Perceptive Practice: Unleashing Sensation and Reshaping Practice through Body Awareness in Violin Playing

By

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Doctor of Musical Arts: Violin Performance

ABSTRACT

The Doctoral Performance and Research submitted by Chang-En Lu, under the direction of Professor David Perry at the University of Wisconsin-Madison, in the fulfillment of the requirements for the degree of Doctor of Musical Arts consists of the following:

I. Written Project:

This project consists of three chapters that engage perceptive practice, mentally and physically, into violin playing in order to explore multiple means and alternate possibilities in executions. The first section includes how an observational mindset leaves space for the mind and body to capture information with kinesthetic sense as feedback. It then identifies what kinds of mental impediments and external stimulations confine myriad physical perceptions. The second section introduces how each segment of the body connects with others as integrated units. Based on knowing the integrated body as a foundation, applying perceptive practice to pedagogical materials expands the spectrum of required motions in execution. The last section proposes how perceptive practice can be implemented in learning a piece, finding relationships among the body, motions, and tasks.

II. Sonata Recital, 2/5/2017, Morphy Hall

Sonata No.1 in G major, Op.78— Johannes Brahms
Mythes, Trois Poemes, Op.30— Karol Szymanowski
Sonata No.10 in G major, Op.96— Ludwig van Beethoven

III. Piano Chamber Recital, 12/11/2017, Morphy Hall

Sonata in E minor, Op.82— Edward Elgar
Sonata No.1 in D minor, Op.75— Camille Saint-Saëns
Piano Trio No.2 in C minor, Op.66— Felix Mendelssohn

IV. String Chamber Recital, 4/20/2018, The Crossing Church

Selections from 44 Duets for Two Violins— Béla Bartók
Sonata for Two Violins, Op.56— Sergei Prokofiev
Serenade for Two Violins and Viola, Op.12— Zoltán Kodály

V. Concerto Recital, 2/7/2020, Collins Hall

Violin Concerto— William Walton
Violin Concerto No.4, KV.218— Wolfgang Amadeus Mozart

VI. Final Recital, 5/4/2021, NTU Center for the Arts, Taiwan
Sonata No.18 in G Major, KV.301— Wolfgang Amadeus Mozart
Five Melodies, op.35bis— Sergei Prokofiev
Sonata in B Minor— Ottorino Respighi

VII. Lecture Recital, 4/18/2022, Humanities Building 2551
"Perceptive Practice: Unleashing Sensation and Reshaping Practice through Body Awareness in Violin Playing"

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Finally, I would like to express my deepest gratitude to my parents. Their love, support, and care give me the immense energy to embrace any difficulties in life.

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Introduction

The process of practicing an instrument enables people to perceive a myriad of physical sensations corresponding to the tasks in the music. Within the thousands of executions per practice session, one builds up certain perceptions to connect with each type of motion, eventually defining one's technical approach to the instrument. Many people pursue their desired results repeatedly in practice, an action that creates familiarity not only with the music they are practicing but also with the way they are habitually using their bodies while playing.[1] While working towards musicality and technical accuracy in practice is essential, people are sometimes unaware of other options which can help them achieve the same results at less physical cost to themselves. It is easy to focus more on the difficulty of the task itself and the creation of drama in the music than on the body. For example, without discovering sensory awareness in the movement pertaining to the range, direction, and the levels of the finger weight, one might develop a fixed pattern of using their own hand to play the violin. Learning how to practice a passage through mind and body awareness is a process of breaking the habitual patterns and accepting different sensations towards crafting a new path of learning. Namely, when we discover the differences between our habits and new patterns through sensory awareness, the findings change how we use each part of the body, refining actions to create alternative playing options. This experimentation through mind and body

[1] Moshé Feldenkrais, *The Elusive Obvious: The Convergence of Movement, Neuroplasticity, and Health* (1981; repr., Berkeley: North Atlantic Books and Somatic Resources, 2019), 32.

reveals many ways of doing things which seemed impossible before. In short, perceptive practice allows one to explore multiple means involved in the process instead of focusing almost exclusively on the end result.

We can in fact apply perceptive practice in the simple motions we perform in our daily lives. Studying how we direct our bodies to do simple tasks enables us to trace the awareness involved from initiation to conclusion. Consider, for example, the act of looking up toward the ceiling. Are you aware of the parts of your body you engaged? This movement is very familiar to us, and most people can do it without thinking or reacting. Because of the reflexes that have been formed throughout our lives, this action is automatic. Now, I will guide you through another experience of this action. Make a fist in front of your sternum. Gently move the sternum forward towards your fist until your chest is fully extended, enabling one to look upward with easiness.[2] How does this feel compared to the first time you did it? In the first movement, one might use the back of the head to lead the motion, causing compression in the neck area. On the other hand, the second movement involves using one's awareness of the link connecting one's head, sternum, and thoracic and cervical spine to move this integrated unit towards the same ending position. Comparing these two actions, one realizes that the difference between compression and stretch is based on awareness and sensation rather than configuration. Although these two actions lead to the same ending position, changing the

[2] Uri Vardi, personal communication during lesson, March 31, 2022.

method of triggering the movement results in a different quality of movement. The first one is an action guided with the end goal in mind, which is looking up toward the ceiling, but the second is focused on the means of achieving this goal. Similarly, when applied to instrumental practice, the whole process facilitates one's understanding of the discrepancy between utilization by one's experience versus perception in each attempt. As Pedro de Alcantara, the Visiting Professor of Cello at the Royal Conservatoire of Scotland, and a Practitioner of the Alexander Technique, points out:

> The most productive way of working is to give the pupil an experience of good use that contrasts with what he or she normally does. There are two mechanisms at work here. First, a change of use for the better entails an automatic improvement in sensory perception. Second, the new experience brings with it a wealth of new sensations, which the mind pounces upon at once, awakening the pupil's capacity to compare and discern.[3]

Thus, through the comparison of these two experiences, not only did we acquire new perspectives to perform a task that we have all done countless times, but we also recognized a habitual pattern of behavior before the change. Those nuanced differences in kinesthetic senses lead us to a better understanding of "how we use ourselves to act,"[4] and how we can have "the freedom of choice" inwardly.[5]

This research project is inspired by my personal experience from the Awareness Through Movement lessons of the Feldenkrais Method conducted by Hagit Vardi, Feldenkrais Practitioner at the University of Wisconsin Hospital, and Uri Vardi, Professor of Cello at the

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[3] Pedro de Alcantara, *Indirect Procedures: A Musician's Guide to the Alexander Technique* (New York: Oxford University Press, 1997), 45.
[4] Moshé Feldenkrais, *The Elusive Obvious*, 70.
[5] Ibid, 114.

University of Wisconsin- Madison. This experience was a game changer for my practicing and playing the violin after I had an accident in 2019. The accident caused cervical radiculopathy, atrophy of left thumb, and a lesion of the ulnar nerve. When I kept using my habitual instincts to play the violin, the pain in my left palm became constant. However, by participating in Awareness Through Movement lessons, I discovered new resources to reverse the effects of the injury. Through simple movements and a variety of movement combinations, I slowed tasks down to a speed where I could perceive what was happening throughout my motions. If I could not sense anything, it meant that I had moved too fast to observe anything. Further, at the appropriate speed, consciousness could guide me through the spectrum of my strength with the aim of reducing undue effort and extraneous motion. In each endeavor, once I found the "sweet spot" of minimal motion with ease, I started gradually amplifying that range, in terms of speed, distance, and strength, to understand where my turning point was when excessive effort took over. This experience not only directed me to use my body in multiple ways, it also enhanced self-guidance and sensitivity during my practice sessions. In this research project, I build on that experience to describe alternative practice options combined with examples and multiple exercises, some of them with modifications in order to shed light on sensations, to help other violinists to experience perceptive practice. I provide, moreover, methods for shaping perceptive practice in different spheres, both mental and physical, as well as application methods of how one can engage in perceptive practice during

the process of learning new repertoire.

Chapter I, “Mindset: The Compass to Help One Collect Sensation and Perception,” discusses how a proper mindset enables one to be aware of what is happening during practice and to prevent one from getting distracted by a judgmental mind, emotional reactions, and complicated tasks. Observing how we are executing routine tasks in the moment allows natural integration between mind and body information naturally perceived by visual, tactile, auditory, and kinesthetic senses. The more information one collects from attention and awareness, the more trust ensues from the inside out.

Chapter II, “Body and Motion: Perception Gathering with Pedagogical Materials,” explores ways of attaining poise in one’s body before playing the violin, ways of applying minimal exertion in execution, and ways of combining—with some modifications—pedagogical materials from Carl Flesch, Demetrius Constantine Dounis, and Simon Fischer into perceptive practice. These perceptions are a synthesis through conception, awareness, and physicality.

Chapter III, “Process: Engaging Sensation and Perception with Application,” offers examples of what the process will look like in a perceptive practice created by myriad means. This chapter will utilize selected etudes and caprices for solo violin by Henri Vieuxtemps and Niccolò Paganini as examples.

Chapter I. Mindset: The Compass to Help One Collect Sensation and Perception

In any kind of practice, including that of sports and music, the proper mindset draws attention to how one executes actions throughout the event. In other words, the process of completing the task is as valuable as one's assessment of the outcome whether it is good or bad, since collecting awareness of different parts of one's body throughout the task plays a pivotal role as feedback. According to that feedback, practicing becomes less about trying harder each time, and more about altering your process based on the tangible information absorbed through psychophysical unity.[6]

Observational Mindset

An observational mindset encourages one to be a neutral observer throughout the practice session. This is similar to the function of a video camera recording the trajectory of motions. One observes the motions as they are without subjectively judging the result of the action.[7] Using an observational mindset leaves space for the mind and body to search for sensations and digest the information received from the sensory receptors transferrable to our brains. The more space we give ourselves to focus on the feeling and quality of moving in the moment, the more likely our senses and body will be synchronized in the tasking of the required skill, which contributes to a wider spectrum of knowledge, perception, and understanding.

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[6] Anders Ericsson and Robert Pool, *Peak: Secrets from the New Science of Expertise* (Boston: Mariner Book, 2017), 19.
[7] W. Timothy Gallwey, *The Inner Game of Tennis*, rev. ed. (New York: Random House, 2008), 21.

To better understand how an observational mindset is involved in an activity, consider the practice of yoga. When encountering new body positions in yoga exercises, one might concentrate on an external image or instruction given by a teacher in order to achieve the correct posture. Not until reaching the range limit of a stretch does one receive the internal sensations as the body reacts to dynamic versus static poses. Subsequently, we may notice resistance caused by our lack of flexibility through the internal signs showing that the body is struggling with our stretching limitations. At this point, our minds are often overwhelmed by our judgement and reactions. How can we better engage our inner observations from the beginning of the motion to ease our mental and physical struggles? The answer is through observing “how” an action leads to “feeling” the motion in a new way. There are several choices and directions towards the balance within a static posture of the whole body required for a truly flowing quality of motion. One important possibility is how one’s awareness and observation can shift while moving. First, transferring attention from the specific muscle that is limiting your range of motion to the whole-body image helps the brain and body reorganize rather than concentrate on the discomfort and frustration from the resistance. Reacting to stimulations and discomfort hinders one’s ability to identify its root cause. It is of great importance to focus on the movement of stable breathing in the diaphragm, tuning our attention towards the internal rhythm of the rib cage’s natural reaction to inhalation and exhalation. This breathing movement not only stabilizes the hip joint and lumbar, it also

provides the side effect of easing the tension from the resistance of the body's limitations. Observing how your internal breathing movements can guide external physical movements increases the quality of your motion. It is interesting to observe how external physical movements can be soothed by the smooth, fluctuating internal breathing movements as the body assumes a difficult posture. Once we have found the balance between internal and external sensation, our attention can shift to feeling the opposite direction of the body's relationship to space, an interplay that reconstructs spatial awareness. One recognizes not only the space of an area, but also changes the space within the body. The opposite direction here means that vectors coexist flowing along the spine or limbs; one vector might run in an upward direction towards the head while the other runs in a downward direction towards the sacrum.[8] These directions allow the body to occupy more space in its surroundings, lengthening rather than compressing to attain the optimal body position. In short, along with the observational mindset, this process can help you establish an understanding of your mental and physical context, thereby preventing you from judging yourself too critically and too soon. I will give specific examples in violin practice of how the observational mindset can improve the overall effectiveness of your practice in the latter part of this chapter.

Discerning the Interference

Perceptive practice can be affected by disturbances and interference stemming from our

[8] Agnès De Brunhoff, *On Stage: Back to Yourself with the Alexander Technique*, trans. Joanna Britton (Paris: Agnès De Brunhoff, 2012), 64.

own thoughts or from factors inherent in the task itself. These hindrances deviate from how we sense things normally, which can result in misusing our bodies. Thus, recognizing disturbances and impediments to perceptive practice is the first step towards avoiding these mind traps. When we notice distractions slipping into our thoughts, we can make choices that reset our focus. It is important that we allow the observational mindset to "speak out."

The first impediment to perceptive practice is the judgmental mind. In *The Inner Game of Tennis*, Timothy Gallwey presents the two roles of a tennis player on the court: One is the instructor, telling the body how to behave during a serve, and the other is the actual performer of the task.[9] The role of the instructor is manipulated by one's judgment, but how can one know if their judgment is reliable and accurate at any given moment? According to Gallwey,

> Letting go of judgments does not mean ignoring errors. It simply means seeing events as they are and not adding anything to them. Nonjudgmental awareness might observe that during a certain match you hit 50 percent of your first serves into the net. It does not ignore the fact. It may accurately describe your serve on that day as erratic and seek to discover the causes.[10]

On the other hand, a judgmental mind restricts one's ability to seek out more tools related to the task because judgment imposes an unhelpful frame upon our minds and bodies. We may end up forcing our bodies to execute an action which is then met with our judgmental expectations, rather than learning naturally with self-awareness. Our vision might narrow to what is right or wrong under these conditions. For instance, violin players might find themselves playing the same passage out of tune several times within a practice session. They

[9] W. Timothy Gallwey, *The Inner Game of Tennis*, 10.
[10] Ibid, 20.

may catch which note is out of tune within the passage and try to correct it by marking arrows above the notes which need to be higher or lower. What if one plays the same passage out of tune next time even after careful practicing? One probably feels frustrated and negative about the effectiveness of the practice and works even harder on the troublesome spot later. When engaging with the judgmental mind, one focuses more on the end result, which in this case is playing in tune or out of tune. Afterwards, adjusting the note lower or higher becomes the only conceivable remedy to improving the intonation, and this may only work temporarily.

By contrast, perceptive practice creates a space for one to observe the connection between body and motion related to the task. If violin players are aware of different sensations in the physical body with observation in mind, they might ascribe playing out of tune to many possibilities. For example, guided by tactile awareness and the sense of moving, one can find that different levels of finger weights pressing on the string and which parts of the finger initiated the dropping motion affect intonation. In terms of the left hand, one might assess whether the double contact points along the neck of the violin (left thumb and left side of the index finger) are light and mobilized.[11] When these contact points get tight, the balance between fingers within the hand frame becomes distorted, which results in degradation in the sensitivity of the fingers. In turn, this makes one's whole hand less capable of sensing nuances in motion. If the hand position is changed or the fingers press on different

[11] Simon Fischer, *The Violin Lesson* (London: Edition Peters, 2013), 183.

strings, the finger weight should also vary. This is because the fingers are able to sense the elasticity and springiness of the string itself and also from the finger weight that initiated the motion. The other reason for variable finger weight is that the thickness of the strings is not the same, and the string height above the fingerboard increases as one approaches the bridge. Thus, maintaining both an active physical and mental state helps one locate the true root cause of technical issues instead of engaging in mechanical practice.

A judgmental mind can also affect our practice when we are training ourselves to feel the pulse of a piece by practicing with a metronome. Musicians use the metronome to insure a steady pulse throughout a passage of music. If one encounters a difficult passage, one might start with the metronome set at an even slower tempo, gradually working toward an end goal. Finally, one will hopefully be able to play through the passage without the metronome to test one's preparation. What if the pulse is still off track after such meticulous practicing? One might conclude that they simply have a bad sense of rhythm and pulse. However, the reality is that practicing methodically with a metronome disregards the rhythms within internal body movements and tries to cultivate a sense of musical pulse from an external tool. This may result in a dependency on the metronome while artificially creating a sense of security in the mind. However, musical practice is about connecting and integrating our internal tools, physically and mentally, with external tasks. Our heartbeats, breathing patterns, and physical gestures all have their own individual pulse and rhythm. Synchronizing those internal pulses

with the musical pulse by clapping or tapping the pulse and rhythms like a percussionist helps the body learn and remember the tempo and rhythmic spacing. This enables one to connect the mind and body purely sensing the simple pulse, without being distracted by tackling the entirety of the passage. Agnès de Brunhoff, a certified Alexander Technique teacher at the Paris Conservatory, states:

> For playing an instrument, the notes should come from the body, not from the mental decision to start making the music. You have to connect the pulse of the music with your own internal pulse, and then connect this to a good use of the self and the body……If you try to reproduce this gesture by listening to what you think your voice or your musicality should be, it loses its freedom. You will be limited by your expectations of how you want it to sound, and this will reduce the amount of breath you have to finish the phrase or might even lead you, for example, to press on the sound.[12]

Once our body is familiar with the pulse, the next step is to use the metronome as a reference, which entails testing our internal pulse with a bigger, overarching pulse. For example, in a piece with a 4/4 time signature, we might attempt to line up with the metronome on every other beat or once per bar as a checking point. This step alerts our auditory awareness as to where our pulse is out of synchronization. If the passage is still out of synchronization, it does not mean our internal pulse can no longer improve. Instead, there are probably other difficulties preventing the pulse from reaching a steady state, such as the timing of a shift or a string crossing. Those factors affect our pulse as well, so identifying those issues is just as important as training our internal pulse. Thus, without a judgmental mind, there are no boundaries to stop oneself from working creatively toward an end goal whenever the

[12] Agnès De Brunhoff, *On Stage: Back to Yourself with the Alexander Technique*, 95-96.

observational mind catches new discoveries related to the task.

The second impediment to perceptive practice is emotional reactions. People not only perceive emotions conveyed by the music, they also express emotions based on the external world. In fact, emotion is the interface between our nervous system and muscular system.[13] For example, when people encounter dangers or threats in life, nervous system signals induce fear in the body. Our muscles tighten and our heartbeats quicken as we focus on the hardship in order to get through it. Our emotions are tightly coupled with our thoughts and our bodies, and that association inevitably affects our movement. Any kind of strong emotion, such as fear, anxiety, exultation, or rage, leads to a contraction in the body.[14] Those emotions put a strain on the mind and body alike. How could it be possible for a person in that mental state to sense intricate nuances as effectively as they would be able to if they were poised and calm? Likewise, when we are confronted by challenges without a sense of security, we may feel nervous or disappointed, causing our negative thoughts to dictate our bodies' actions. This kind of action subsists under the habitual ways we perform tasks, and our bodies and minds can get stuck in this state. As a result, conveying diverse musical expressions driven by emotion has strenuous ramifications for the body's sense, making it difficult for our bodies to attain the results we have in our minds. According to Feldenkrais,

> Violent emotions produce a wide-spreading excitation of muscular system and make fine control impossible. The aim is then achieved by sheer expenditure of energy, and no

[13] John Ding-E Young, *The Totality of You* (Taipei: Common Life Publishing, 2016), 49.
[14] Ibid, 52-59.

> precise delicate action is possible. In such states of intense emotional excitement, we are unable to see alternative ways of performance; we act under inner compulsion.[15]

Thus, any acute emotions, positive or negative, block self-awareness in the movements related to the task. If one falls into an emotional state easily, the body's instincts will likely cause one to fall back into uncontrolled physical habits, which undeniably strangles many tools and possibilities to express an assortment of emotions in music.

The third impediment to perceptive practice is derived from the external complicated tasks requiring the use of multiple skills within a single passage. In such cases, if one's foundation is not comprehensive, one's awareness is easily misplaced because people pay attention to more than two senses of movement at a time. This is primarily related to one's coordination within the body. In order to focus on a single perception, the first thing to do before practicing is to analyze how many skills are required within a passage. When we organize our thoughts in this way before we practice, we will end up with a better picture of how to practice a passage efficiently. For featuring sensations in each skill, focusing on one hand at a time helps organize our perception related to the task. Take the Scherzo from Robert Schumann's Symphony No. 2 as an example.

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[15] Moshé Feldenkrais, *The Potent Self: A Study of Spontaneity and Compulsion* (1985; repr., Berkeley: North Atlantic Books and Somatic Resources, 2002), 54.

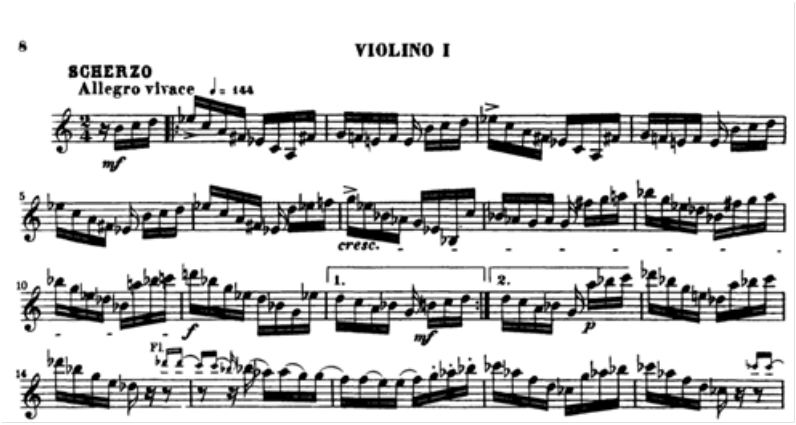

Figure 1-1. Scherzo from Schumann's Symphony No. 2, the opening, measures 1-18.[16]

First, we must recognize that there are four types of challenges within this section: the spiccato bow stroke, the timing of the string crossings, the unusual hand frame with extended left-hand fingers, and the coordination between both hands. Before working on one's spiccato stroke, it is necessary to determine the best part of the bow for a springing bow stroke because each bow has a different balance point. Testing refines not only the relationship between the contact of the hand and bow stick, but also the bow hair and the string. Nathan Cole, First Associate Concertmaster of the Los Angeles Philharmonic, provides us with a great lesson in analyzing sensations between the bow and bow hand.[17] Make a fist and find the place in the bow where it bounces and makes the least amount of noise. Then, drop the bow and let the bow hair absorb the shock. This exercise helps one build trust in the bow hair, and to observe the different sensations of the arm connecting through the fingers, which helps one better understand the relationship between the arm and bow. Once one finds that spot in the bow, experimenting with different heights of the spiccato stroke can reveal different

[16] Robert Schumann, *Symphony No. 2* (Leipzig: Breitkopf und Härtel, 1890), 7.
[17] Nathan Cole, personal communication during lesson, April 16, 2020.

qualities of the articulation. In this excerpt, one must bounce the bow close to the string with a tilted bow to match the tempo and character of the piece.

Next, we dive into the timing of the string crossings. In this case, one needs to disregard the left hand entirely, and play the passage with the right hand alone on open strings, feeling the bouncing of the bow when playing spiccato. This method of practicing gives one the opportunity to observe the relationship between the timing of moving on to the next string and the trajectory of the elbow and wrist. In the microsecond before each string crossing, one can focus on whether the elbow or wrist is moving to the next string level between notes. Through the awareness of the hand, wrist, and arm preparation, one can better understand the timing of the string crossings which are not on the note change, but instead before the note change in real time.

After one works out the spiccato stroke and the timing of each string crossing, one can shift the awareness to the left hand. When we start finalizing the left-hand fingerings and hand frame, we should not rush ourselves to play with a spiccato bow stroke yet. To build up a stable hand frame, we can instead choose to play with a legato bow stroke, slur four notes or eight notes, or even play with a detaché stroke, giving ourselves space to focus on the left-hand movements and our intonation. As for the hand frame, one must often extend the index finger back, such as in measure 7 and measures 13 to 18. Those passages require two hand positions to complete the phrase. Carefully choreographing which fingers to keep on the

string and which fingers to leave off the string will lead to a more balanced hand frame. Furthermore, we can identify where our fingers should fall within that frame as a reference. I have observed that some people move their entire arm to new positions when playing this passage, which decreases the effectiveness of their movements and leads to unstable intonation. Instead, I would suggest maintaining the same hand shape, only moving the first finger. The key point to observing the motion is not to focus on the time during which we slide our first finger. Rather, I would pay attention to the moment in which the pinky is dropped onto the string. When the pinky lands on the string, make sure the base knuckle is round and close to the neck of the violin. This moment seems inconsequential, but the action creates more space in the area between the thumb and the index finger, ensuring that we will not squeeze our fingers as the index finger extends back independently.

Finally, the last stage is to analyze the coordination between both hands. Observing the timing of the placement of the left-hand fingers and the bow contributes to a better understanding of the requisite sequence of movements. When we play this scherzo with the detaché stroke, the timing of placing the left-hand fingers and bow change is simultaneous. However, if we switch to the spiccato stroke, we can realize that there is empty space between notes because the stroke ends the note early. Using that empty space to place the next finger is a key to better coordination between both hands. Feeling this timing by practicing it slowly helps us understand why Carl Flesch said the left-hand fingers lead the

right-hand movement, bringing about an unexpected result.[18] In the meantime, if a string crossing is involved, placing the left-hand fingers on the new string ahead of the bow reaching a new string level also magnifies the sensation of using the left-hand fingers to lead the right-hand movement. This experiment can be implemented even when applied to a detaché stroke. Therefore, whenever one encounters the complicated task at the beginning of learning a difficult passage, let the awareness guide one in the action from breaking down the task, in order to observe crucial details within the movement. There is no best formula for teaching one how to solve these puzzles; there is only increased awareness, giving one the freedom to explore many practicing possibilities.

An Example of Perceptive Practice

During perceptive practice, we focus on the relationship between a single task and movement. By observing how we do the task, we are altering our awareness and collecting information through the feelings of different parts of the body that are engaged in the task. If we can divide this task up into as many sensations as possible, it will be easier for our bodies to pick what works best for us from a pool of possibilities.

Take a long-distance shift from the first movement of Johannes Brahms's *Symphony No. 4* as an example.

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[18] Carl Flesch, *The Art of Violin Playing*, vol. 1, ed. and trans. Eric Rosenblith (New York: Carl Fisher, 2000), 53.

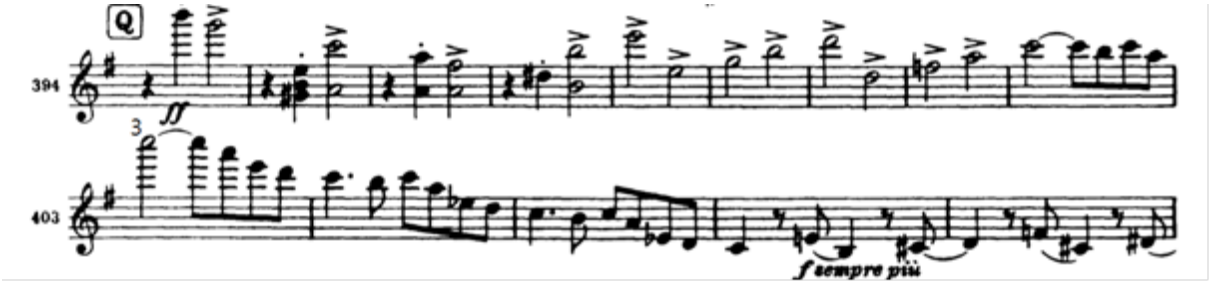

Figure 1-2. First movement from Brahms's Symphony No. 4, measures 394-407.[19]

The long-distance shift occurs on the downbeat of measure 403. In this new finger shift from the previous note, what sensations could we observe during the task? First, I would play the shift slowly, so I could hear the slide evenly throughout the process until arriving at the desired note. In this phase, I would let my auditory awareness lead my hand and fingers to land where they need to be from the starting pitch through the ending pitch. During each attempt, I would pay attention to the give of the string. Feeling the give of the string enables my fingers to adjust their weight on the string throughout the process. As the finger weight reacts to the give of the string when sliding, one can observe what the trajectory of the fingers looks like by feeling it. Is it a horizontal straight line or a parabola? Once my finger becomes familiar with the qualities of its movement along the string, I would switch awareness to my wrist during the shift. I would not confine myself to keeping it in a straight line even though the arm, wrist, and finger should act as a unit during the shift. Instead, I would notice whether my wrist is flexible enough to support what my fingers need during the shift.

To gauge the distance of the shift, I have to integrate my visual awareness and sense of

[19] Johannes Brahms, *Symphony No. 4* (Leipzig: Breitkopf und Härtel, 1927), 6.

motion. This means that during the slow shift, I must determine how much distance I can feel from the position change of my elbow when my arm swings around. Until my hand arrives at the target note, I must pay attention to what hand shape looks like by checking the feel of three possible contact points, including the thumb, the finger and the palm. This is the process by which our nervous system can capture a picture of the whole procedure. Afterwards, we will be able to synchronize the actual visual image with our mind picture for the shift. Nevertheless, the discussion above only scratches the surface of the feeling. The foundation is the body itself, which includes the spatial relationship inside and outside the body. If I ignore the foundation of my whole-body system, my awareness might acquire distorted or incomplete information. Without mindful attention, I might carry out a long shift by clenching my arm to the side of my body and raising my shoulder to compensate or tilting my head to increase the pressure to stabilize the violin. To avoid this, I recognize the space between my arm and trunk during the arm movement associated with each shift as well as the space between both sides of my head in relation to the clavicle. This body space allows me to eradicate any compressing qualities involved in my perceptive practice.

Later, when I feel comfortable and confident with the feeling of my slow long shift, I can start adding movement variants as a way to test my perceptions in close to real time. The first exercise is to vary the shifting speed. This idea has been brought up by David Perry, Professor of Violin at the University of Wisconsin- Madison, and Simon Fischer, a renowned

violin pedagogue, both of whom were introduced to the idea when they studied with Dorothy DeLay at the Juilliard School. According to DeLay,

> The speed of the shift is not constant. The finger travels very fast until it is just below the arrival-note, and then slides more slowly into the in-tune note……Delay told how she had bought a new car—her first car ever—and took it to a parking lot for the first time. The lot was crowded, and she watched nervously as the parking attendant drove off at breakneck speed and … slipped the car into a space without a bump or a scratch. How did he do it? Slow Arrival Speed! He drove quickly until the last moment, and then slowed down into the space.[20]

This method integrates our auditory awareness and tactile awareness at the end of the shift, focusing on the moment slightly before arriving at the target note. In addition to the pattern suggested by DeLay, one can vary the shifting speed patterns, such as a "fast-slow-fast" pattern or accelerating towards the target note. Through experimentation with all varieties of shifting speed patterns, the most appropriate shift for the musical character becomes clear.[21]

The second exercise involves playing only the last eighth note in measure 402 to the next arrival by inserting an open string between and dropping my fingers from the air each time. By doing this, I need to release my finger during the shift in order to prepare dropping motions from the air again when hitting the arrival note. During the shift, my finger will hover above the string without touching it. Because of this, I cannot rely on my auditory awareness. Instead, my tactile sense is magnified throughout the movement. This enables me to focus on how my finger pad feels, how long my arm must travel to support my hand shape during the shift, and how the tapping quality affects the rebound of my finger. The last step is

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[20] Simon Fischer, *The Violin Lesson*, 246.
[21] Uri Vardi, personal communication during lesson, March 31, 2022.

to switch my observation to the coordination of both hands for the shift. In other words, I must notice which part of the bow I am in when my finger initiates its sliding motion. There are several more questions I must ask myself when I explore my coordination for a shift. Do I leave enough bow to sustain the sound after completing the shift? Do I shift before the bow change or at the moment of bowing change? Does my bow arm increase its speed once the shift has begun? In turn, these questions lead me to ponder whether the shape of my sound fits with the musical expression or character in this phrase. Through these experiments, I will likely realize that there are many possible ways for me to execute the passage I am working on.

In conclusion, through each attempt in perceptive practice, I observe how I am learning any task, whether it is a single physical motion or a broader musical decision, both internally and externally. The observational mindset accompanies me in the process of learning a new skill or refining a skill I have already acquired, allowing me to seek poise, balance, and the beneficial relationship between the music, my body, and my perception.

Chapter II. Body and Motion: Perception Gathering with Pedagogical Materials

Our body is the medium from the conception of a movement to the completion of an action. It has mobility without any consciousness intervening to control it artificially. As we learn more advanced skills from playing an instrument, we tend to ignore the body as our basis of learning, unlike the natural way we explored as toddlers. As we advance our skills, our brain imposes many intentions and instructions to the body. However, if people were more aware of what they are doing in the moment, the body would have the chance to reset and reverse any adverse movement before the formation of the action. Through enhanced awareness and conscious choices, one can approach how we stand, how we lift weights, and how we hold our instrument to play in many ways.

Without knowledge of the mechanisms of our body, people increase their chances of misusing the body and risking injury. In daily life, people tend to adapt their bodies to the environment. For instance, one might bend the neck down and move the head forward in order to see the screen of cellphone or pick an object up off the ground by rounding the back instead of flexing at the hip joint. These examples of misusing the spine will not cause an immediate injury, but the formation of movement involves certain compensatory patterns which originate from a lack of mobility or stability among joints. As a result, the compensation transmits the force on the spine, which might compress the space between each vertebra and jeopardize the spinal cord and nerve root. However, if we can explore certain

keys which contribute to an axial balance of body, violinists might perceive reduced effort in those parts of the spinal column that need not be engaged in tension to hold the body in place. The axial balance builds a supportive system to pass linear force from the body to the ground, inviting buoyancy and freedom of motion. Therefore, in this chapter, we will delve into examples of how a whole-body chain contributes to balance, tuning our body awareness while playing the violin through the use of pedagogical materials to enhance our physical perceptions in the moment.

Head-Neck-Back as a Unity

When I observe students playing the violin, many retract the head and neck to stabilize the violin, some stick out their chest to support the violin, and some arch the lower back in the standing position while playing. Postures like these disregard the relationship of the head, neck, and back as a unity related to the spinal structure from cervical vertebrae to coccyx. When people assume the postures mentioned above, one particular vertebra is bearing more weights than other vertebrae from the overextension or flexion of the spine. Many people place too much emphasis on what to do with the hands and forget the hierarchy of the body parts. This lies in the body's nature as well since the arms and fingers occupy a higher percentage of motor sensors than other parts of the body in the cerebral cortex.[22] However, with enhanced awareness, people can decide how to organize directions to the body that help

[22] Jennifer Johnson, *What Every Violinist Needs to Know about the Body* (Chicago: GIA Publications, 2009), 15.

achieve a poised state before the action starts. Although there is no set formula for the best posture to follow, since posture is dynamic and body configurations among people are different, people can learn to use the body as a whole without breaking points between the units. As Kelly Starrett and Glen Cordoza has observed,

> Prioritizing spinal mechanics is the first and most important step in rebuilding and ingraining functional motor patterns, optimizing movement efficiency, maximizing force production, and avoiding injury.[23]

What Starrett and Cordoza said is in accordance with the importance of primary control in Alexander Technique. Primary control entails the relationship between head, neck, and back as a chain.[24] When people connect the neck and the spine as a unity, it develops the relationship in harmony between the head and the neck.[25] The primary control accentuates the moving principle of "the head leading and the body following."[26] That is, head releases forward and up in order to lengthen the spine and the back.[27] One might be curious why this principle works for many people for relieving tension in the body. If one takes a closer look around the spine, one sees that the erector spinae muscles lie on a vertebral column along the spine from the pelvis to the base of the cranium (Figure 2-1). These spinal muscle groups are followed by the leading of the suboccipital muscles, which are located at the bottom of the

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[23] Kelly Starrett and Glen Cordoza, *Becoming a Supple Leopard: The Ultimate Guide to Resolving Pain, Preventing Injury, and Optimizing Athletic Performance*, 2nd ed. (Canada: Victory Belt Publishing, 2015), 33.
[24] Judith Kleinman and Peter Buckoke, *The Alexander Technique for Musicians* (2013; repr., London: Bloomsbury, 2017), 36.
[25] Pedro de Alcantara, *Indirect Procedures: A Musician's Guide to the Alexander Technique*, 2nd ed. (New York: Oxford University Press, 2013), 24.
[26] Ibid, 20.
[27] Judith Kleinman and Peter Buckoke, *The Alexander Technique for Musicians*, 67.

back skull.[28] Thomas W. Myers uses a cat's movement as an analogy for any vertebrates' mechanism:

> When a cat finds itself in the air, it uses its eyes and inner ear to orient its head horizontally. This puts certain tensions into these suboccipital muscles, which the brain reads from the myriad stretch receptors, and then reflexively orders the rest of the spinal muscles to organize the entire spine from the neck down, so that the cat's feet are under it before it ever hits the carpet. Though we are upright, our head-neck-upper back relationship functions in much the same way.[29]

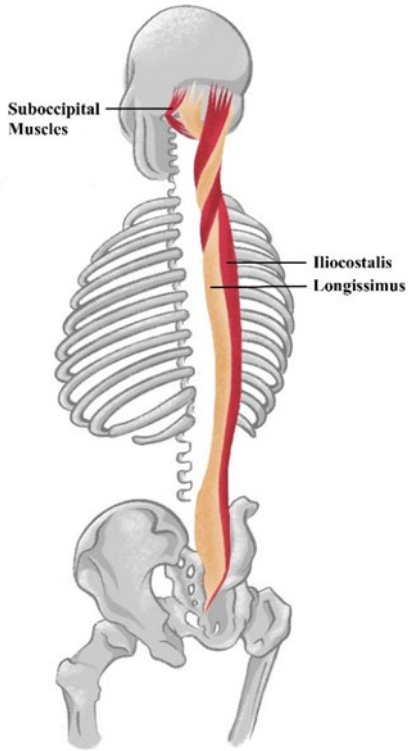

Figure 2-1. Spinal muscle groups and suboccipital muscles (illustrated by Fan-Ching Lin).

Thus, the cue of releasing the head in Alexander Technique creates an upwards thrust from the head and allows for integration with the neck and back musculature.

We violinists search for the elusive, poised balance of holding the instrument in this area

[28] Thomas W. Myers, *Anatomy Trains: Myofascial Meridians for Manuel and Movement Therapists*, 2nd ed. (London: Elsevier, 2009), 87.
[29] Ibid, 87.

of the body. Depending on our choices of accessories (chinrests, shoulder rests) the violin, supported by the left arm and hand, rests on either the shelf of the collarbone or shoulder, with slight additional friction points against the chin or jaw. If one pulls the head back and lifts the jaw out in order to have more room in the front to hold the violin before playing, this preparation causes the shortening of the back of the neck, which causes the upper body unnecessary tension when playing the instrument.[30] Awareness of where the atlanto-occipital joint is reorganizes our image of the relationship between the head and neck. This joint is the pivot point (like a seesaw in the lateral view) for head rotation forward and backward, such as nodding the head without using the vertebrae to help the motion.[31] How best can we focus our awareness on the atlanto-occipital joint? Ming-Hsuan Hsieh, a certified Alexander Technique coach in France, suggests a method to locate it from the front to back. First, put one hand under two points of the cheekbone in the front and the other hand with two fingers supporting the protruding points at the back of the skull, which is the occipital condyle. The atlanto-occipital joint is located midway between two hand distances from the front to back in the same horizontal plane. Once sensing it, we can slowly and gently lengthen our head up and forward toward the forehead direction as shown in figure 2-2. The reason for leading the head in that direction is that the head's gravity is up and forward related to the pivot point of the head. This action helps our head rebalance on the joint, relieving excessive use of the

[30] Jennifer Johnson, *What Every Violinist Needs to Know about the Body*, 43.
[31] Donald A. Neumann, *Kinesiology of the Musculoskeletal System: Foundations for Rehabilitation*, 3rd ed. (St. Louis, MO: Elsevier, 2017), 20-22.

neck muscles to hold the head in place.

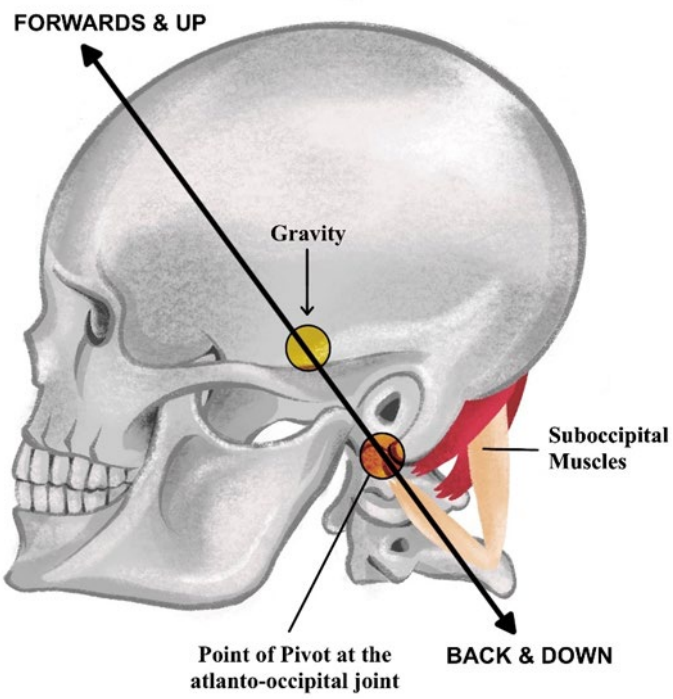

Figure 2-2. Up and forward thrust in head (illustrated by Fan-Ching Lin).

On the other hand, what Jennifer Johnson suggests localizes the joint in a different plane, which is the midpoint between the ears in a side-to-side direction.[32] In her *What Every Violinist Needs to Know about the Body*, Johnson describes a three-step process:

> 1. Point both index fingers into the holes of your ears. 2. If your fingertips continued through the soft tissue between them, before they met, they would run right into the upper condyles—those convex rocking bones on the base of skull. 3. Now, like a bobble-head doll, nod your skull very gently and see if you can allow the movement to happen only at this joint, rather than using the top two or three vertebrae to nod your head as so many do in everyday conversation.[33]

Through these two experiments, one gains the perception of how high the head and spine meet at the balance point. When applied to violin playing, if one pays attention to this joint

[32] Jennifer Johnson, *What Every Violinist Needs to Know about the Body*, 46.
[33] Ibid, 46-47.

and moves without breaking its poised balance, it will not only release tension from neck and shoulder area, but also invite freedom to the arms.

Focusing solely on upward and forward motion is not adequate consideration for the body. If one pays too much attention to an up and forward direction, it causes one's quadriceps, the front sides of the thighs, to over-work to hold the body in position through loss of spatial awareness in the back. In the documentary of his Alexander Technique lesson, Patrick Macdonald notes that, before moving up and forward, one should keep the back "back," feeling the back gently against something backward (as if someone is against your back) instead of shoving the back in for initiation of up and forward direction.[34] When feeling the back space, the line of force can pass from the back to the pelvis, legs, and feet down to the ground, especially sensing those lower back half of leg muscles that are engaging in supporting a balanced body.

In a sitting position, people are seldom aware of the back space when doing things in front of the body; for instance, working and typing at a computer or playing the violin. Those activities draw people's attention more to what is in front of them. How can we sense more space around us while sitting? First, one can inspect whether the ears are aligned with the shoulders in a straight line over the pelvis, making sure that the body weight is on the sitting bones. This line regards the neutral position as a reference without a protracted neck and a

[34] Patrick Macdonald, "In the 80's: Alexander Technique Lesson by Patrick Macdonald" (video), accessed January 15, 2022, https://www.youtube.com/watch?v=QPPxyHCWPu8.

flexed spine. Secondly, in a Feldenkrais Awareness Through Movement lesson, Professor Vardi described a form of dynamic sitting that engages the pelvic rotation anteriorly and posteriorly. The shift of a sitting position is always initiated by the pelvis first, and the flexible spine reacts to that pelvic rotation force slowly, vertebra by vertebra. Through this force of rotation, one can feel that the pelvis leads the motion through lumbar, thoracic spine to head position, which changes the configuration of one's sitting position by rotating the pelvis forward and backward respectively. When people explore the extreme ranges from the flexion to overextension, they can seek an optimal position in the middle which fits their need. In exploring the range of the spine by pelvic rotation, Myers suggested that being aware of where the chest is ensures that the axis of the body is still over the pelvis.[35] This dynamic sitting position enables people to integrate the head, spine, and pelvis as a chain of interplay.

On the other hand, one can experiment with the way the abdomen engages in a sitting or standing position to stabilize the spine and pelvis in a neutral position.[36] By exerting the minimum from the abdominals, specifically the rectus abdominis, one can sense how the shape of the lower back is altered as well as the orientation of the pelvis because the rectus abdominis is connected through the pubic bone to the fifth rib.[37] This exertion is not tightening the abdominal muscles as a rigid mass. Instead, one explores how the area below the navel area gradually approaches the spine while exhaling. This response is generated by

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[35] Thomas W. Myers, *Anatomy Trains: Myofascial Meridians for Manuel and Movement Therapists*, 212-214.
[36] Kelly Starrett and Glen Cordoza, *Becoming a Supple Leopard: The Ultimate Guide to Resolving Pain, Preventing Injury, and Optimizing Athletic Performance*, 46-49.
[37] Thomas W. Myers, *Anatomy Trains: Myofascial Meridians for Manuel and Movement Therapists*, 105.

the diaphragm sinking during inhalation.[38] The natural support in the abdominals activates a certain stability in the center of the trunk, provided by the air pressure from the breath.[39] If one is unaware of the amplitude of a breath from the diaphragm and abdominals, it is easy for one to engage in excessive effort at first. The excessive tension in the abdominals also causes stiffness and compression in the back and pelvis area, especially the erector spinae shown in figure 2-1, and the psoas, because those muscle groups are covered and connected by thoracolumbar fascia through different layers.[40] Through this experiment, one realizes that the abdominal muscles are one of the regulating forces to adjust the relationship between the back and the pelvis.

Chain Effect in Body Posture

A physical body with great flexibility is capable of achieving virtually any posture. No matter how adverse one's position is, one is able to return to the neutral position naturally. However, through overuse and misuse in daily life, the body's musculature shapes its own configuration of how we perform tasks. The body bears the imbalance on certain muscle groups by which the stronger muscles involve themselves in all kinds of duties, even when not needed, and weak muscles are devoid of any participation. Consequently, the body starts having motor control issues in certain planes. The discomfort arises with the imbalance of the

[38] Barbara Conable and Benjamin Conable, *What Every Musician Needs to Know about the Body: The Practical Application of Body Mapping to Making Music*, rev.ed. (Portland, OR: Andover Press, 2000), 85.
[39] Yao-Zhou Li, "Core Weakness," *The Classroom of the Physical Therapy Blog*, May 31, 2018, accessed December 19, 2021, http://bit.ly/coreweakness.
[40] Yao-Zhou Li, "The Driving Force behind the Connection of the Upper and Lower Limbs: Thoracolumbar Fascia," *The Classroom of the Physical Therapy Blog*, July 19, 2018, accessed January 03, 2022, http://bit.ly/2JCJLDT.

physical body.

Different postures in one part of the body have a ripple effect on the rest of the body. Here is an example comparing two standing postures in life (Figure 2-3).

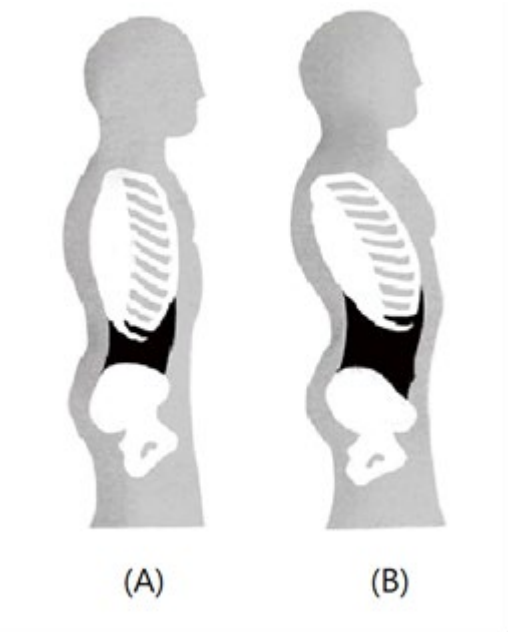

Figure 2-3. Two standing postures (illustrated by Fan-Ching Lin).

Posture A is a neutral alignment position, which means that the ears, shoulders, and hips are in the plumb line by the lateral view. This posture provides the segments, especially the cervical and lumbar spine, with greater support and stability.[41] It also transmits force linearly and efficiently from the upper body to the hip joints through lumbar vertebrae. Johnson notes the following regarding the pelvic arch in the human's body (Figure 2-4):

> When standing, the weight of the torso is delivered through the lumbar core to the bottom lumbar vertebrae which, together with the wings of the upper sacrum, behave as the keystone of an arch. After the weight arcs sideways through the sacroiliac joints it travels through the sturdiest, thickest part of each pelvic bone to reach its new place of

[41] John Brna, "12 Principles of Sports Medicine" (video), accessed February 02, 2021, https://www.youtube.com/watch?v=JBPorAQcDdo.

balance: the widest part of our legs (greater trochanter). The final destination of our weight is the place where our feet meet the ground.[42]

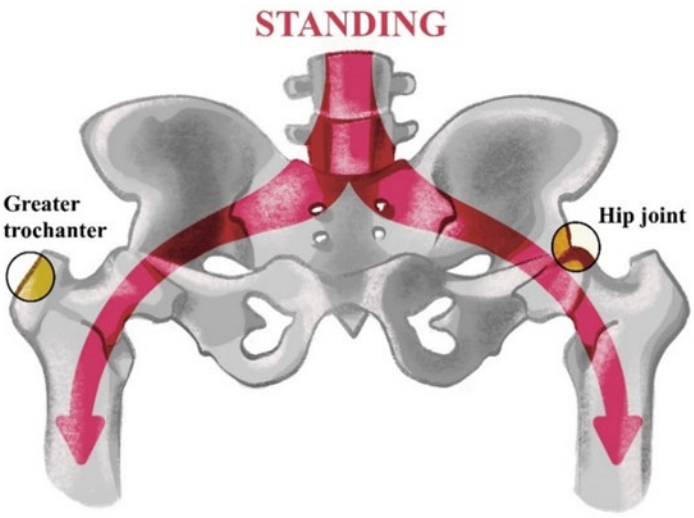

Figure 2-4. Pelvic arch in standing position (illustrated by Fan-Ching Lin).

From this standpoint, we can focus on the way the weight of the upper half of the body finds its way to the hip joints, and finally the feet, ultimately connecting with the floor. When the feet stand separated at the hip's width, there is a better foundation for the dome in the pelvic arch, according to the laws of action and reaction.

By contrast, posture B depicts the result of a misguided attempt to achieve the stance in posture A. This stance compresses the lower back by extending the front half of the body. The head is drawn backward, off its balance point at the top of the spine. The pelvis is tilted forward, and the lower back is arched. This can cause lower back pain. Moreover, when the back carries a large amount of the weight from the compression, the action gradually wrecks the back half of the spine, which stores the spinal cord and nerve roots.[43] As a result,

[42] Jennifer Johnson, *What Every Violinist Needs to Know about the Body*, 68.
[43] Donald A. Neumann, *Kinesiology of the Musculoskeletal System: Foundations for Rehabilitation*, 319.

conditions such as a herniated disc or numbness in the limbs can result. In addition to the issues noted above, poor posture can affect the kinetic chain in the lower half of the body. The pelvis in posture B is tilted anteriorly, limiting mobility, tightening the hip joints, and affecting the position of the feet. Body weight is shifted forward around the forefoot.[44]

Many violinists find themselves in posture B. How can one direct the body towards a more neutral standing position while playing? First, in the soles of the feet, one must feel the three points contact with the floor: one is below the big toe, the second is below the little toe, and the third is at the heel (Figure 2-5).[45]

Figure 2-5. The three points in the soles of the feet (illustrated by Fan-Ching Lin).

These three points enable even distribution of weight to the ground without any pronation or supination initiated from the ankle joint.[46] Moreover, many arches connect between any two of the dots. One can feel these arches by placing a tennis ball under the foot and rolling it

[44] Ju C PT, "Common Occupational Injury and Prevention" (video), accessed December 11, 2021, https://www.youtube.com/watch?v=PELqQSbitqQ.
[45] Simon Fischer, *The Violin Lesson*, 195.
[46] Ju C PT, "Unknown Kinetic Chain in Ankle Joints" (video), accessed February 03, 2022, https://www.youtube.com/watch?v=7tW0vIeTggs.

back and forth for a few minutes. This exercise stimulates one's perception of the degree of the sole's curvature, feeling the way that three-dimensional space can support our upper body. Furthermore, this creates a great foundation for the base of the pelvic arch. Alignment of the feet is also important. When the feet point in different directions, the balance of the pelvis changes. According to Starrett and Cordoza, parallel placement of the feet (within 12 degrees of tilting the foot outward) generates the maximum torque for providing a better support through ankles, knees, and hip joints as a chain.[47] Secondly, one can picture the coccyx, the tailbone, curving towards the direction to the floor, which unloads the tension from the lumbar spine, making the pelvis return to the neutral position. This action contributes to better spatial awareness of the lower back half of the body, from the glutes, hamstrings, to the heel. Finally, one can try contracting the glute muscles several times, consciously stimulating these muscles rather than holding the muscle tensions, to activate the natural support of the pelvis and spine.[48] The reason for this exercise is to reveal how the pelvis gets stuck in the anterior tilt in posture B. It makes the iliopsoas, which connects the lumbar spine to the inside of the thigh, and the rectus femoris shorten passively at the front because of the tightness.[49] If one's glute muscles are weak, they are pulled and lengthened by those tight muscles at the front. Thus, triggering the glutes to be antagonistic to those tight muscles at front helps return

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[47] Kelly Starrett and Glen Cordoza, *Becoming a Supple Leopard: The Ultimate Guide to Resolving Pain, Preventing Injury, and Optimizing Athletic Performance*, 82.
[48] Ibid., 40.
[49] Hypercore Fitness, "Improve the Mobility of the Hip Joints" (video), accessed February 03, 2022, https://www.youtube.com/c/HYPERCORE/videos.

the pelvis to the neutral position. The rest of the upper body will shift gradually when the position changes in the pelvis.

In conclusion, perceptive practice begins when any kind of body movement begins, even in the moment of first guiding the instrument to the resting position in the shoulder area. We consider not only the parts involved in the movement. Instead, we observe the whole-body chain as a backbone, giving the body different experiences than our habitual ones. Taking into account the result of body posture in daily life affects quality of motion as we organize the whole-body chain. With mindful awareness during practice, we develop a synergy of directions and body responses. With practice, the results are far more favorable than those of habitual commands.

Relating Perceptive practice to Pedagogical Materials

Many pedagogical materials outline fundamental skills with exercises and brief instructions. Some students absorb the skill from the exercise and carry it to their repertoire; others focus too much on the rules and dogmas instead of sensing how the body feels. Without building the connection between the materials and the body, misconceptions are likely to find their way into the execution. While these materials are great resources for developing specific skills, one should prioritize how the physical body feels—especially with respect to the delicate movements from the arm, hand, and fingers—during the playing of the exercise. Otherwise, one can easily create unnecessary tensions from the exercise, which

deviate from the intended benefits. In this section, I will illustrate how perceptions can be built through the fundamental motions extracted from well-known pedagogical materials, to be used in daily practice sessions.

Finger Motions in the Left Hand

There are three different types of finger motions in the left hand: dropping fingers, lifting fingers, and sliding fingers. These simple motions exist in all the repertoire we play, requiring intricate choreography of the fingers over the fingerboard in all directions. Before discussing the motions above, I must address a common problem. Students almost always exert more effort than they need in this fine motor control, which requires great mobility and flexibility. How can we reduce the undue finger pressure by reshaping our thoughts and physical body? There are several exercises that help us to reconsider the amount of pressure needed in the fingers of the left hand. First, Simon Fischer suggests that one can place the palm resting on the table. In this circumstance, the pressure is distributed evenly through the hand and fingers in contact with the table. When the palm is rolling to one side, the weight of that side is automatically increased without any additional pressure.[50] This analogy of the palm exercise can apply to how we "roll" the fingers into the strings. Secondly, we can experiment with an exercise to maintain flexibility with minimal exertion. Start by placing the fingertips of the right and left hands together. The space between the palms is spherical.

[50] Simon Fischer, *The Violin Lesson*, 190-191.

While maintaining the shape, we start moving one set of fingers at a time, rotating both index fingers in a circular motion, and then switching to the middle fingers. This circular motion can be repeated in the remaining finger sets. The key here is to observe how much pressure the static fingers exert on each other. Any excessive pressure will lock the active finger's motion, as well as the balance and the shape of the hand. This exercise reveals exactly what we will encounter in left hand settings and finger motions in violin playing. If one does not take care of movement qualities in fingers that are not being used at a given moment, one can create extra tension in the whole hand without noticing, resulting in lack of flexibility among fingers and limited vibrato range. Third, likening the finger actions to the function of a piano hammer is conducive to releasing tension in the hand and fingers. This idea was inspired by a piano lesson with Martha Fischer, Professor of Piano at the University of Wisconsin-Madison. She observed that the touching of keys resembles the mechanism of the piano hammers. Fingers give an impulse to the key and release after striking it. This method can apply to how we press fingers into the strings as well. Fingers strike the string from the air with velocity and release the pressure immediately afterwards. A series of circular movements not only creates a great articulation for clarity of sound, but also recycle our energy with each rebound, or release, of the fingers. These three concepts will help us reorganize the finger weights when performing exercises from pedagogical materials.

For the vertical dropping and lifting of the left-hand fingers, take Carl Flesch's Basic

Studies as an example:

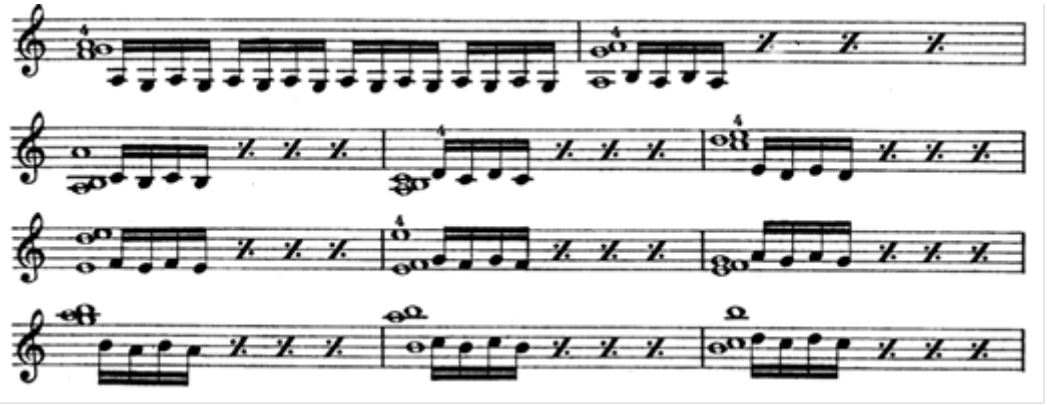


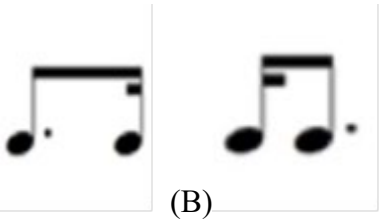
Figure 2-6. Pedagogical example of dropping and lifting finger motion.[51]

This exercise is played without the bow. The whole notes stand for the fingers holding in place where the notes fall. In the meantime, the sixteenth notes represent the dropping and lifting motions from the required finger. What physical perceptions can we observe in order to avoid accumulative tension after practicing through this passage? I would like to dissect three parts within this exercise. In terms of those fingers which are holding statically, one should make sure not to squeeze those fingers into the strings, because when finger pressure is increased, there is also greater counter-pressure from thumb.[52] Instead, we could feel those static fingers resting above the string as if one is standing on a trampoline. Fingers feel the elastic quality of the string as we pay attention to how much space remains between the string and fingerboard. Even though the moving finger is executing the motion, we must keep those holding fingers alive by adjusting the weight slightly in the process.

As for the moving finger executing dropping and lifting motions, one can amplify the

[51] Carl Flesch, *Basic Studies for Violin* (New York: Carl Fischer, 1911), 11.
[52] Simon Fischer, *Basics* (London: Edition Peters, 2012), 89-90.

perception of what they want to feel more by altering the actions each time. Here are several combinations for experimentation: First, start with a powerful drop hitting upon the string and release the pressure immediately to the level at which one would play a harmonic note on that string. This ensures that every articulated finger returns to its original poised state. Secondly, emphasize the action of lifting the fingers as if there were accents on the lifting notes. This amplifies the release energy from the fingers. When doing the second experiment, one should be sure that the finger lifts proceed along the same track as the finger drops. At the same time, focusing on the base knuckles which initiate the dropping and lifting motion helps relieve excessive tension in the fingers. Next, one can apply different rhythmic patterns to the exercise. Personally, the dotted rhythm shown in figure 2-7 enables me to perceive the continuity of dropping and lifting as a unit.



(A) (B)

Figure 2-7. Rhythmical patterns.

That is to say, strike the strong impulse, either dropping or lifting motion, at the beginning of the initiation, and the resultant motion is the natural bounce from the first impulse we gave. Furthermore, one can find additional rhythmic variations for the four-notes pattern in Ivan Galamian's *Contemporary Violin Technique*, applying those variations to the dropping and

lifting motions.[53] When one feels a great resistance in a certain falling pattern from fingers, one can add tapping the thumb with the dropping motion at the same time. It is an effective way to reduce effort from the fingers.

Other considerations along with the first exercise would be two different aspects of finger placement. First, prioritizing pinky placement is beneficial. This means that the pinky should maintain a curved shape in any circumstance, even when the other fingers are moving.[54] It is helpful to sense that the pinky is supported in a streamlined way by the ulna bone from below. When the pinky is curved, it benefits the balance of the hand shape. As Demetrius Constantine Dounis instructs:

> Try to keep the back of the knuckle joints of the four fingers of the left hand parallel to the strings.[55]

Curving the pinky helps achieve this position. Secondly, another placement occurs when the hand transitions from the old chord to the new one simultaneously with the dropping or lifting of fingers. In this case, we must finely tune the choreography. The timing requires one to drop or lift fingers in tandem with one another. If one is aware of this placement during the transition, it will enhance the quality of motion when confronted with a passage of frequently changing chords. In short, the above-mentioned methods help one improve balance, hand shape, and springiness in the left-hand digits while executing vertical dropping and lifting of

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[53] Ivan Galamian and Frederick Neumann, *Contemporary Violin Technique: Volume One, Part II, Bowing and Rhythm Patterns* (New York: Galaxy Music Corporation, 1966), 24-25.
[54] Simon Fischer, *Warming Up: Complete Warm-up Sequence for the Violin* (England: Fitzroy Music Press, 2011), 1.
[55] Demetrius Constantine Dounis, *Fundamental Technical Studies on a Scientific Basics for the Young Violinist* (Philadelphia: Theodore Presser, 1935), 4.

fingers.

The second basic motion of the left-hand fingers is a sliding movement along the string. When tackling a chromatic scale or a finger extension without changing a hand position, one requires this sliding movement in the finger. In Carl Flesch's *Basic Studies*, we find the following illustration:

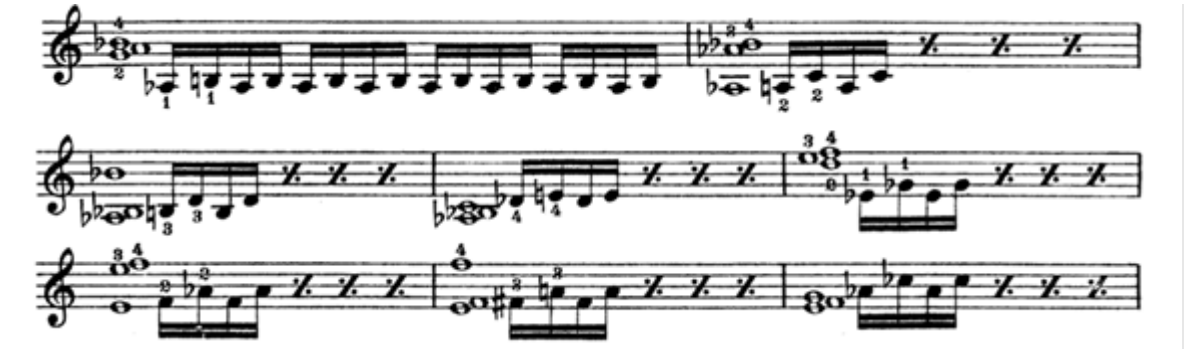

Figure 2-8. Pedagogical example of sliding finger motion.[56]

When one practices this motion throughout the passage, it can be taxing at first for the sliding fingers to cover so much ground, especially for those exposed to this exercise for the first time. In the past, striving to take Flesch's instructions literally, I always tried to reach the notes from my finger's maximum stretch. However, when perceptive practice is involved, the suppleness and flexibility of the fingers becomes a priority and a point of departure to master the material. How can we combine the points above when practicing this exercise? Most importantly, beginning the development from a minimum range, one with which we are familiar, is a healthy way to build flexibility and endurance. That is to say, feeling the sliding

[56] Carl Flesch, *Basic Studies for Violin*, 13.

finger motion from a half-step, rather than whole-step, helps one focus on how the hand and finger overcome the friction from the string at the beginning of the motion (Figure 2-9).

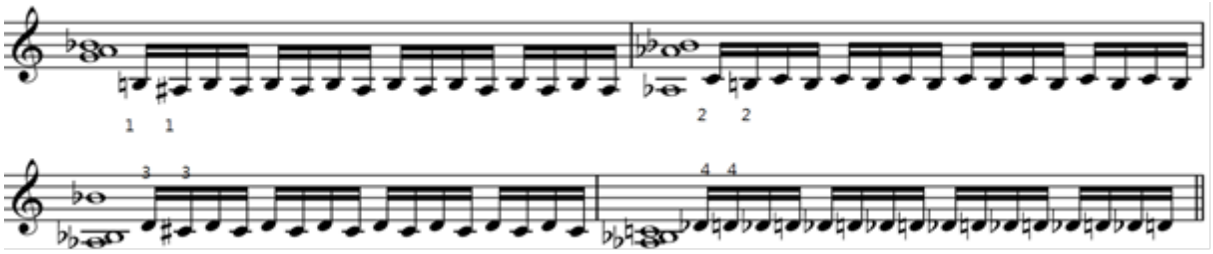

Figure 2-9. Modification from the original to focus on the suppleness from the fingers.

After first initiating the motion from the finger, one should pay attention to how the top knuckle, which is close to the nail, reacts passively to the rest of the motions back and forth while the hand maintains a consistent yet supple frame per bar. The flexible top knuckles also contribute to a flexible vibrato. Once one has gotten familiar with the supple and flexible feeling from the minimum distance, one may start amplifying the range from a minor second to a major second gradually.

Another viewpoint to develop flexibility in the sliding motion is to widen at the base knuckle joints, as proposed by Simon Fischer.[57] The idea of this concept is to create space at the bottom of the fingers. Utilizing the muscle of the fingers and hand pulls the violin into your hand instead of pushing from the arm. This will change the angle of the finger's placement in order to enhance the space at the base joints. Likewise, regarding the hand's anatomy, Jennifer Johnson points out that the deep transverse metacarpal ligaments connect

[57] Simon Fischer, *Warming Up: Complete Warm-up Sequence for the Violin*, 3.

the base knuckle joints through the index finger to the pinky as an elastic band as if the hand were wearing a “rubber mitt” under the skin.[58] Moreover, one needs to notice if the forearm is supinated when executing the sliding motion because that would cause strain for the natural curve of the fingers.[59] These structural images help one understand how the hand mechanism adapts to the required motions in the exercise. In other words, perceiving exactly how the required part involved in the movement will synchronize the connection between the physical body and the exercise.

Lastly, the third motion combines finger drops and lifts with side-to-side motion. This is used when a passage features constantly changing chords. The finger drops and lifts are accompanied by lateral motion as the chords change (Figure 2-10).

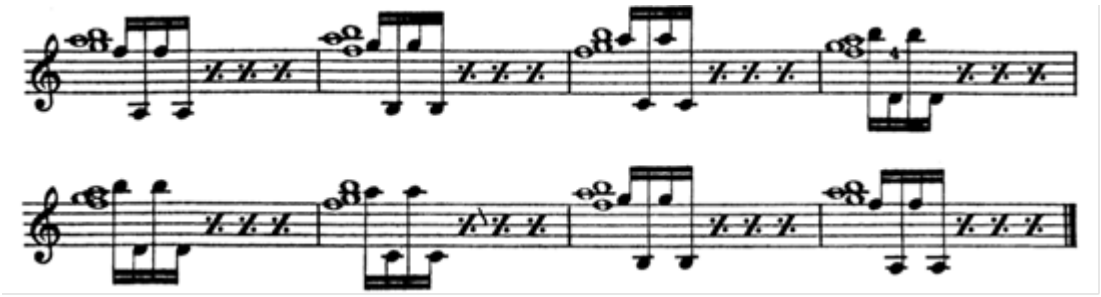

Figure 2-10. Pedagogical example with the lateral motion.[60]

If we start with what the exercise suggests, the hand shape will likely feel restricted by the written patterns. We can build perception by breaking down the tasks before we combine them all at the end. One can start by holding only the note played by the pinky and adding the

[58] Jennifer Johnson, *What Every Violinist Needs to Know about the Body*, 118-119.
[59] Ibid., 120.
[60] Carl Flesch, *Basic Studies for Violin*, 15.

lateral, string-to-string motion gradually. When the fingers begin crossing more than two strings, one might feel the elbow and hand reacting to where the fingers fall. The elbow and hand must swing around to support good hand position. Next, one can try holding all three notes indicated on the music, but only moving from the adjacent string. In the course of increasing the span in the sideways movement, one can definitely sense that the range of motion from the elbow is reduced because the three fingers are anchored in a fixed position. Through the exercise, we must observe how the finger changes the contour of the trajectory while allowing engagement from the hand and elbow. A locked elbow is a leading cause of left-hand problems. Professor David Perry admonishes the following regarding any left-hand exercise involving the holding down of some fingers while sliding with others:

> Never practice these exercises for hours at a time, but rather in short sessions of only a few minutes with plenty of breaks in between. This applies to all violinists, not just those who have experienced hand injuries.[61]

The Prerequisite of any Articulated Strokes: The Light Pop from the String

Dounis suggests that collé and martelé bow strokes be regarded as rudimentary exercises before one learns the staccato bow-stroke.[62] Many students think that the above-mentioned strokes require extra effort by the hand to project short notes with great clarity. Because of this misconception, students add excessive pressures at the stop of the bow. However, the opposite is true. These articulated strokes require sensitivity of the right hand in order to

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[61] David Perry, personal communication during lesson, March 10, 2022.
[62] Demetrius Constantine Dounis, *The Dounis Collection: Eleven Books of Studies for the Violin* (New York: Carl Fischer, 2005), 246.

sense the friction from the bow and bow hairs. Therefore, perceiving the light "pop" from the string helps integrate the relationships between the hand, bow, bow hairs, and string.

Simon Fischer presents an excellent exercise for catching the string with the right hand.[63] Nathan Cole modifies Fischer's material for sensing the minimum amount of hand weight required to produce a "pop" sound. The goal is to reduce unnecessary tension in the right hand when executing vigorous strokes such as collé, martelé, and staccato, by projecting a clear pop at the front of each articulation.[64]

There are several checkpoints along the way towards producing crisp articulation. In execution, it can easily become a dragged sound from the string, which is usually the result of excessive effort to contact the string. First, we have to find a light and well-balanced hand shape in the right hand by dropping the bow to the string and letting the bounces of the bow last at least 10 seconds. During the process, we can pay attention to how the right hand is willing to be adjustable and reactive to the continuous bounce. Because everyone is different, some might feel the need to lessen the hand pressure while the bounce continues. Others might feel that they need to shift the weight towards either the pinky side or index side of the hand in the process. The key is letting the fingers and hand constantly shift slightly in response to what the bow is doing. Secondly, once one has found the balanced hand shape, one can gain the sensations from pushing and pulling the string around without producing a

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[63] Simon Fischer, *Warming Up: Complete Warm-up Sequence for the Violin*, 9.
[64] Nathan Cole, personal communication during online workshop, January 21, 2020.

sound.[65] That is to say, one draws the string toward the right side and left side back and forth. This step helps the violinist break the habit of pressing the string downward vertically. The tendency of pressing the string vertically can choke the natural vibration from the string. Third, before executing the pop sound from the open string, one can place the bow near the fingerboard as a preparation since finding a sounding point where the string is allowed the greater vibration aids the execution. Set the bow on the string and give the string a push and pull horizontally. When doing this, one can focus on the relationship between the contact of the hand and bow, as well as that of the bow hair to the string. When drawing a pop sound, either down-bow or up-bow, each time, one can perceive the minimum friction at the sounding point between the hair and string, which makes the articulation clear and crisp but effortless. Therefore, in this exercise, one can cultivate the gradation and sensitivity from the hand and fingers corresponding to the exertion. Returning to a basic staccato stroke and free from excessive pressure and effort, one should find it easier to articulate cleanly and crisply.

Creating a Fingerboard Map through Chromatic Perfect Fifths

This section suggests perceptions one may gather from practicing Dounis's exercise in chromatic perfect fifths (Figure 2-11).[66]

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[65] Ibid., 9.
[66] Demetrius Constantine Dounis, *The Dounis Collection: Eleven Books of Studies for the Violin*, 284.

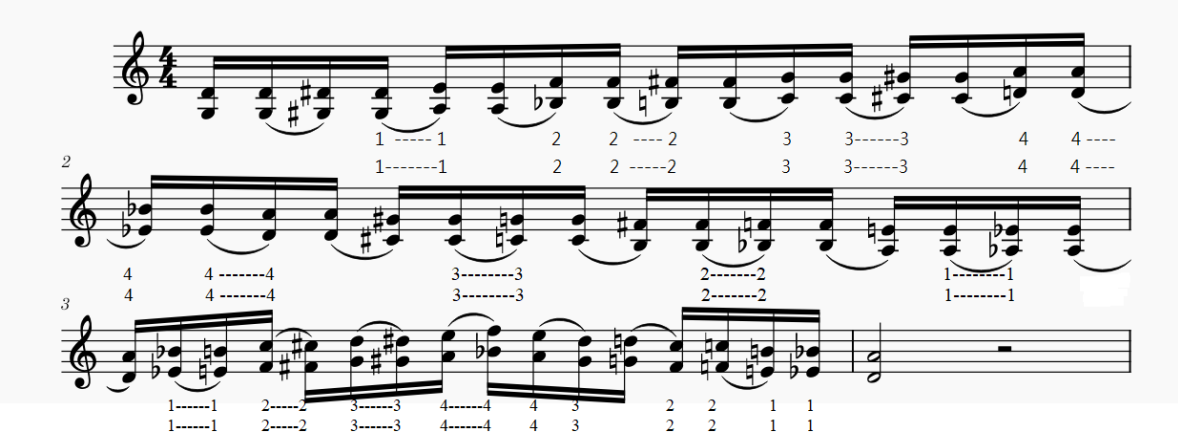


Figure 2-11. Chromatic perfect fifths with suggested bowings.

This exercise not only trains one's auditory awareness of truly perfect fifths, it also enhances the tactile perception of finger alignment across two strings. That is to say, playing the continuous chromatic perfect fifth enables one to notice the minimum distance along the string between each shift of the hand position. This movement engages with sliding finger motion as discussed previously. Another direction, on the other hand, is the transverse direction among two strings. Pertaining to this direction, one has to consider the placement of the finger, which means involving the finger pad in the placing of the perfect fifths. At the same time, the proportion of the finger weight between two strings has something to do with the angle of the fingers. Each violin has different widths at the top of the fingerboard and at the bridge, and sometimes even those spacings on the same violin are not evenly distributed. The finger angle needs to be adjusted to accommodate the different distance between any two pairs of strings. Thus, one must experiment with the angle between any two strings to find the best proportion for pure perfect fifths.

How should we approach this exercise? First, try breaking down the bowing to two

notes per bow as an overlapping bowing. (Repeating the second note to group with the next one as a unit, as indicated in figure 2-11 enables one to truly focus on the trajectory of finger placement, angle, and motions. It also eliminates the discomfort of "saving bow" and allows the student to stay in the most comfortable part of the bow.) Using the pad to touch two strings gives a full coverage to the strings with less exertion from finger and hand. This relies on the same principle as the rolling palm on the table mentioned previously. More coverage from the finger pad means the hand and finger are rolling towards a specific angle without adding more pressure. This not only benefits one's placement for the perfect fifth, it also favors the motion of continuous vibrato. Moreover, David Perry suggests that conceiving one more invisible string, equidistant between the two strings under the finger, helps one gain the balanced shape of a flattened finger. Secondly, utilizing the slur from the right hand leads the left-hand finger motion to increase the smoothness of the shift because the energy is a "bilateral transfer" between the arms.[67] To clarify, the quality of a hand's usage can affect the feeling in the other hand. Violinists should focus upon, and never underestimate, the natural sympathy between two hands of the same body. For example, when playing a very loud passage, one exerts more weight and pressure on the right hand for the bow contact, yet the left hand can stay light and supple. Under this circumstance, there is an increased tendency that the left hand will follow what the right hand did. Similarly, in this exercise, the

[67] Pedro de Alcantara, *Indirect Procedures: A Musician's Guide to the Alexander Technique*, 122-123.

smoothness of playing the slur from the right hand promotes a more gliding message to the left finger, wrist, and arm. Finally, this exercise can be applied anywhere over the fingerboard to sense the geographic distance between each chromatic perfect fifth. It facilitates one to observe how each step becomes narrower as the position gets higher.

In conclusion, Perception is an important message received from how we execute the tasks required of us in these exercises. Pedagogical materials strengthen the basic skills we use in any repertoire. When we open our perception to the physical gradations and possibilities not immediately apparent in these materials, we are in a better position to overcome technical difficulties in our repertoire, with enhanced musical expression and less cost to ourselves physically. Whenever possible, we should observe how we use our body each step of the way and ask ourselves whether or not the usage is in sync with our body's nature. In this state, perceptive practice strives to be fully receptive to valuable feedback from the body related to any materials that we play.

Chapter III. Process: Engaging Sensation and Perception with Application

During perceptive practice, as the bow starts to draw sound from the string, the brain's observation is switched on, perceiving the execution, and learning the relationship between the body and the task. No matter what repertoire we confront, we must first scan through the piece and determine which skills are needed. These observations organize how we approach the efficiency of the practice. In the meantime, through refining or developing the skills, our body and perceptions require coordination to produce the best timing in the execution of creating the interpretative blueprint from what we observed. These integrations become one of the tools we use to convey the musical expression. In perceptive practice, observing how we hit a note or solving a difficult section is not adequate, we must observe the space between the notes, between the shifts, and within a bow. These details truly contribute to the flexible state of making the music in diverse ways.

In order to attain this flexibility within the body and the music, when learning a piece through this process, one can set up multiple stimulations for the body to amplify the sensations needed in any task. Each stimulation is aimed solely at one specific task in order to focus on the perceptions in correlation to the body and task. As Flesh states:

> Each technical problem should be isolated and solved by itself. One should never try to overcome or master two technical problems simultaneously. If in spite of this approach the student encounters difficulties which he cannot overcome, one must assume that there are more basic obstacles in the way.[68]

[68] Carl Flesch, *The Art of Violin Playing*, 147.

Afterwards, mixing up the pattern from an original task enables the brain and mind to observe and learn the timing of the execution. In the discussion that follows, I will use one etude and one caprice from Vieuxtemps and Paganini respectively to illustrate how perceptive practice is implemented in a practice session.

Henri Vieuxtemps's *Etude de Concert No. 2 Opus 16*

My first example is the second etude from Henri Vieuxtemps's Six Etudes de Concert Opus 16, which were first published in Leipzig circa 1845.[69] In this etude, Vieuxtemps focusses on string crossings under a legato stroke and the challenge of sustaining the continuity of the sound. We violinists always pursue smoothness in string crossings, but our arm often acts in staircase motions, if one does not pay attention to the anticipation of the arm movements, string levels and the arch of the bridge. Therefore, in this case, I will present three factors, correlated between our cognition and perception, that can contribute to a more seamless legato during the string crossings in this piece.

The first factor is that the string levels are more than four planes in which the strings are occupied. In order to increase the smoothness of the string crossings, one has to be aware of the plane where the bow contacts two strings together.[70] According to Simon Fischer, there are seven string levels.[71] When one is equipped with this cognition, the planes between two strings will fill the gap between the single level. It enables our bow arm to possess more

[69] Boris Schwarz and Sarah Hibberd, "Vieuxtemps family," *Grove Music Online*, accessed April 30, 2022.
[70] Simon Fischer, *The Violin Lesson*, 294.
[71] Simon Fischer, *Basics*, 25.

space from different angles to prepare the action of the string crossing. How can we apply this idea to this piece in order to increase the perception of the plane between the two strings? I would play double stops when the string crossing is happening to blur the line, as shown by the small, stemless notes in figure 3-1.

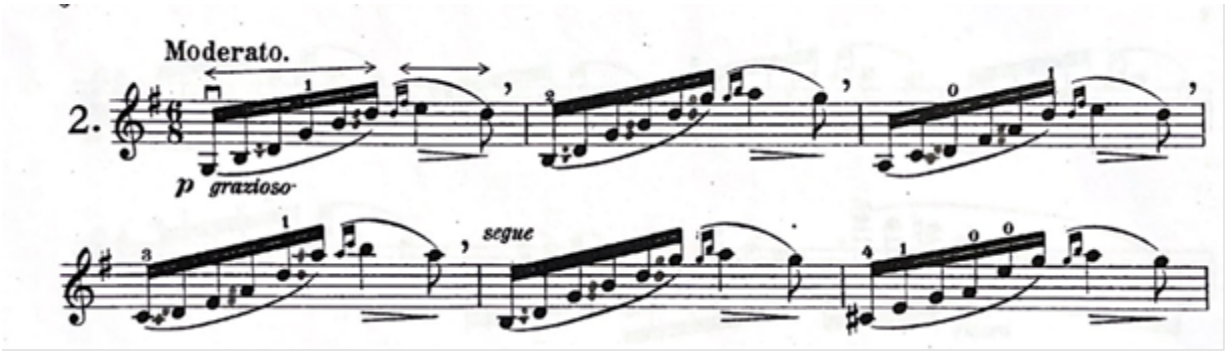
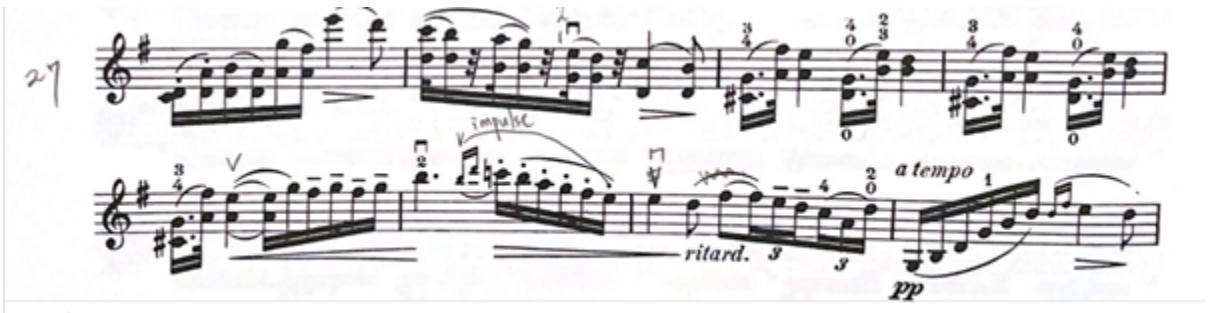


Figure 3-1. Blurring the line during the sting crossings.[72]

This helps one perceive the plane between two strings and learn the trajectory of the arm and elbow. This method can be applied to any string-crossing moment in this etude. When observing the angle where the bow is placed between two strings when blending into each other in a slur, it helps the transition to reach the new level of the string smoothly. Anticipating the string crossings with a circular drop of the elbow also helps steer the bow to the new string level in advance (Figure 3-2).



[72] Henri Vieuxtemps, *Six Etudes de Concert*, ed. Jenö Hubay (Budapest: Harmonia Kiadas, 1914), 6.

Figure 3-2. Arm preparation in advance in measure 29 to 30.[73]

On the other hand, when fast string crossings are required from measure 54 to 61 (Figure 3-3), the wrist must be involved in the micro motion to reach the new string level. During slow practice, observe the oscillation of the hand, wrist, and arm and then try to visualize the choreography of the pattern. When one can visualize the motion between the hand, wrist and arm, the picture of the motion in the mind will gradually become a gesture in the groove when playing the instrument, rather than needing to think about each string level. This is proof of the way the mind and body coordinate with each other to learn a new pathway correlated with the task.

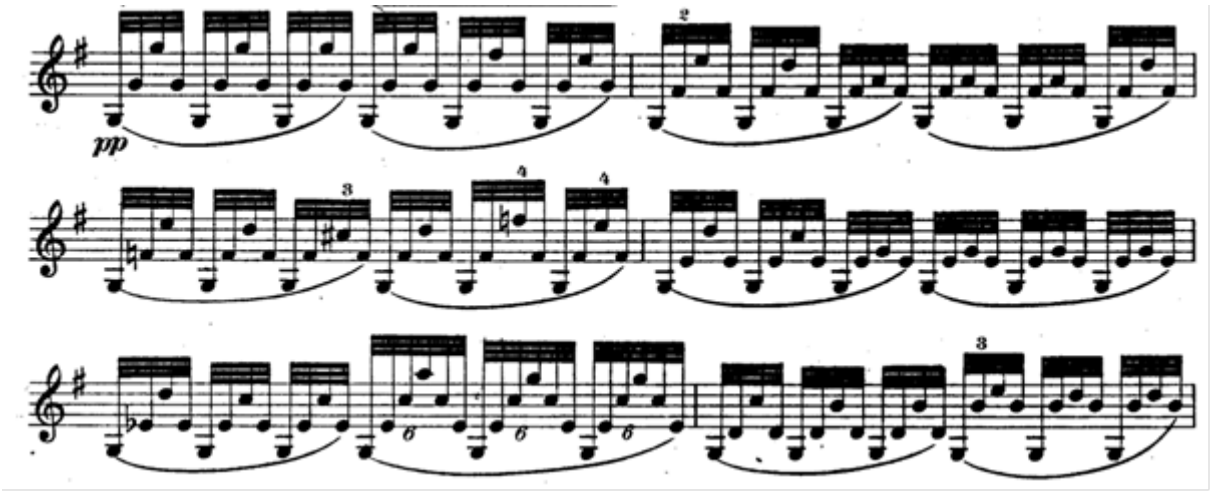


Figure 3-3. String crossing in a faster manner.[74]

Another factor contributing to seamless string crossing is the timing of the lifting and dropping motion of the left fingers. This lifting or dropping motion does not synchronize with the timing of the bow arriving at the new string. Depending on different contexts, the left

[73] Ibid., 6.
[74] Ibid., 7.

fingers need to be dropped earlier or lifted later than the arrival time of the bow. This perception may be refined by practicing the exercises of Eugène Ysaÿe.[75] I will use Vieuxtemps's second etude to illustrate this idea. In the ascending arpeggio with the string crossing as shown in figure 3-1 (measure 1 to 6), when an open string is included in a string crossing, the playing finger should not be lifted until the bow completes the next open string note. This action helps the sound connections of the right-hand execution. On the contrary, in the descending passage as shown in figure 3-4 (measures 17, 19 and 22), the left finger has to be dropped before the string crossing. These asynchronous motions between the left finger's motions and the string crossing from the right arm create greater continuity in the sound.

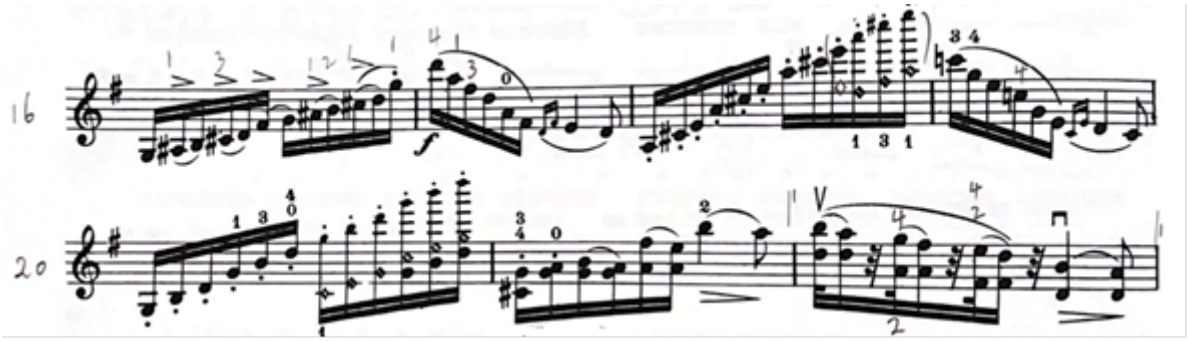


Figure 3-4. Dropping motion in left fingers occurs sooner than the string crossing in descending passages (measures 17, 19 and 22).[76]

Third, one must consider the curve of the bridge when executing the string crossings. When the bow follows the curve of the bridge during the string crossing, one can feel that the bow is glued with the strings.[77] This action will improve the quality of string crossing. An image provided by David Perry and reproduced below shows how the trajectory of the bow

[75] Eugène Ysaÿe, *Exercises and Scales for Violin*, ed. Joseph Szigeti (Brussels: Schott Freres, 1967), 7-8.
[76] Henri Vieuxtemps, *Six Etudes de Concert*, 6.
[77] Simon Fischer, *The Violin Lesson*, 296.

arm works with the curve of the bridge during the string crossing.[78] Table 3-1 indicates the correlation between the bow arm's trajectory and the curve of the bridge in string crossing:

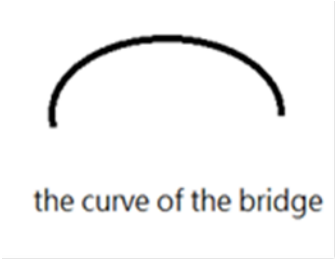
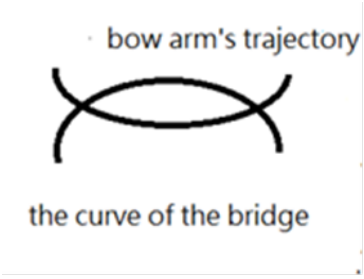
	Bow arm follows the arch when: 1) The string crossing happens from a lower string to a higher string in down-bow. 2) The string crossing happens from a higher string to a lower string in up-bow.
	This bow arm's trajectory happens when: 1) The string crossing is from a lower string to a higher string in up-bow. 2) The string crossing is from a higher string to a lower string in down-bow.

Table 3-1. The correlation between the bow arm's trajectory and the curve of the bridge in string crossing.

To sum up, a mindful execution of the three different kinds of experiments described above can help one execute legato string crossing in a smoother manner.

Niccolò Paganini's *Caprice No. 7 Opus 1*

My second example is the seventh caprice from Niccolò Paganini's Twenty-Four Caprices Opus 1, which were first published in Italy circa 1817.[79] In this caprice, there are multiple challenges for the left hand and right hand respectively. The challenges in the left hand are octaves, tenths, shifts, and chords, whereas for the right hand, one will confront staccato, and ricochet. In addition, the coordination of the two hands presents particular challenges in this etude. If one tries to work on many skills simultaneously, it is easy for

[78] David Perry, personal communication during lesson, November 11, 2016.
[79] Niccolò Paganini, *24 Capricci*, ed. Salvatore Accardo, and Edward Neill (Italy: RICORDI, 1988), VII.

one's hand and body to acquire misconceptions related to the kinesthetic sense required in each skill. Therefore, in this case study, I break down those difficulties by separating the tasks of each hand and focusing on the perceptions of each move.

Regarding the left hand's challenges, finding the relationship between the sounding note and the next note helps one obtain a clear picture of where to land. In order to discover this relationship, one can experiment by shifting different guiding fingers to new positions. For example, in measures 12 and 13, the double-stops alternate between octaves and tenths on two different sets of strings (Figure 3-6). Without the guiding finger as a frame of reference, it is difficult to consistently play with precision. Therefore, when my pinky is on the C-sharp (the upper note of the octave) in measure 12, I would enable that finger to graze the G-sharp on the A string since it is a perfect fifth above the C-sharp. I would then shift the pinky upward to the nearby B-flat on the A string. Finally, I would quickly slide my pinky aside with my index finger. In measure 13, rather than envision the large distance from the B-natural to the A-flat, I would visualize the tritone (D to A-flat) hand shape, in which the third and fourth fingers are very close together. These strategies enable the hand to efficiently move in a diagonal line between both pairs of strings.

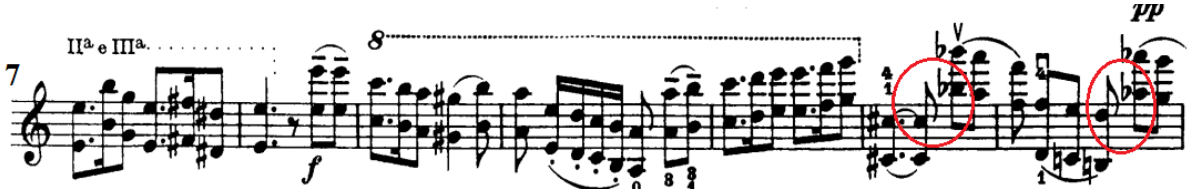


Figure 3-6. The relationship between the notes.[80]

Other spots for the fingers' interrelationships are located in the sections of the rapid arpeggio (measures 17, 19, 61, and 63). One can identify the axis between each building block and then slide the axial note by exchanging the two fingerings back and forth to feel the arm transporting the hand to a new position (Figure 3-7). This helps one observe the connection between the previous position to a new position.

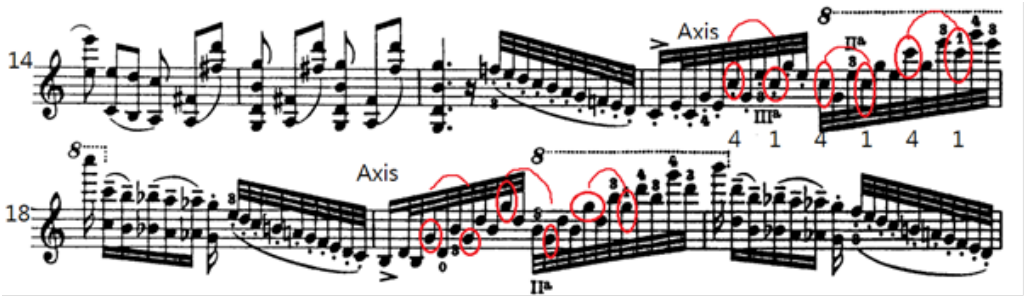


Figure 3-7. Identifying the axis in the rapid arpeggio.[81]

As for the section with multiple chords, breaking the chords into two units (playing top and middle lines, or middle and bottom lines respectively) helps one decide how to slide. One can either change the angle of the finger (steep to flat position) or lead with the whole arm. This observation will reduce unnecessary motion of the hand and increase precision (Figure 3-8).

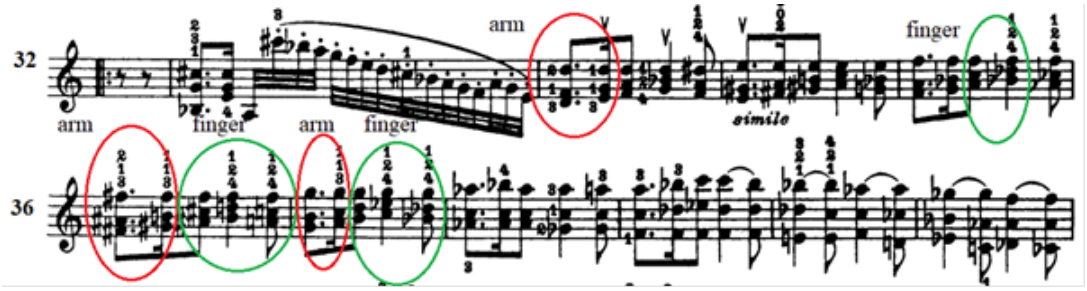


Figure 3-8. Movement relationship for the shift of the chords.[82]

[80] Niccolò Paganini, *24 Caprices for Solo Violin*, ed. Carl Flesch (Leipzig: C. F. Peters, 1900), 13.
[81] Ibid., 13.

By finding the connection between shifts and notes, one not only builds inner trust via execution, but also develops the flexibility to freely experiment with shifts; namely, the timing of a given shift and the musical expression of a given passage.

In the passage involving the staccato in figure 3-9, the arm and the hand are executing different motions simultaneously. The hand initiates the dipping motions, while the arm is doing a horizontal movement for transporting the bow to a favorable position. How can we build the perception benefiting a series of rapid staccato notes in the following passage?

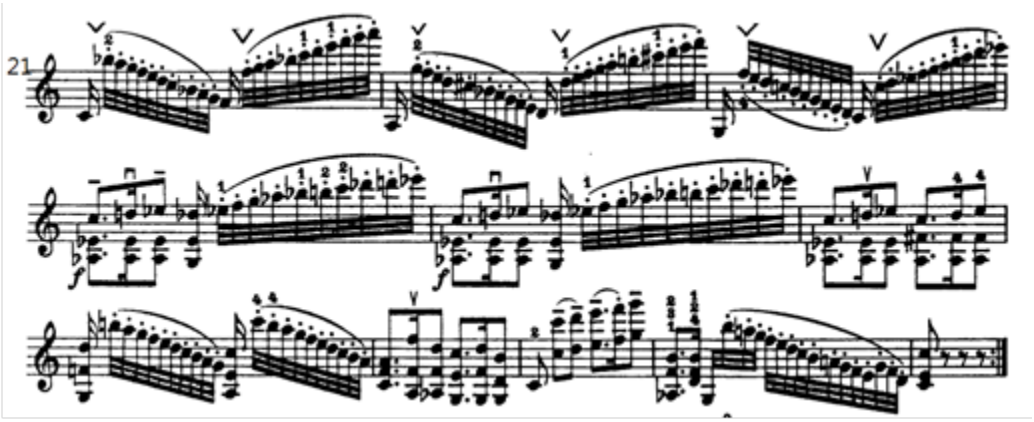


Figure 3-9. Staccato stroke.[83]

In addition to exploring the frictions from the minimal exertion in the right hand mentioned in the previous chapter, one can use the material from *The Dounis Collection* to explore the arm movement, transporting the bow throughout the frog, middle, and point as fast as possible and landing with a bite (Figure 3-10). There are twenty-four combinations related to this motion in *The Dounis Collection*.[84] When doing this exercise, one can observe the quick

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[82] Ibid., 13.
[83] Ibid., 13.
[84] Demetrius Constantine Dounis, *The Dounis Collection: Eleven Books of Studies for the Violin*, 251-253.

response from the hand motion (dip to release as a unit) whether or not it is disturbing the ease of the horizontal movement from the arm in the fast execution.

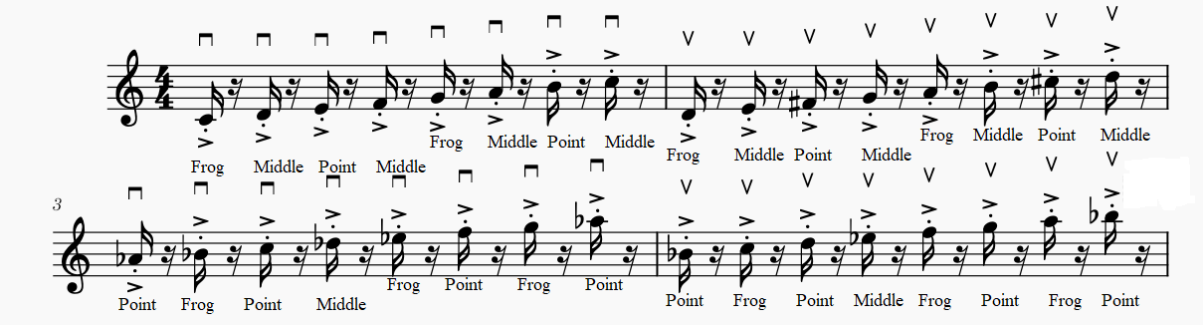

Figure 3-10. Transporting the bow throughout the frog, middle, and point as fast as possible and landing with a bite.

After experimenting with this large range of motion, one might find it much easier to execute the staccato required in figure 3-9 around the bow's balance point. Next, one can observe how the rotation of the forearm affects the character and quality of the sound in the staccato. If one were to pronate the right hand, the sound would be heavier and sticky between the notes. The execution would be more on the string. On the other hand, if one supinates the forearm, the sound becomes lighter. This supination also increases the extent to which the bow bounces off the string between notes. The consecutive-staccato section in measures 21–23 (Figure 3–9) requires an extra impulse on each initiating stroke to build a beneficial cycle of motion. To clarify, I would play a down bow with a faster bow speed by releasing the arm. At the up-bow staccato, I initiate a fast bow speed with the wrist and elbow. Until the next down bow, I can release the whole arm again to form a sustainable cycle without tensing.

Last, one will encounter the ricochet from measure 51 to 54 in each down bow. (Figure 3-11). First, one only plays the notes circled in red in the middle to the upper part of the bow.

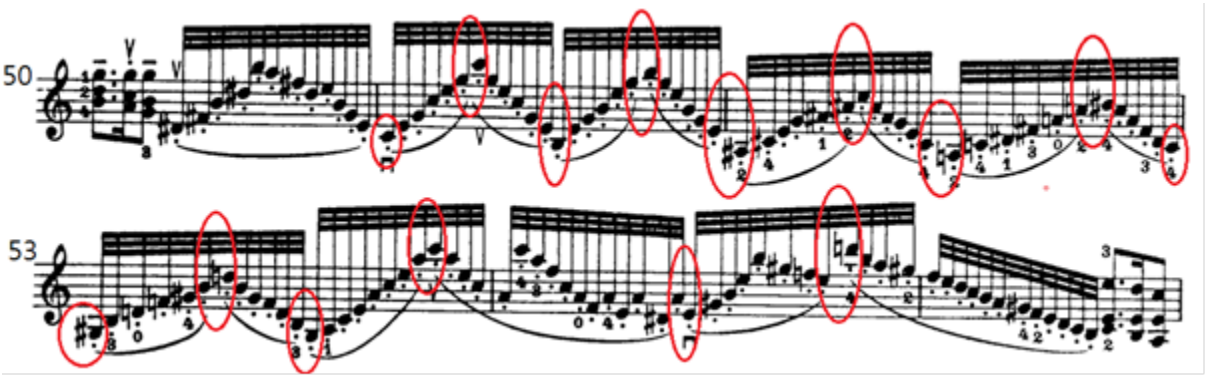

Figure 3-11. Ricochet passage.[85]

This step helps one observe how to maintain the resilience of the ricochet to the ends of the down-bows, while still providing an impetus to the following series of up-bow ricochets. While not playing the middle notes, one is able to focus on the trajectory of the arm floating in the air and how it lands on the string. Next, one can group every two or three notes in a down bow by accenting the note at the beginning of each group. The accents here are produced by the bow length, rather than the weight. When doing this, one can pay attention to how the elbow and forearm are involved in the movement in order to give each accent in the down bow. This will make it easier to observe the inertia in the ricochet.

Another key point of executing the ricochet here is to know how and when the weight shifts among the arm, elbow, and finger movement. Each person has a different formula; therefore, one must observe how to transfer among these three elements in order to complete this long line with great clarity. Personally, my elbow leads the arm movement in a down-bow. Until reaching the top note of the up-bow, my finger has to be involved in the movement and

[85] Niccolò Paganini, *24 Caprices for Solo Violin*, 14.

take responsibility for making the bounce clear at the tip. When string crossing occurs again later, my elbow and arm take over the inertia. Therefore, observing the choreography between these three parts helps one have a better understanding of the coordination required in this passage.

Conclusion

This project has not only helped me reshape my practice following the injury, it has also sharpened my awareness of the relationship between the body and the execution of movement. When the observation mindset is engaged in the activities, one's mind is viewing how the physical body interacts with the external stimulations or activities in the process. Knowing what kinds of interferences occur in the mind is the first step in the process of eliminating restrictions. Whenever confronting such interferences, one can reset one's mind and body to search for the alternative possibilities. In perceptive practice, the mind and body coordinate in the process of learning, with neither dominating the other. Forming a conception of executions is based on the perceptions collected through visual, tactile, auditory, and kinesthetic senses. In applying perceptive practice to pedagogical materials, one can turn physical awareness into the basic pattern of movements in violin playing, exploring approaches beyond the habitual ones. Achieving a balance between the mind, body and external tasks facilitates refinement of the skill one needs in execution. When one leaves a space for these three elements through observations, the integration will be formed in the process of perceptive practice naturally**.**

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