casual perspective that I asked if he wanted to get together to play some duets. He responded that I could come over to his house for a lesson, implying a teacher-student relationship. I felt that was an inappropriate suggestion given our casual and peer-level meetings in the past, but I was very hopeful to be working in the orchestra. It’s clear to me now that he had a longing to be seen as a master teacher. I accepted his proposal.

During our first meeting he told me what he felt helped him succeed in previous auditions. He described an adherence to literal interpretations of notation. Slurs sound like *this*. Notes without articulations markings (Josh called them “default notes”) were to take up exactly *this* much time and have space after them. Every notation was catalogued with a sound. To him, the ideal performance of written music would be one which faithfully executes each catalogued sound when it is written. This was a radically different approach to the way I played before. I had always been a musical dreamer, thinking of the possibilities of sound and meaning. I had never once considered simply inserting sounds when they were asked for. Music meant so much more than that to me. However, I took my existing approach to music and trombone for granted, and I began to do what he asked so that I could satisfy him enough to work in the orchestra.

We began meeting regularly. He was generous with his time, and it was exciting for me to be playing regularly with a member of the orchestra in town. He was very complimentary to me, while simultaneously speaking very poorly of many acclaimed teachers and performers. He spoke like all others

were idiots and he had all the answers. This characterizes his narcissistic style. He puts others down to elevate himself in the eyes of others. It had an influence on me and I began to buy what he was selling. After months, I slowly adopted his approach to music and technique.

Josh made it clear to me that I need to change instruments if I was going to play in the orchestra. I learned later this was because he thought that the bass trombonist could not stand yellow brass bells, which I had at that time. Instead, they must be gold brass, red brass, or silver bells. The difference between the material of brass bells relates to a ratio of zinc and copper, with yellow brass containing a higher ratio of zinc and red brass containing a higher ratio of copper, with gold somewhere in between. Sterling silver bells do not contain brass. As far as I can tell, Josh's insistence on bell material came from a misunderstanding of the bass trombonist's opinions. The bass trombonist often played yellow brass bells himself. While I believe different materials affect the sound of an instrument in fairly predictable ways, the materials are one factor among many, such as bell flare shape, bore size, leadpipe shape, bracing, etc. However, generally, I think of bell materials on a continuum ranging from colorful, less focused, and warm with a predominance of highs in the sound (yellow brass bells) to highly focused, core dominated, and less warm in the sonic aura around the player (silver bells). From the player's perspective, yellow brass bells offer a greater degree of malleability in the sound, requiring some effort of the embouchure, while silver bells offer effortless resonance within a more confined sweet spot. The disdain for yellow brass from the bass trombonist was probably in response to an observation of undisciplined trombone playing that was enabled by the flexibility allowed by yellow brass bells.

In order to satisfy this apparent prerequisite to employment, I bought a cheap intermediate Yamaha YSL-448G (gold brass bell) for \$1000. Eventually, I also bought a beat-up old Conn 88H, and finally, I bought the horn I play on now, my Conn 88H with a modern valve, sterling silver bell, and silver and gold plating throughout. I found these harder to play in some respects, but also promising in others. This instrument requires very little input of effort by the player, which makes it a great instrument for efficiency and longevity. However, the flipside of this feature is that the instrument has an extremely low tolerance for extraneous input. I think of it as having very defined rails, and any attempt to push

against the rails is rejected by the instrument. I had built my trombone playing on an instrument which was on an opposite side of the spectrum from these instruments. The instrument I played for more than a decade before had less defined rails that allowed for a wider variety of sound possibilities. This quality allowed the instrument to be successfully played despite a great deal of inefficiency. Having been accustomed to an inefficient style of playing, switching instruments to the Conn 88H was a major change. In his book, *Intertwined, How to Induce Neuroplasticity*, Dr. Joaquin Farias describes a violin-playing client with MD whose condition arose from a change of bow:

String musicians often refer to bows as “balanced” or “unbalanced”... In this case, the subtly unbalanced work tool caused the feeling that the bow might fall out of the user’s hand, which caused the players to modify their technique and produced unnecessary tension in order to avoid it. These inconsistent technical changes, while practicing, modify the automatized motor programs formed earlier in childhood, causing dysfunctional associations between execution and excessive muscular tension.¹

This describes the imbalance I felt switching to the Conn 88H. I was used to blowing very hard and being able to hold back air and control with the lips. However, the Conn demands to be played with much more ease and not controlled with the lips. Attempts to force resonance are resisted by the instrument, causing embouchure fatigue and accompanying pain. So, I developed excessive tension to counter my overblowing on the Conn. I’m very happy to be playing this instrument now, but I’m certain that the change of instrument was responsible for the loss of ability in some respects. Rather than allow my body to adjust to the horn, I kept trying to feel the same way I used to feel on my old trombone when I would play in problematic areas. It didn’t help.

The last major change Josh asked for was a change in sound quality. He played with and wanted me to play with a very closed, nasal sound. He would describe it as if you were to say “mrrrrrrrrr.” I did not like the way it sounded, but I also recognized that Josh could do some of the technical things that I wished to be able to do, such as playing very high notes. Unfortunately, I started practicing it, but I never settled on making that sound. Of all the changes he asked for, it was the one that disturbed me the most.

¹ Joaquin Farias, *Intertwined: How to Induce Neuroplasticity*. 2012: 12.

The internal conflict this sound change stirred internally, caused me to oscillate between my own sound and the strange sound I was asked to make.

It is my understanding that Josh intended to help me in the role of mentor. He recommended me for many important opportunities, and we had a friendship. Unfortunately, our work together led to a fatal downturn in my trombone playing.

Tim

Tim had a significant impact on my trombone playing. I have deep affection for this person and regard him as one of the finest musicians I've ever had the privilege to witness and make music with. But his gift seemed to come with an illness of the mind. He was unable to maintain a consistent personality at work. He was plagued with constant dissatisfaction, and a pattern of strangeness that would come and go, seemingly by the day or week. His mood was up or down, mostly the latter. He would at times become non-communicative. During some of those moments I could physically feel an apocalyptic vibe coming from him, and I had to remind myself that I was not going to be physically harmed at work. His strangeness took a huge toll on those who sat around him.

I enjoyed spending time with Tim outside of work. We would meet at his home and play duets while drinking beer or tea. He was very interesting to talk to and had a depth of knowledge that I have not encountered since. We sincerely enjoyed each other's company and music, and I could be open with him.

Tim's pattern of mood swings at work varied. In the best of times, he might have two weeks of normality. In the worst of times, he would have a month or more of total darkness. Usually, it seemed like he would start off the week with a good rehearsal or two and then plunge into darkness for the rest of the week. During one memorable week we were playing the score to a film with a showing of the film. There is a lot of time during the performance when musicians do not play. Most people watch the film or think about their next entrance. This particular week, Tim kept his instrument at his lips, looking straight ahead for the entire duration of the film without a word or a glance came from him. That's a small example of how it would get with him. It would suck the air out of the room and make everyone feel extremely uncomfortable.

In addition to his strangeness, Tim talked a lot about sharpness and pitch. He felt that the brass in particular would get very sharp, creating a situation in which he could not play his best. I understand now what he meant, and I share his feelings at times. But I was very confused about it back then. I spent many hours in the orchestra trying not to play sharp so as to not displease him. My pitch was never a problem before playing with Tim, but I have the type of personality to look for solutions inwardly. Trying to flatten my playing and hold pitch in opposition to the tendencies of a group caused me to play in very weird, counterproductive ways. However, I credit Tim with showing me how beautiful a trombone can sound. I also wouldn't have lasted as long as I did around the abuse from another colleague had it not been for Tim's playing to lean on.

Farias writes of a brass player with embouchure dystonia who could play normally when he could not hear himself, and it may shine light on the significance of habitually second-guessing my pitch in response to the dissatisfaction of Tim:

Just as with patients who stutter, many dystonic musicians improve or normalize their performance when they cannot hear the sound they produce... In this case, the first sound that is produced is identified as incorrect and is dysfunctionally modified producing another sound even further from the one sought. This process is repeated as a dysfunctional loop many times per second until a distortion of the lip position is reached so that sound is not possible. Arturo's lip position being correct when he couldn't hear himself play could reflect that the first sound and the first position were correct. Could Arturo be adjusting a position that was correct?²

The constant discussion of sharpness and moodiness of Tim and others conditioned me to constantly doubt the correctness of my intonation and abandon whatever sound I would begin with. Shrinking away from my sound became habitual and was a contributor to the onset of MD.

Symptoms of MD

MD manifests in many different anatomical areas varying by instrument or voice. A violinist with MD described the onset of their left-hand finger dystonia to me as starting with a feeling that they can't get a good touch with the string. Eventually, two fingers became unusable as they would become stuck in

² Joaquin Farias, *Intertwined: How to Induce Neuroplasticity*. 2012: 23.

cramps. Well known guitarist and pedagogue, David Leisner, describes his MD onset as characterized by a loss of speed of his plucking fingers which eventually led to a visible curling in of the fingers.³ In these cases, and many others, the dystonia becomes clearly visible to the player or observers. In the case of brass players with dystonia, most of the functional systems for playing exist inside of the body, although in some cases there may be visible tremors or cramping of facial muscles. These hidden anatomical areas include the muscles of breathing, throat, tongue, and lips. All of these hidden groups of muscles were affected in my case of dystonia. Marston writes, citing a 2006 article by Jabusch and Altenmüller, “Dystonia also impacts other instrumentalists, appearing for example in pianist's hands; however, brass players appear to display the lowest recovery rates.”⁴ I suspect this disadvantage among brass players in recovering from MD is attributable in part to the invisibility of important symptoms.

In the beginning, the manifestation of dystonia felt like the notes in the trombone were not where they used to be. What was once extremely reliable became impossible. Trouble with one low note eventually led to trouble with the low and middle register as a whole. There was no pain. I was not aware that anything physically different was happening, which is a misfortune of brass players not being able to see what is physically happening the way a violinist, pianist, or guitarist can. At first, my assumption was that I needed to practice more to work out that strange problem I had with playing low Fs. This had been the way I had gotten better for my entire trombone playing career. As my low register deteriorated, I practiced more and more. The rational thought of practicing to fix a problem turned into a frantic whirlwind of attempts to regain ability.

Trombone Playing as System

³ Noa Kageyama and David Leisner. *The Bulletproof Musician*. Podcast (Dec 6, 2020). <https://bulletproofmusician.com/david-leisner-on-overcoming-focal-dystonia-and-learning-to-play-with-ease/> (Accessed Jan 5, 2021).

⁴ Hans-Christian Jabusch and Eckart Altenmüller, “Focal dystonia in musicians: From phenomenology to therapy.” *Advances in cognitive psychology* (2006), 2 (2-3), 207-220.; Marston, Karen Lynn, *Finding the Balance*. 64.

In order to understand my case of dystonia, we have to look at trombone as a system of balancing forces. A normally functioning trombone player creates air pressure via the muscles of exhalation, creating flow out of the lungs, through throat, past the tongue, through the lips, through the mouthpiece, and through a mostly cylindrical tube. The air flow resonates the air column in the instrument, creating oscillating pressure waves which cause sympathetic vibration in the lips.⁵ The ideal of efficiency is to use the least amount of effort to achieve this resonance, balancing the outward flow with the air column of the instrument so that the airflow does not need to be held back. By contrast, inefficiency in brass playing manifests as holding the air back at one or more points in the system and compensating by over-pressurizing the air inside body.

Before dystonia, my tendency was to hold air back and compensate by blowing harder. The balance of that system was held in tension between opposing muscles. As dystonia began its onset, I believe the opposing muscles that held my playing in balance changed. Farias has pointed out in many dystonia cases that an apparent overreaction of a muscle to a stimulus is often the result of compensation due to an underreaction of another muscle. In my case, it's most likely that my airflow was weakened through tension and withholding, forcing my lips to overcompensate for the weak airflow. This led to greater lip tension which in turn led to even more strain in producing outward airflow. Chest spasms between inhale and exhale and general chest tension characterized my withholding of air. It's hard to say exactly which muscles were the original troublemakers, and it is not that important because a change in the system affects all parts of the system. If dystonia began with spasms in the chest in between inhale and exhale, my body would immediately adapt by holding back air further down the system. Conversely, if the back of my tongue were blocking the air from exiting, it would immediately cause a reaction in my body of blowing harder to overcome the blockage. The end result of roughly 6 months of maladaptive practice was a system that could not function. My lips were curled in, my tongue was recoiled as far back as possible, my throat was constricted, and I couldn't breathe normally whether playing trombone or not.

⁵ Arthur H. Benade, "The Physics of Brasses." *Scientific American* 229, No. 1 (July 1973): 27.

The breathing dystonia physically caused the sensation of drowning and anxiety, which was likely a factor in my inability to think clearly during my practice sessions. The dystonic symptoms were most intense in the middle, low and extra high registers, leaving me with an octave I could still struggle to work with.

Farias describes the general onset of dystonia:

All movement is made up of synchronized operations, both the agonist muscles, those that cause actions, and the antagonist muscles, those that oppose the action of the agonist muscles... In the effects of focal dystonia, a co-contraction is observed. This consists of a simultaneous contraction of the agonist muscles and the antagonist muscles while a movement is being performed... This case can be explained using the model of overstimulation: a deficit or hypo activity is produced that accompanies an “agonist-antagonist” loss of balance, turning into hyperactivity of the antagonist muscle.⁶

Farias’ description of the root of dystonia matches with the assessment of my dystonia symptoms as a shifting or loss of balance, causing a snowballing pattern of tension. Farias describes the phases of dystonia onset:

The process begins with a predystonic state, in which no physical demonstration of tremors or spasms yet exist, but the patient perceives her hand or objects in contact with her hand as different. At this time, the maladaptive plastic change or the degradation of the cortical somatosensory representation has taken place. In the subsequent phase the patient tries to align her distorted perception with outside demands. In this second phase, fast, mild tremors primarily appear, which the patient tries to control, producing tension and precipitating the third phase which is characterized by the presence of spasms that completely hinder movement. So the first phase is basically perception; the second shows a loss of control; and the third, immobility due to tension. Generally, the patient seeks medical care when she is in the third phase.⁷

This map of dystonia onset accurately describes the onset of my dystonia, which started with a change in perception. Suddenly, notes were not where they used to be. Second, I lost control of my low register on the trombone. Third, in an effort to regain control, I became locked in immovable tension.

During my retraining process with Jan Kagarice, the focus was nearly always on the solution. Although, she would often describe my problematic motor behaviors, it was always in the context of narrowly targeted inhibition of those behaviors. She did not label my dystonia as involuntary contractions

⁶ Joaquin Farias, *Intertwined, How to Induce Neuroplasticity*. 2012: 10.

⁷ Joaquin Farias, *Intertwined, How to Induce Neuroplasticity*. 2012: 8-9.

of certain muscles, though I am sure she could have. Each session with her was about retraining the body to remove and replace dystonic behaviors. Made over a period of years, the number of changes we made to my playing are countless. The balance of my trombone playing system was shifted incrementally into function and efficiency far greater than I had enjoyed before dystonia.

I have learned a great deal about the epidemic of embouchure dystonia that is plaguing numerous players in the top of the brass field from my conversations with Kagarice. While she deeply respects her clients' privacy, she is able to share broad trends from the hundreds of clients she has seen. When I began working with her in 2017, she had already coached 400 clients with MD. Now, four years later, I'm sure that number has grown substantially, as is evidenced by her busy schedule packed with clients, which unfortunately are not in short supply. One interesting trend she has noticed is the prevalence of specific dystonic behaviors among groups of players who share a teacher, suggesting that specific pedagogical techniques may give rise to dystonic behaviors. Certainly, for me, the act of retraining meant reversing many of the flawed behaviors and concepts that I learned at different points in my career. Whether or not one can define the causation of dystonia, the retraining process requires the confrontation and replacement of certain pedagogies and beliefs about brass playing which oppose findings in the physics of brass instruments, efficient and effortless playing, and immersion in peak performance.

Flaws of Former Technique

I will identify the pedagogical and philosophical influences on my trombone playing prior to MD onset which had to be turned upside down as I retrained from MD. I view these items as blockages in the system of my former trombone playing, and I do not assign any singular blame to any one individual pedagogical approach or idea about music-making. I recognize that there are a great number of players who play with extreme inefficiency and do not also have MD. In fact, I was one of them. While I was able to accomplish a great deal of musicianship, my system of playing was never comfortable and had crucial shortfalls that never improved despite a decade or more of persistent practice. For instance, even though it was a primary focus in all my three degrees of university coursework, my high register did not improve meaningfully from high school until the onset of MD. Listening to great players, I would wonder how

they could possibly play the way they did. The parameters of my technique were so limiting that I could not even imagine how it would sound or feel for me to play like they did. I did not have MD, but the holes in my playing left me vulnerable and confused.

Lip Strength

In high school, I was attached to the idea that trombone playing is a feat of strength, and what separated me from becoming better was simply strong muscles. Which muscles? I might have guessed the lips. So pervasive was this thought that 8 or 9 years later during my graduate study, my teacher at the time, Chicago Symphony Orchestra trombonist Michael Mulcahy, pointed out that there was no physical strength advantage that he had over me. As a 22-year-old, I probably had some physical advantages over him, and yet he was able to achieve awe-inspiring feats on the trombone which I could not. I had spent all those years lifting weights with my lips for nothing, or worse, building a system of playing on a foundation of misinformation. The thought of trombone playing as strength training gave me the impression that trombone playing ought to be filled with effort. I thought that it should feel like a lot of work, and that it's good to feel tired lips after a session because they will grow back stronger. When I practiced long tones, overtone slurs, and articulation patterns, I believed the value in the activity was strengthening the lips, and I practiced like I was doing just that rather than focusing on improving freedom, flexibility, or beauty of sound. This resulted in an inefficient trombone playing system that held back air and blew through tension vigorously.

Articulation

In school band I was taught to say 'tah' when starting notes and 'dah' when playing legato. I implemented this very literally as many players do. I would play a tone and do the tongue motion as if saying 'tah' and 'dah' while holding the note. It sounded like a person holding a note and moving their tongue around, not an articulation. I was very confused about where I was supposed to place my tongue because what I was told to do was not working. In fact, I was never told what the articulation sound *was* that they were hoping to hear. It was a completely arbitrary instruction – do this physical movement when you start each note. So, I learned to arbitrarily add tongue movements when I started notes.

Later, when I started multiple articulating, which is used in playing rapid articulation patterns, I was told to say ‘tah-kah-tah-kah.’ As I began to practice this, again very literally, I became very frustrated because doing what I was instructed to do made it impossible to play. At that point, I finally modified their instructions so that it would work. However, I continued to view articulation as something that one does *apart* from sounds. To me, articulation was merely an extra motion I had to do outside of the sound or a phrase. It never occurred to me that my musical imagination had more to demand from me than saying one of three syllables choices while playing. I never considered how I wanted the beginnings of notes to sound and to let my body find its way to fulfill my aural goals. I just *did* the behavior of what I was told was an articulation. In fact, while retraining, I discovered that it was initially impossible for me to imagine the beginning sound of any note because right at the moment my note started my mind’s eye would look away from the sound and think ‘tah’ without tone. Instead of being a detail of the music that deepened my engagement while playing, articulation was a disembodied mental instruction for an arbitrary behavior that *distracted* me from the musical sound. This constant break in musical thought, derived from *doing* articulation, became the source of a wide range of problems including response trouble, articulation trouble, and limited range.

I have since learned to expect articulation in the air column and sound. When I am sufficiently engaged and focused, I can hear, see, and feel the articulation in the air column, with little or no awareness of what my tongue is doing to achieve the musical goal. The resulting music is notably uninterrupted when compared to my former technique of *doing* articulation.

Mouthpiece Buzzing

Mouthpiece buzzing is when a player removes the mouthpiece from the trombone and exerts the muscles of the lips to vibrate inside the mouthpiece as air passes through. While in high school, my trombone teacher purchased a tool which allows the player to buzz while simultaneously holding the trombone and moving the slide as if he or she were playing trombone normally.



Figure 3. BERP buzzing tool⁸

It struck me as useful because it brought awareness to a pattern of stopping my air in between notes during a particular phrase. However, I did notice that it was hard to play the trombone after buzzing. If I tried to match the feeling of buzzing on the trombone, it sounded awful. Aside from the occasional buzzing in lessons, I did not do much buzzing until college.

At UCLA, my teacher instructed me to do a buzzing routine every day in order to build my embouchure and improve high register. The routine (Jimmy Stamp routine) included buzzing scale patterns across different registers. This was the first time I incorporated buzzing as a daily warm-up. I did it religiously, but it did not help my high register. In retrospect, it made playing trombone much more difficult. It was always very uncomfortable to switch to playing trombone after buzzing for 20-30 minutes.

The practice of buzzing reinforces the idea that brass instruments function by the player actively vibrating the lips in the mouthpiece while the instrument acts as an amplifier of the vibrations created by buzzing. This mainstream notion, which I never questioned until I began working with Kagarice, kept my

⁸ Photo of BERP.
https://static.music123.com/derivates/6/001/237/819/DV019_Jpg_Regular_462662.936_tromb-euph.jpg

focus permanently on the tension and strength of the lips. Furthermore, the act of buzzing trained my embouchure into a flat shape. The lips were pushing up and down against each other while the corners of my embouchure, where the top lip meets the bottom lip, were pulling apart from each other (towards my ear lobes). This shape prevents the free flow of air *through* the lips and out the bell of the instrument. As a result of the blockage from this shape, I had to blow air hard to get past the lips. Because my lips were pulling sideways apart from each other, I had to push mouthpiece pressure on my face for my playing to function, especially in the high register. This isometric system of tension caused a downward spiral where the forces of air blocking and air blowing were constantly battling each other. The more I exerted with one force, the more I had to exert the other force to keep a functional balance. The consistent practice of buzzing was a handicap that I implemented into my system of trombone playing.

I spent many hours retraining the response of my lips to the stimulus of getting ready to play and the sensation of the mouthpiece on my lips. Players may not realize how much automatic preparation is done by the body in the moments before playing an instrument which has been practiced for a significant amount of hours. Piece by piece I dismantled my body's expectation of needing to buzz the lips, and I reprogrammed it in order to facilitate free outward flow of air, resonance of the air column, and sympathetic vibration of the passive lips. This process was unbelievably difficult because I was initially unaware of all the layers of automatic response to the stimulus of playing that I had programmed during my former training. Once I became aware of my body's automatic responses to playing, it seemed impossible to make a change. Making it more difficult, I did not know how to play any other way, and I had to discover something that my brain was screaming was physically impossible. People who have learned to play brass instruments by actively buzzing tend to have trouble imagining how the air column can vibrate the lips for them. With Kagarice's help, I was able to break down the dysfunctional behaviors of my former embouchure based on buzzing and build a new embouchure around a physically accurate function of brass instruments.

Breathing Gym

The final and perhaps worst flaw in my pre-MD playing came from the practice of the inhalation as an action. Halfway through my undergraduate studies, Pat Sheridan joined the faculty of my university. He brought a great vibe to the school and was clearly invested in the student body. He was open, engaged, and generous with the students. He brought his curriculum, *The Breathing Gym* to UCLA. My first *Breathing Gym* experience was at the beginning of brass choir rehearsals, which Sheridan conducted. It seemed like a promising endeavor because brass instruments are wind instruments. The logic follows that all brass players should be very good at moving air. I bought into this school of thought completely. My peers and I would meet early in the morning to practice *Breathing Gym* together.

Breathing Gym is a collection of exercises which aim to train for the variety of respiratory needs of brass playing.⁹ These include controlling the steadiness and pace of inhalation and exhalation, very quick inhalation followed by varying lengths of exhalation, inhalation and exhalation “with power”, blowing with varying qualities as one might in playing pianissimo and fortissimo, etc. *Breathing Gym* also incorporates a lot of relaxing sighs and visuals to stay loose, and it is all done with a sense of humor.

With in-person instruction, Sheridan is able to achieve a freedom of air flow with his students. I remember my air moving extremely freely during lessons with him and the results on the instrument were remarkable. However, on my own, or in groups of peers, I found myself struggling to move air freely while doing the *Breathing Gym* exercises. I thought I needed to get better at breathing and do more work with *Breathing Gym* to achieve this. In the years following my time with Sheridan, there was always the thought in my practice that I ought to be doing more *Breathing Gym* because I felt my breathing was full of tension and because I had experienced such remarkable success in one-on-one lessons with Sheridan.

I am now critical of *Breathing Gym* for a number of reasons. To begin with, whether intended or not, the title word “gym” suggests strength and exertion in breathing. Breathing is done best when it not being consciously done at all. Most humans have breathed effortlessly since birth. It is a function of the autonomic nervous system. Bringing the focus to the breath and taking control away from the autonomic

⁹ Sam Pilafian and Patrick Sheridan, *The Breathing Gym: Exercises to Improve Breath Control and Airflow*. Focus on Excellence, 2002.

nervous system removes the benefits of automaticity and can cause serious negative side effects such as dizziness, tingling sensations, and many more. While working on inhaling, perhaps I was looking for a feeling of strength. But the sensation of effortless, efficient breathing is closer to the *absence* of sensation. Maybe I took it as an implication of *Breathing Gym* that I was supposed to suck in and actively move air. However, air having the properties of a fluid, does not need to be moved. Responding to air pressure, it moves itself. Simply relaxing creates the conditions for air to enter the lungs so long as we are not blocking the channel through which air passes. While practicing *Breathing Gym* I felt that I had to vacuum the air with high power. This notion may be especially harmful to those susceptible to dystonia. Farias writes, “It could be said that patients affected by focal dystonia are muscle tension addicts. Dysfunctional muscle tension is produced because of a feeling of need to generate it.”¹⁰

These inhalations of exertion were counterproductive for me in terms of filling the lungs with air, and while playing, they left me out of position for free and functional outward flow of air. Similarly, while exhaling, I thought that the harder I pushed, the better. While large quantities of air can be exhaled very quickly and effortlessly, I was expecting the sensation of effort and strength. So, I used strength, recruiting more muscles than necessary to join the task of blowing air. The result was isometric tension where I blocked my air from leaving so that I could push even harder against that blockage. The strongman approach to breathing I developed through *Breathing Gym* built a structure of detrimental overworking, in which the freedom of air was suffocated with blockages during both the inhale and the exhale.

Second, separating the breath from the function of playing a brass instrument is a disadvantage. In the crucial moment before beginning to play a tone, the player is much better served by focusing on the task at hand. That is, the tone that is about to be played. The breath is a response to the motivation of playing a tone. The finer the detail of the expectation of the tone, the greater the unconsciously customized nuance of the breath by the body.

¹⁰ Joaquin Farias, *Intertwined, How to Induce Neuroplasticity*. 2012: 39.

There are endless analogies that make this point clearly. Kagarice demonstrated this in a pretend tennis volley with me. She hit an imaginary tennis ball toward me. As I watched the imaginary ball come towards me, my motivation to send the ball back to her caused my body to unconsciously do an appropriate backswing capable of achieving my goal. My tennis swing was natural, effortless, and felt good. Next, Kagarice played the role of the bad coach. She explained that a tennis swing must have a backswing and so I must *do* a backswing. She sent another imaginary ball my way with the instruction to *do* a backswing. I *did* the backswing as she asked. The *done* backswing had no relationship to how the ball was incoming and where I wanted to send the ball. After all, I was focused on doing a backswing, not the ball. If it had been a real ball, I may have missed the strike, and after *doing* the backswing, my arm felt stiff and uncomfortable.

The breath in trombone playing is analogous to the tennis swing. My ideal process of playing, taken from Kagarice, begins with a focus on the music I am about to play. I engage in an immersion of the sensation of the air already on the phrase as if it is already playing, in the sound and the spatial location it originates, and a visual model of the function of the air column. This is the motivation that causes the instrument to come to my lips. I maintain my immersion in the phrase as described above until the moment I join it in playing. I then let this multisensory vision continuously lead a tiny moment ahead of the playing. If I am truly in a state of focus, I will not be aware of an inhale. The temptation of my former training in *Breathing Gym* is to look away from the immersive focus on musical sound in order to *do* an inhale, exactly at the moment at which I most need to be focused on the phrase I am about to play. When that happens, it's like starting with a handicap, disabling the maximum level of sublime music-making. Beginning with an active inhalation, the balance of my air will be off, and I will not be in contact with the sound or leading the sound with any musical vision. The technique of turning the inhale into an action in and of itself creates a significant separation between the player and the musical sound, which limits the ability of the player to reach the highest possible musical experiences.

One particular exercise from *Breathing Gym* was especially harmful. "6-7-8-9-10" consisted of inhaling evenly over 6 counts and subsequently exhaling over 6 counts, followed by the same over

successively longer intervals of time. This trained me to grip my breath. After practicing it for so long, that type of controlled breathing entered my daily life. When I would attempt meditation, I would use the same kind of breathing, believing it to be optimal.

When I started working with Kagarice, one of the first things she asked me to do was to lie on the floor and observe my breath going automatically as if I were asleep. I remember being extremely frustrated during this exercise. The feeling of attempting breath automaticity was dreadful and I just could not do it. Sadly, breathing automatically as I had done since birth, was too difficult a task for me. I worked at this for months but could not seem to breathe naturally. As I would focus on the breath, a feeling of dread and panic would overcome me. I felt like I was drowning. It was as if I couldn't breathe. It also seemed to me that if I stopped actively breathing, my body wouldn't breathe. I had to leave the pursuit of the return of automaticity to my breath for later because it was too difficult for me.

It wasn't until 3 years into the process when I began to release the breath. During a session with one of Kagarice's wonderful assistants, Devin Bennett, we started working on achieving a "resting breath" with some body modifications to help guide the body out of its habitual tension. After about 20-30 minutes, being guided by Devin, I entered an alternate state of consciousness – a meditative state where my perceptions and feelings changed. In these states I lose a sense of where I am in space. My hands disappear and other parts of my body feel as if they change size. It is accompanied by feelings of bliss, peace, and calm.

Even while achieving this state, I was still gripping the breath, but much less than normal. I've been practicing this "resting breath" ever since and it has progressively gotten much better. The more I practice meditative sessions, the easier it is to find the release of the breath. I've gone from getting one or two free breaths to breathing freely for many breaths to my breathing being calm most of the time. This has been the most difficult part of the retraining process. It is very encouraging to note after meditative sessions that my trombone playing is immediately improved from the freedom of air flow. During truly free breath cycles, shivers race through my body with a feeling of blissful release. For someone who can't breathe normally, a normal breath is a source of pleasure.

This breathing issue is an example of how Musician's Dystonia can have an impact outside of the act of playing an instrument. Previously, I was unaware of my constant controlling of the breath and its effect of stress and anxiety. Breathing like that appears to be a trigger for such feelings. Others who have had onset of MD after practicing *Breathing Gym* have reported much worse symptoms than I, including panic attacks. Returning the breath to automaticity opens up feelings of calm and peace during everyday life. Had I not retrained the damage I had caused while practicing *Breathing Gym*, I would still be controlling my breath unconsciously every moment of every day, living in anxiety and stress. It is analogous to living with a disorder. The practice of playing trombone is such a large part of a professional musician's life that the body makes adaptations that are apparent in the parts of life outside of music-making. Because of this, I strongly urge those experiencing MD to retrain.

Pedagogical Influences from Josh

The above foundational components of my trombone playing were solidly in place when I began to take advice from Josh. I believe, like every other teacher in my past, that Josh sincerely was trying his best to help me. However, his pedagogy remains the most bizarre I have ever encountered. One of my guiding principles as a teacher is, "first, do no harm." However, even I underestimated the potential for negative outcomes that can arise from repetitive training. I believed that experimentation was harmless because I would always be able to return to my playing as it was. For instance, I believed I could play Josh's way in the orchestra and play as I liked at home and elsewhere. However, musicianship is a practice. It is the sum of our actions, and it is fluid. It is not an object that rests in place for one to return to. I will describe the pedagogical approaches from Josh that were the most harmful.

Doing to Get

Josh asked me to change the way I moved my slide. He proposed moving my slide exactly at the moment of beginning the note, arguing that a last-minute movement served to coordinated articulation, air, and slide. He compared it to a trumpet player placing their valve at the moment the note began. He also insisted that I use a different grip when holding the slide. My grip could be described as a throw-and-catch, using the thumb, index, and middle fingers, with the palm facing more or less to my body. He

asked me to grip the slide between the thumb and the side of the first finger, with the palm facing the ground, more or less. I was resistant to this idea because I felt that my existing slide technique was a strength. However, he pushed until I agreed to try it. He claimed it sounded much better even though I couldn't hear much of a difference. The thing of interest in his slide technique approach is that it is a very active approach. It is consistent with his other pedagogical approaches in that it trains the active doing of a behavior for the purpose of getting a desired result. This basic philosophy of separating the behavior from the desired outcome of playing was one of the large items that had to be reversed in the retraining process.

His slide technique ties in very neatly with his narrow interpretation of musical notation in which written notes are seen as catalogued sounds that are put together to make music. He insisted on an interpretation akin to MIDI playback of notation software scores and often spoke about notes being binary, as in being on or off. Further, this interpretation was to be carried out by means of manually stopping the air between notes that are not slurred. So, I began stopping and starting my air constantly within phrases while playing music. Whether or not he is right that air may naturally stop between notes is not the feature I am highlighting. Rather, the direction of my focus to manually starting and stopping the air led to significant negative effects on my trombone playing. Again, I was instructed to *do* behaviors in order to get a musical outcome, separating my playing from the musical outcome itself. I didn't realize how major this change was when I started preparing music for the orchestra using his interpretive method. Later in the retraining process, I found that I could play freely while playing from memory but reading from notation triggered the stopping of air which I had become so accustomed to doing. The training of MIDI interpretation of music notation caused me to stop playing music naturally. I was no longer attempting to play music the way I wanted it to sound. Instead, I was executing meaningless instructions from the musical notation. Being someone with a natural musical voice, this was a subversion of one the most powerful forces in my arsenal as a performer.

Kagarice described this approach as analogous to Paint By Number consumer painting kits in which the painter is told which numbered colors to use and where. The end result was a beautiful painting

by an amateur. Did the amateur do anything meaningful in the process or contribute in anyway? No. In fact, they must have ignored any artistic inclination they may have had in order to paint by the number. This is a perfect metaphor for Josh's approach to playing music. Execution supersedes meaning. The only interesting thing that can come out of this style is the intensity with which the instructions are carried out. The paint-by-number approach may have helped Josh win an orchestral audition (or may not have), but the approach is totally ridiculous if you consider music-making to be an artform.

Tongue position was a constant topic of discussion with Josh as he advocated for manually setting the tongue in physical contact with the roof of the mouth while playing. According to him, there were specific places to put the tongue for high notes and low notes, etc. He described this aspect of playing as the major catalyst for changing notes. So, if I wanted to improve my high register, the starting point was to put my tongue in a certain position and then play.

I'm now critical of this approach for a number of reasons. Missy Vineyard Ehrgood describes how conscious actions rely on a neural route from the forebrain through the cortico-spinal pathway.¹¹ In comparison to unconsciously controlled action, originating in the sub-cortical brain and traveling through the extra-pyramidal neural pathway, conscious actions are not capable of the amazing feats we think of when we think of Olympic athletes and virtuoso musicians.¹² With this in mind, the conscious control of physical parts of the body in pursuit of high-skill outcomes is a folly. In addition, this behavior has no relation to an outcome goal, making it a blind guessing game.

Finally, conscious meddling with tongue position is an internal focus of attention. Not only has an internal focus of attention been shown to achieve inferior results in movement effectiveness and efficiency compared to an external focus of attention¹³, Gabriele Wulf reports that a 2005 study by Zachry

¹¹ Missy Vineyard Ehrgood, "Believing Isn't Seeing." AmSAT News issue no. 68 (Fall 2005), 24.

¹² Missy Vineyard Ehrgood, "Believing Isn't Seeing." 24.

¹³ Gabriele Wulf, "Attentional Focus and Motor Learning: A Review of 15 Years." *International Review of Sport and Exercise Psychology* 6, No. 1 (2012): 78.

et al. found that, “a performer’s attentional focus on one part of the body can ‘spread’ to other muscle groups, thus increasing movement inefficiency at a more general level.”¹⁴ This study shows how such a focus causes an inefficient activation of not only the muscle being internally focused on, but on the surrounding muscles as well. Therefore, at best, the strategy of manually placing the tongue somewhere will build an inefficient behavior into the system of playing. At worst, this strategy may create enormous problems in brass playing, as it did for me.

The implementation of a tongue posture by instruction adds meaningless instruction to a checklist of trombone playing. Even worse, the body will have to compensate for the new arbitrary behavior in order to be able to achieve successful trombone playing. While implementing this instruction, rather than leading with the musical sound, I would begin by putting my tongue in a specific spot and then see if it worked. I trained myself to manually control my tongue every time I started or changed notes. This proved to be counterproductive in its aim and also a distraction from the more helpful and natural focus of music and sound. As I added manual control of the tongue into my playing, the tongue became tightened, sluggish, and adjacent muscles began doing the same.

At the heart of this approach is the philosophy that we must be concerned with *doing* behaviors to get results. As an analogy, consider hearing a knock on your front door. You walk to the door and open it. How did you do it? The result of answering the door happened, yet no manual bodily control was needed to accomplish the task. Nothing was *done* in order to get the result. So, what is the force behind the automatic accomplishment of answering the door? Kagarice describes this force as expectation. You simply expect to answer the door, and the necessary bodily motions work *automatically* to bring that expectation into reality. Taking control of the tongue in order to make a phrase happen is analogous to taking control over the legs, balance, arms, hands, etc. in order to answer the door. To take the analogy

¹⁴ Gabriele Wulf, “Attentional Focus and Motor Learning.” 84.; Tiffany Zachry et al. “Increased Movement Accuracy and Reduced EMG activity as the Result of Adopting an External Focus of Attention.” *Brain Research Bulletin*. Volume 67, Issue 4. (Oct 30, 2005): 304-309. <https://www.sciencedirect.com/proxyiub.uits.iu.edu/science/article/pii/S0361923005002765> Accessed Jan 3, 2021.

one step further, it would be like forcing the knees to be in a certain position as you walked to the door because that is how someone told you humans are supposed to walk. Like answering the door, the process of making arbitrary movements in order to make music is completely different from the process of playing music by expectation.

Subversion of Personal Sound

Another tenet of Josh's pedagogy is that trombone players do not hear the same sound that audiences hear because the player is behind the bell of the instrument and the audience is in front of the bell. There is obviously some truth to this, but Josh argued that the sound behind the bell must sound condensed, compressed, and tight in order to reach the audience where it would be perceived as a good sound. He demonstrated the sound that he was talking about, and it struck me as an ugly sound. I doubted this notion, and I sincerely asked him, "so a bad sound to the player is good for the audience?" Given that I wanted to work in the orchestra and that he was hiring the substitutes, I gave this idea a try for a long period of time. I recall repeatedly asking my wife, "does this really sound good to you? Which sound do you like better?" Unfortunately, as a pianist, she thinks about sound contextually, and was unable to make a judgement of sound as generally good or bad. The outcome of this change that I made in my playing had the desired effect of more employment, but I began to lose sight of my own sound. The sound I began to make was not free, flowing, or beautiful.

Chapter 5: Jan Kagarice and Retraining

Coach Jan Kagarice

My retraining process began when I scheduled a two-to-three-hour initial consultation with Jan Kagarice. I had no clue as to what retraining would be like or if such a thing were possible at all. However, I knew one person who had successfully retrained with her, and as far as I knew, she was the only person capable of such a feat. I also knew of her, and her late husband Vern Kagarice, through the International Trombone Association (ITA). During the 2009 International Trombone Festival (ITF), my trombone quartet competed in the finals of the quartet competition. One of the other quartets, Maniacal 4, who went on to win the competition, was coached by Jan Kagarice. At ITF in Aarhus, Denmark, I saw her coaching Maniacal 4 through a large window from hundreds of feet away. She was very animated, moving and gesturing across the room in front of the quartet as they rehearsed. From that brief glimpse through the window, it was clear that her teaching style was especially unique and engaged.

At that time, she was a full-time lecturer at the University of North Texas (UNT). She has the very special quality of inspiring and anchoring communities. Her trombone studio was renowned for its sense of community and positivity, and she was a major force in the music department at UNT.¹ During her time at UNT she began to develop a reputation for her ability to retrain from dystonia, and she would engage in that task outside of her already very busy teaching load at UNT. Clients would fly out to work with her for a number of days. Some of her clients from that time have been very high-ranking musicians from top 10 symphony orchestras. Among those who have publicly spoken about their experience with her is trumpet legend Phil Smith, former principal trumpet of the New York Philharmonic.

After leaving UNT, she moved to Chautauqua, New York where she runs Musician's Wellness of North America, serving clients with and without dystonia. She has a lake house where clients can stay and meet in person for full days of coaching, and she also meets with clients via internet video calling platforms.

¹ Karen Lynn Marston, *Finding the Balance*. 10-17.

Kagarice has been my savior. I would not be playing trombone today if it were not for her passion for helping and diligence in solving a problem that other teachers have failed to address. She has a unique quality about her like a magnet of sunshine and positivity. Her coaching ability comes from a wellspring of original genius, and her investment in the improvement of others is absolute. Just as musicians master their instruments, Kagarice has mastered the art of coaching and guiding. Her life's work is a gift to the field of music and brass playing in particular. Many others and I believe that her influence may usher in a paradigm shift in brass playing through a new wave of brass pedagogy that enables a field-wide improvement in the freedom of expression and nuance in brass playing. Ironically, such a paradigm shift will likely be led by individuals who were at one time in the weakest position of the field. I owe all of my success and knowledge of the content of this document to Kagarice.

Initial Consultation

The retraining process incorporates the adoption of many new and challenging ideas which slowly become core values and beliefs. In the initial consultation, Kagarice used stories in order to lay a foundational understanding of motor acquisition, locus of attention, concrete-to-abstract learning, movement by expectation versus movement by doing, importance of flow states in achieving neuroplasticity, functional breathing, the sound as the teacher, form following function, efficiency, and the physics of brass instruments. These became a part of my practice in music and in life broadly. However, the incorporation of these core principles was very difficult to do in an arena where every attempt at a basic playing task caused a total meltdown in the brain. These concepts were fundamental to the retraining process, and it was on top these concepts that my new playing was to be built. Her explanations of each concept made complete sense to me, and yet, it was the polar opposite of my understanding of those topics up to that point. Her mastery and synthesis of these concepts made for a powerful series of mind-blowing epiphanies. I remember repeatedly remarking to myself, "wow, she is an unbelievably gifted teacher." These concepts have matured through the process as each cycle of growth served to deepen my understanding.

Sound as Teacher – Teacher as Guide

In her Dissertation, *Finding the Balance: Jan Kagarice, a Case Study of a Master Trombone Teacher*, Karen Lynn Marston writes in depth about these concepts and much more. She describes Kagarice's philosophy of the sound as the teacher and teacher as a guide:

Kagarice eschews the idea of the teacher as an authority figure, preferring instead to refer to herself as a guide. Second, she views the primary role of the teacher as managing focus of attention, so that the student remains centered on the task at hand, rather than the teacher or specific rules regarding process or behavior. Lastly, she asserts that the motor skills required in order to perform on a brass instrument emerge naturally and incrementally out of the student's developing knowledge of the musical language as the body learns to make a match with the conception of sound in the brain, or the internal ear.²

This idea that the sound and experience are primary to a player's learning is essential for a healthy relationship between guide and player. Oftentimes, this aspect is completely overlooked by pedagogues who view themselves as the source of information instead of guiding players into connecting with the real source of information – the direct feedback from sound and instrument. The truth about learning any instrument is that every single person has to learn it themselves. We consult experts along the way, but no one can impart the ability to play. If we accept that our students need to uniquely access their own relationship with the trombone, sound, and music, we can begin to guide and assist them in that personal journey. However, many pedagogues subvert or even block the student from that personal journey with their playing through an insistence on doing things the teacher's way, leading to the adoption of artificial behaviors and their consequent maladaptive changes. Given the appearance of specific MD symptoms among groups of students who share a particular teacher, it is important to note that the insistence by teachers to do specific motions and behaviors while playing may have the potential to contribute to the onset of MD.

During retraining, the concept of the sound as teacher defined my journey as one of discovery. Kagarice guided me into experiences where I could discover first-hand what she was telling me about. These first-hand experiences deliver the learner directly to the source of knowledge, whose value is

² Karen Lynn Marston, *Finding the Balance*. 28.

incomparably greater than the words of even the best teacher. Dr. Farias describes the process of producing neuroplasticity, which is the goal of MD retraining as “sailing without knowing where we are going.”³ The retraining process was not about doing it Kagarice’s way. It was about finding my way.

Physics of Brass Instruments

The physics of brass instruments is often misrepresented by a range of people in the field, from high-level professional brass players to community band teachers. For example, one major professional orchestral trombonist and university faculty member can be seen in many YouTube videos describing the mouthpiece of the trombone as the instrument and the trombone as an amplifier of the buzz coming from the mouthpiece. He draws the conclusion from this model of instrument-as-amplifier of the buzz, that trombone players need to practice buzzing in order to be able to play the trombone well. Frankly, the model of brass playing in which the lips are actively buzzed into the mouthpiece and the instrument merely amplifies that buzz is backwards. First, the sound of buzzing is not the same as the sound of that comes out of a brass instrument. By definition, an amplified sound would result in a louder version of the original sound of the buzz. That is not the result we observe when a brass instrument is played. Second, if this model were true, why can’t the player buzz any pitch in the instrument as they can while buzzing on the mouthpiece only. Clearly, the brass instrument does not simply amplify the buzz the player activates inside the mouthpiece.

The model of the physics of brass instruments that is at the root of my retraining, which I now personally experience when I play, is the following: outward flow of air from the player excites the air column of the instrument into resonance and rapid oscillation inside the brass instrument, which excites the lips into sympathetic vibration. This is the opposite of the model given by the aforementioned trombonist mentioned above and many others in the mainstream of brass pedagogy. In the buzz amplifier model, the lips are the genesis of the physical process. In the air column resonance model, the air column is the genesis of the physical process. This has profound implications for our strategies of improving our

³ Joaquin Farias. *Intertwined: How to Induce Neuroplasticity*. p. 48

playing on brass instruments. The former model tells us that control of the lip muscles is essential to good brass playing. The latter model tells us that we must allow energy to pass through the lips in order to resonate the air column.

I will offer a brief overview of the physical processes that result in the sounding of brass instruments. Tones from brass instruments are standing longitudinal waves of air.⁴

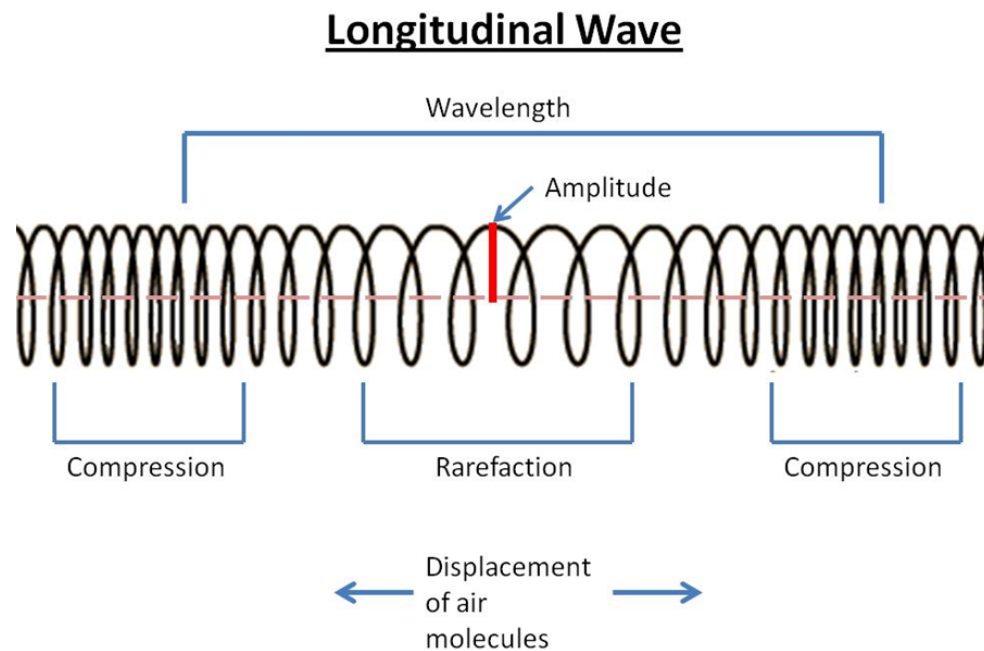


Figure 4. Illustration of longitudinal wave⁵

Think of these waves as repeating periods of alternating air density where the air pressure wave moving from the player to the bell is reflected from the bell back to the player, creating a wave pattern which stands in place. Arthur Benade explains this reflection property: "In a musical horn the flare of the bell must be designed to trap energy inside the horn, giving strongly marked standing waves at precisely

⁴ Crash Course, "The Physics of Music: Crash Course Physics #19. (Aug 11, 2016). <https://www.youtube.com/watch?v=XDsk6tZX55g> (Accessed Jan 5 2021).

⁵ Nicholas Lincoln, "Can Infrasound Predict Disasters?" http://2centsapiece.blogspot.com/2013/03/can-infrasound-predict-disasters_12.html (Accessed Jan 5, 2021).

defined frequencies.”⁶ This begins to describe how merely pressurizing the air column can cause resonance. If energy were not trapped inside the horn, the instrument-as-buzz-amplifier model would make more sense. Benade continues, “In the flaring part of the bell a substantial fraction of the acoustic wave is reflected back toward the mouthpiece while the remainder penetrates the horn-function barrier and is radiated out into the surrounding space. The wave that is reflected back down the bore of the horn combines with newly injected waves to produce a standing wave.”⁷ This describes the function of the brass instrument design whereby air pressure waves are reflected back towards the player and standing waves are created by the interaction of the persisting original wave energy and its own reflection. Recall above that one problem with the instrument-as-buzz-amplifier explanation is that it cannot explain why a player cannot play on the instrument, the full range of pitches which he or she can buzz on the mouthpiece alone. The physical property of resonant frequencies of the air column at each given length of a tubing in brass instruments explains why only certain harmonic frequencies are able to be played. Again, if the brass instrument were an amplifier of the mouthpiece buzz, this would not be the case. Benade further writes how air pressure fluctuations in the air column affect the lips of the player:

In a brass musical instrument the small end of the horn is connected to the player through his [sic] lips, which constitute a kind of automatically controlled valve for admitting air from the player’s lungs to the horn. The opening and closing of the valve is controlled chiefly by the pressure fluctuations within the mouthpiece as they act on the lips in concert with the steady pressure from the lungs.⁸

This describes the opposite of the instrument-as-buzz-amplifier model because the lips are subject to the air pressure fluctuations in the instrument rather than the air pressure fluctuations being subject to the force of the lips. Benade continues, “as long ago as the middle of the 19th century it was clearly understood that it is the flow alteration due to mouthpiece pressure that can maintain an oscillation.”⁹ I

⁶ Arthur H. Benade, “Physics of Brasses.” 24.

⁷ Arthur H. Benade, “Physics of Brasses.” 27.

⁸ Arthur H. Benade, “Physics of Brasses.” 27.

⁹ Arthur H. Benade, “Physics of Brasses.” 29.

suspect those who espouse the buzz amplifier model may defend their position, saying that they do not mean what they say literally. Of course, they are aware of the properties of the instrument that disprove a literal assertion of their model. If that is the case, then why say that the instrument is a buzz amplifier and that we need to practice buzzing to be better at the instrument? Unfortunately, the imprecise or careless use of words in pedagogy appears to play a role in developing maladapted technique in musicians who take the words of their teachers at face value.

As Benade observes, the physics of brass playing has been basically understood, at least by physicists, for around 170 years. The implications of this model should dismiss so much of what is taught by so many brass pedagogues. Yet, we have a field where trombone virtuoso Christian Lindberg is seen as controversial for saying that people should not practice buzzing on the mouthpiece¹⁰. The widespread model of instrument-as-buzz-amplifier has created a misinformed practice which leads to or worsens the majority of problems which brass players face – poor sound quality, limited range, inability to begin sound immediately, intonation inaccuracy, and endurance.

Concrete-to-Abstract Learning

The concept of concrete-to-abstract learning is very important in the retraining process and as it relates to music performance. Kagarice many times quoted an ancient Greek author saying something to the effect of, “that which is known in the mind was first felt in the body.” Marston quotes Maria Montessori: “If something is to be learned, it is to be experienced. This transforms the abstraction of knowledge into real, living experiences rife with contextual meanings and connections.”¹¹ Every so often I see a social media post from one of many university trombone professors decrying their students, saying, “If only they would do what I ask them to, they would be great.” Do teachers really think it is enough to merely tell their students what to do? Great teachers engage and lead their students to

¹⁰ <https://www.youtube.com/watch?v=Fz5fow-pf68>

¹¹ Karen Lynn Marston, Finding the Balance. 40.

experiences where they concretely understand something. From there, the student can abstract that concrete knowledge for discussion or reference.

The difference in approach between teacher and guide is profound. It's commonplace to observe teacher-student sessions in which the teacher is describing how it feels to play and telling the student to reenact those sensations. The result will be arbitrary behaviors. For example, breath support is a sensation many players experience while playing, but the manufacturing of muscular tension based on someone else's reported sensation of breath support is counterproductive. Brass musicians can feel their lips vibrating but recreating the sensation of buzzing lips is counterproductive. It's possible for a brass musician to observe a behavior of the tongue when playing high notes but telling a student to place their tongue in a particular spot is counterproductive. The approach of the teacher as guide would be to guide a student into an experience where they will gain awareness of a sensation of their own. The pervasiveness of form-first pedagogy is a plague in classical music. It directs focus away from the real experience where direct feedback from the sound and instrument are the source of information. We can abstract from concrete experience, but an abstraction will not give us the concrete experience.

So often in retraining with Kagarice, I would report an epiphany with excitement, such as, "It's just air playing the trombone!" She would then laugh and remind me that she had literally been repeating, "it's just air" for the last hour. When I reached the experience that she was describing, I used the same words to describe it as her. Because it was an original experience, the fact that I was saying exactly what she had been saying escaped me. Teachers can talk about trombone playing all they want, but it will never be understood unless the learner accesses the experience first-hand.

The retraining process worked in this way. Intellectually I often understood how my playing needed to be, but accomplishing the behavior was impossible. Little by little, guided experiences in the body would catch up to and inform the intellectual understanding. Words and intellect are a useful tool, but they are weak in comparison to learning through concrete experience.

Concrete Sound. Symbolic Notation

This concept also applies in musical interpretation. Contrary to many classical musicians' philosophy of interpretation, musical sound is concrete while the notation is an abstraction of that musical sound. So often, the notation is seen as the concrete music, rather than the sound which it symbolizes. The recognition of the musical sound as the real object and the notation as a description of that object helped free me from the rigidity of the philosophy of interpretation I had adopted from Josh. When I flipped that philosophy on its head, perfectionism and correctness were diminished in the experience of playing music. Rather than be overly concerned about dutifully following instructions, I could be an adventurer referencing a map, and I could leave the map in my pocket and keep my senses open to the sonic world unfolding before me.

The importance of this relief from perfectionistic tendency in musical interpretation is highlighted in a 2004 study by Jabusch, Müller, and Alltenmüller: "Psychological conditions in musicians with focal dystonia differed from those who were healthy. Anxiety disorders occurred more often in dystonic musicians. Additionally, musicians with focal dystonia had highly perfectionistic tendencies."¹² There is clearly a link between MD and the way we think about music, and the recognition that musical sound is music while notation is merely symbolic of musical sound is an important for classical musicians, both with and without dystonia.

Focus of Attention

One of the most important concepts of the retraining process is attention. Attention is the mind's eye, and where that eye looks affects our experience. For instance, consider two trombone players doing the same exercise: overtone slurs from low B-flat to F and back to B-flat. The first player focuses their attention on the lips buzzing the different notes while the second player focuses on the air column inside the instrument resonating a nanosecond ahead of reality as the notes sustain and change. While externally,

¹² Hans-Christian Jabusch, Sandra V. Müller, and Eckart Altmüller, "Anxiety in Musicians with Focal Dystonia and Those with Chronic Pain." *Movement Disorders*. 19, Issue 10 (Apr 14, 2004): 1172. <https://movementdisorders-onlinelibrary-wiley-com.proxyiub.uits.iu.edu/doi/full/10.1002/mds.20110> (Accessed Dec 31, 2020).

they appear to be doing the same exercise, their difference of focus of attention makes these two distinct exercises.

Gabriele Wulf's 2012 review of fifteen years of research on the effect of locus of attention reveals the importance of details in the instructions learners receive in skilled performance and learning. Wulf describes skilled performance as "characterized by high levels of movement effectiveness and efficiency."¹³ Wulf gives a baseline to judge skill level: "high skill level is associated with accuracy, consistency, and reliability in achieving the movement goal (i.e. effectiveness), as well as fluent and economical movement executions and automaticity, as evidenced by the investment of relatively little physical and mental effort (i.e. efficiency)."¹⁴ As locus of attention relates to skill acquisition, Wulf writes, "Numerous studies have provided converging evidence that an external focus of attention speeds up the learning process so that a higher skill level – characterized by both increased effectiveness and efficiency – is achieved sooner."¹⁵ This research is pointing to an advantage of an external focus of attention over an internal focus of attention. So, what does that look like in terms of trombone playing? Wulf writes that research findings "provide support for the idea that an external focus on the intended movement effect allows for functional variability, such that the motor systems automatically adjust the various degrees of freedom to achieve that effect."¹⁶ Therefore the external focus should be placed on the intended effect of the movement. The simplest external focus for trombone playing would be tone emanating from the bell of the instrument. Other foci could be the outward flow of the air column at any point in the journey of the air, from lungs to bell. Adjusting the focus of attention to different parts of the air column is a useful tool for bringing awareness to different parts of the playing system that may need adjustment or care.

¹³ Gabriele Wulf, "Attentional Focus and Motor Learning: A Review of 15 Years." *International Review of Sport and Exercise Psychology*, 6, No. 1 (2012): 78.

¹⁴ Wulf, Gabriele, "Attentional Focus and Motor Learning" 78.

¹⁵ Wulf, Gabriele, "Attentional Focus and Motor Learning" 78.

¹⁶ Wulf, Gabriele, "Attentional Focus and Motor Learning." 89

Why does an external focus of attention produce superior results in learning and performance? Wulf presents the constrained action hypothesis: “An internal focus induces a conscious type of control, causing individuals to constrain their motor system by interfering with automatic control processes. In contrast, an external focus promotes a more automatic mode of control by utilizing unconscious, fast, and reflexive control processes.”¹⁷ This hypothesis describes the popular phrase among brass players, “paralysis by analysis”. By focusing attention on our internal processes, we subvert our more powerful unconscious modes of control, shutting down the body’s ability to meet the demands of our movement goals. Wulf further hypothesizes about the remarkable results of varying foci of attention:

We were struck by the fact that often a one- or two-word difference in the instructions (e.g. ‘focus on the markers’ versus ‘focus on your feet’) had such a strong impact on performance. We therefore suggested that an internal focus may act as a ‘self-invoking trigger’. That is, references to one’s body parts or bodily movement are assumed to facilitate access to the neural representation of the *self* and result in self-evaluative and self-regulatory processing. Given that the self appears to be highly accessible, even unconsciously, in many circumstances, including all movement contexts – influencing thoughts, actions, and behavior – we argued that conditions that trigger neural activation in the self system result in what we called ‘micro-choking’ episodes. As a consequence, performance is degraded.¹⁸

It is easy to see how thoughts that trigger the neural system housing the self could cause unhelpful regulation of movements and adjustments. In addition, this neural system activation would seem to inhibit the conditions for peak performance, in which performers are immersed wholly in the performance of music, losing a sense of self and time. This consideration augments the argument in favor of adopting an external focus of attention in practice and pedagogy.

The instinct in brass pedagogues towards external focus of attention seems mixed. In the discussion and encouragement of music, many teachers bring a focus to the external music and sound. However, in matters of technical problem-solving, I find that many teachers reflexively reference the body parts they recognize as problematic. While they may be theoretically correct in their analysis, they

¹⁷ Wulf, Gabriele, “Attentional Focus and Motor Learning.” 91.

¹⁸ Wulf, Gabriele, “Attentional Focus and Motor Learning.” 91.

end up guiding the student's focus internally. What the teacher observes is much different than what the teacher needs to say to guide the student toward a solution, and this difference, when ignored, can be a source of crippling problems for some students. For instance, I remember far too many lessons where I was told how my face needed to look to be a good embouchure, resulting in a week-long internal focus of attention of two to three hours a day. Not only was the focus unhelpful, it had a negative impact on my trombone playing. Pedagogues need to be aware of the benefits of an external focus of attention and guide their students with this principle in mind in order to provide the best opportunity for the student to accomplish high skill levels while avoiding the pitfalls of an internal focus of attention.

Unsurprisingly, my practice leading into and during the onset of MD was entirely internally focused. I was consciously pulling the levers and pushing the buttons of my muscular systems, trying to steer my body into functioning playing. The effect was disastrous. The more I took conscious control of, the more my body adjusted to the tension that my conscious control was creating. In addition, it robbed my mind and body of the opportunity to solve its problems with its most powerful tool – the body's ability to meet our demands automatically.

While the research around the benefits of an external focus of attention has tested simple and basic instructions, Kagarice has developed a nuanced application of external focus of attention. Many people, including myself, have aspired to playing by Arnold Jacobs' famed "song and wind," only to become frustrated that such a simple and broad approach failed to help. The idea of song and wind, or free flow of air and expectation of sound, is an ideal. It describes the best possible playing when everything falls into place and freedom of expression is maximized.

The training it takes to get to this ideal of playing may require an optimization of the playing system, where air can flow freely, without blockage, in order for the air to be in direct contact with and respond immediately to the sound emanating from the bell. This necessitates addressing blockages and training the body to do what it needs to do to accomplish the goal of the player. Kagarice uses an external focus of attention in an ingenious way to target specific blockages or train specific elements of playing. Whereas a researcher testing the advantages of an external focus of attention may instruct the player to

focus on the sound coming out of the bell or the air flowing freely out of the bell, Kagarice's instructions keep the focus on sound and air but in novel ways and in a range of spaces. For example, she may use an external focus in proximity to specific parts of the body, allowing for a perception of the sensation of free outward flow of air. As pedagogues respond to the research which demonstrates the advantages of an external focus of attention, it is important that creative solutions be developed far beyond the basic instructions demonstrated in the research. Without such development of a novel pedagogy around external focus of attention, teachers may be disappointed and discouraged by the outcomes of a very basic application.

Holistic Learning

In the following section, I will detail seemingly tangential experiences which were essential to the healing of my trombone playing. When my playing was completely stuck, the only way forward was to grow on the sidelines of my playing. Joaquin Farias shares a similar sentiment about the retraining process:

The brain has the capacity to link and integrate stimuli. Using this ability of association, which is one of the pillars of our cognitive abilities, we can very effectively surpass rehabilitation goals. Patients who naturally use these procedures show a greater ability when it comes to solving the diverse problems posed during rehabilitation. Some patients solved problems playing the violin by using analogies to cooking techniques; some solved problems walking using past experience riding horses. Colors helped understand emotions; music helped understand movement and painting, feeling; poetry helped understand abstract concepts about neurology. Rehabilitation is not separated nor is it isolated from life. All past experiences (visual, tactile, auditory, emotional, and kinesthetic) can and should be used to enhance the integration of learning.¹⁹

For me, retraining was about so much more than a change in trombone playing. It was a total transformation during which almost every aspect of my life changed. My interests, hobbies, associations, familial relationships, treatment of others, career goals, and yes, trombone playing changed. Once I came to terms with the devastation and trauma of losing my playing, I was able to become fascinated by the process and appreciative of the journey. The transformation of the retraining process is invaluable to me.

¹⁹ Joaquin Farias, *Intertwined: How to Induce Neuroplasticity*. 54-55.

Bicycling and Motor Learning

Relying on external focus as an advanced motor learning technique has turned into a hobby of mine. Motor learning has become a skill of its own that I enjoy. Early in the retraining process, I sought out activities to test and experience the theory of healthy motor learning as set out by Gabriele Wulf, Kagarice, and others. One of my first activities in this new approach was bicycling. I was young, in decent shape, and already fairly good at riding a bike. However, in my quest to defeat depression and learn about motor function, I embarked on challenging rides to the ocean, which included significant hill climbs. I tested different foci of attention, from the pedals moving around, to the gear sprockets, to the force of the back wheel accelerating. Especially with a focus on the back wheel, I began to notice a natural body movement emerge in which my upper body rocked left to right. The effort of cycling shifted from my legs and knees to my core. I eventually purchased an excellent bicycle from a friend and had it shipped to my in-laws' house in Banff, in the Canadian Rocky Mountains. With very little training, I accomplished a 120 km ride with extreme climbs. My bicycle became my SUV when I attached a bike trailer for carrying two children. The weight gain of the bicycle was immense. At first it was difficult to adjust, but I began having success when I included the bike trailer in my external focus of attention and visualization. Through biking, I discovered how my body could find the optimal means of accomplishing movements, and I used the sensations and experiences of breakthroughs from biking in the retraining of my trombone-playing dysfunction.

Hiking and Breathing

While in Banff, I began hiking vigorously in an attempt to battle depression. The home I stayed in was nestled amongst forested trails, pedestrian-only bridges over rushing rivers, hot springs, and parks. Kagarice asked me to focus exclusively on getting rid of air while ascending the mountains. I did as she asked. As I started running up the mountain, my breath became quick. I focused on just getting rid of the air. A rhythm set in. It was hard to not suck in air like I was used to doing, but after a minute or so I realized that my lungs were filling completely with no effort in between exhalations. It was almost unbelievable how quickly my lungs were filling. The sensation was more the absence of sensation.

Energy was flowing freely where I was accustomed to feeling a great deal of muscular effort in order to suck down air with “strength.” The feeling of being out of breath didn’t come as quickly as it usually did, though my breathing was rapid. Everything else seemed to function much better as well. My numerous hiking experiences gave me the sensation of free and automatic air movement and a became a guide for how to access it in trombone playing. It also served to dispel any doubt I may have had about the process. Having been committed to the idea of a big inhale as the starting point for playing trombone, it was hard to imagine how a focus on the musical phrase ahead could trigger an unconscious, customized breath.

Surfing and Harnessing Wave Energy

When I had retrained enough to restart my professional obligations in the orchestra, we moved into a house less than a block from the ocean. I began surfing most days, starting as a complete novice. I soon realized how important balance is when paddling out past the breaking ocean waves. If the balance is too far back on the board, the board drags in the water, limiting speed and efficiency of movement in the water. If the balance is too far forward, the tip of the board will become submerged and stop the forward movement. At first, relying on YouTube videos for help, I tried to align my body with visual markers with little success. Soon, I employed an external focus of attention of the bottom of the surfboard gliding on the surface of the water. I began to feel balance with the board and water. My upper body began to arch back in an act of balance, and I felt an activation in my core with the sensation of unity with the surfboard. The shift to an external focus gave me the efficiency and speed I needed to paddle out past the break without too much exhaustion so that I would have enough energy to catch waves.

When I started catching waves, I put my focus on feeling the water with the bottom of the surfboard. The sensation of riding the wave energy was divine. The short moment of catching waves was replayed in the mind and it was like catching a high. One amazing thing about surfing is the perception of time dilation. The moment requires so much focus and adjustment that it instantly creates the conditions of peak performance. My experiences riding ocean waves gave me a sensation to copy while riding sound waves with my air. It helped me understand the concept of harnessing energy inherent in physical systems rather than forcing energy with strength.

Basketball and Trusting the Body to Learn Movement Through External Focus

While living in the beach house, I would take my kids to a little-known park that had a half basketball court. They would entertain themselves with the natural features of the park while I took the opportunity to practice optimal motor learning. I never played basketball in school, but I had become a fan of the NBA league when Stephen Curry began to change the metagame by consistently making three-point shots. I was attracted to the idea that one person could find a new style of play, centered around the mastery of a skill which others had relegated to a low probability of success. The only training I had before was an acronym for learning how to shoot a basketball. BLESB stands for Bend, Lift, Extend, Snap, and Hold. Each one of these instructions is an internal focus of attention. Luckily, I did not spend much time practicing BLESB. Using my newfound knowledge of the benefits of an external focus of attention, I put my focus on the arc and trajectory of the ball, visualizing the ball falling through the middle of the hoop, and the feeling and sound of the ball swishing through the hoop and net. I started by relaxing and repeating easy, close-up shots, and moving further away after gaining consistency. My basketball shooting improved dramatically, and there were times during practicing that I had the feeling that I could not miss. I played a couple of pickup games after a few weeks and won, despite being a beginner. There is a sensation I would get playing basketball, that I also get playing horseshoes and golfing, where I feel the ball in the hoop or the horseshoe around the pole in my core. Before I shoot, throw, or swing the golf club, I can feel the contact in the center of my body like the object is already where I want it to be. Then I just join it. I transferred that feeling to my trombone playing. Before playing, I already know how the air feels on the tone or phrase and I join it.

Swimming to Engage More Deeply with Retraining

I eventually moved away from the beach, and I needed to find a new exercise activity. During my first in-person visit with Kagarice, she invited me to her daily morning swim. I watched her swim in amazement. I had never seen such elegant, graceful, and effortless swimming before. Then she watched me swim. I strong-armed the water, taking massive gulping breaths, and I was winded after a brief swim. She described another swimmer she had coached who had similar tendencies to me. This man, a former

veteran of war, punched his way through the water with all his strength, gasping for air the whole way. She called that style of swimming, “controlled drowning”. The exercise she gave me was simply bobbing up and down in the water with a specific part of my palm resting on the side of the pool. As I went down, I gently blew bubbles out, when I came above the water, I relaxed and let air return. The purpose of this exercise was to improve familiarity with the water and become calm with the face in the water. After many repetitions of bobbing, I swam another lap, keeping the tempo and ease of breathing I had experienced while bobbing. It didn’t last long, but I understood immediately how swimming was supposed to be and how great swimmers could swim endlessly.

Kagarice referenced swimming so many times in our retraining sessions that I figured I would understand her references better if I started practicing swimming. I used swimming to turn my breath around from held back and controlled, to free and relaxed. On Kagarice’s recommendation I placed an external focus on pushing water behind me. A 2010 study Freudenheim et al. found that “swim times were significantly shorter with an external focus [compared with internal focus and control groups].”²⁰ The instructions of the external focus group were to push the water back compared with the internal focus group instructions of pull your hands back.²¹ I improved at swimming very quickly because of the external focus, and I transferred many important sensations from swimming to my trombone with great success.

Skiing and Balance. Ski Hill as Teacher

I was lucky enough to learn to ski beginning at age 3, quickly becoming an advanced skier. I’ve skied most winters since. After beginning retraining I was very excited to try out some of the principles of retraining with my skiing. Although I was a very capable and experienced skier, advice from Kagarice transformed the experience of the sport for me. Rather than thinking about bending my knees or the

²⁰ Andrea Michele Freudenheim, “An External Focus of Attention Results in Greater Swimming Speed.” *International Journal of Sports Science & Coaching*. vol 5 issue: 4 (Dec 1, 2010): 533-542. <https://journals-sagepub-com.proxyiub.uits.iu.edu/doi/abs/10.1260/1747-9541.5.4.533> (accessed Jan 3, 2021).

²¹ Andrea Michele Freudenheim, “An External Focus of Attention Results in Greater Swimming Speed.” 533.

balance of my foot in the ski boot, I began to focus on feeling the hill with the skis. The sensation was elusive at first. I started to notice that I would lose the feeling of the skis on the hill during the weakest areas of my skiing like difficult turns or extreme slope angles. In response, I embarked on a quick retraining session using my experience retraining from MD. I endeavored to keep feeling the hill with the skis during turns. Within a couple of ski runs worth of practice, I went from abandoning the sensation of feeling the hill with the skis during turns to resisting that abandonment, to fully focused engagement of the sensation during turns. The result of the shift of focus was the most balanced turns of my whole life. Prior to this, I always tended to lean back during turns and then try to bend my knees to force a better balance. By keeping my focus on the skis feeling the hill, balance was automatically achieved, and I was able to instantly respond to the subtle variations in snow conditions. The feeling of skiing in this new way was pure joy. I was in a state of pure freedom and could do anything I wanted effortlessly. My engagement with the hill and snow was an out of body experience. At the end of the ski day when I would normally experience soreness on my legs where the ski boot had been holding my balance, I felt very little soreness.

All of these changes occurred due to a change of focus. I was still doing the same activity as before, but I was focused on where the rubber meets the road. In that crucial space lies all the information the body needs to ski beautifully. This is at the center of what Kagarice means when she says, “the hill is your teacher” or “the sound is your teacher.” Compare that to a ski coach who says, “bend your knees, lean forward.” The latter set of instructions guide the focus of the skier to internal processes. In a basic way they guide the skier towards better skiing, but the skier has no connection to the source of information. In fact, I had been coached this traditional way all my life and it never made any sense.

When I returned to trombone after skiing in the new way, I was able to transfer the experience to confront challenges with the balance of my trombone playing system, similar to redoubling my focus on feeling the hill with the skis during the most unbalanced parts of my skiing. Having a dystonic reaction when practicing an overtone slur became a turn on skis. I felt the sound with my air through the entire slur (turn). Of course, the dystonic reaction continued, but with repetition it weakened. Eventually I gained

functionality on that particular challenge and many others. It seems strange, but confronting the dystonic problems requires courage, just as resisting the urge to lean back while skiing a steep hill requires courage. It takes letting go of fear to change.

An interesting thing about this breakthrough, is that Kagarice told me about feeling the hill with the skis more than a year before this experience. It made sense on an intellectual level, but the experience of peak performance while skiing gave me a template to strive for in my trombone playing.

External Focus as Secret Weapon in Golf and Beyond

During the COVID-19 pandemic, I spent months in Calgary, Canada, where I bought a cheap set of used golf clubs and began golfing with my father-in-law. I was eager to see what an external focus of attention could do for a novel, complex skill like golf. My focus on the golf course was feeling and seeing the ball already at its destination, seeing the arc and line that it took to get there, and letting that arc describe to my clubhead what speed and the angle the ball needed to be hit in order to accomplish the vision. This highly detailed pre-shot routine required an immense effort of imagination. I found it difficult to play even 9 holes with this focus. However, when my focus was present, the shots I made were much better than they should have been for such a beginner. It felt like cheating because the other novice golfers I saw were struggling just to strike the ball. I became addicted to the idea that the sport of golf was handicapped by flawed coaching, and that I could skip the line, so to speak, by using my secret weapon of external focus of attention. Wulf reports that “Accuracy in hitting golf balls has been demonstrated to be enhanced when performers were asked to focus on either the swing of the club, the clubface, or the intended ball trajectory rather than on their arms or wrists.”²² This appears to explain the discrepancy between my externally focused approach and the approach of struggling beginners, influenced by golf coaches focusing on body rotation, arms, legs, etc. It’s been half a year since I started golfing and I am now scoring the same as my friends who have played since childhood. Learning golf provided many

²² Wulf, Gabriele, “Attentional Focus and Motor Learning.” 82.

valuable lessons for my trombone playing. At times, it seemed like my trombone playing improved more from practicing golf than from practicing trombone.

Wulf writes, “interestingly, external focus instructions enhanced performance even in experienced athletes relative to internal focus and control conditions.”²³ This result among experienced athletes means that there is a potential for field-wide growth if there were to be a paradigm shift in the way golf is played and coached. I suspect the same is true in the field of brass playing. If experienced brass players can reap instantaneous benefits from a shift of focus in practice and performance, imagine how much the field as a whole could grow if our future professionals are coached with an external focus from their beginning years onward.

Flow States

Flow states are a relatively new field of research, pioneered by Mihaly Csikszentmihalyi in 1975.²⁴ Nektarios et al. describe these flow states as,

A subjective state that people report when they are completely involved in an activity, feeling pleasure, happiness, satisfaction, and enjoyment. It is about an optimal mental state marked by positive affect, centering of attention, absorption, spontaneous action, total immersion in performing an activity, perception of control over actions and the environment, immediate and unambiguous feedback, loss of self-consciousness, distortion of time, and perception of superior functioning.²⁵

Popular author Steven Kotler and Jamie Wheal have written about a revolution in the workplace and lives of people in high performance careers.²⁶ There is a movement towards accessing the benefits of flow states across many industries, and it is an important factor in the retraining process.

Kagarice’s style of teaching reliably induces flow states. Because flow follows focus, awareness is the key to the retraining process. Kagarice has many ways of bringing awareness to a particular

²³ Wulf, Gabriele, “Attentional Focus and Motor Learning.” 82.

²⁴ Csikszentmihalyi, Mihaly, *Flow: The Psychology of Optimal Experience*. Harper Collins: Toronto: 2009.

²⁵ Nektarios A. Stavrou and Yannis Zervas, “Confirmatory Factor Analysis of the Flow State Scale in Sports.” *Int. Journal of Sport and Exercises Psychology*, 2, Issue 2 (Feb 28, 2011): 161-181. <https://doi.org/10.1080/1612197X.2004.9671739> (Accessed Jan 4, 2021).

²⁶ Steven Kotler and Jamie Wheal, *Stealing Fire: How Silicon Valley, The Navy SEALs, and Maverick Scientists are Revolutionizing the Way We Live and Work*. Harper Collins, New York: 2017.

problem and its corresponding solution. In the beginning of the process, she would guide my focus of attention by speaking to me as I carried out a simple repetitive drill. The effect was a benevolent hijacking of my attention through a constant refocusing my mind on what was needed to overcome a dystonic motion or to break through a barrier. As these drills unfolded, my focus became deeper and deeper until a flow state emerged between us. Her flow state was generated by her empathetic focus on me while mine was generated by a deep focus on the specific aspect of a drill. During those drills it felt like we were synced in flow, and together, we were able to achieve real change in my playing.

Without the constant refocusing, anything related to playing the trombone caused a total freak-out in my brain. It is like facing an insurmountable challenge and feeling like the only way to have a chance of succeeding is to do a long list of compulsive behaviors. Rather than calmly attempting an activity and accepting the outcome, my mind would see red and go blind. My mind would turn to all the things I felt I must do to accomplish the task. However, those were exactly the things that prevented me from succeeding. Kagarice's onslaught of messaging allowed me to override that panic in my mind in order to meet the challenge and make a change. An important aspect of her refocusing interjections is that they were organically connected to and in dialogical flow with my mind and playing. It's like I was her instrument, and she was creating something with me in real time. She acutely observed and responded to me in the moment. So great was this teaching technique that I thought it was the hallmark of her teaching style, but I've learned that it is just one of her many remarkable tools. Through countless hours of training with Kagarice and practicing on my own, I have adopted a style of practice and teaching that tends toward extreme focus and consequently, flow states.

Beyond its effectiveness in my growth as a trombonist, I now appreciate flow states as an outcome of success in themselves. In my younger years, while I was endeavoring to become a professional musician, I was searching for an identity. I knew I loved the experience of performing music, but logically I did not have a sense of exactly what I was contributing. Was I supposed to embody the identity of a genius artist? Was I supposed to be overflowing with musicality? The types of contributions musicians make are as wide-ranging as the individuals who play music. Through the retraining process

and learning to access flow, I've discovered that flow in musical performance is an end in itself. My musical contribution is not cleverness, genius, or elevated thinking. Rather, it is direct connection to the stream of sound that seems to come from nowhere, and the use of that sound to join together with audience in flow together. That experience is the entire reason I want to perform music and the reason my music is worth listening to. If flow is present, I need no other feedback. The feedback I used to get from colleagues after concerts made playing trombone a guessing game. I was constantly adjusting to the whims of others, hoping to satisfy them, and never knowing if I was succeeding. Now I have learned to trust flow as my compass. If I am flowing and another colleague is outwardly frustrated after a performance, I don't need to investigate myself as a source of their frustration as I used to. I can trust that all the wild swings and instability that come from the people around me are not my responsibility.

Efficiency

Efficiency is a great gift of my dystonia retraining because dystonia tends to forbid inefficiency, forcing the player to have very low tolerance for inefficiency. On this topic, Farias writes that in retraining,

All aspects of the action which are not essential and necessary must be eliminated. It is necessary to train the mind in new ways of thinking and the body in new ways of acting. This requires practice, spirit and developing a suitable perception. Training develops the inhibition capacity necessary for balancing the work performed by the agonist and antagonist muscles. This demands emotional control and mental concentration. Kinesthetic perception must be developed in such a way that the body feels uncomfortable unless it executes each movement with the minimum effort.²⁷

The need for efficiency seems to be pronounced in those retraining from dystonia because inefficient behaviors run the risk of activating the dysfunctional neural pathways. On efficiency, Gabriele Wulf writes: "A movement pattern is considered more efficient or economical if the same movement outcome is achieved with less energy expended."²⁸ This definition of efficiency is similar to Kagarice's, which is, "doing what you want to do and nothing else." In order to strive for efficiency, we need to understand

²⁷ Joaquin Farias, *Rebellion of the Body*. 63-64.

²⁸ Gabriele Wulf, "Attentional Focus and Motor Learning." 84.

what it is that we are doing when we play. Kagarice explains that playing trombone requires free air flow through the instrument and the expectation of tone or a phrase. This may ring a bell to brass players as it is reminiscent of Arnold Jacobs' famed, "song and wind". When done in the manner which Kagarice is aiming for, the player feels like they are not playing. In at least one session, Kagarice and I would casually discuss this feeling as Zen trombone playing. Farias writes about this concept as well:

During years of training to inhibit dysfunctional muscle activity, Francisco discovered that if instead of imagining that he was making a movement, he imagined that the movement was happening on its own, he was able to carry out the movement correctly. Surprisingly, imagining a movement happening on its own, a concept very close to the practice of the Zen tradition of martial arts, does not produce an activation which is different from a resting position.²⁹

This is the promise and meaning of playing by air and expectation alone. It is the ultimate peak performance experience and the pinnacle of efficiency.

In trombone playing, the action we must execute with efficiency is outward flowing air through the instrument causing the air column inside the brass instrument to oscillate in resonance.³⁰ This rapid oscillation of the air column causes a valve-like pattern in the lips.³¹ In other words, the lips passively surf the wave of the resonating oscillating air column. This function is at the very core of our learning and development of form in brass playing. In our training, we should be wary of burdening our form with unnecessary (inefficient) effort and labor. Relying on an external focus of attention, many elements of trombone, such as slide movement, embouchure, and minute adjustments, can be automated and triggered by the expectation of sound alone. An example of training with inefficiency would be methodology that relies on the micromanagement of buzzing the lips, controlling aperture size, controlling tongue position, controlling the slide movement and adjustments for just intonation, consciously inhaling large breaths, and consciously pushing the air out. Therefore, in training, the goal of simplicity and efficiency should be

²⁹ Joaquin Farias, *Intertwined: How to Induce Neuroplasticity*. 29.

³⁰ Arthur H. Benade, "The Physics of Brasses." 27-29.

³¹ Arthur H. Benade, "The Physics of Brasses." 27-29.

continuously referenced, seeking to automate free flowing air through the instrument, without blockage, with a focus of attention placed on the functioning element, the resonating air column as musical sound.

Wulf describes the measures by which efficiency is judged as, “muscular activity, oxygen consumption, and heart rate... [as well as] maximum force production, movement speed, [and] endurance.”³² To my common sense, it follows from “lower oxygen consumption” that more air would be available for playing longer phrases or at the very least, removing the sensation of being out of breath that so many brass players feel when playing. In addition, a lower heart rate might lend to the player a sense of calm, potentially reducing symptoms of anxiety while performing. Wulf writes that “the production of maximum forces requires an optimal activation of agonist and antagonist muscles, as well as optimal muscle fiber recruitment. Unnecessary co-contractions, imperfect timing, and/or direction of forces would result in less-than-maximal force output.”³³ Maximum force production applies to brass playing as maximum influence on the sound or the maximum directness and purity of the connection of air and sound. This applies in any facet of playing – from loud/soft to high/low to fast/slow. Optimal activation of agonist and antagonist muscles describes a system of trombone playing that is balanced with the instrument, not balanced between unnecessary holding back and simultaneous pushing through of the air. Optimal fiber recruitment means the use of what is needed and nothing more. The level of nuance that efficient playing demands can only be achieved through an external focus of attention because no one is capable of conscious muscle fiber recruitment at this minute level of subtlety.

Those who have spent time around brass players after demanding rehearsals and performances may hear many complaints of sore “chops” (muscles and tissue of the embouchure). This is often the result of generally inefficient playing that requires tension to achieve balance, but sore chops can also be the effect of playing in ensembles and making unconscious adjustments to slight variations of pitch and timbre in order to match other musicians. However, while playing with other players who have wildly

³² Gabriele Wulf, “Attentional Focus and Motor Learning.” 84.

³³ Gabriele Wulf, “Attentional Focus and Motor Learning.” 86.

fluctuating inconsistencies of timbre and pitch, a form that fundamentally maximizes efficiency and balance will result in much greater endurance. Orchestra players may also develop a subtle awareness of the inefficient tendencies of colleagues in order to resist high levels of unconscious adjustment that could result in embouchure fatigue. After retraining from MD with efficiency in mind, my endurance has increased immensely, and I rarely experience embouchure fatigue, despite hearing regular complaints of embouchure fatigue from other brass musicians. Because of the clear benefits of an efficient approach to playing brass instruments, the goal of efficiency should be a central focus in brass practice and pedagogy.

Feelings of Retraining

The stuck quality that dystonia sufferers experience runs so deep that it filters the parameters of the imagination of the sufferers. Major League Baseball player, Rick Ankiel, who lost his pitching career to a task specific focal dystonia called the yips, describes this quality in his book, *The Phenomenon*. He would wonder in amazement how the children could throw a ball so easily.³⁴ Similarly, I would watch in amazement as children effortlessly played low notes on the trombone. The mind is in disbelief that even the most basic function can be accomplished. The player simply cannot imagine what it would be like to successfully play even the easiest things.

Progress in the early stage is unbearably slow. Much like a germinated tree seed that has been planted, it must take root before it sprouts from the soil. To the retraining player, it's not clear that any progress is being made for months. However, eventual bursts of success became encouraging. I recall an early session with Kagarice where I played a series of middle F's. Immediately I said, "those are the best Fs I've ever played." I have made similar claims countless times as I began to do things better than I ever had before. Kagarice's response to these statements was always, "I hate to tell you this, but it's just going to get way better." She was right every time. Though those F's were the best sounds I had ever made, they were juxtaposed with total dysfunction on a low B-flat. This mix of greatness and dysfunction

³⁴ Rick Ankiel and Tim Brown, *The Phenomenon: Pressure, the Yips, and the Pitch that Changed My Life*. Hachette Book Group, New York: 2018.

characterized the retraining process in which I was playing better than I ever had and yet still could not play well enough to rejoin my profession.

There was a special kind of frustration in making such wonderful sounds while still being disabled. As I kept improving, I trusted more and more in the new way of playing, but I felt as though I was fighting against a wall of consensus among the brass community. My comprehension of the new way was still incomplete, and I was not able to discuss it with nuance. As I tried to share my experience with others, I found that words could not show anyone what I was talking about. They have their experience, and only through new experiences could they explore the concepts I was talking about. That is in fact how I learned the new way – through experience.

A recurring theme in the retraining process is that the mind can understand something, but the body takes time to catch up. It has to experience it and grasp it. Often the mind understands a truth and drills allow the body to *discover* that truth. Sometimes the order is reversed, as the body grasps something first and the mind has to redefine its parameters.

In retraining, exposing hidden dysfunction to the gaze of awareness is a catalyst for change. Once my awareness perceives dysfunction, my body and mind become determined to resolve it. Kagarice is a master of freeing blockage, but it's a double-edged sword. The newfound freedom is welcome, but the removal of the blockage is also a destabilization. Once I experience the joy of the newfound freedom of movement, playing with the blockage that existed before becomes too irritating to accept. Every time she would remove blockage in a session, my afterthought would be something like, "great, now I have a ton of work to do." This is because I had to do the work of building consistency with the newest version of playing. Initially, achieving the updated, blockage-free playing takes 100% of the bandwidth of the brain. Through focused repetition, I was able to incrementally incorporate new updates into my playing. Eventually, with diligent practice, the new behavior becomes automated.

These are like software updates and they happen at least once a coaching session. Sometimes, there is more than one update to incorporate. The more advanced I became in the process, the quicker the successions of updates occurred. Updates also take less practice to incorporate as the retraining process

matures. In the beginning, updates are large and improvements small, but in the later stages of retraining, the updates are smaller and the improvements are massive.

At times, addressing the dysfunction of dystonia triggers emotions upon their confrontation. It is as if by delving into that dysfunction, I was delving into pain and trauma. This connection suggests to me the possibility that my trauma had become embodied and manifested in dysfunctional blockages. Though that aspect is mysterious, it sticks out as a significant component of MD, at least in my case.

After moments of success where I was able to release parts of my playing system, I would instantaneously experience a dampening of MD symptoms. The sensation of immediate improvement was at times surprising and confusing for the body because my body was so used to encountering problems while playing certain musical patterns, when those problems suddenly disappeared, my body was dumbfounded by the novel ease and absence of trouble which it had expected.

On Strength of Focus

My focus became so great as a result of the retraining process that at times, comical musical mistakes or unsafe situations would arise. One notable case of this was during the final note of a concert shortly after I returned to work. A massive tutti crescendo on a held chord ended the final piece. The pitch and sound were already quite wild at the beginning of the note, so I focused inwardly on my own note. I could see the note vividly and my air was riding the sound with good contact. I observed the tone growing and growing. Suddenly the entire orchestra stopped playing and I sustained my note for a half a second. I had unconsciously closed my eyes during the last couple of beats, apparently assuming the conductor would hold the note full value as he had done in rehearsals. I had to laugh because, my obvious mistake, a single trombone player holding way over the cutoff, was done with such a fantastic, healthy sound that it actually sounded great. I had friends in the audience who also chuckled and remarked on how great it sounded. In other arenas such as driving and using hand tools, I found myself keeping my focus fixed when it would be much safer to switch to more pressing safety concerns. I've since adjusted to my improved ability of focus, making playing in groups and everyday tasks normal.

On Depression

It took about a year of retraining to overcome depression. Though I had used multiple therapies and changes in lifestyle to address the depression, I was not able to rid myself of it until I could let go of the trauma I had experienced and its accompanying victimhood. The narrative around my collapse was holding me in depression. During one practice session, I entered an altered state of consciousness. I held my trombone, but instead of playing I just thought. The thoughts were the typical ruminations about the injustice of getting dystonia and the abuse I received from others. However, this time, I responded to those thoughts by saying, “that sucks”, and I proceeded to laugh in hilarity about it. I did this over and over with all the different negative thoughts I was holding onto. My stomach hurt from laughing so much. I had finally let go of the trauma and victimhood. Afterwards I went home and played with my kids, and I felt like a new person.

Letting go of depression was an essential part of the retraining process. Farias writes, “depressed patients rarely finish the process and don’t tend to make rapid progress. In these cases, it is better to treat the depression first and then start training when the behavioral tone is appropriate.”³⁵ I believe retraining and depression treatment can move forward at the same time, but I feel that depression puts a ceiling on level of success a person can have retraining. I also feel that the depression and dystonia are connected with one another. The treatment of depression and dystonia may be a single act in some cases.

One major attitude shift which was helpful came from another moment of where I found myself in an altered state of consciousness. I was walking through a beautiful university campus and I was struck by the beauty of a massive eucalyptus tree. I laid in the grass and watched it move in the gentle breeze. For some reason, my awareness was drawn to the roots of the tree. I had the sensation in my body of the whole organism of the tree, and I recognized that the beautiful display of leaves and flowers above ground was made possible by the core of the tree, which I sensed as being the root structure. Dystonia completely destroyed my previous trombone playing. When I began the retraining process, it was like germinating a new seed. However, my mind was still stuck in thinking it was entitled to my previous abilities. The

³⁵ Joaquin Farias, *Intertwined: How to Induce Neuroplasticity*. 49.

process is elongated by the refusal of the mind in letting go of the abilities that were. Had I accepted that I needed to grow new roots in order to produce a beautiful canopy, my retraining practice would have been much more patient and better informed.

In addition, when I began playing trombone in the orchestra again, there were still major challenges in certain repertoire. The manner in which I responded to these challenges made the difference between success and failure. In some cases, the anxiety about having to perform something which I was not able to do prevented me from growing to meet the demands of my job. However, my experience with the eucalyptus tree gave me the insight that I cannot have abilities that I do not have, and I cannot be where I am not. The tree taught me to accept where I am. It is only from there that I can grow towards a solution. After this epiphany, my anxiety about challenges was transformed into productivity as I took the appropriate steps forward from a starting point of the acceptance of the reality of the present moment.

Musings from Practice Sessions

The following are a small sample of informal notes that I have written during retraining practice sessions in the past. I'm including them because they may provide insight to the thought processes that led to successful retraining. They are not, however, meant to reveal any sort of truth about anything. They are simply what I needed to think at a particular time to overcome a particular struggle. My inclusion here is for the purpose of highlighting the mental processes I used. Any person succeeding at retraining will have original thoughts of their own, similar to these. After writing these thoughts, I would often find them unrecognizable because they are shallow descriptions of a much deeper experience. I would never ask someone to use these words as a map to find their own path.

- The task of retraining is discovery. You can't rush discovery. And it speaks to the experiential nature of finding a new, improved way to play.
- In golf, the moment of striking the ball is determined by the preceding moments of backswing and swing. Attempting to change or influence the moment of strike is futile. Similarly, in trombone playing, one must begin with the correct energy. At the moment of tone, the outcome has already been determined.
- During the process it is easy to feel as if the many previous epiphanies are worthless because of a new epiphany. The player must recognize that each epiphany has a lesson and needs to be synthesized with the other epiphanies. It is not that there is one perfect or correct epiphany. All

the epiphanies synthesize. The player will return constantly and organically to Epiphany without realizing it. In other words, they will have an Epiphany multiple times and each time it will mean something new even though its description is the same. Words fail.

- I think experiencing emotions in the body was a big reason I got dystonia. Stress IS the tension I hold in my gut and mostly chest.
- Limp octopus arms as lips. Gets the holder backers to release and gives a sensation of free-flowing air.
- Realizing my golf swing is the same as trombone playing. I hesitate and try to control at the moment of impact. At the driving range I just practice letting the club go freely through and beyond the ball. I don't care where the ball goes I only care that the club moves freely through the ball.
- In this phase of a new way of playing, I should just be taking quarter swings and with a singular focus on the club moving freely through the bar without any feeling of needing to hit the ball or start a tone. If I have the patience to start small and prioritize freedom and flow, then within a couple of days I'll be able to add complexity to it and it will remain as a foundation. The visualization of the golf swing and practicing my golf swing in conjunction with trombone practicing has been very helpful because I can use that sensation to analogously improve my trombone playing.
- As I enter the exit of the retraining process, it's almost like I've forgotten how I used to play. It comes back in from time to time, but it's very much weakened. It has no pull. Confusion is gone. The path is crystal clear. At the beginning of the process I would think things like, "how will I ever be able to play this new way all the time?" The new way became a part of me. Like an identity of trombone playing. It still feels new, but the results are better than I could ever achieve before. My standards are higher and based on different criteria. Before, getting notes and having sore chops after a practice session would be a success. Now, if I get notes, I may still be dissatisfied if it's not a complete bullseye. Since tasting bullseye resonance, it's impossible to be satisfied with less, even if notes are gotten.
- A tremor is an impossible movement. One cannot do a tremor. It honestly feels quite good if you are able to not be scared. Like a massage. The tremor makes the lips move so rapidly that it feels like an electric massage. To me, this quality of a tremor reveals a quality of movement that the unconscious brain is capable of movements which we are consciously unable to do. The unconscious brain can have a very strange part of the face move rapidly without a thought. And the muscle responds as if it has a life of its own. If our brains are possible of a tremor that is caused by a degeneration of the neural pathways, then what else is it capable of? Perhaps playing the trombone? Or doing other acts of seeming magic. Things that seem superhuman are capable when we allow the body to respond to our superhuman goals. But we must release control of our body. The paradox is that to be able to do something amazing, you mustn't do it.
- Tremors are like leprechauns. I thought I had exhausted all of my dysfunctional motor signals, having not had to confront one for many months. And then a session with coach happened. Through a 1 hour and 40 minute session she relentlessly guided me through experiences that awakened my awareness to an involuntary movement that was occurring every time the mouthpiece touched my face. Despite having gained sufficient functionality on the instrument, I was unable to play without this behavior occurring. By the end of the session, I was playing short notes with more freedom than ever before. But it was a major struggle to play that freely. And

once I experience that level of playing, nothing less is acceptable. So, I set out to correct this behavior. I used tools to refine the new behavior away from the instrument, noticing with even more scrutiny how prevalent the old behavior was. With eagerness I challenged it with every spare moment I could afford. I had the realization that if I could not defeat this old behavior while using a tool, there was no use in trying to tackle it on the trombone. But when I did play the trombone I noticed a massive conflict. Just moving from the tool to the trombone brought uncontrollable twitching as opposing muscle groups battled for supremacy. Even during this conflict I experienced new heights of ability. The behavior change was so fundamental that while drinking wine, I noticed the battle resulting in tremors. At the end of this journey, there's a sense of love for the journey of hardship – problems to conquer. And it's a grateful moment to have one last battle. It feels like the beginning of the end. These tremors are beautiful things. For some reason, they are like the embodiment of change. I'm filled with gratitude for the tremors.

- In the beginning, we inhibited embouchure activity so that the air could pass through free and open lips. At the times my lips were rolling inwards and blocking the air. Over time that intense embouchure activity calmed and I could somewhat let air pass through.
- Eventually, it became clear that I needed to change the embouchure in order to better assist the air function. At the start of this change I was unaware that my lips were curling inwards. I believe I have done this since I began trombone in the 6th grade. It was a fundamental change to make.
- What I learned through this process is that relearning is different than learning. Whereas coach would normally let the form follow function, here she implemented a form-first strategy. Having a counter-productive habit so deeply embedded that it escapes awareness prevents organic learning of a form that better aligns with function.
- We spent many hours with tools, discovering and guiding the embouchure into better functionality of air movement. The first step of this process was to challenge the embedded habit of 'lips curl in and corners spread apart' during outward flow of air. The solution was visualizing outward flow of air through the new shape. Lips forward and relaxed with 360 degree feeling the air column move through. My awareness of the lips changed from the dry outside part of the lips to the wet inside part of the lips. I visualized the shape of the inner lips to be a smooth funnel as the air column moved through. After many hours with tools and the trombone, the old embouchure behavior weakened. The new behavior strengthened. Every practice session brought my comfort to new level. I was able to access success more easily and build upon it.
- It is important to note that the tools I used gave feedback of air function. I was focused on the function of the air at every stage of this process. Even though I was addressing my embouchure, I was focused on the air movement through the embouchure. The lips as they relate to the shape of the air column moving through. It's a subtle difference but of paramount importance. Learning to hold a new shape would be meaningless and potentially cause more problems. The body cannot adapt to the shape of the air column if the player is focused on holding an internally focused posture.
- After successfully replacing the embouchure behavior, I was able to focus on the air finding tone in the instrument. Once the air was free to go and learn from the source of information (the sound), my body could freely adapt and refine.
- This process of embouchure change is distinct from embouchure change that are typically found in brass pedagogy. The focus with those changes tends to be focused on appearance. I was the

subject of at least a few of these embouchure changes. At UCLA, I was instructed to spend hours with a mirror trying to maintain a proper appearance of a “diamond” while moving up and down the instrument. In a lesson with Joe Alessi (Principal Trombonist of the New York Philharmonic), I was instructed to leave my lips in contact with the top and bottom of the mouthpiece rim during breaths while creating holes in the sides of my mouth to breathe through. At Music Academy of the West, I was instructed to use a mouthpiece rim to form a good-looking embouchure. None of these cases had anything to do with the function of the embouchure as it relates to the instrument and the air column. It was as if these teachers were confused as to how to help solve my problems and resorted to getting me to appear as other players appear. It is easy to recreate the appearance of musculature of an excellent model while totally missing what they are actually doing. I therefore view embouchure changes with the utmost skepticism. It is only through the lens of functionality that such a change should be implemented.

- Before dystonia, I used my air like a pressure washer or leaf blower. It was a large quantity and very fast. I used it as if I were trying to get the air from my mouth all the way out the bell with one massive gust.
- After retraining, I recognize that I am making tone with pressure waves in the medium of air that is the air column inside the tube of the brass instrument. I play so that the air column moves as a monolith at a snail’s pace. As much as possible, I am letting the air column be stable, thick fluid for the pressure waves to move through.
- We can use waves in water as an analogy. My old way was like trying to make waves happen in a waterfall. The new way is like making waves in a calm pool.
- I am using such little air. Now the challenge is to be calm enough to use such a small amount of air. It’s less like I’m using air as I’m sending tiny pressure waves through air. In every part of playing, I was overblowing by a huge margin before dystonia.
- The function of the air column has informed a new embouchure. There is always a hole in the middle of my lips for pressure waves to travel through. The size of that hole may change but the air waves must always be able to travel freely through that player-instrument connection. Before, I would overblow and then hold air back. I would achieve balance at the lips in this way so that I could actively buzz, or force with my lips, a tone. Now, I am in balance with the air column as much as possible and my lips catch a free ride on the oscillating, resonating air column.
- After retraining, I am now able to play much louder than I need to, but the sound is similar to the sound at mezzo forte. It stays vocal rather than edgy and breaking. I spent a while reveling in my big loud sound, like a new toy. I wanted to show everyone how great it was. With time, I’m learning how best to use that tool. But as far as loud playing is concerned. It no longer hurts, it no longer sounds obnoxious, it is gorgeous, and it is way more present than before.
- During the retraining process, I began to understand the conversation around “sound concept” more clearly. Sound on brass instruments is an equation: the sound of the instrument resonating minus whatever you “do” to it equals your sound. In other words, effort beyond what is required to resonate the instrument reduces sound quality. So the best sound concept is emptiness of effort and involvement. When the extraneous involvement is removed, direct access to the sound appears and playing music becomes observing music.
- My trombone playing has a new voice. It’s an entirely different way of playing. And the sound is entirely different. Expression from emptiness sounds different than manufactured expression. A

big part of the process is learning to expect that new voice and expression while playing music. Learning to use that voice instead of defaulting to the old way.

- An added challenge is to contribute to a group in the new way while others continue to contribute the same as before. Having something so great and wanting to experience it with other people, but no one else even knows it exists, and they have no clue how to get it. It feels a bit like painting with a fine brush on a canvas with others who have only thick, frayed brushes. It's frustrating to have the flower covered with weeds. Especially in the role of second trombone because its function is to support and beautify other sounds. And when one listens back to recordings, it is not the desired end result. But, I know that playing with others usually results in something amazing and better than individuals.
- From Bill Mollison, founder of Permaculture: "The problem is the solution." This is a powerful reframing of problems. We ought to meet them with eagerness because they are our compass, showing us where to focus our energy to optimize our system of playing. Especially for the sufferer of dystonia, who is dealing with unbelievable frustration, we need to see the problems as messengers of solutions

Chapter 6: Conclusion

This document has given an account of my journey retraining from MD with the hope of bringing awareness to MD among performers and pedagogues and to provide resource support for those suffering from MD. In my case, I have shown how a combination of emotional trauma surrounding my trombone playing combined with a multitude of limiting beliefs and practices, some from mainstream brass pedagogy, were likely contributors to the onset of MD. I have also demonstrated how brass players with MD face unique challenges from the hidden nature of symptoms and the misunderstanding of the physics of brass instruments, which led to the industry-wide adoption of ineffective and harmful practices. I suspect many suffering from MD may be unaware of subtle ways their dystonia may be impacting their life, and I encourage everyone with MD to attempt retraining with an experienced, successful retraining coach.

Mental health is a crucial part of retraining and a healthy professional life in music. Depression has the potential to influence the movements we rely on to achieve musical goals. EMDR, flow states and thus altered states of consciousness have been crucial therapies in overcoming of depression and maintenance of mental health. The management of high-conflict personality types has played an essential role in maintaining progress and health in the workplace.

Coach Jan Kagarice has been my singular compass throughout the entire journey, and I recommend those hoping to retrain from MD find a similar figure to guide them through retraining. The retraining process required a reversal of my understanding of a number of topics after which I could build a new way of playing. The retraining process was a process of years, which dovetails into a normal practice of trombone playing. Rather than restoring my playing, retraining enabled greater efficiency, expression, and sound production than I had achieved before MD because it forced the adoption of efficiency, and removal of confusion about the learning process and function of brass instruments.

For those interested in the specifics of the retraining process, please refer to Joaquin Farias's book, *Intertwined: How to Induce Neural Plasticity*. He describes retraining strategies similar in many ways to mine in great detail, and it's beautifully written.

Retraining has given me the gifts of humility, empathy, efficiency, clarity, and voice. This was the most difficult challenge of my life, and the process changed nearly every part of me for the better. The journey of retraining is nonlinear, relying on discoveries made in a lifestyle of discovery and curiosity. This transformation has made me more capable in every part of my life, and it has lifted a curtain, showing me a new depth of happiness that can be achieved in life.

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