ABSTRACT

Title of Dissertation:	FACILITATING EASE AND EXPRESSIVITY IN LEFT-HAND BALANCE, FINGER ARTICULATION, AND NAVIGATING THE BOUTS ON THE VIOLA
	Tonya Renae Burton, Doctor of Musical Arts, 2024
Dissertation directed by:	Professor Katherine Murdock, Department of Music

Prior to the emergence of the viola as a solo instrument in the twentieth century, the viola was often treated like a bigger violin. This has led to a lack of clear and consistent pedagogy for left-hand technique on the viola. The purpose of this project is to offer a resource for left-hand technique specifically for the viola, with an emphasis on areas which there is a lack of other written material.

Violists often have preconceived notions about left-hand technique, stemming from ideals of violin technique which often use a different approach from what is needed or helpful on the viola. This can greatly hinder potential fluency and expressive freedom for violists and can even lead to physical harm. Additionally, the absence of a uniform size and shape for violas combined with the unique body of the player make standardization of left-hand technique nearly impossible, requiring violists to analyze technique in an individualized manner.

To enable violists to discover healthy and fluid body motions in relation to particulars of their specific viola, the techniques will be primarily approached as movement. Part One equips the violist to take ownership of their technical journey with an exploratory mindset, a somatic viewpoint, and discovering body balance with the viola. Part Two applies these concepts to left-hand balance, finger articulation, and navigating the shoulder bouts while dispelling common misconceptions and interweaving basic anatomical information alongside practical exercises and examples from the repertoire.

My goal in this dissertation is to empower violists on a path towards greater technical ease and fuller expression by approaching left-hand technique as an individualized exploration of body movement and musculoskeletal understanding.

FACILITATING EASE AND EXPRESSIVITY IN LEFT-HAND BALANCE, FINGER ARTICULATION, AND NAVIGATING THE BOUTS

by

Tonya Renae Burton

Dissertation submitted to the Faculty of the Graduate School of the
University of Maryland, College Park, in partial fulfillment
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Advisory Committee:
Professor Katherine Murdock, Chair
Professor Irina Muresanu
Professor David Salness
Professor Douglas Julin
Adjunct Professor Daniel Foster

Preface

As a violist growing up with a public music education, I did not know the rich heritage of the viola until studying music in college. I felt adamant that whatever could be played on the violin could be played on the viola. I found myself playing virtuosic pieces on the viola, like Heinrich Wilhelm Ernst's *The Last Rose of Summer*, yet I had extreme tension in first position. How many hours, days, and weeks were wasted in shame and frustration that I could not do what looked easy on the page instead of seeking to gain physical understanding of how to navigate the many differences between violin and viola technique.

While it has taken me a long time to understand the ownership needed for viola playing, I now see my left-hand struggles as fortuitous cues to discover my own solutions and unlock new expressive freedom. Just as Fuchs, Primrose, Tertis, and Tuttle followed their deep desire to make music on the viola to overcome any technical hurdles, we too can allow our expressive desires to expand our technique and viola playing.

It is my hope that this resource empowers violists to take hold of their own journey, gaining insight into their unique body structure and finding what works best for them and their viola regarding left-hand balance, finger articulation, and navigating the shoulder bouts to serve their expressive needs.

Dedication

To my family: Greg Burton, Lily Burton, Lia Burton, and Natalie Burton, who constantly inspire me with their incredible creative endeavors, humble work ethic, and love of learning.

To my dear teacher, Katherine Murdock, whose boundless passion and commitment to communicate through music has influenced me beyond compare.

Acknowledgements

My deepest appreciation goes to my committee, Katherine Murdock, Daniel Foster, David Salness, Irina Muresanu, and Douglas Julin for their support and insightful feedback. I want to especially thank Katherine Murdock, the committee chair for her invaluable consultation and for graciously sharing many exercises and concepts that have shaped this document.

A heartfelt thanks to Jennifer Johnson and Claire Stefani for meeting with me and inspiring me with their Body Mapping work. I also want to thank Anne Cole, David Rivinus and Hiroshi Iizuka for generously allowing me to include pictures of their ingenious craftsmanship and beautiful violas!

Words cannot express my gratitude for all my dear viola professors and mentors. In particular, I want to thank Katherine Murdock, James Dunham, Jeffrey Irvine, Lynne Ramsey, and Joan DerHovsepian whose support and guidance have shaped my musicianship and teaching.

I am forever grateful to my family for their encouragement and prayers. I want to acknowledge my mother, Lily Burton for her helpful edits, and my sister, Natalie Burton for her incredible formatting wizardry. Lastly, I want to thank my husband, David Rivera for lending his hand and sharing his film expertise in this project.

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Part I: Approaching Technique as Movement

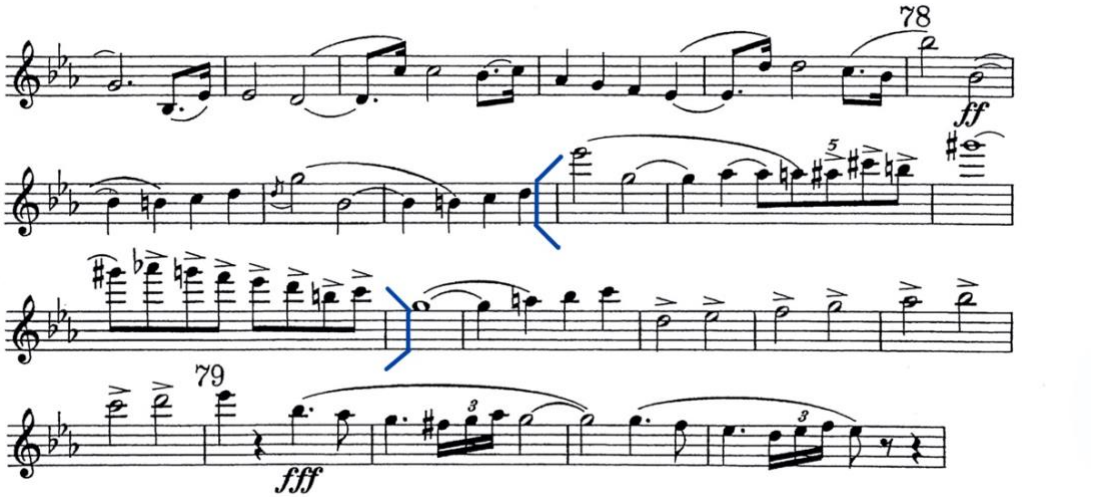
There is a wide range of sizes and shapes for violas today. In conjunction with the unique body of each violist, left-hand technique is nearly impossible to standardize. Therefore, the violist's journey with left-hand balance, finger articulation, and navigating the bouts is one of great independence and individuality.

To facilitate a healthy and productive exploration of left-hand technique, Part One will equip the violist with a somatic viewpoint which accesses the kinesthetic sense, plus a brief look into the central nervous system. This will be followed by a section on body balance and incorporating the viola into healthy body alignment, which are vital for gaining free and fluid movement with the instrument. This resource just scratches the surface with anatomical information and somatic understanding, and I highly recommend that any enthusiastic musician pursue their own in-depth journey of body awareness.

Chapter 1: Introduction, The Disparity

I walked into the room in mild trepidation, knowing that I would be playing the infamous Richard Strauss *Ein Heldenleben* orchestral excerpt for the viola repertoire class (fig. 1). Although I was a well-studied master's student at a reputable conservatory, the excerpt's notoriously high shift to a G# followed by a tricky descent stood as a formidable opponent. The high shift should be a glorious moment where all the strings are soaring in unison.

Figure 1. Strauss, *Ein Heldenleben*.
The passage with the high G# is indicated by brackets added by author.
Source: Richard Strauss, *Ein Heldenleben, Op. 40,* Viola Part (Leipzig: F.E.C. Leuckard, 1899), 11.



The teacher had each student play the excerpt individually, which quickly became a fascinating case study. I watched in sheer amazement as my colleagues approached the high shift with such individuality. Some violists had their left-hand thumbs on the wooden shoulder bout, some had their thumb scale alongside the fingerboard, and others had their left thumb completely hanging in the air. Perhaps the one consistency between the violists was the act of muscular tension and a great clenching down of the neck on the chinrest, in attempt to "free up the left hand."

Although the violists in the class played the excerpt extremely well, there was a communal sense of frustration that at the most passionate moment of the excerpt, there was often excess tension and limited ability to achieve the desired effect on the climax. After watching my talented colleagues play, all of whom were advanced and dedicated violists, I left the class with a clearer picture of two big disparities that I had often felt in my own musical journey.

Disparity #1: The Limitations of the "Traditional Approach" to Viola Technique

It seemed that no amount of Gaylord Yost or Otakar Ševčík exercises could have prepared us to play the G# in *Ein Heldenleben* with the glorious freedom we desired. When it comes to advanced playing and nuanced expression, violists may come to the realization that they studied technique in a manner that, in certain circumstances only allows for limited expressive options.

The obvious similarities between the viola and violin make it convenient for violists to use violin resources. The downside is that certain technical hurdles inherent to the viola go unacknowledged. A blind-sighted approach to using violin materials can cause severe limitations and even impede expression. For instance, in the case of the high G# in *Ein Heldenleben*, the wider ribs and shoulder bouts of the viola create a unique obstacle for the violist that the violinist does not need to address.

The difference in sound production between the violin and viola is well acknowledged, but the innate differences in the demands on the left-hand can be easily overlooked. If left unaddressed, the thicker strings, wider spacing between strings, further distance between pitches, wider ribs, and bigger shoulder bouts can form major impediments for three specific areas: hand frame, finger articulation and shifting up high.

An example of the disparity between the violin and viola can be seen in Mozart's Sinfonia Concertante, where the violin and viola are equals, passing off similar materials (fig. 2 and 3.)

Figure 2. Mozart, Sinfonia Concertante, Viola Part.
Viola line playing similar material to the violin line, fingerings and brackets added by author.
Source: Wolfgang Amadeus Mozart, "Sinfonia Concertante, KV 364 (320d)," (Wiesbaden: Breitkopf & Härtel; München: Henle Verlag, 2006), 2.

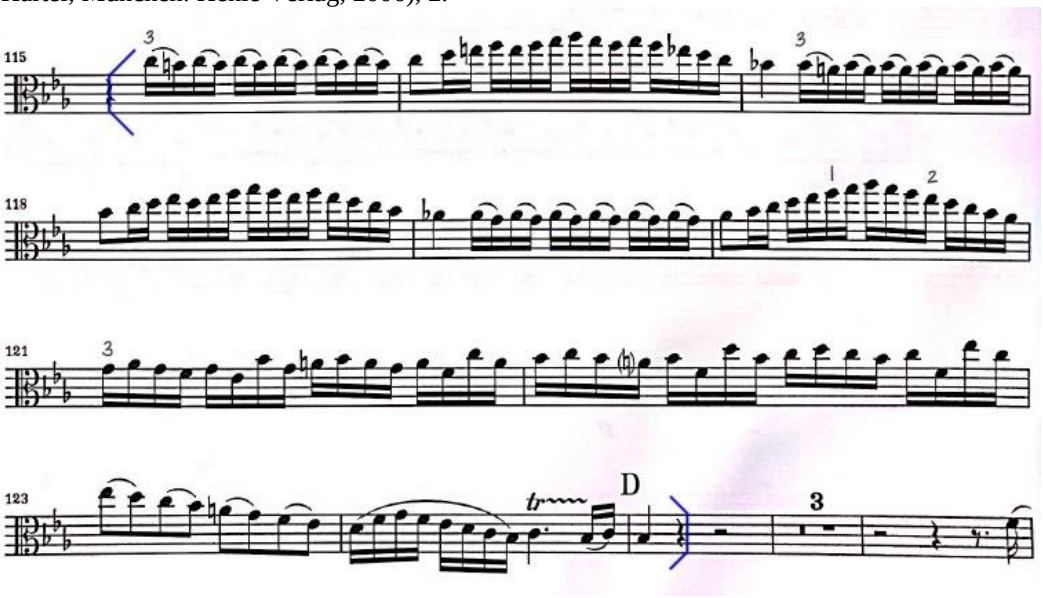
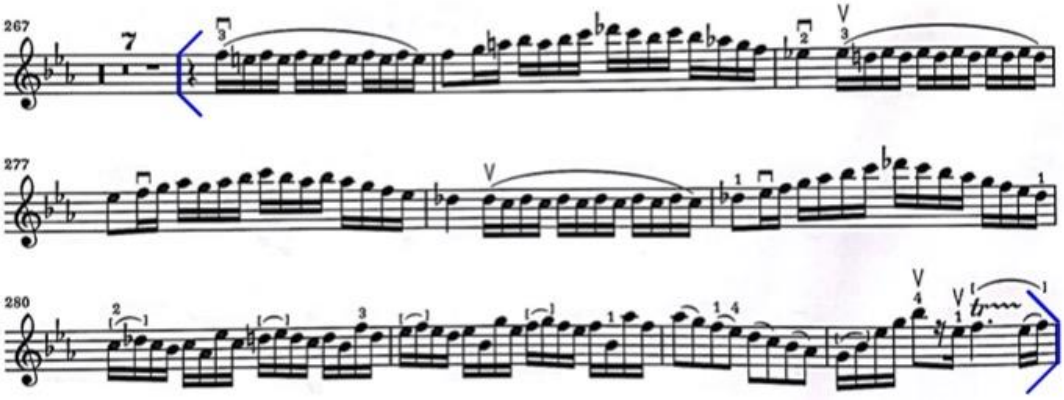


Figure 3. Mozart, Sinfonia Concertante, Violin Part.
Bracketed material shows the violin line playing similar material to the viola line.
Source: Wolfgang Amadeus Mozart, "Sinfonia Concertante, KV 364 (320d)," (Wiesbaden: Breitkopf & Härtel; München: Henle Verlag, 2006), 6.



While both the violinist and violist are certainly capable of playing this line with equal finesse, the violist may find that they need to adjust their hand frame for certain spacings or have a more agile finger articulation. If the violist is under the notion that they can go about technical matters in *exactly the same way* as a violinist, they may neglect to make adjustments in their hand frame leading to tension, a lack of agility, and limited clarity regarding finger articulation.

This is not to say that left-hand violin resources are inherently harmful; in fact, depending on the specific resource they are often wonderful, particularly for beginning and intermediate viola playing. Rather, it is imperative that the violist approach the resource with a clear picture of the instrumental differences and learn how to adapt and adjust violin pedagogy for their unique instrument and body. Robert Dolejší, author of one of the first viola-specific technique books, *Modern Viola Technique*, states that "the true art of viola-playing […] is a vastly different art from violin-playing. There is a difference in left-hand finger pressure, which must be firmer in viola performance, owing to the longer and thicker strings; passages must be played distinctly and fluently rather than lightly and rapidly."[1]

Disparity #2: The Unique Relationship Between the Viola and Violist

All instrumentalists utilize their unique bodies in relation to their instrument. In the case of the violist, there is not only the uniqueness of the human body, but also the uniqueness of the viola itself. The viola, unlike the violin and cello, is an acoustically imperfect instrument. If the viola were to be acoustically perfect with respect to power, tone, and depth, it would need to be an unplayable twenty-one inches long. This has led luthiers on an ongoing quest of experimentation to maximize projection and minimize playability issues. Some innovative modern viola makers

[1] Robert Dolejší, *Modern Viola Technique* (New York: Da Capo, 1973), 1.

are Hiroshi Iizuka, David Rivinus, Joseph Curtin, and Anne Cole, who have all successfully experimented with viola size, shape, and weight (fig. 4-6).

Figure 4. Innovative Viola Model by David Rivinus.
Rivinus's Pellegrina Model with irregular shape (left). Rivinus playing one of his violas (right).
Source: Images reprinted with kind permission by David Rivinus.

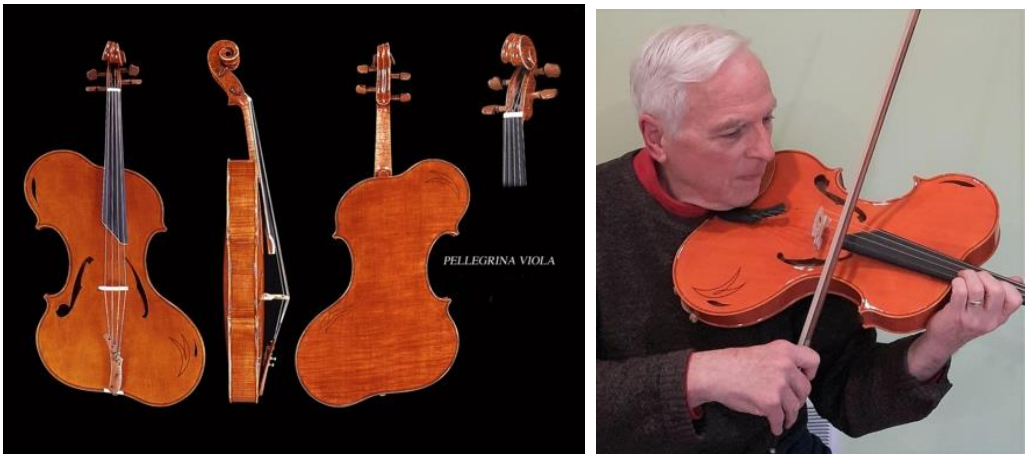


Figure 5. Innovative Viola Models by Anne Cole.
Cole's Titus Model (left) and Steel Magnolia Model (right).
Source: Images reprinted with kind permission by Anne Cole.

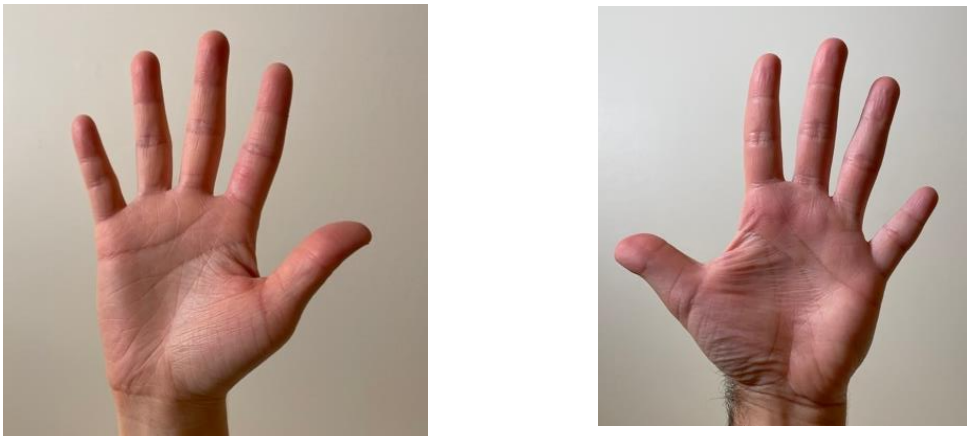
Figure 6. Innovative Viola Model by Hiroshi Iizuka.
Iizuka's Model with a shoulder cut out, allowing for ease in reaching the upper positions.
Source: Images reprinted with kind permission by Hiroshi Iizuka.

In addition to the obvious differences in size and shape, violas lack uniformity in less visible ways as well. For instance, the width of the neck, string lengths, height of the ribs, and length of the fingerboard can vary on each instrument (fig. 7).

Figure 7. Parts of the Viola.
The different parts of the viola, labels added by author.
Source: Image by author.

As you can imagine, this lack of standardization creates many hurdles for pedagogy and mastery of left-hand technique. To exacerbate this issue, the unique size and shape of the viola is combined with the individual hand, palm shape, and finger lengths of the violist (fig. 8).

Figure 8. Unique Hands.
Images display two hands with different finger length relationships. Note the short pinky (right image).
Source: Photos by author.



For example, the width of the viola neck, string lengths, and viola proportions, combined with the finger lengths of the violist create a distinct hand frame. Or, as I saw clearly when I watched my colleagues play the high G# in *Ein Heldenleben,* the size of the shoulder bout and width of the ribs combined with the palm measurement and finger lengths of the violist, will determine how the violist navigates the upper registers of their instrument.

The Perseverance of the Violist

The heritage of viola playing is one of exploration and "making it work" for oneself. While the viola still has its hurdles today, prior to the twentieth century the instruments themselves were often far less playable. For instance, one of the early great viola soloists, Lionel Tertis (1876–1975), would play on a 1717 Montagnana viola that was over seventeen inches!

In addition to navigating a less-playable instrument, Tertis also had to fight for his career as a professional violist, as the viola was not seen as a solo instrument. As viola virtuoso, William Primrose recalls, Tertis had to make himself a "perfect pest" to get composers to agree to write for him and struggled to convince record companies to let him record. [2] It was due to his conviction and dogged personality that Tertis gained the respect of colleagues and audiences alike and earned his tremendous legacy in the music world.

Despite push back against his career as one of the first viola soloists, Tertis had an incredible love and vision for the viola. Tertis, like most of the initial viola soloists, started out as a violinist. While studying violin at the Royal Academy of Music, Tertis began to play viola in student string quartets. From then on, his reputation as a violist started to grow. He even transcribed virtuosic violin concertos by Wieniawski and Mendelssohn for the viola. Tertis had an unrelenting belief of the unique beauty of the viola voice and was the first to develop an individualistic "viola sound," an ideal that has been passed down to every successive generation of violists.[3] Arthur Rubenstein recalls Tertis's viola sound and uniqueness of sonority:

> From the first bars on, I became aware of a new element in their ensemble, a sonority I had never heard before. The sound came to light by the powerful, singing, soulful tone of the viola as played by Lionel Tertis. Here was one of the greatest artists it was my good fortune to know and hear…After the Debussy Quartet, I played with him, and Rubio the C minor Piano Quartet of Brahms. The sound of his solo in the first movement still rings in my ears.[4]

In addition to leaving a legacy through his remarkable viola sound, Tertis also created waves by insisting that the viola was its own unique instrument, rather than a larger but weaker shadow of

[2] William Primrose, *Walk on the North Side: Memoirs of a Violist* (Provo, UT: Brigham Young University Press, 1978), 164.

[3] Watson Forbes, "Tertis, Lionel," *Grove Music Online*, 2001, accessed January 1, 2024, https://doi-org.proxy-um.researchport.umd.edu/10.1093/gmo/9781561592630.article.27716.

[4] Primrose, *Walk on the North Side: Memoirs of a Violist*, xix.

the violin. He intentionally used individualistic viola fingerings instead of violin fingerings. As Primrose recalled:

> [Tertis] was the first to insist that the viola was an instrument distinct from other string instruments, that it had a personality of its own. To suggest to him that performance on it was no more than playing the violin a fifth down was to commit the sin of sins and to evoke his swift and devastating wrath.[5]

When Tertis retired from his solo career, he turned his attention in 1937 to creating a viola model that would be more playable in terms of size and weight, while maintaining projection. This resulted in the famous Tertis viola model made in collaboration with luthier Arthur Richardson.

There were many other pioneering soloists who helped establish the viola as a solo instrument. These included Louis Bailly and Maurice Vieux in France, Vladimir Bakaleinikoff and Samuel Belov in Russia, Leo Van Houst in Belgium, as well as British American violist, Rebecca Clarke. Their contributions led to an explosion of new works in the viola repertoire in the 1900s and the rise of new generations of viola virtuosi, including William Primrose, Lillian Fuchs, Max Aronoff, Joseph De Pasquale, Karen Tuttle, and many others.

A Legacy of Violists Making it Work on Their Own

An influential violist during the twentieth century was Lillian Fuchs (1902–1995.) Originally a concertizing violinist, Lillian recalled her first experience playing viola with the Kneisel Quartet as "the catastrophe of her life."[6] Her "catastrophe" soon turned into a wonderful career that left an incredible mark on the advancement of viola playing and quietly challenged the male-dominated field.

[5] Primrose, *Walk on the North Side: Memoirs of a Violist*, 163.
[6] Amédée Daryl Williams, *Lillian Fuchs, First Lady of the Viola*, 14.

Fuchs was known for having a very deep and rich sound that could soar above an orchestra. As a woman of a small height and with small hands, she was monumental in paving the way for similarly sized violists. In a talk for the American Viola Society, Lawrence Dutton recalled how Fuchs's bow was never parallel to the bridge at the tip of the bow, as her arms were quite short, and yet she spun the sound at every inch of the bow.[7] As she did have small hands, she had to find her own ways to get around the instrument. She made significant contributions to viola-specific resources by composing three sets of studies for her and her students to overcome these challenges. These sets of studies are commonly used today and are some of the more significant studies written exclusively for the viola.

Another violist that must be mentioned is William Primrose. A former violin student of Eugène Ysaÿe, Primrose is arguably the most well-known viola virtuosi. He was one of the first twentieth century violists to publish important books regarding viola technique. He published a scale book exclusively for the violist in 1954, *The Art and Practice of Scale Playing on the Viola.*[8] In this book he chose radically different fingerings than the typical violin fingerings, both for playability and utilizing the viola's resonance. For instance, he chose to shift on the semitone, advocated for open strings instead of the fourth finger, used the octave-sounding open string technique to shift down, and ascended and descended on the A string to stay in lower positions for longer and produce increased resonance. He also published *Technique is Memory: A Method for Violin and Viola Players Based on Finger Patterns* in 1960, which is for both upper stringed instruments and focuses on repetitive pattern building.[9]

[7] Lawrence Dutton et. al., "A Celebration of Legendary Teachers: Recollections of Dorothy DeLay, Lillian Fuchs, Francis Tursi, Michael Tree and Karen Tuttle," American Viola Society Lecture, Online, April 24, 2021.

[8] William Primrose, *The Art and Practice of Scale Playing on the Viola* (New York, NY: Mills Music, 1954).

[9] William Primrose, *Technique is Memory: A Method for Violin and Viola Players Based on Finger Patterns*, (London: Oxford, 1960).

While Primrose contributed greatly to the technical resources for the violist, perhaps his greatest pedagogical resource was leading through example and influencing his student, Karen Tuttle. Tuttle was originally a concertizing violinist who suffered much physical strain while she played. It was in her pained and frustrated state that she attended a quartet concert featuring Primrose on viola. Tuttle was astounded by the natural ease that Primrose had in his playing and was determined to study with him. Following the concert, Tuttle switched to the viola and went to Curtis to study with Primrose.[10]

As Primrose's student and eventually his teaching assistant, Tuttle analyzed his playing and learned how to replicate his actions for herself. She boldly pursued joyful and free viola playing that incorporated healthy body movements with the mechanics of viola playing. As a teacher, Tuttle individualized her method for the specific needs of her students. She has indelibly shaped viola pedagogy today.

While technical resources for the viola do exist, there are significantly fewer written resources as compared to the violin and cello. This is not surprising given that many of the earlier twentieth century violists were first trained as violinists. It is exciting to see new resources currently coming out for violists. For instance, in 2020, six of Karen Tuttle's prominent students, Jeffrey Irvine, Kim Kashkashian, Michelle LaCourse, Lynne Ramsey, Karen Ritscher and Carol Rodland, published the book *The Karen Tuttle Legacy* which is an excellent resource for violists. It is an exciting time to be a violist!

[10] Matthew Dane, "Coordinated Effort: A Study of Karen Tuttle's Influence On Modern Viola Teaching," (PhD diss., Rice University, 2002), 6.

Chapter 2: Exploring Technique

What comes to mind when you think about string technique? Scales and arpeggios? Or perhaps shifting, bow hold, vibrato, finger articulation? There is a truly endless list of techniques related to string playing.

If we look beyond the list of techniques and instead turn to their purpose, we realize that the technically sound musician can systematically utilize their instrument in order to manipulate pitch and sound as they desire in an efficient, consistent, and expressive manner. As the renowned string pedagogue Ivan Galamian writes, "complete mastery over all of the potentialities of the instrument […] implies the ability to do justice, with unfailing reliability and control, to each and every demand of the most refined musical imagination."[11]

Unfortunately, the expressive purpose behind the mastery of an instrument can often get lost in a sea of technical exercises. This separation of expression and technique is often imprinted during the typical learning process, where instrumentalists are often taught to work out technical details first, and then encouraged to pursue musicality. Unfortunately, this creates a paradigm where technique loses its purpose and expression is limited.

The many refined aspects of string playing can be overwhelming, and mastery of the instrument may appear to be an insurmountable obstacle. Instead of an obligatory climb up the technical mountain, I implore us to allow our musicality and desire for expression to drive our climb through technique. When we encounter limits in expression, that is our cue to delve into the nuance of viola technique to achieve greater freedom and joy in music making.

[11] Ivan Galamian and Elizabeth A.H. Green, *Principles of Violin Playing and Teaching* (Prentice-Hall, 1962), 5.

Technique as Movement

The journey to attaining expression-driven technique requires flexibility and experimentation to *fully understand the potentialities of the instrument, the body, and the interplay between* them. The mind, body, soul, and instrument must work together to produce expression.

When a student is asked how they learn a piece, they are prone to respond with phrases like "read notes," "figure out rhythms," and "fingerings and bowings" without mentioning that body movement is employed to create sound. It is easy to overlook the obvious fact that physical movement occurs before a single sound can be made.

How can we have consistency on the instrument without a sense of consistency in our body motions? How can we have variety and a range of expression in the sound if we do not have variety and a range of motions in the body? How can we have efficiency on the instrument if we do not have efficiency in the body? The body is an equal partner to the viola for musical expression and therefore, it is imperative that we approach technique through the lens of learning body movement.

It is not surprising that the physical movement required in string playing is often overlooked, as technique books and pedagogical values have historically emphasized the instrumental side of technique while neglecting the physical movement-oriented side of technique. For instance, there are numerous books on finger patterns, shifting, or scales that focus purely on what takes place on the instrument itself, without discussing the movement in the body necessary to execute them. While these teachings are valuable, it is equally essential to study the body movement needed to utilize the instrumental tools. For example, we often tell students to "play a note in tune," without telling them how to release and adjust their finger.

Another example is asking students to “use more bow,” instead of telling them to relax the arm muscles and move the right arm faster.

It is certainly not wrong to instruct a student to “use more bow” or “play in tune,” but is important that the student is able to translate the instrumental commands into healthy body motions. Some students may naturally respond with healthy motions, while others need to be taught the appropriate body movements required to produce the desired effect on the instrument. It is extremely common for students to rely on tension and excess muscle contraction for a false sense of control and consistency.

The knowledge that our body movements create technique and expression should compel us to nourish the body, gain body awareness, and explore healthy body movements. Unfortunately, musicians often do not discover healthy movement until after a playing related injury. Only when the body gets in the way of music making and no longer acquiesces to our demands, are we forced to give it adequate attention. Even then, typically the goal is to protect the body from injury. Instead, we should allow ourselves to fully utilize the rich capabilities of our bodies to enhance artistic variety and expression.

Technique for the Violist

It is no surprise that all string players have their own natural strengths and weaknesses that can be attributed to their unique bodies. For instance, an upper string player with a short pinky compared to their second and third fingers may struggle with thirds, while someone with generally long fingers may be able to reach the same double stops with great ease. Therefore, all string players must learn how to utilize their own individual body with the instrument. This is particularly important for the violist, as the viola is a bigger instrument than the violin, and the

further intervallic spacing, thicker strings, wider ribs, and bigger shoulder bouts can create impediments.

In the learning process, it is important that the violist takes ownership of their own physical relationship to the instrument. As the body naturally seeks comfort and tries to avoid pain, we can allow it to aid our discovery of movements that enhance satisfaction in music making.[12]

Exploratory Practices

As Carl Flesch writes, "there are no miraculous formulas in our art, but just as there are 'many roads that lead to Rome,' there are nevertheless roads by which one can get to Rome more speedily, effortlessly and efficiently."[13] This section covers the important concepts of mind set, somatic viewpoint, accessing your kinesthetic sense, and understanding sensory information to empower you as you discover your own technical "road."

Exploratory Mindset

The violist's journey to attaining expression-driven technique, requires flexibility and experimentation to fully understand the potential of the instrument, the body, and the interplay between them. Each violist must take ownership to discover what works for oneself, free of pre-conceived notions.

The standards that we hold in our minds about how something "should" look or function can often lead us astray in our learning process. Whether we are trying to uphold ideals of violin

[12] Robert Masters, *Neurospeak* (Berkeley: Quest Books, 1994), 13.
[13] Carl Flesch and Anne-Sophie Mutter, *The Art of Violin Playing, Book One, General Technique; Applied Technique* (New York: C. Fischer, 2000), 1.

technique that do not work for our particular body and viola, or have misguided beliefs about body movement, these beliefs can severely stunt expression.

Allow yourself the freedom to experiment and explore freely. The idea of exploration can feel foreign to the violist who is afraid of "messing up" and bound to high standards. For instance, we often have both emotional and muscular reactions to playing a note out of tune or getting a scratchy sound, and we can quickly judge ourselves and become tense. Allow yourself the space to make different sounds and explore movement freely. As pedagogue Katherine Murdock often says, "it's just information!!"

Think about the baby who is developing their senses and learning to use their body. They explore and experiment endlessly, babbling and falling over while their curiosity and desire to move propel them forward. They do not judge themselves, nor does anyone tell them the exact way to crawl or speak. They are discovering for themselves from the inside out.

Somatic Viewpoint

There is an abundance of resources today about the body and body awareness. While there are many different approaches and schools of thought, a common thread is the practice of somatic awareness. As Thomas Hanna, the founder of the field of somatics, explains that "the somatic viewpoint encompasses how we individually view ourselves from the inside looking out and how, from that viewpoint, the distinction between mind and body disappears. From inside ourselves, we are not aware of the "body" itself but rather of the feelings and active processes of that "body.""[14] Essentially, the somatic viewpoint renews the integration of mind and body by experiencing life through the inner perspective of our bodies.

[14] Thomas Hanna, *Somatics* (Rading, MA: Addison-Wesley Publishing Co., 1988), 45.

The high levels of cognitive function and logical analysis required in string playing have the potential to instigate a separation of mind and body. Focusing on the somatic experience and trusting the body's innate desire for pleasurable movement is key to fluid and accurate playing. As Galamian rightly points out, the correlation between the body and mental directive dictates technical ability, explaining that "what counts is not the strength of the muscles, but their responsiveness to the mental directive. The better the correlation, the greater the facility, accuracy, and reliability of the technique."[15] As we approach technique primarily as movement, it is vital that we experience viola playing from a somatic perspective, trusting our innate sense.

Kinesthesia

Out of the five standard senses of sight, hearing, taste, touch and smell, string players generally focus on three: hearing, touch, and sight. Take for instance the words of the famous violist, William Primrose: "if technique is memory it follows that the eye plays an important role in such practice. The route is: eye to brain, brain to finger, finger (or the sound produced by it) to ear, ear to brain."[16] In addition to the sense of hearing, touch, and sight, there is a lesser known sixth sense that is vital for string playing. This is kinesthesia, or the sense of movement. Try this exercise by expert Body Mapper, Jennifer Johnson to start experiencing kinesthesia:

> Exercise 1: Kinesthesia (by Johnson)
> *Source:* Jennifer Johnson, *What Every Violinist Needs to Know About the Body* (Chicago: GIA Publications, Inc., 2009), 23-24.
>
> To experience how your own sense of kinesthesia informs you, try this:
> 1. Hold your hand in the air so that you cannot see it and wiggle and wave your hand and fingers without any of them touching one another.

[15] Galamian, *Principles of Violin Playing and Teaching*, 6.
[16] William Primrose, *Technique is Memory: A Method for Violin and Viola Players Based on Finger Patterns* (London: Oxford, 1960), i.

2. Notice that you are not using any of the other five senses and yet are still receiving information about your movement.
    a. You can identify how fast your fingers are moving.
    b. You can tell whether they are moving side to side or forward and backward.
    c. You can sense if the movement is easy and fluid or stiff and unnecessarily tense.
    d. You can tell if you're using the wrist or just the fingers.
    e. You can feel where the finger bones are in relation to one another, even though they are not touching each other.
3. Now, imagine that your pinkie grew five inches in length. You can actually feel what that would be like – what the added weight would feel like on that side of your hand. This is your kinesthetic imagination at work.

Our ability to sense movement comes from the kinesthetic sense receptors in our body. These receptors deliver information from muscles and connective tissue to the brain about our position, size, and quality of movement. These receptors are especially plentiful near the main joints in the body.[17]

Honing into kinesthesia and the body's natural desire for healthy movement is pertinent to the discovery of fluid left-hand technique on the viola. If the quality of movement is neglected, the motions of viola playing can easily produce strain and excess tension. The stronger our sense of kinesthesia, the greater our body awareness and ability to move freely. Remember that the more options we have for movement directly translates to the options we have for expression.

Sensory Information

To understand our perception of movement, we need to recognize the significance of the brain and its connection to the spinal cord. Protected by the bony vertebrae on the backside of the spine, the spinal cord runs from the brainstem all the way down to the lower back. The spinal

[17] Johnson, *What Every Violinist Needs to Know About the Body*, 24.

cord is the means of communication from the brain to the entire body, with 31 pairs of spinal nerves stemming from the spinal cord and extending to the periphery.[18] Sensory information ascends up the spinal cord to the brain, while motor commands descend down the spinal cord and produce muscle movement.[19] Every time our body moves, the brain is processing a constant flow of sensory information that informs the next movement. We can refer to this ongoing flow of sensory information as a complex feedback system, or an endless loop of data.

Take a moment to reflect on the incredible ability of the brain and body to work together to complete everyday tasks. For instance, when writing with pen and paper, your brain is constantly integrating sensory information and motor controls to coordinate the position, size and quality of your finger movements that correspond to writing words on paper. Injuries to the spinal cord and issues with the feedback loop can cause serious detriment to the quality of movement, sensation, and body regulation.

In addition to transmitting sensory information and motor commands to-and-from the brain, the spinal cord coordinates reflexes. As the sensory information reaches the spinal cord prior to the brain, there are instances that the spinal cord can respond to sensory information without any signal or motor command from the brain by means of reflex arcs. Reflex arcs begin with the sensory information being carried to the spinal cord and then directly transmitted to a motor neuron which stimulates a muscle or organ.[20]

Our body constantly responds to stress and situations that trigger muscular contraction. Muscles have a natural elasticity for contraction or stretching, which is described by the muscle's

[18] Michaela Harrow-Mortelliti et. al., "Physiology, Spinal Cord," *StatPearls*, updated March 17, 2023, accessed January 1, 2024, https://www.ncbi.nlm.nih.gov/books/NBK544267/.
[19] Lauren Thau et. al., "Anatomy, Central Nervous System," *StatPearls*, updated October 10, 2022, accessed January 1, 2024. https://www.ncbi.nlm.nih.gov/books/NBK542179/.
[20] Harrow-Mortelliti et. al., "Physiology, Spinal Cord."

tonus. When the tonus is zero, the muscle is at its fully resting state. When we have full control of a muscle, we can contract it and then voluntarily return the muscle to a tonus of zero. Chronic muscular tension is typically the result of losing awareness of the muscle. Over time, the tonus may only return to 10%, or 20%, instead of 0, leaving muscles constantly overworked and causing pain, hardness, or soreness. [21] As the body has close to 800 muscles, all of them having sensory cells, it is vital to gain awareness of their various states.

When a contraction reflex becomes so habitual that it turns into an involuntary and unconscious habit, we start experiencing what Hanna calls *sensory-motor amnesia (SMA)*, essentially a state of habitual forgetfulness.[22] If you are currently dealing with chronic pain, you may be experiencing a form of SMA. String playing, being a highly physical endeavor, involves the contraction of numerous muscles and it is common to have automatic muscular contraction associated with music making. It is vital that we train ourselves to voluntarily relax each muscle after its use in the effort to gain reliable and expressive technique.

Remember that muscles respond to stress of any kind and not just physical stress. For instance, muscles can contract in reaction to vague thoughts or threats in the mind. Take a minute to consider stressors that you associate with string playing. From the stress of performance, being watched, emotional intensity, fear of judgement, to agitation from inaccurate intonation, there is a myriad of stressful variants in music making. While this resource focuses on body movements and eliminating physical stress in the exploration of technique, if you experience chronic muscular tension, you may need to question other underlying causes of stress.[23]

[21] Hanna, *Somatics*, 13.
[22] Hanna, *Somatics*, xiii.
[23] I recommend reading Bessel Van Der Kolk's, *The Body Keeps the Score* and Ellen Vora's, *Anatomy of Anxiety* if you wish to learn more about the body's reaction to stress, anxiety and trauma.

Reflection on Exploratory Practices

The musician's goal to utilize their creative imagination and communicate effortlessly and fully through sound requires the integration of mind and body. The spinal cord is crucial in relaying information and commanding movement; therefore, it is vital that we care for our body and particularly our spinal health when playing viola.

Exploring technique somatically with a heightened sense of kinesthesia is crucial in preventing strain and excess tension in the body. It also allows one to discover free and fluid movement for themselves. We do not need to know everything about the body to use it well! The baby does not know the labels of left arm versus right arm, and yet they can use their limbs to crawl. Do not allow a lack of knowledge to inhibit your expressive desires, but rather permit your somatic awareness and ability to recognize pleasurable and healthy movement lead you forward. The anatomical information in the next chapter is intended to empower your journey towards greater ease and expression on the viola.

Chapter 3: Incorporating the Viola into a Balanced Body

Body Map

Whether or not we realize it, we all have a body map within our mind that informs our movement. This map is a product of beliefs that we hold about our body and how it works. William Conable, a cello professor at Ohio State University, was the original pioneer of Body Mapping. He realized his students' beliefs about their body superseded all else in dictating movement and worked with his students to slowly change and correct their body maps. Body Mapping is defined as "the conscious correction and refining of one's Body Map to produce efficient, graceful, and coordinated movement."[24] When our internal body map aligns with our body's natural design, movement will flow healthily. When there is dissonance between what we think about the body versus how it actually functions, we will physically suffer the consequence.

The complexity and incredible nuance of movement required for viola playing necessitates being "taught how to play" from the beginning. Inadvertently, it is common for students to be inundated with beliefs about how the body "should look" and "should work," instead of discovering what works. This can cause major mis-mappings which can be easily corrected with an accurate understanding about the body and its structures and design.

As we explore basic principles about body balance and movement throughout this chapter, try to discover what current beliefs form your body map and be open to learning new truths. This resource just scratches the surface with anatomical information, and I recommend that the interested violist find a Body Mapping educator to further their learning.[25]

[24] Barbara Conable, *What Every Musician Needs to Know About the Body* (Portland, OR; Andover Press, 1997), 5.
[25] I recommend visiting https://www.bodymap.org to learn more about Body Mapping and to find an educator.

How Body Movement Works: The Interplay of Bones, Joints, and Muscles

Body movement is the interaction of bones linked together with joints through the action of muscles.[26] Bones not only create structure and bear weight but are also levers for movement. Pinpointing movement at specific joints allows for greater ease and minimal muscular involvement. As the motions of viola playing are nuanced, it is important to look at the joints and muscles associated with the left-hand technique to find the root of the movement.

Joints

Joints are the areas of connection for linking bones. There are different types of joints. Some are inflexible and linked by ligaments and fibrocartilage that serve a structural function, and others allow the bones to move freely, hinging or pivoting with one another. The joints that allow free movement are called synovial joints, the name stemming from the synovial fluid present to lubricate the bone surface and facilitate the free gliding of the bones. Each joint is enclosed in a capsule to keep the bones bound together and retain the synovial fluid. The fluid is depleted during movement and *replenishes during rest*.[27] Cartilage, which covers the surface of articulating bones is also critical in allowing movement at joints. Latin for "gristle," the cartilage is a tough, fibrous material that absorbs pressure and protects the bones during movement at the joint.[28] Cartilage can wear away or get damaged from constant pressure, which leads to arthritis and damage to the bones themselves.

All the primary joints in the body contain ligaments. Latin for "to bind," ligaments are made of strong fibers that hold joints together. Depending on their position and quantity at a

[26] Blandine Calais-Germain, *Anatomy of Movement* (Seattle: Eastland Press, 1993), 1.
[27] Theodore Dimon Jr., *Anatomy of the Moving Body: A Basic Course in Bones, Muscles, and Joints* (2nd ed.) (Berkeley: North Atlantic Books, 2008), 29-30.
[28] Dimon, *Anatomy of the Moving Body: A Basic Course in Bones, Muscles, and Joints, 29.*

particular joint, ligaments can restrict and prevent certain movements.[29] While they vary from being non-elastic to more flexible and elastic, all ligaments can be stretched from overstress. Keep in mind that ligaments have some sensory nerves but cannot contract like muscles. It is very common to tear ligaments from excess stress on joints.

There are seven different kinds of synovial joints that allow different types of movement: hinge joints, ball-and-socket joints, gliding joints, saddle joints, pivot joints, condyloid and ellipsoid joints. Utilizing the joints correctly allows for healthy and fluid motions, while misuse of a joint can easily strain ligaments. Understanding the structures and capabilities of the joints involved with viola technique can unlock incredible freedom and ease in our playing.

Muscles

There are different types of muscles in the body: cardiac muscles that automatically pump blood, involuntary muscles that are found in the lining of the intestines and stomach, and voluntary muscles, or skeletal muscles that produce movement.[30] The voluntary muscles are the focus in this resource.

Skeletal muscles attach to bones and can stimulate movement by bringing the bones closer together through contraction and release. Muscles typically have two attachments, although more complex muscles can be attached to multiple bones.[31] Some muscles attach to bones directly, while many muscles taper to tendons before connecting to the bone and cartilage.

It is important to note that muscle contraction does not always result in movement. If the contraction results in no movement, it is called isometric. Imagine that you are holding

[29] Chris Jarmey, *The Concise Book of Muscles* (Chichester: Lotus Publishing, 2018), 69.
[30] Dimon, *Anatomy of the Moving Body: A Basic Course in Bones, Muscles, and Joints*, 32.
[31] Jarmey, *The Concise Book of Muscles*, 47.

something heavy, and the muscles are working hard to maintain holding the item without movement. We also have postural muscles that work isometrically, automatically reflexing to keep us in balance. If movement occurs, it is called isotonic.[32]

Muscles have different functions. They can work together to produce movement or in opposition to each other. For each movement, there is the agonist, or prime mover muscle that initiates the movement, with antagonist muscles on the other side of the joint that can produce the opposite movement. The antagonist muscle must relax for the prime mover to move freely.

There are also muscles that work as synergists, preventing unwanted movement while the prime mover muscle contracts.[33] This is particularly important when movement needs to occur across two joints, as the synergists can stabilize joints. For instance, if you use the bicep muscles to close the elbow joint, the wrist joints will need stabilization to keep the forearm and hand moving as one unit. When the synergists are providing stability through immobilizing the primary bone where the prime mover muscle originates, it is considered a fixator or stabilizer. For instance, if you want to wave to a friend, the muscles will stabilize the scapula (shoulder blade) during the movement of the wave.

There are major implications of having so many muscles with different functions to produce a specific movement. While the muscles can work together to produce movement, they can easily work in opposition, so it is imperative to release muscles immediately after use to permit fluid motions. Keep in mind that if the primary joint involved with the desired motion is not identified, we run the risk of overusing muscles or using muscles incorrectly.

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[32] Jarmey, *The Concise Book of Muscles*, 49.
[33] Jarmey, *The Concise Book of Muscles*, 76.

Body Alignment and Balance

Body balance is the stacking of bones with the support of muscles. The body's many parts are uniquely equipped to balance and distribute the weight of its parts without excess muscular holding. Balance is not a static position, but instead an endless dance for equilibrium as the body constantly redistributes weight in reaction to movement. Our very breath creates movement in the spine, as it naturally lengthens on exhalation and gathers on inhalation.[34]

It is important to understand body alignment on its own before adding viola into the equation. If there is any unnecessary tension in the body without the instrument, it will only be exacerbated when playing music and will severely limit the expression of the violist. As Johnson describes, "when a person uses moving muscles to stay upright instead of relying on the body's *support muscles*, which automatically engage when the bones are in balance, the moving muscles are called for "double duty" —the duty of holding up the body as well as the duty of trying to move it."[35]

To balance without excess muscular holding and activate the body's support muscles, it is vital to think about the spine. The spine has two halves, the front, and the back half. The back half of the spine has bony vertebrae that you can easily feel along your back. The vertebrae are uniquely shaped to protect the spinal cord, which houses the sensory nerves. The front half of the spine is located inside our core and the vertebrae are solid, smooth, and rounded. These vertebrae are essentially disks stacked on top of each other with a cushion in between, creating an exceptional structure that can support the upper body weight.[36]

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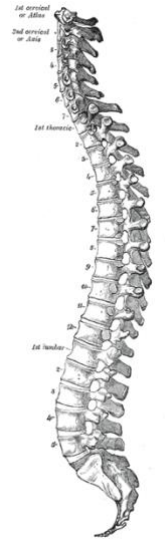
[34] Conable, *What Every Musician Needs to Know About the Body*, 82.
[35] Johnson, *What Every Violinist Needs to Know About the Body*, 33.
[36] Chrisma DeSai and Amit Agarwal, "Neuroanatomy, Spine," *StatePearls*, updated August 14, 2023, accessed January 2, 2024, https://www.ncbi.nlm.nih.gov/books/NBK526133/.

Keep in mind that placing weight on the back half of the spine can cause a slipped disk which results in extreme pain from crowding the nerves. Allowing the front half of the spine to bear our weight is critical for the health of the spine, the central nervous system, and the free flow of sensory information and motor commands to and from the brain.

While we are often told to "keep the back straight," the spine is not a straight line, but rather has four natural curves that must be maintained (fig. 9). When we attempt to keep our back straight it can cause major issues throughout the body. Instead, our natural spinal curves should be maintained and respected as the weight is delivered to the front half of the spine.

Figure 9. The Four Curves of the Spine.
The four curves of the spine.
Source: Illustrated by Henry Vandyke Cater, from Henry Gray, *Anatomy of the Human Body*, 1918, plate 111.



The concept of maintaining natural structure while permitting movement for balance is not just important for the spine, but throughout the entire body. If we attempt to keep the body static in response to movement, we are cutting off its incredible ability to automatically adjust and redistribute weight.

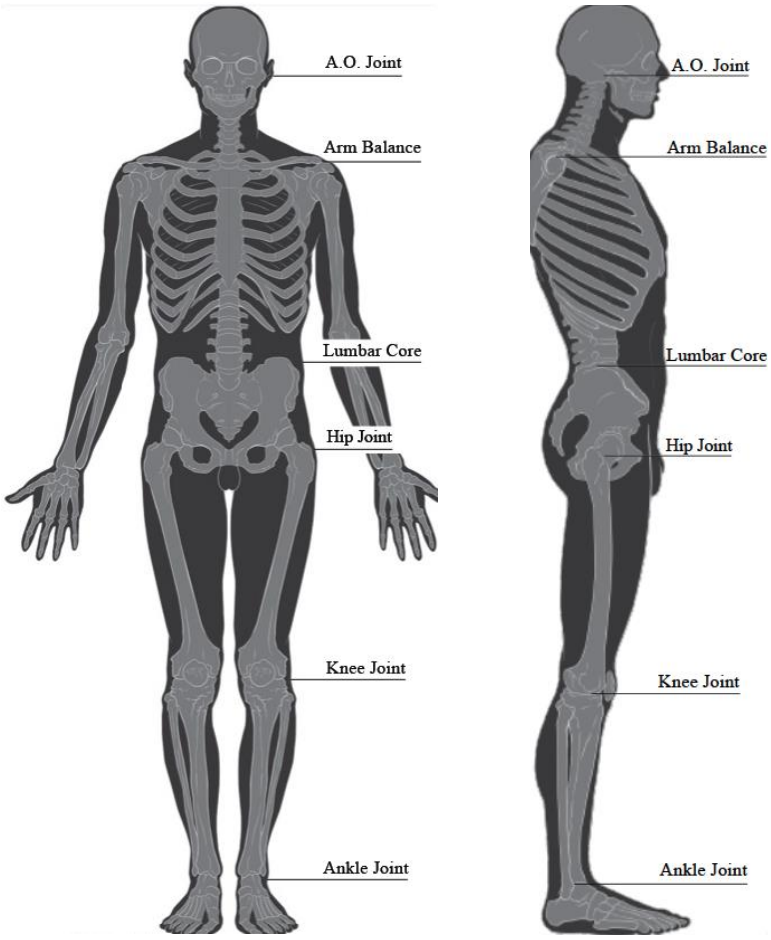
The Six Places of Balance

We will briefly go over the six major places of balance in the body to introduce important concepts and anatomical truths before we add in the viola. Some of the exercises are excerpted from Johnson's book, *What Every Violinist Needs to Know About the Body*.[37] Johnson describes the six places of balance with detail, and this is a highly recommended resource for violists further their learning and continue their journey with Body Mapping.

As joints are the central areas of movement in the body, it goes without question that they correspond to the major places of balance in the body (fig. 10, next page). The body is intricately linked, and if the balance changes at one of the major joints it will invariably affect the other joints. Have an attitude of open exploration, as you may find that the body structures conflict with the body map inside your mind. It is valuable to try exercises in front of the mirror to visually see the structures and how they respond to movement. Additionally, you might find it helpful to experience the exercises with your eyes closed to augment your sense of kinesthesia.

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

Figure 10. The Six Major Places of Balance
The six major places of balance front view (left) and side view (right). Labels added by author.
Source: Patrick J. Lynch, medical illustrator; C. Carl Jaffe, MD, cardiologist.



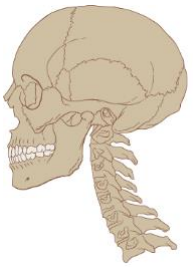
A.O. Joint

It is important to start balancing from the top down, beginning with the relationship of the head to the spine. As the average human head weighs around 10–15 pounds it is vital that the head is perched on the spine without excess muscular holding.[38] The atlanto-occipital (A.O.) joint is where the top vertebra of the spine (atlas) meets the base of the skull (occiput.) The A.O. joint is also nicknamed the "nodding joint" as it allows the head to nod without losing balance.

[38] Johnson, *What Every Violinist Needs to Know About the Body*, 43.

It is common to think that the A.O. joint as being at the back of the neck and where the jaw connects with the neck.[39] In reality, the A.O. joint is all the way up *between the ears* (fig. 11). It is exactly center between the ears from front-to-back and side-to-side and relates to the cheekbone rather than the underside of the jaw.

Figure 11. A.O. Joint.
The connection of the spine with the base of the skull relating to the cheekbones.
Source: Patrick J. Lynch, medical illustrator; C. Carl Jaffe, MD, cardiologist.



Interestingly, the head's center of gravity is slightly in front of the A.O. joint. Therefore, the head naturally wants to fall forward and lengthen muscles in the back of the neck. When the head is resting on top of the A.O. joint in the slightly forward position, the front half of the spine can properly bear the head's weight with its disk vertebra and cushions, while the back half of the spine is lengthened. It also allows automatic postural reflexes to work in balancing the body against gravity.[40]

There are many muscles in the neck region that relate to the base of the skull, either directly or indirectly. If we mistakenly map the A.O. joint as too low or too far back, we will activate unnecessary neck muscles to support the head. When unnecessary neck muscles are contracted, it can cause tension all over the body, inhibit arm movement, place pressure on the spinal cords and nerves flowing through the neck, and constrict blood or air flow. If you often

[39] Johnson, *What Every Violinist Needs to Know About the Body*, 42.
[40] Dimon, *Anatomy of the Moving Body: A Basic Course in Bones, Muscles, and Joints*, 40.

feel numbness or tingling in your hands while you play viola, this likely originates from excess pressure of the neck.[41] To release the neck muscles from compensating for the lack of head balance, allow the head to rotate forward on its fulcrum and find its perch. Try these two exercises by Johnson to find the A.O. joint:

Exercise 2: Fingers in Your Ears (by Johnson).
Source: Johnson, *What Every Violinist Needs to Know About the Body*, 46-47.

1. Point both index fingers into the holes of your ears.
2. If your fingertips continued through the soft tissue between them, before they meet they would run right into the upper condyles –those convex rocking bones on the base of the 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.

Exercise 3: Tongue Back and Up (by Johnson).
Source: Johnson, *What Every Violinist Needs to Know About the Body*, 47.

1. Point the tip of your tongue as far back into the roof of your mouth as possible, up into the soft palate.
2. The soft palate is directly in front of the A.O. joint.

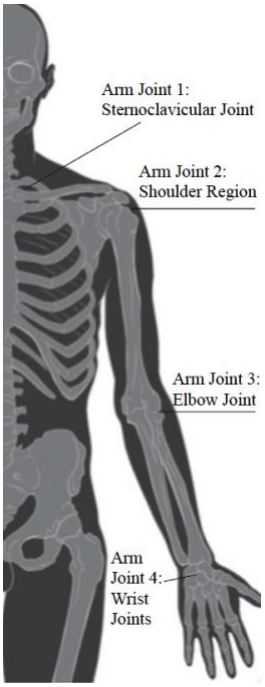
The head to spine relationship is critical for having balance in the entire body and is essential in allowing the spine to react to our breath by lengthening and gathering. Frederick Matthias Alexander, the founder of Alexander Technique taught that the spine to head relationship was critical in dictating the body's "primary control […] the inherent and intrinsic mechanism for balance and support in the body."[42]

[41] Johnson, *What Every Violinist Needs to Know About the Body*, 43.
[42] Barbara Conable, *How to Learn Alexander Technique, A Manual for Students* (Portland, OR: Andover Press, 1995), 1.

Arm Balance

The arm is comprised of the clavicle (collarbone), scapula (shoulder blade), an upper arm bone called the humerus, two lower arm bones called the ulna and radius, the wrist, and hand. Within the arm there are four joints: the connection between the sternum and collarbone, a ball-and-socket shoulder joint that allows free mobility of the arm, the elbow hinge joint, and the wrist joints (fig. 12).

Figure 12. Four Arm Joints.
The four arm joints, labels by author.
Source: Patrick J. Lynch, medical illustrator; C. Carl Jaffe, MD, cardiologist.



The collarbone to sternum connection, or, the sternoclavicular joint, is often misconceived as being 'fixed' in one spot. In fact, the collarbone actually moves at this joint every time we move our whole arm.[43] You can feel this when you take your right hand and palpate the connection of

[43] Johnson, *What Every Violinist Needs to Know About the Body*, 86.

the sternum and collarbone at arm joint one on your left side while gently swinging your left arm back and forth.

The collarbone and shoulder blade are part of the shoulder girdle, a structure that suspends over the upper rib cage allowing for a full range of motion in the arms. The structure does not attach to the spine or ribs except at the sternoclavicular joint.[44] The scapula has a depression, or socket, called the glenoid cavity that allows the head of the humerus to rotate at the shoulder joint. Movement of the scapula and collarbone greatly increase the overall range of movement in the shoulder region.[45] Try the following exercise by Johnson to see how the entire arm works together, including rotation of the collarbone and shoulder blade:

Exercise 4: Go Swimming (by Johnson).
Source: Johnson, *What Every Violinist Needs to Know About the Body*, 53.

1. Place your left hand on your right collarbone to monitor the amount of movement you allow it.
2. Make a slow, continuous, front-crawl motion with the right arm.
3. Notice how much movement is available to the collarbone.
4. Notice that the collarbone can travel up, forward, and even rotate from its joint with the sternum.
5. While making the same swimming motions with the right arm, move your palpating hand to the right shoulder blade and notice how it has to move up and forward.
6. Next, try to make the front-crawl motion while allowing no movement at all in the collarbone or shoulder blade. *Move only from the shoulder joint and below.*
7. Can you feel how restricted a movement this is? It doesn't work for swimming, and it doesn't work for playing the violin [or viola.]

The suspension of the shoulder girdle is not only important for arm mobility, but also for allowing space for the blood vessels and nerves running down the arm underneath the collarbone. When the collarbone is constricted, impeded blood vessels and nerves can result in

[44] Dimon, *Anatomy of the Moving Body: A Basic Course in Bones, Muscles, and Joints*, 148.
[45] Jarmey, *The Concise Book of Muscles*, 281.

numbness and cold hands. It is important that our arms are balanced and suspended both laterally (front-to-back) and vertically (up-and-down.) Johnson provides further exercises to explore a place where the arms are "in neutral" without any muscular holding.[46]

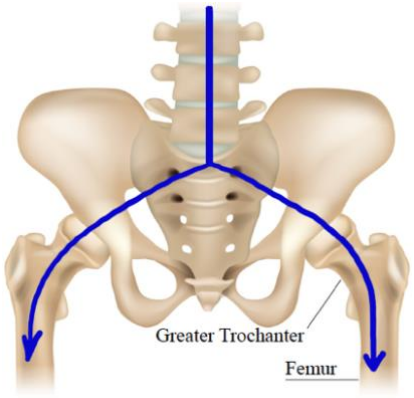
Lumbar Core

The lumbar spine consists of the five largest vertebrae at the end of the spine and serves as a central weight-bearing location. It is easy for upper string players to mistakenly misuse the lumbar core in effort to achieve good posture. Johnson describes the phenomenon of string players overarching their lumbar spine and pushing their chests upward as "good posture disease."[47] Another common hinderance in utilizing the lumbar core is the idea of a waist. While the waist area is flexible and can twist around, it is not a major bending joint. The stacking of the spinal vertebra begins in this area and when we attempt to bend from the waist instead of at the hip joint, we compromise the spine and our body balance.

The lumbar core also consists of the sacrum, which is the widest part of the spine and the fourth spinal curve. The sacrum allows for movement in the spine while maintaining security, as it connects to the pelvis (Latin for "basin.") The pelvis allows for the distribution of body weight from the upper body to the lower body and absorbs shock from movement in the legs.[48] When standing, the torso weight goes through the lumbar spine, travels down the sides of the pelvic arch and into the greater trochanter, the widest part of the femur (the upper leg bone) (fig.13, next page).

[46] Please visit pages 54-61 of Johnson, *What Every Violinist Needs to Know About the Body*.
[47] Johnson, *What Every Violinist Needs to Know About the Body*, 62.
[48] Dimon, *Anatomy of the Moving Body: A Basic Course in Bones, Muscles, and Joints*, 190.

Figure 13. Weight Going Down the Pelvic Arch.
Weight going down into the femur through the pelvic arch, labels by author.
Source: Viktoriia Kasyanyuk/shutterstock.com.



One of the quickest ways to experience balance at the lumbar spine is to take a few steps backwards. When we walk backwards, we are typically free from bad habits and must rely on our kinesthetic sense.[49]

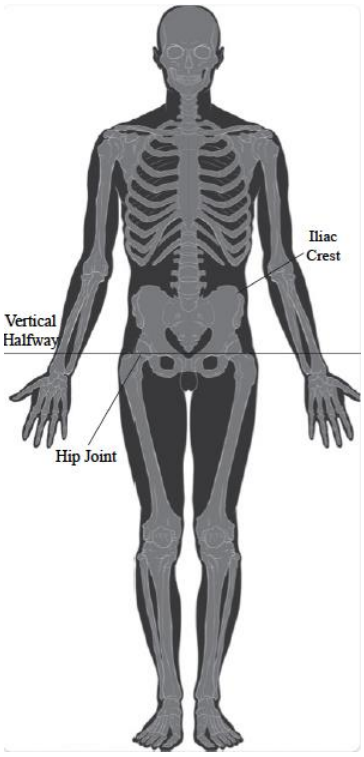
When sitting, the weight goes through the lumbar spine and then travels through the sides of the pelvic arch into the rockers, which are the two points where the sit bones meet the chair.[50] Directly above the midpoint of the rockers is the place of balance for the entire upper body. The rockers are not flat but are instead uniquely shaped to allow mobility for the torso to go forward and back, and side to side.[51] As the connection of the greater trochanter at the hip joint occurs much higher than the rockers, the femur can rotate at the hip joint even when sitting. If we sit imbalanced on our rockers, the upper body weight can get sent to the tailbone or improperly transferred to the legs.

[49] Please visit pages 63-64 of Johnson, *What Every Violinist Needs to Know About the Body* for exercises on balancing around the lumbar core.
[50] Dimon, *Anatomy of the Moving Body: A Basic Course in Bones, Muscles, and Joints*, 129.
[51] Johnson, *What Every Violinist Needs to Know About the Body*, 68.

Hip Joint

The hip joint is where the femur connects with the pelvis. There are hip sockets on either side of the pelvis that correspond with the line of the arms and the ears. As the hip joint is the vertical halfway point of the body (fig.14), it the best place to bend when bowing or folding over. It is common to mis-map the location of the hip as being the upper rim of the pelvis, the iliac crest, which is in the waist area.[52]

Figure 14. The Hip Joint.
The hip joint as the vertical halfway, labels added by author.
Source: Patrick J. Lynch, medical illustrator; C. Carl Jaffe, MD, cardiologist.



The femur connects on the side of the pelvis and not directly underneath, allowing it to have full rotation at the hip joint. While we are often told to "plant" our legs when we play viola, it can unintentionally lead to a locking of the hip joint. A misaligned spine can cause locking at the hip

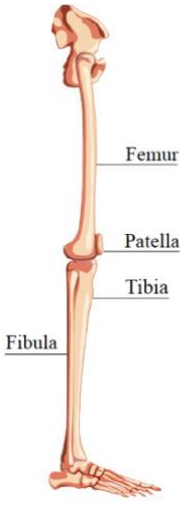
[52] Dimon, *Anatomy of the Moving Body: A Basic Course in Bones, Muscles, and Joints,* 195.

joint as well. Remember that our body is in a constant dance of adjusting and balancing. While the adjustments may look exceedingly small, they are vital in balancing and moving the body.

Knee Joint

The knee joint is the connection of the femur with the tibia (lower leg bone) (fig. 15). The top of the tibia is extremely wide, giving it the ability to support the femur and making this the largest joint in the body.[53] It is common for people to incorrectly deliver weight through the patella (the kneecap) instead of the knee joint, resulting in a locked knee joint. This can also occur as the result of poor orientation of the upper body. If the lumbar core is not balanced, the knee joint will automatically lock as a protective measure for the lower spine disks.[54] Another common knee issue is chronic bending, which requires constant muscular holding. Instead of bending or locking the knee, the femur should balance over the tibia, distributing body weight in a healthy manner.

Figure 15. Knee Joint.
Femur and its connection to the tibia, labels added by author.
Source: Vectoressa/shutterstock.com



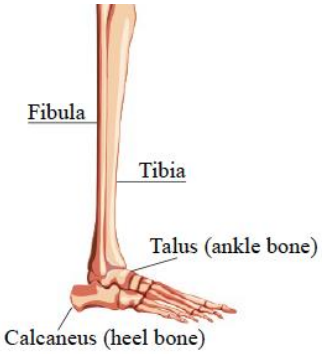
[53] Dimon, *Anatomy of the Moving Body: A Basic Course in Bones, Muscles, and Joints*, 219.
[54] Johnson, *What Every Violinist Needs to Know About the Body*, 75.

While the knee joint functions as a hinge joint, the bones are not fitted together (as in the elbow hinge joint). Instead, there are four main ligaments that give the knee stability.[55] When bending, the femur needs to freely roll and glide forward on top of the tibia so that the body's weight can be distributed through the center of the tibia. The gliding motion allows the bones to constantly rebalance without excess muscular work in the legs.

Ankle Joint

The ankle joint is a hinge joint between the fibula, tibia, and the talus (ankle bone). The ankle joint (fig. 16) is not located at the back of the heel, but rather at the peak of the foot's arch where weight can go through the tibia and then evenly distribute to the front and back halves of the foot. Inside the foot, the connection between the talus and calcaneus (heel bone) allows for the foot to move as if it were a ball-and-socket joint, freely orienting itself in relation to the ground.[56] Note that the toes are not structural for body balance but instead their major function is to propel us forward in movement.

Figure 16. The Ankle Joint.
The tibia and talus connect over the peak of the foot's arch, labels by author.
Source: Vectoressa/shutterstock.com.



[55] Dimon, *Anatomy of the Moving Body: A Basic Course in Bones, Muscles, and Joints*, 220.
[56] Dimon, *Anatomy of the Moving Body: A Basic Course in Bones, Muscles, and Joints*, 229.

Reflection on Places of Balance

In the quest for gaining expressivity and fluid movement on the viola, it is vital that we have an accurate understanding of the body, its structures, and how to utilize its unique ability to bear its own weight. The body is designed for movement, and understanding the major places of balance in the body allows for a state of ease before and after various movements.

While having freedom in the knee joint may not seem relevant on the quest for more expressive viola playing, remember that the body is intricately interconnected. When we have tension or locked joints in one area it inevitably creates issues in other parts of the body. The nuance and finesse of movement required for viola playing must be supported by a balanced body.

Incorporating the Viola[57]

A foundation of knowledge about the six places of balance allows us to examine how playing the viola affects body alignment. To examine this, first review the places of balance to find a healthy body alignment. Next, bring up your viola and play for a few minutes as you usually do without over-thinking. Pause to reflect on how it has affected your body balance. How do you feel? Did you notice any changes in your body alignment when you brought up your viola? Did the neck muscles tighten? Did the jaw lock? Or perhaps it feels great, and you have already discovered how to incorporate the viola into your natural alignment!

Posture

Take a minute to think about the term "posture" in relation to viola playing. What have you been told in the past that was helpful? What was unhelpful, possibly even hurtful? It is common for

[57] Video demonstrations of exercises from this section are in supplemental files or at this link.

violists to be told to have a straight back or to hold the chest up for the sake of "good posture," but both directions can cause misalignment of the spine.

Misconception: We need a playing posture.

The idea of "playing posture" creates the illusion that the body should look and remain a certain way when we play, forming a barrier to a natural balanced alignment when we play viola. It is common for upper string players to contort the body for the sake of having what is perceived to be a correct playing posture. In fact, the very term "posture" can be harmful as it suggests having a fixed stance, which can lead to excess muscular tension.

In contrast, our balanced body should be our playing stance, and the viola can be comfortably incorporated into our healthy alignment. Tuttle describes allowing the violist to "snuggle the instrument in and around between shoulder and chin until he [one] finds a balance that fits his [one's] physical mold." [58] Take her exploratory perspective as you experiment with finding a comfortable way to incorporate the viola.

Misconception: The viola should never move.

Another misconception is that the viola should be fixed in place, which can lead to high levels of tension and soreness. The tension can stem from the neck and head trying to keep the viola locked in place, or from our shoulder blades trying to remain frozen to prevent our left arm from moving the instrument. Muscular holding and excess pressure in this area will have major consequences including numbness, cold fingers, and constrained finger mobility due to restricted blood vessels.

[58] Jeffrey Irvine et. al., *The Karen Tuttle Legacy: A Resource and Guide for Viola Performers, Teachers and Students* (Carl Fischer, 2020), 116.

The viola should be allowed to react to our natural body motions. When we permit subtle movement of the viola in reaction to our body motions, we gain both flexibility and security with the instrument. As the viola itself is a relatively inflexible piece of wood, invite it to join our body movements, imagining it as an added bone with its own unique joint. The instrument should not be flailing excessively, nor completely fixed in one spot.

Take for instance the student who feels like their viola is "falling" when they shift down. As we often lower the arm during a downward shift, the viola will naturally react by sloping slightly downward with the arm. This creates a sensation of the viola pulling away from the neck slightly. If the student has not gained familiarity with this subtle motion, this may trigger an automatic instinct to press down with the neck out of a fear of the instrument falling. By gaining awareness of the viola's reaction to body movement, the student can move with greater confidence and freedom.

Unique Bodies with Unique Instruments

It is important to emphasize that incorporating the viola with the body is not a one-size-fits-all situation. As violas and performers are each unique, there is (and should be) a variety of set-up regarding the type of chin rest and shoulder rest (if any.) Beyond set-up, different musicians may have limitations for what size, shape, and weight of viola they can play comfortable. Typically instrument shops focus on matching the violist with an appropriate body length of viola, without looking at the height of the ribs, the shape of the shoulders, or the width of the neck: all crucial factors for fluidity and ease for viola playing! If you are unnecessarily encumbered by your instrument, consider the many factors of the instrument beyond the body length. Students especially need to be guided in evaluating these different factors when looking for a new instrument.

As we explore the points of contact between the body and viola, my goal is for you to discover how to incorporate your instrument with your body balance and experiment with allowing the viola to react to your arm movement. I recommend trying the exercises below without a shoulder rest first to feel the points of contact directly with the viola. Then, you can decide to add the shoulder rest to complement the points of contact. If you would like assistance finding a healthy set-up, I highly recommend the work of body mapper, Claire Stefani and her company, the Volute Service which specializes in providing upper string players with an ergonomic set-up.[59]

Three Points of Contact

For each major point of contact between the viola and body, there is support from both underneath and above that work together to balance and stabilize the instrument. Frequently check that your body is balanced around your core line as you explore the exercises for the collarbone and side of the neck, shoulder region, and the left-hand thumb and first finger bone.

Collarbone

The collarbone contacts the viola at the back edge of the instrument. If we are treating our viola like a body part, this would be the connecting joint. You will notice that your neck also touches the ribs of the instrument. The common misconception that the collarbone doesn't move can cause irrational fear when the violist inevitably feels the viola responding to the natural movement of the collarbone. They may resort to downward pressure on the collarbone or jamming the instrument into the neck in an effort to stabilize the instrument, consequently inhibiting movement for the entire arm. The collarbone has rotation and needs the freedom to

[59]To find out more about the Volute Service, visit https://www.voluteservice.com.

move at the sternoclavicular joint. The following two exercises will help you gain comfortability with moving your whole arm and viola together vertically and laterally:

Exercise 5: Vertical Collarbone Connection.
Source: By author.

1. If you are using a shoulder rest, first try the exercise without it and then try a second time with the shoulder rest. Make sure to check your body alignment before proceeding.
2. Secure the instrument with your left hand, either holding the upper left shoulder bout or the neck of the instrument. Bring your viola up to playing position while keeping your head off of the chin rest to make sure you aren't pressing downward.
3. Notice the place of contact between the collarbone and the bottom of the viola. You will also notice that the side of the instrument connects with your neck. Make sure you can feel the connection of the collarbone and viola.
4. Now, with your whole arm moving as one unit, raise the scroll of the instrument extremely high, while the connection at the collarbone acts as a fulcrum. Notice how when the arm raises, the viola presses and hugs into the neck.
5. Next, lower your whole arm with the scroll of the instrument and note how the instrument pulls away from the neck.
6. Practice going up and down with the scroll and memorize the feeling at the collarbone and the neck. Notice how the collarbone is a part of the whole arm movement.
7. Allow the raising and dropping motions to get smaller, until you find a comfortable range of movement that feels secure.

Exercise 6: Lateral Collarbone Connection.
Source: By author.

1. If you are using a shoulder rest, I advise you to try the exercise without it first and then try a second time with the shoulder rest. Make sure to check your body alignment before proceeding.
2. First, secure the instrument with your left hand holding either the upper left shoulder bout or the neck of the instrument. Bring your viola to playing position but keep your head off the chin rest to make sure you aren't pressing downward.
3. Rotate the instrument so that it is in front of you, using rotation at the shoulder joint. Make sure that the viola rim has full contact with the neck and full contact with the collarbone as it rotates.
4. Rotate the instrument back to your side and continue going "too far" so you start going beyond your side. Notice the new places of contact of the neck and viola.
5. Go back and forth, gradually minimizing the range of motion.
6. Find a neutral place that feels comfortable.

Notice how secure the instrument can be as it subtly changes its contact with the neck and collarbone in reaction to the movement of the arm.

Misconception: The head drops into the chin rest.

The point of contact between the head and chin rest is often erroneously guided by the phrase 'drop the head into the chin rest,' which is used to encourage the student to use the natural weight of the head to stabilize the instrument. As Johnson suggests, it is best to think about the head nodding into the chin rest instead of dropping into it.[60] This allows the head to be perched on the A.O. joint while it rests on the chin rest. If this does not seem possible, you may need to experiment with the height and type of chin rest.

Try the vertical and lateral collarbone connection exercises again, this time with the head touching the chin rest. Make sure that the head and neck *do not inhibit movement*. When the viola is allowed to move in conjunction with the left arm it creates a sense of freedom and security.

Shoulder Region

The next point of contact is between the shoulder region with the body of the instrument (or shoulder rest.) It is critical that you are neither raising the shoulder to meet the viola, nor squashing down the shoulder. Instead, allow your arms to start in a neutral place and have the viola meet the natural place of the shoulder. Keep in mind that the shoulder region needs to remain free of excess pressure to allow for optimum left arm mobility. The following exercise facilitates the point of contact between the viola and shoulder region:

[60] Johnson, *What Every Violinist Needs to Know About the Body*, 44.

Exercise 7: Connection with the Shoulder Region.
Source: By author.

1. If you are using a shoulder rest, I advise you to try the exercise without it first and then try a second time with the shoulder rest. Make sure to check your body alignment before proceeding.
2. First, secure the instrument with your left hand holding either the upper left shoulder bout or neck of the instrument. Bring up your viola to playing position but keep your head off the chin rest to make sure you are not pressing downward.
3. Check the collarbone and neck connection with the instrument. Now bring the body of the instrument down to rest on your shoulder region (if it was not already.) Make sure that the shoulder does not raise itself to meet the viola, but rather the instrument comes down to it.

If you find that the viola is too low when resting on your shoulder, experiment with adding a shoulder rest that compliments the height you would like your viola. As long as the shoulder rest does not inhibit the collarbone connection to the viola, you can safely experiment with the resting height of the instrument. For instance, you may prefer the viola to slope downward, be somewhat parallel to the floor, or angle upwards. This angle is purely up to individual preference, although be careful not to have the viola sloped so far down that the left arm is glued to the left side of the body, as the arm needs to have room for mobility.

The relationship of the body of the viola to the shoulder region also affects the tilt of the instrument. For instance, the instrument may be leaning towards the front side and slightly facing away from the body, or it may be parallel to the floor and laying as a flat surface. Again, this angle is up to the individual preference of the violist. If the collarbone connection is not negatively affected and the instrument is stable from unnecessarily rocking back and forth, this angle can be safely experimented with.

Left-Hand Thumb and First Finger

The final place of contact is between the left-hand fingers and the neck of the instrument. The thumb and the side of the big first finger knuckle can stabilize the neck from below, with the downward force coming from the other four fingers as they play on the strings. In the following exercise you can feel the connection between your left hand and neck of the viola:

Exercise 8: Connection with the Thumb and First Finger Knuckle.
Source: By author.

1. Without your viola, hold the left-hand flat as if gesturing someone to "stop," making a "V" between your thumb and first finger. Then rotate the hand so that the palm is turned to your face.
2. Pick up your instrument and find the points of contact at the collarbone, neck, and shoulder region.
3. From here, recreate the flat left-hand with the "V" shape, and allow the neck of the instrument to rest on the natural ledge at the base of the index finger (where the bone flares out) and the thumb. There is not one exact placement; it will depend on the hand and situation of the left-hand. For now, just experiment with feeling these places of contact.
4. Now, practice moving the whole arm up and down while using the left-hand thumb and first finger bone to support the instrument. The point of contact at the collarbone will act as a fulcrum.
5. Next, try moving the arm and viola side-to-side with the thumb and first finger bone supporting the instrument. Allow the viola to rotate around your neck and collarbone.
6. Now, turn the hand from the flat shape with the "V" to a playing position. Find a comfortable left-hand shape while maintaining the contact of the thumb and first finger joint.
7. Try the same exercises of moving the arm and viola vertically up-and-down as well as side-to-side with your left hand ready to play.

When you play with the left-hand fingers, the distribution of weight will constantly change; it is important that the thumb and first finger joint adjust in the dance for balance. The thumb will be acting as a "spotter" for the left-hand fingers, stabilizing the viola in space for the needs of the fingers. This will be explored in the subsequent chapters.

Common Issues

Exploring the places of contact with the viola can reveal common issues with how violists often perceive their bodies in relation to the viola.

Misconception: Only the left side matters.

It is common to have an enlarged sense of our left side while we play and ignore the rest of our body. If you notice this happening, first check on your gaze. Are you looking at your left side? Try looking straight forward to keep a sense of center balance. Remember to balance around your core line. Keep in mind that the muscles involved in activating movement may not be visible to us. For instance, as violin pedagogue Kató Havas states, "each time the left arm is lifted into position for violin playing, the *source* of this movement is *behind* in the muscles which attach the shoulder-blade to the spine, though what we *see* is only the movement of the arm. But in fact, without the motivation of these muscles in the shoulder-blade, the arm could not lift into position."[61] The following exercise is useful in becoming aware of and therefore utilizing the back muscles while playing:

Exercise 9: Activating the Back Muscles
Source: By author.

1. First, try this without the instrument.
2. Place your hands straight up, extended above your head. Make sure the shoulders are resting away from your ears and not shrugging upward.
3. Now go into an air play position. Do you feel the lightness of the arms? This is because the back muscles are supporting the arms.
4. Try this with your viola, allowing your arms to go to neutral as you allow the viola to find the connection at the collarbone.

[61] Kató Havas, *The Twelve Lesson Course in A New Approach to Violin Playing, With Exercises Relating to the Fundamental Balances* (London: Bosworth & Co. Ltd., 1964), 2.

Misconception: We need to use muscular force to support a heavy instrument.

Lastly, a common complaint from violists is that the instrument is too heavy, and the left arm feels overburdened. Instead of thinking of the instrument as an added weight, go back through the points of contact and allow it to balance along the collarbone, shoulder region and left hand.

Reflection on Body Balance and Incorporating the Viola

The exploration of body balance and incorporating our viola is a lifelong journey of gaining awareness, understanding, and making new discoveries. Take the time to appreciate the body balances somatically so that you are fully aware of when body structures are being utilized correctly or when movement is detrimental. The more conscious we are about our body balance and healthy movement, the freer our viola playing will become.

Balance requires constant adjustment, and therefore we cannot have balance or freedom of movement if we hold the viola in a rigid and locked manner or attempt to keep our body still while playing viola. When joints lock or muscles are held excessively, it can cause major restriction of circulation, breathing, and constrict nerves, which directly limits our music making. Furthermore, since our bodies are designed to move, we can enjoy healthy movement to enable greater expression in our music making. Remind yourself frequently that the body is capable of an infinite variety of movement and nuance which translates to infinite variety in music making.

Part II: Left-Hand Technique

The interlocking nature of left-hand balance, finger articulation, and navigating the shoulder bouts goes without question. For instance, the left-hand balance can be manipulated to support the desired finger articulation. Shifts will be determined by the chosen expression of the shift itself, the finger articulation, and left-hand balance necessary for the notes following the shift.

Many of the exercises in this section are intended to be done without the bow to gain fluidity of left-hand motions unincumbered by judgement or default muscular responses to undesired aural stimuli. This is inspired by Murdock, who brilliantly has her students sing while air bowing and doing the left-hand, allowing students to ignite their inner ear while aligning it with the motions of viola playing. The result integrating the mind and body.

As we embark on gaining ease and expression in hand frame, finger articulation, and navigating the shoulder bouts, it is vital to explore left-hand technique unrestricted by what Tuttle called "methods of position and posture" as they "bind muscles, stop the *natural* flow of rhythm in the body and build rigidities which take a lifetime to overcome." [62] Rather, we should take Tuttle's advice that "free musculature must be nurtured, guarded and cherished."[63]

Common misconceptions regarding violin pedagogy translated directly to the viola, as well as common misconceptions about the body will be addressed along the way. Due to the individualized nature of these techniques for the violist, anatomical information will be interwoven with the exploratory exercises and explanations to facilitate healthy movement.

[62] Irvine et. al., *The Karen Tuttle Legacy: A Resource and Guide for Viola Performers, Teachers and Students*, 116.
[63] Ibid.

Chapter 4: Hand Frame as Left-Hand Balance[64]

What is a Hand Frame?

It is often taught that the hand frame should remain as fixed as possible. For example, Dolejší stated that "in order that one may attain equalized finger action in all playing positions, the relation between hand and fingers should be practically unchanged at all times."[65]

Misconception: The hand frame should remain fixed.

The concept of keeping the hand frame as Dolejší describes is an unrealistic and sometimes dangerous ideal. Not only is it often impractical for the violist, but such rigidity can also trigger excess muscular tension in the many small muscles inside the hand, greatly stunting fluidity and expression. Maintaining suppleness in the palm is vital for left-hand ease.

Take a second to appreciate your unique hand and viola. What is the size and slope of your palm? What are the finger height relationships? What is the width of your viola's neck? The spacing of the strings?

It is important to note that many viola virtuoso players of the twentieth century, like Dolejší, were males with larger hands who came from a violin background. Depending on your unique body-to-viola relationship and the demands of the repertoire, you may need more or less flexibility in balancing the left-hand fingers for optimum suppleness. It is important to find what works in the relationship between your hand and your viola.

[64] Video demonstrations of exercises from this section are in supplemental files or at this link.
[65] Dolejší, *Modern Viola Technique*, 4.

Reframing the "Hand Frame"

Ideally, and according to many viola pedagogues such as Dolejší, one hand frame would allow the violist to have flexibility and consistency with the following aspects:

Reach all double stops within the interval of an octave within one position.

Play any finger pattern within one position and across strings.

Intonation consistency.

Finger independence.

Expression with finger articulation.

As you read through the list, you may have had an initial reaction of "that could never happen!" or "my hand would not allow me to do all those things!" For most violists, having full technical and expressive potential within one rigid hand frame is quite impossible. In fact, the very term "hand frame" can cause a series of mis-mappings of the body that may lead to muscular tension, rigidity, and body contortion.

Instead of the hand frame being a fixed place from which the fingers must stretch outwards and contort to reach various double stops and finger patterns, the hand frame should instead have the flexibility to adjust and rebalance the hand to support the fingers for the technical and expressive needs of the repertoire. Murdock describes this as left-hand balance.[66]

In physical terms, the hand frame refers to the positioning of the hand in relation to the fingerboard. Viewed this way, the hand frame becomes *the way in which the hand is framed for left-hand balance.* Just as our body balance is constantly redistributing weight in reaction to movement, including the movement of our breathing, our left-hand balance can join the dance

[66] Katherine Murdock, interview by author, online, November 2023.

for equilibrium. What determines how the hand is framed? How do we gain flexibility in the left-hand balance?

Misconception: The hand dictates the hand frame.

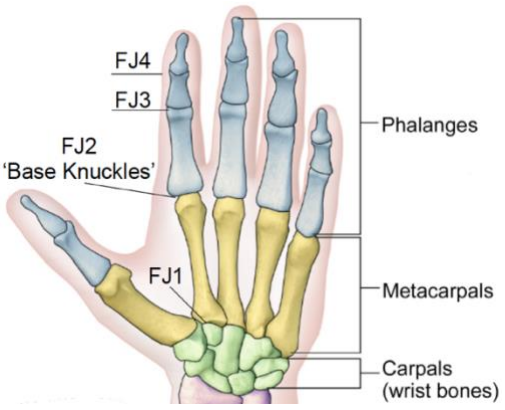
The arm manipulates the hand and is the larger unit that determines the way that the hand is framed. Therefore, the arm is intimately involved with achieving left-hand balance. The three primary ways that we can adjust our left-hand balance are utilizing the wrist, rotation of the radius, and humeroscapular rotation with its resultant elbow swing.

Depending on context, the adjustments can range from extremely subtle to large and obvious. In the following section we will explore the body motions involved with adjusting our left-hand balance, apply them to the instrument, and experience them in the repertoire. We will first look at the full capabilities of the fingers themselves, the role of the thumb, and then examine the three movements of adjusting.

The Full Capabilities of the Fingers

When we think about the hand, we often see the palm as distinct from the fingers. In actuality, the palm area is simply where the finger bones attach to the wrist bones (fig. 17).

Figure 17. Finger Joints.
Finger joints (FJ) attaching to the wrist bones, labels by author.
Source: Image by Blausen.com staff, "Medical gallery of Blausen Medical 2014" *WikiJournal of Medicine.*



With the exception of the thumb, there are four finger joints for each finger, the first joint being at the connection of the wrist bones to the finger bone. Try this helpful exercise by Johnson to locate and increase your awareness of the different finger joints:

> Exercise 10: Locating FJ2 (by Johnson).
> *Source*: Johnson, *What Every Violinist Needs to Know About the Body*, 110.
>
> 1. Locate the crease on your [left] index finger closest to the fingertip.
> 2. This is the palm-side indicatory of FJ4.
> 3. Explore the movement available at this crease by wiggling the tip of your finger.
> 4. Move to the next crease and experiment with movement here.
> 5. Finally, move to the third crease and play with movement at this place.
> 6. You will discover that movement is physically impossible at this crease.
> 7. Unlike the upper creases, which do indicate the location of an actual joint, the third crease is deceiving.
> 8. Follow the third crease around to the back of the hand.
> 9. It is immediately apparent that the actual joint where the two bones move in relation to one another is at the large row of knuckles–considerably lower down than the third crease.
> 10. Follow this FJ2 back around to the palm side.
> 11. You will discover that the crease corresponding to this joint is more than an inch lower into the palm than the third crease.
> 12. Flex all four fingers simultaneously to a 90-degree angle from FJ2.
> 13. Notice how movable this top portion of the palm is.[67]

Were you surprised by how far down FJ2 (base knuckles) are within the hand? If you continue to follow the base knuckles down the backside of hand, you will run straight into the wrist bones.

The wrist and finger joints need to be unrestricted for optimum finger mobility and stretching. Therefore, the muscles in the palm area should not have excess tension, but rather remain supple to allow fluid movement of the fingers and wrist. The palm is not a fixed and immoveable fixture. Remind yourself often that underneath the fleshy palm are finger bones and wrist bones.

[67] Johnson, *What Every Violinist Needs to Know About the Body*, 110.

Flexion and Extension

Knowledge of the finger joints allows for understanding the options for finger motion. The basic motions of the fingers are flexion (bending) and extension (straightening), and spreading apart and together.

If you are not familiar with using the full range of motion at the finger joints, the following exercises might feel strange or difficult at first. Be careful not to strain anything and make sure to keep the palm supple for greater finger mobility. The goal of the following exercises is to pinpoint movement at the joints to gain awareness and strength for the specific muscles necessary and minimize excess muscular involvement.

Exercise 11: Finger Stretches for Flexion and Extension.
Source: By author.

1. Make a fist with your left hand.
2. Unbend the pointer finger and extend it upwards, as if pointing to the sky while keeping the other fingers in the fist. Then return the pointer finger to the fist.
3. Now unbend the pointer finger and extend it at a 90° angle, as if pointing to something horizontally. Then return to the fist.
4. Repeat the sequence of extending upwards, return to the fist, and then extend it across. Continue with the pointer finger until it starts to feel easy and natural.
5. Repeat this sequence with each individual finger. Try palpating your left-hand palm with your right hand to feel the motion of the finger bones underneath the palm.

Exercise 12: Finger Circles.
Source: By author.

1. Make a fist with your hand.
2. Now take the pointer finger and make a circular motion as if you were drawing an ‘O’ shape and then return to the fist. Repeat the motion until it feels easy and natural.
3. Do this with each finger.

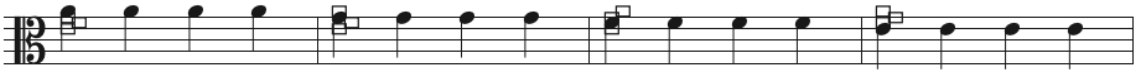
Exercise 13: Finger Stretches on the Viola.
Source: By author.

1. Place your left-hand in first position on the D string (no bow needed.)

2. Have all four fingers down on the string in any finger pattern.
3. While keeping the other fingers down, take the first finger and extend it upwards and then return to the string. Don't panic if the finger is not able to extend fully upwards.
4. Now extend the first finger across the fingerboard, as if pointing to something behind you (beyond the C string), then return it to the string. Repeat the sequence until the motion feels easy and natural.
5. Do the sequence with each individual finger.

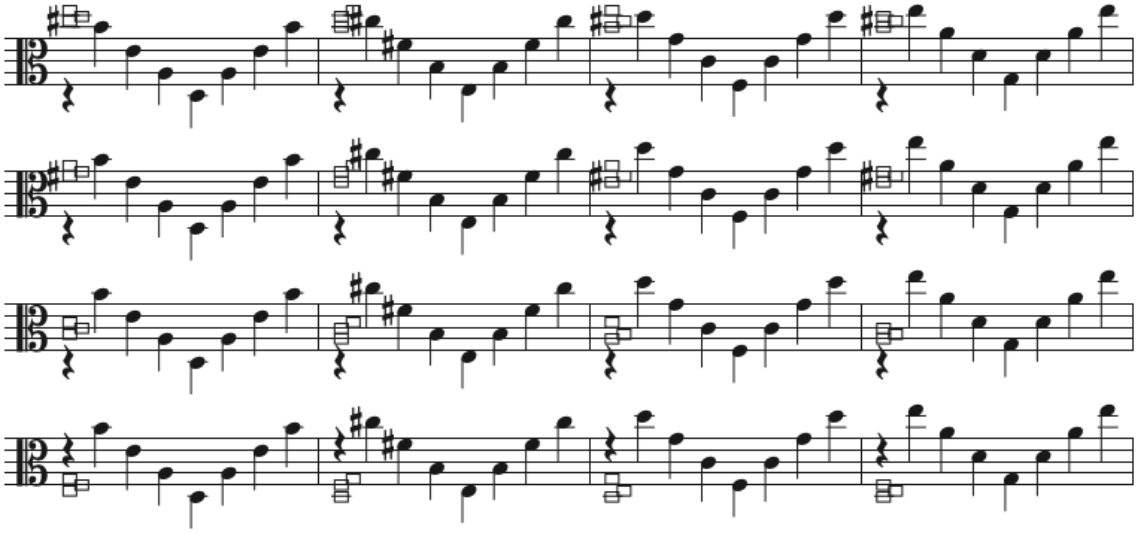
Exercise 14: Finger Isolations.
Source: By author.

1. Try the following printed exercise left-hand alone, keeping all the fingers down on the square notes.
2. Take the tapping finger and focus on lifting and dropping at FJ2 (base knuckles). Pay attention to your thumb, and make sure it is not squeezing against the neck of the viola.



Exercise 15: Finger Isolations with String Crossings.
Source: By author.

1. Try the following exercise left-hand alone, keeping the fingers down on the square notes while the isolated finger accomplishes the string crossing through extension or flexion.
2. Don't be discouraged if this exercise is difficult for you! The goal is to wake up the fingers to all the possibilities with flexion and extension. Do not strain yourself and stop if there is any discomfort.

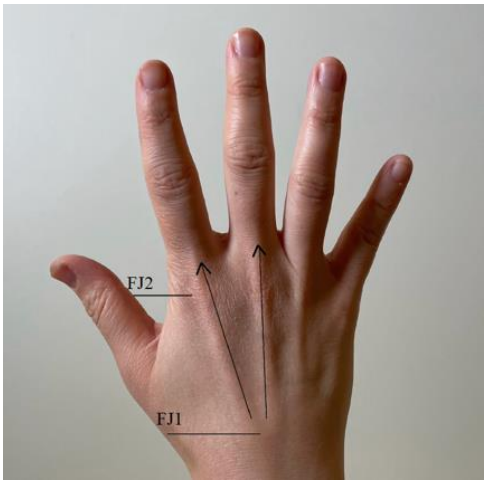


Notice that when using flexion and extension to achieve string crossings, the curvature of the fingers may vary slightly depending on what string you are on. On the A string, it is natural for the fingers to be more rounded. On the lower strings, particularly the C string, the fingers must physically reach over the upper strings and are therefore more extended and slightly less curved.

Spreading at Finger Joints 1 and 2

In addition to flexion and extension, the fingers are also capable of coming together and spreading outwards. We are often taught to expand at FJ2 (the base knuckles) when reaching for an octave or a big stretch on the fingerboard. While you can indeed see the base knuckles at FJ2 expand, the movement is starting at FJ1, the connection between the finger bones and wrist bones. The motion at FJ1 might be minimal, but the opening increases in magnitude as the distance to the fingertips increases (fig. 18).

Figure 18. Finger Spreading from FJ1 and FJ2
Labels (in approximate location) show the expansion at FJ1 increasing the spread of FJ2.
Source: By author.



Exercise 16: Spreading at FJ1 and FJ2.
Source: By author.

1. First make a fist, and then extend the fingers upward while the fingers remain touching.
2. Next, spread the fingers apart in opposite directions.
3. With your right hand, palpate FJ1 (the connection of the finger bones to wrist bones) on the back of your left hand. Experiment with spreading the fingers apart from each other while feeling the motion at FJ1. How far can they spread outwards?



Exercise 17: Finger Spreading in Isolation.
Source: By author.

1. Have your fingers extended upwards, as if you are about to wave except have your palm facing you. Allow the fingers to relax into a slight natural curve.
2. Now isolate moving only the pinky finger away from the third finger and back while keeping the other fingers in place. See how far you can spread the pinky finger.
3. Do this for each individual finger.

Keep in mind that the fingers cannot spread if FJ2 (the base knuckles) are actively bent at a 90° angle.[68] Experiment with this by placing your hand into a fist shape and try to spread at the base knuckles and FJ1. Did you feel the restriction?

As we often need to reach for notes when playing the viola, the inability to spread the fingers while FJ2 is actively bent 90° has big implications for setting up the hand frame. It is

[68] Johnson, *What Every Violinist Needs to Know About the Body*, 117.

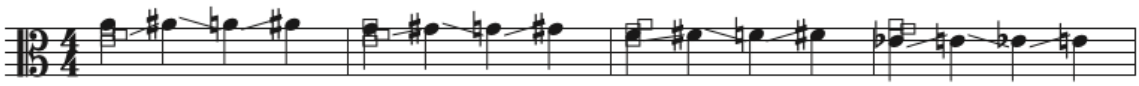
important that the fingers are naturally resting in a manner that allows for optimum mobility of finger flexion and extension as well as stretching outwards. The following two exercises are intended gain awareness and comfortability in spreading at FJ1 and FJ2 on the viola.

Exercise 18: Finger Spreading on the Viola.
Source: By author.

1. Place your left-hand in first position on the D string (no bow needed.)
2. While maintaining contact with the string, have all the fingers come together so that they are all touching. Don't worry about having the fingers on specific notes, this is to focus on the spreading motion in relation to the string.
3. Now spread the fingers as far away from each other as possible while still maintaining contact with the string. Make sure to spread outwards from FJ1 and FJ2, creating as much space as possible between each of the fingers.
4. Repeat the motion of coming together and spreading far apart.

Exercise 19: Finger Spreading in Isolation on the Viola.
Source: By author.

1. Try the following exercise left-hand alone, keeping the fingers down on the square notes.
2. As the isolated finger moves back and forth a half step, have the finger slide or "polish" the string as it spreads outwards and back in.
3. Try this exercise on each string.



You may have noticed that in spreading the fingers on the strings, they did not only spread from side-to-side but likely incorporated some extension and flexion as well. Both the spreading of fingers, and the flexion and extension of the fingers play a major role in changing finger spacing. It is vital that we utilize these capabilities of the fingers without strain.

A Moveable Thumb

Karen Tuttle was a strong advocate for free, flexible thumbs. As recalled by her former student, Jeffrey Irvine, "[Tuttle] was adamant that there was no one right place for the thumb. It was different for each player, and it did not have to stay in one place. She felt it should go where it needed to go."[69]

Misconception: The thumb should stay in one place.

While keeping the thumb in one location is a common principal for violin technique, it is now generally accepted by most violists that the location of the thumb will depend on the unique hand of the player in relation to their fingerboard and neck, as well as the demands of the passage. String crossings, double stops, and different finger patterns, will affect the thumb of violists more than violinists due to the larger spacing and thicker strings of the viola.

The thumb is a remarkable member of the hand. Working in opposition to the other fingers, the thumb gives us the ability to use our hands in intricate and complex ways. In viola playing, the thumb can be used to balance and support the instrument while also serving as a counterbalance for the other fingers. I like to think of the thumb's job as the "spotter" in gymnastics, who must react to the dangerous flips of the gymnast. In this way, the thumb will react to the needs of the left-hand fingers as they execute various motions on the fingerboard. While the location of the thumb will vary, it is important that the thumb is neither fully extended nor tightly contracted, but generally in a resting position, always ready to react and adjust.

[69] Irvine et. al., *The Karen Tuttle Legacy: A Resource and Guide for Viola Performers, Teachers and Students*, 21.

Unlike the other fingers, the thumb has two wrist bones at the base, the scaphoid and trapezium. It has a saddle joint (trapezo-metacarpal joint) that allows the thumb to move in two directions, giving the thumb the ability to oppose the other fingers at the trapezium bone.[70]

Misconception: The thumb should stay still

As the thumb has a uniquely intertwined relationship with the wrist bones, the movement of the other fingers at FJ1 (the intersection of the fingers and wrist bones) will impact the thumb. If un-checked, the thumb muscles may get tight in attempt to remain stationary. Consequently, this inadvertently restricts the mobility of the other fingers.

It is common to unconsciously tighten the thumb when the other left-hand fingers move. This can become so extreme that the violist may feel unable to move their left-hand fingers without gripping. Greater independence of the thumb can increase the suppleness and flexibility of the entire hand.

Exercise 20: Playing Without the Thumb.
Source: By author.

1. Put your viola into playing position and stabilize the scroll on an appropriately adjusted stand, or against a wall. Try this without the bow first.
2. Put your left hand into first position and move the fingers up and down in a scalar fashion on one string.
3. Take your left-hand thumb off the neck of the instrument and try to do the same scalar motions of the left-hand. Make sure that the thumb is relaxed. This may feel funny at first.
4. Once this feels more comfortable, try the same exercise with the bow. Did you notice any difference?

Without the thumb involved, you might have noticed a strange tentativeness in your left-hand fingers while playing. Think about how the fingers lift and drop without the thumb countering

[70] Dimon, *Anatomy of the Moving Body: A Basic Course in Bones, Muscles, and Joints*, 174.

them while typing on a computer keyboard or playing a piano. As you gain finger independence without gripping the thumb on the neck, the thumb can start acting as a helpful agent for finger mobility, expression, and stamina.

Exercise 21: Tapping the Thumb.
Source: By author.

1. Place the scroll against the wall or on a tall or appropriately adjusted stand to support the viola.
2. First put the left-hand fingers into first position on the D string. Experiment with squeezing and relaxing the thumb while moving the other fingers up and down. Notice how the thumb tension affects the tension in the other fingers.
3. Now gently tap the thumb on the side of the neck of the viola to make sure it is loose and free. Can you move the left-hand fingers while tapping the thumb?

Exercise 22: Thumb Mobility.
Source: By author.

1. Put your viola into playing position, stabilizing the instrument against a wall or stand.
2. Keep all four fingers down in one position, resting on the string.
3. Tap the thumb against the neck of the instrument to remember its independence. Move the thumb freely around up and down the neck and side-to-side while the four fingers are stably resting in the string. Make sure that the base of the index finger is not squeezing the neck.
4. Now take the instrument away from the wall or stand and see how the thumb can still move freely around the viola neck while stabilizing the viola. You may notice that the neck of the viola is also resting on the ledge of the index finger on the side of its base knuckle.

As you experiment with exercises throughout this resource make sure to engage the thumb and take note of how it adjusts to set up the other left-hand fingers in an optimal way. As Tuttle would say "A moveable thumb is a happy thumb."[71]

[71]Murdock, interview by author, online, November 2023.

Utilizing the Wrist

The wrist is an incredible resource for framing the fingers. Gently utilizing a bend in the wrist can create a sense of comfort and closeness to the fingerboard and increases the reach between fourth and first finger by taking advantage of the palm length.

Misconception: The wrist should be perfectly straight.

Many students have been told to play with a straight wrist and admonished for bending the wrist in a "pancake hand." The problem with the phrase "straight wrist" is that it leads students to believe that the wrist is a singular joint that should remain locked, instead of a fluid area with three joints. Students may try to lock the wrist area through muscular tension and inadvertently constrict the wrist bones. The wrist is made up of eight carpal bones (fig. 17, found on pg. 52) that form three different joints and create the carpal tunnel which allows the passage of tendons, nerves, and blood vessels into the hand. As you can imagine, the wrist must remain supple for all three joints to have optimum mobility and to keep the blood flow unrestricted.

Take a second to palpate your wrist bones on the backside of your left hand. Once you find the upper row of bumpy bones, find the corresponding spot on the palm side of your hand. Were you surprised by how far up in the hand they are? Keeping the entire hand supple is imperative for a mobile wrist.

Exercise 23: Movement of the Wrist.
Source: By author.

1. Lift your left arm as if you were about to wave to a friend.
2. From here, have your right hand hold the left forearm near the wrist.
3. Keep holding the lower left arm in place as you bend the left wrist forwards and backwards to the extremes.
4. Next, wiggle the left wrist side to side.
5. Now, have the wrist make small, gently circles in one direction. Then switch directions.
6. Try a brief attempt at supinating and pronating the wrist while holding the left arm in place. Notice that the wrist is *not able* to supinate or pronate on its own.

Bringing the wrist gently inwards and the base knuckles away (fig. 19) can help in reaching larger intervals (such as a tritone) between the first and fourth finger, as it allows you to take advantage of the palm length, far reach back with the first finger, and extension of the fourth finger. It is also important for supporting the fourth finger, particularly if you have a shorter pinky. The idea of having a slight bend in the wrist is becoming more widespread in viola pedagogy, particularly in the lineage of students of Tuttle (and now their students,) teaching the free use of the bend in the wrist.

Figure 19. Bend in the Wrist
Bending the wrist and the base knuckles away.
Source: By author.

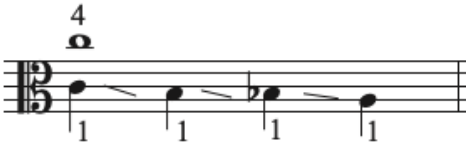
Exercise 24: Balance for Fourth Finger.
Source: By author.

1. First set your fourth finger on the D string, where the finger is curved and supported.
2. From this arm balance, reach back for the first and second fingers allowing the wrist to bend slightly.
3. Notice how your all your fingers approach the string. They are likely very curved and touching the string with the fingertips.

Try the following exercise by Murdock, focusing on reaching back with the first finger knuckle and a slight bend in the wrist. You may be surprised how far you can reach back! Make sure not to strain anything as you bend.

Exercise 25: Extension Back with First Finger.
Source: Katherine Murdock, Interview by author, online, November 2023. Image by author.

1. First, set the fourth and first fingers at the octave in third position.
2. The fourth finger maintains its place on the C while the first finger slides down by bending the wrist in slightly and dropping back with the first finger base knuckle. See how far you can reach back, proceeding gently and never straining the hand. You may start by reaching only a minor ninth, but with regular repetition, your hand will learn to open farther.



Rotation of the Radius

The rotation of the radius in supination is another primary influence in the hand's relationship to the fingerboard.

Misconception: Both the ulna and radius can supinate and pronate.

There are two large bones in the lower arm, the radius and the ulna. The ulna is on the pinky side of the hand and forms a joint with the humerus, allowing the elbow to bend or unbend. The radius is on the thumb side of the hand. As the radius does not form a joint with the humerus, it can rotate and swivel against the humerus in supination and pronation (moving the palm face up and face down.) The name, radius comes from its ability to form the radius of movement when swiveling (fig. 20, next page). As the wrist bones are mostly attached to the radius, we need to think about movement at the radius to manipulate the hand.

Figure 20. Swiveling Radius.
Radius crossing over the ulna in pronation.
Source: Chu KyungMin/Shutterstock.com

It is very important to remember that the ulna cannot rotate in pronation or supination. If the ulna appears to be moving in rotation, this is likely the result of stretching connective tissue and tendons at the elbow.[72] Tendonitis and carpal tunnel syndrome are often the result of chronically trying to rotate the ulna.

Exercise 26: Exploring the Stationary Ulna and Rotating Radius (by Johnson).
Source: Johnson, *What Every Violinist Needs to Know About the Body*, 101-102.

1. Walk the fingers of your left hand up the radius of your right arm to familiarize yourself with the shape of the bone.
2. You will find it is much easier to palpate the radius at the wrist end because there is far less muscle tissue here than near the elbow end. However, with deep palpation it is possible to follow it right up to the elbow joint.
3. Now make three marks on your arm up the length of the radius with a washable pen or small stickers.
    a. Make the first mark at the end of the radius closest to the wrist.
    b. The second mark goes halfway up the bone.
    c. Put the third mark right at the top of the bone, just under the crease on the radius side of the elbow joint.
4. Next, turn your hand palm-down while watching how the marks move.
5. Notice that the mark nearest the wrist describes a trajectory of 180 degrees while the second mark only moves a quarter turn — about 90 degrees.
6. Watch the mark closest to the elbow joint carefully.
7. Notice that it does not move through space at all; the radial bone under this mark only swivels on its fulcrum with the humerus.

[72] Johnson, *What Every Violinist Needs to Know About the Body*, 101.

8. Repeat the pronating and supinating motions while holding the end of the ulna (the "elbow" bump) in the fingertips of the other hand.
9. Notice that the ulna is completely stationary —it only acts as an axis over which the radius rotates.

Misconception: The pinky can swing around.

As the ulna is on the pinky side, common phrases like "swing your fourth finger around" may inadvertently encourage students to move their ulna through strain. As we experiment adjusting the hand to fingerboard relationship through supination and pronation, remember that the motion stems from the rotation of the radius at the elbow. The ulna cannot move unless through extreme strain. Perhaps instead of saying "swing the pinky around" when we want the fourth finger to be closer to the fingerboard, we can say "swivel the radius back."

Exercise 27: Rotation of the Radius in Air Play.
Source: By author.

1. Find an air play position with your left arm and experiment with the radius rotation to see how far the radius can swivel in pronation and supination. Notice how the fingers and hand respond to the radius swivel.
2. When the radius swivels back in supination, the palm side of the hand and fingers move into a more parallel, or "closed" position to the imaginary fingerboard. Find the limit on how far the radius can swivel in supination comfortably. *It is common to try to continue the supination by forcing the ulna to move through strain.*
3. When the radius swivels toward the pinky side, the palm side of the hand and fingers move to a more perpendicular or "open" position to the imaginary fingerboard.
4. The radius can continue swiveling towards the pinky side until the palm side of the hand and fingers are facing completely away the imaginary fingerboard.
5. Continue swiveling the radius back and forth while you analyze the hand and finger reaction.

As highlighted in the "airplay" exercise, the rotation of the radius on the thumb side is the primary influence in the hand's relationship to the fingerboard in terms of being in a more open or closed position (fig. 21, next page).

Figure 21. Closed and Open Position to the Fingerboard.
Extreme closed and parallel position (left) and extreme open position (right).
Source: By author.

Many pedagogues advocate for the base knuckles to be parallel to the strings while others refute that. For instance, the violist, Dolejší as well as the violin pedagogue, Demetrius Constantine Dounis believed that the base joints should be parallel at all times, [73] while Galamian believed that there is no right way for the hand to be angled to the string.

In Galamian's book for violinists, he adeptly highlights that different hand and finger lengths will dictate the relationship to the neck of the instrument. For instance, if the fingers are longer, the left hand will likely be open in relation to the neck instead of parallel. If the fingers are short, they will likely need to be more parallel to the fingerboard for closer proximity.[74] With the wider neck and greater spacing of the strings of the viola, the relationship to the fingerboard will be even more varied for violists. To see what works best for your hand, try finding two hand positions, one that is more parallel to the fingerboard and one that is more open:

[73] Valborg Leland, *The Dounis Principles of Violin Playing* (New York: Joseph Patelson Music House, 1982), 40.
[74] Galamian, *Principles of Violin Playing and Teaching*, 13-14.

Exercise 28: Parallel Relationship to the Fingerboard
Source: By author.

1. First, place the third and fourth finger down on the D string, having the fingers hug close to the fingerboard while being curved and supported.
2. Next, set the first and second fingers down through supination of the radius (thumb side) and a bend in the wrist.
3. If this is uncomfortable, you may need to experiment with your thumb position depending on the needs of your hand.
4. Notice how the knuckles are fairly parallel to the fingerboard and how the fingers can approach the string with the fingertips in a curved manner.
5. Play a few notes and see how it feels.

As the ulna is related to the pinky side of your hand, it is generally best to set the fourth finger with a healthy relationship to the fingerboard with a gentle curve and then swivel the radius back or a bend in the wrist to adjust for the lower fingers. That being said, there are scenarios when it is advantageous to build up from the first finger and have a more "open" relationship to the fingerboard. As we build from the first finger, we can "reach" with the fourth finger. Note that reaching is very different than swinging for the fourth finger. Instead, the fourth finger will extend toward you in extension to reach the string. This method tends to work well with violists with naturally long fingers. If you have shorter fingers, this method may not work for you in scenarios where you need to use all four fingers.

Exercise 29: Open Relationship to the Fingerboard.
Source: By author.

1. First, set your first finger on an E on the D string, allowing the hand to be in a somewhat open position with the palm somewhat perpendicular to the fingerboard.
2. From here, extend the fingers forward and allow the fourth finger reach for the A on the D string. Depending on the finger length and hand shape, this may be an easy reach to the A with the fourth finger or it might be very difficult. If you are not able to reach, your muscles might start to strain and try to rotate the ulna in response. If this is the case, take your fourth finger off and allow the other fingers to remain down.
3. Notice how your fingers approach the string. They are likely less curved and are touching the string with the pads of the fingers.
4. Play a few notes and see how it feels.

As you tried the exercises you may have had a strong preference for balancing to the fourth finger versus the first finger. There is no right way; rather it is vital to find a healthy and comfortable relationship with the fingerboard. This relationship can also be affected by how you hold your viola. If you have short fingers, it may be advantageous for you to hold the instrument pointing more to the left side so that the resting position of the fingers is naturally more parallel to the string with minimal supination. If your fingers are longer, you are likely able to hold the viola more in front of your body with your fingers reaching in extension.

Keep in mind that the hand frame is not a fixed place. Instead, you can adjust from "home base" depending on the needs of the repertoire and your expressive desires. For instance, if you want a richer vibrato in a passage of music, you may want to balance towards the first finger so that the fingers are approaching the string with the finger pads. Or if you have a passage with complicated double stops you may want to balance towards the fourth finger.

Humeroscapular Rotation and the Resultant Elbow Swing

When discussing the hand frame, it is common to say phrases like "swing your elbow" to prepare the pinky finger. If we analyze the movement, the elbow swing is the *result* of humeroscapular movement, the rotation of the humerus in the shoulder socket with the corresponding motion of the collarbone and the shoulder blade. While there is nothing inherently wrong with the phrase "elbow swing," it is important to acknowledge that it is merely the resultant movement. If we neglect the primary source of movement at the shoulder joint, the student may force the elbow swing through muscular exertion, rather than engaging easy movement from the shoulder joint. It is essential to keep the shoulder area free of excess pressure and muscular tension as not to hamper movement in the shoulder socket, shoulder blade, or collarbone while playing. If there is tension here, can cause issues and blockages all the way down the arm.

Exercise 30: Humeroscapular Movement in Air Play.
Source: By author.

1. First, place your right arm on the left collarbone as you swing your left arm from the shoulder. Notice how the shoulder blade and collarbone are involved in the motion and how the arm crosses across your midline as it swings. Allow the arm to move freely with minimal muscular involvement.
2. Now bring up your left arm as if air playing the viola.
3. From here, find the easy humeroscapular swing while keeping your left hand in air play around where the neck of your viola would be.
4. Do you notice that the elbow is swinging freely side-to-side as a result of the humeroscapular movement? Take note of how the hand naturally changes angles in response to this humeroscapular rotation and elbow swing. How would this effect your hand frame on the fingerboard?

Humeroscapular rotation is an essential tool for string crossings, as it can adjust the knuckle height in relation to the fingerboard, change the finger angle, and rotate the thumb. Due to the wider neck and further spacing of the strings on the viola as compared to the violin, the violist must support the left-hand fingers when navigating the different strings. Depending on the context there will be varying degrees of adjustment, from tiny to more noticeable.

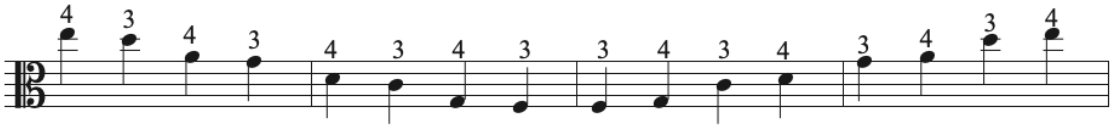
Exercise 31: Humeroscapular Rotation and Knuckle Height.
Source: By author.

1. Put your viola into playing position, but support the scroll on an appropriately adjusted stand, or against the wall. Make sure there isn't excessive pressure on the chinrest.
2. Once the viola feels secure, drop your left arm and let it hang and swing freely with humeroscapular rotation.
3. Bring your left arm up and place your fingers on the A string in first position and experiment with the humeroscapular rotation. As the shoulder freely rotates, note how the resultant elbow swing affects the knuckle height in relation to the string, the many finger angles available to you, and the resultant movement of the thumb. Once you find a comfortable and easy finger angle, memorize where the shoulder, elbow, and thumb are in relation to the fingers.
4. Next, repeat step 2 with your fingers on the D, G, and C strings.
5. Now that you can achieve the optimal finger angle for each string, practice hopping the left-hand fingers back and forth across the strings, allowing the humeroscapular rotation to lead the motion.

The optimal finger angle for lower strings typically occurs when the shoulder rotation brings the elbow towards the midline, framing the knuckles high over the fingerboard. For the higher strings, the shoulder rotation can bring the elbow away from the midline, slightly lowering the knuckles.

Exercise 32: Applying Humeroscapular Rotation to String Crossings.
Source: By author.

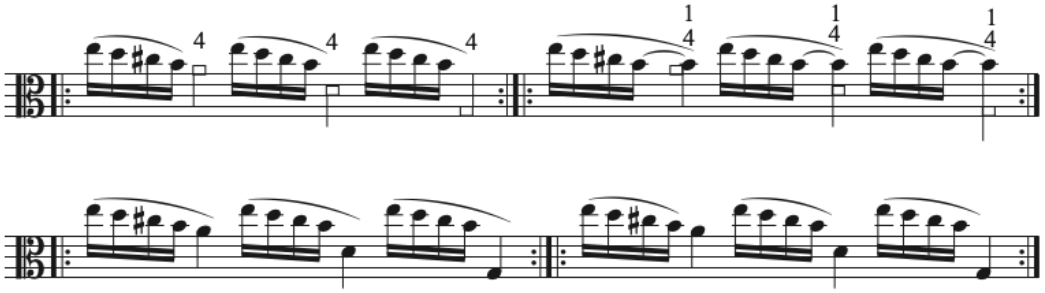
1. Try the following exercise first without the bow, then again with the bow.
2. Take your time with the string crossings to focus on the fourth finger moving through means of humeroscapular rotation. Notice the resultant movement in the elbow, base knuckle height, and thumb.



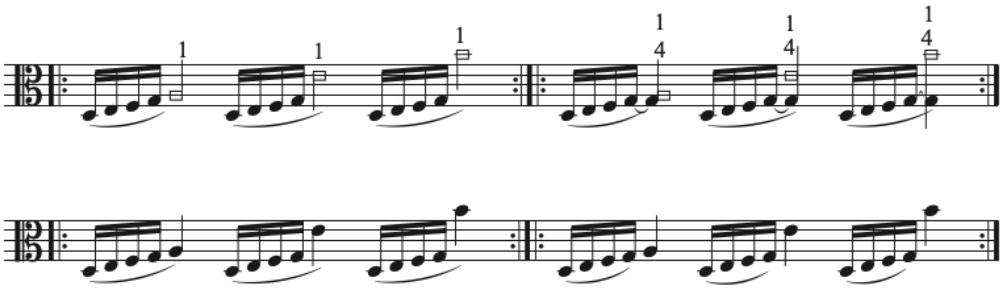
One important concept to keep in mind with string crossings is that the left-hand fingers need to prepare the new note with the proper finger weight before the note can speak. Therefore, the humeroscapular rotation needs to be a quick and fluid motion to prepare the left-hand fingers in string crossings.

Exercise 33: Quick Humeroscapular Rotation and Left-Hand Preparation (by Murdock)
Source: Murdock, Interview by author, online, November 2023. Images by author.

1. Try the following exercise left hand alone first, and then with the bow.
2. Focus on a quick and fluid humeroscapular rotation using the first finger as a pivot, while the fourth finger moves as fast as possible to put weight into the new string.

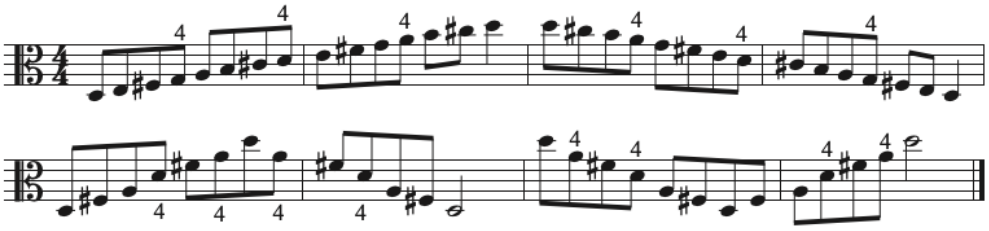


3. Try the same exercise but going from the lower string up, focusing on using the fourth finger acting as the pivot.

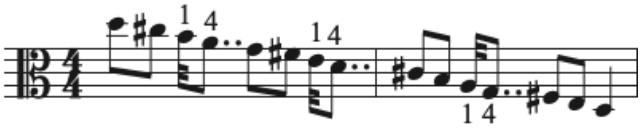


Exercise 34: Humeroscapular Rotation Applied to a Scale.
Source: By author.

1. Apply the same concept to a D major two octave scale and arpeggio using your fourth finger instead of open strings.



2. Do the following exercise first without the bow and then with the bow to isolate the left-hand preparation in the descent of the D major scale. Focus on quick humeroscapular rotation using the 1st finger as a pivot, to get the fourth finger prepared as fast as possible.



Exploratory Exercises: Adjusting in Action[75]

With the clear knowledge of the different joints and body parts involved in adjusting the left-hand balance, we can explore the adjustments in action through finger patterns and double stops. Focus on utilizing the wrist, radius rotation, and humeroscapular movement to find the most comfortable and efficient way to get around the fingerboard.

[75] Video demonstrations of exercises from this section are in supplemental files or at this link.

Left-Hand Finger Patterns

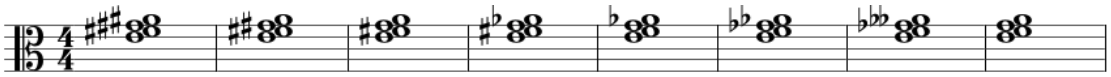
The exercises in this section are intended to help you find your natural capabilities and weaknesses so that you can discover necessary adjustments for yourself. Do not judge yourself or get discouraged if you struggle with reaching particular spacing patterns. Instead, patiently explore the unique relationship your hand has with the viola and adjust accordingly.

Some things to keep in mind as you explore the different finger spacings:

1. The exercises explore the following whole (W) and half (H) step patterns in one position: WWW, WWH, WHW, WHH, HWH, HHW, HHH, HWW.
2. While the exercises are written out on the D string in first position, they can be applied to any string in any position. First position was chosen as the wider intervallic spacing makes it tricky on the viola.
3. Focus on fluidity of movement with a supple palm and a free thumb. If you experience discomfort, take it as a cue to adjust with the humeroscapular motion, rotation at the radius, or bend in the wrist. *Be careful not to strain any ligaments or hurt yourself!*

Exercise 35: Diagnostic Finger Patterns.
Source: By author.

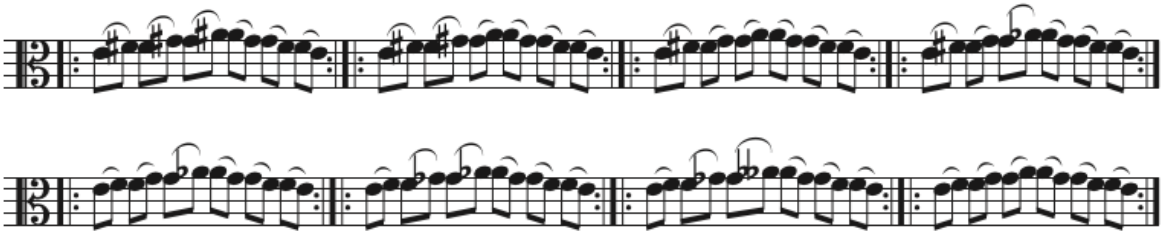
1. You will not need your bow for this exercise.
2. Go through the different finger spacings of each measure in the air first, focusing on spreading the fingers apart and back together at FJ1 and FJ2.
3. Now try the different finger spacings of each measure having all four fingers down on one string as if it's a one string 'chord.' Make sure the thumb isn't frozen or locked as you go through these patterns.
4. If you find this exercise difficult, try holding your viola like a guitar, so you can visually see the whole and half steps that your fingers are creating.
5. Take note of the spacings that *do not* work for your hand, or when there is excess tension in your hand or thumb.



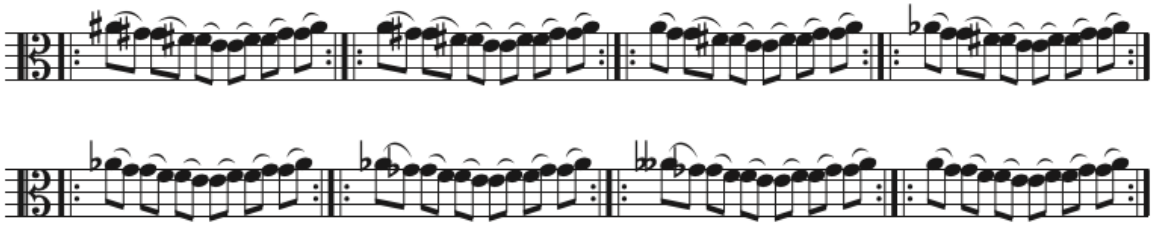
Now that you have found the spacing patterns most difficult for your hand, focus on adjusting the arm through a bend in the wrist, humeroscapular rotation, or rotation of the radius, to support your fingers during those particular patterns in the next exercise. Remember that the fingers should only move in flexion and extension or spreading apart; do not force them into contortion!

Exercise 36: Adjusting in Action with Finger Patterns.
Source: By author.

1. Go slowly with the left hand alone. Repeat each measure for ease and fluency.
2. Pay special attention to the adjustments necessary for each pattern. For instance, you may need to swivel the radius (thumb side) back to reach the high A#, or perhaps you need to incorporate humeroscapular rotation to help support the fourth finger.
3. Take note that the first group builds up from first finger and the second group descends from fourth finger. These will likely require different adjustments.
4. Once the adjustments feel comfortable, play through the exercise with your bow, focusing on the necessary adjustments of the arm and hand.
5. Take note of any of the patterns that are particularly challenging for you as you may need to break it down further in the next exercise.



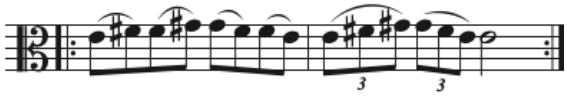
6. Now try the same exercise but on the patterns descending from the fourth finger.



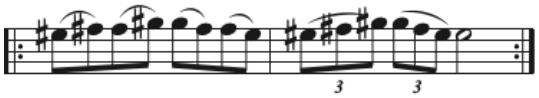
In the following exercise you can break down any spacing patterns that were particularly challenging to analyze the motion further. This example focuses on the first measure of the previous exercise.

Exercise 37: Problem Solving Finger Patterns.
Source: By author.

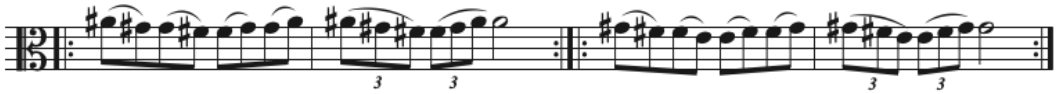
1. First, focus on fingers 1-3 and make any necessary adjustments with the shoulder rotation and resultant elbow swing, or perhaps a slight give in the wrist.



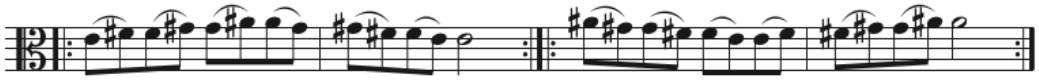
2. If you struggle to make adjustments, you may need to break things down even further and work backwards from the 'problem spacing.' For instance, a common struggle is the whole step between second and third finger. Therefore, start with finding a comfortable and supported third finger, and then see if second finger can reach back. Toggle between the two notes, making any necessary adjustments to keep the hand supple. Then put the 'problem spacing' back into context.
3. Next, focus on fingers 2–4. You may need to support the fourth finger with a gentle bend in the wrist.



4. Now, try the exercise with same finger pattern but descending from fourth finger. First, focusing on fingers 4–2, then 3–1.



5. Then, put all four notes together using your new adjustments.



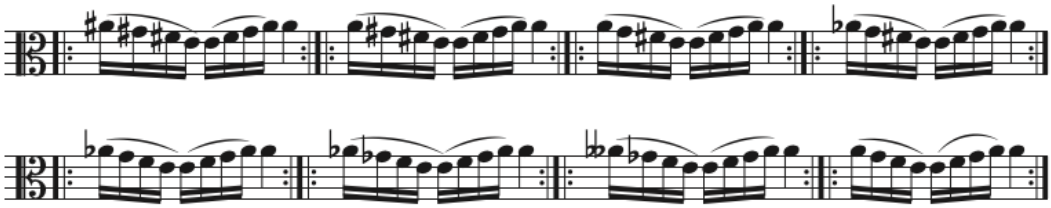
Once the adjustments feel natural for each finger pattern, try the following exercise to gain quickness and fluidity by putting the adjustments into one gesture.

Exercise 38: Finger Patterns for Fluidity.
Source: By author.

1. First try the following exercise left-hand alone in a slow or moderate tempo. Go over one measure at a time, paying special attention to the adjustments necessary for each pattern. Repeat each measure for ease and fluency.
2. Now try the exercise in a quicker tempo, allowing all the adjustments within one measure to turn into one gesture.

3. Add the bow, first at a slow tempo and then a faster tempo.

4. Now try the same exercise but on the patterns descending from fourth finger.



Play through the examples of challenging finger patterns from the repertoire (fig. 22–24), focusing on making adjustments to balance the left-hand fingers. First do the left-hand alone and then add in the bow once you feel comfortable with the adjustments.

Figure 22. Finger Patterns in Bartok, Viola Concerto Mvmt. 1.
Challenging finger patterns that change at a rapid pace.
Source: Béla Bartók, "Viola Concerto, Op. posth.," edited by Tibor Serly (Boosey & Hawkes, 1949), 7.

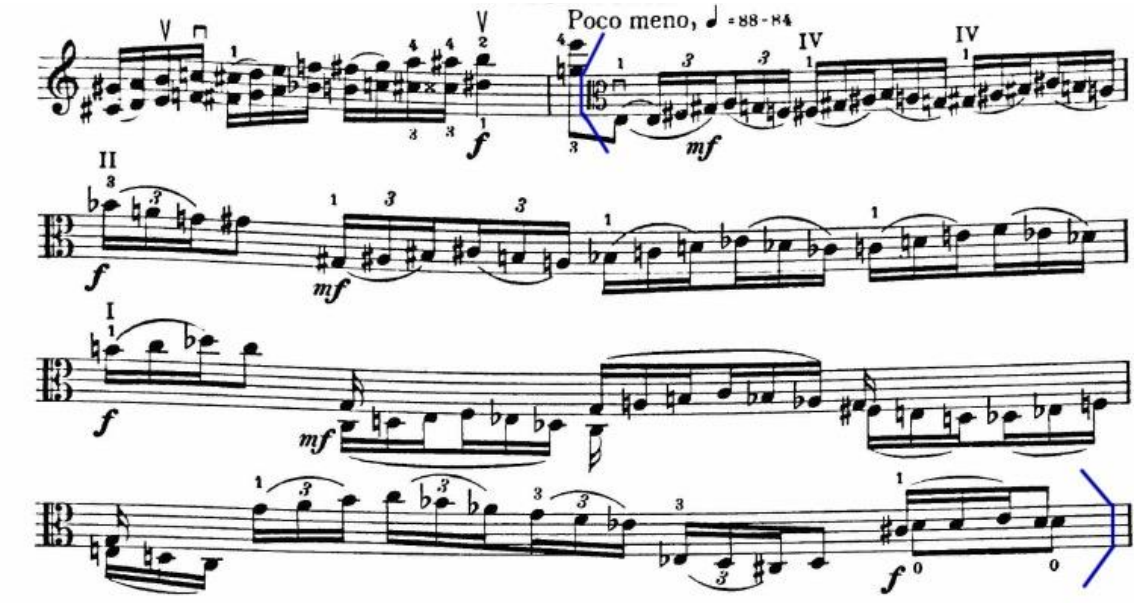
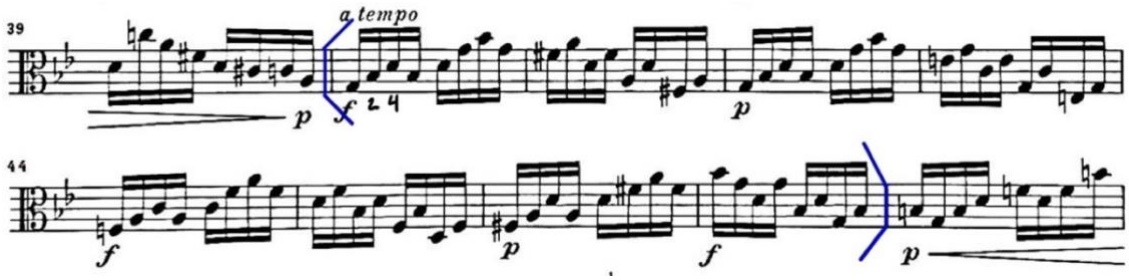


Figure 23. Finger Patterns in Bartok, Viola Concerto, Mov. 3.
Bracketed passage displays constantly changing finger patterns.
Source: Bartók, "Viola Concerto, Op. posth.," edited by Tibor Serly, 12.

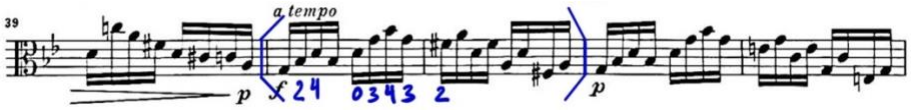
Figure 24. Finger Patterns in Reger, Suite for Solo Viola, No. 1, Mov. 4.
Bracketed passage showcases finger patterns that occur across strings.
Source: Max Reger, "Three Suites for Viola Solo, Op. 131d" Edited by Franz Beyer (München: Henle Verlag, 1991), 7.



Fingerings: A Wealth of Options

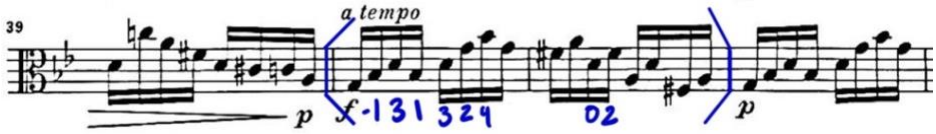
Depending on what works best for your hand and viola, you can choose fingerings that take advantage of your unique abilities. For instance, if you have a larger hand that can stretch far, you might try an extension fingering for the Bflat at the end of the bar (fig. 25).

Figure 25. Alternative Finger Option 1.
Suggested fingerings within the bracketed portion added by author.
Source: Reger, "Three Suites for Viola Solo, Op. 131d" Edited by Franz Beyer, 7.



Alternatively, if you struggle with the low second finger to fourth finger in mm. 40 you might try second position instead (fig. 26). There are ample creative solutions to be found in fingerings.

Figure 26. Alternative Finger Option 2.
Suggested fingerings within the bracketed portion added by author.
Source: Reger, "Three Suites for Viola Solo, Op. 131d" Edited by Franz Beyer, 7.



Violists have a legacy of using inventive fingerings. Pedagogue Michael Tree was well known for using fingerings that "utilize extensions and contractions. In other words, fingerings that we don't dare print."[76] As he told his students, "please don't be a slave to the printed fingerings you see. Be always skeptical […] great players like Francescatti, Heifetz, they've all made editions of various materials, and it suits their playing perfectly. But they have nothing to do with us or we

[76] Michael Tree, "An Interview with Michael Tree, Part III," by Jans Jørgen Jensen, stringvisions.ovationpress.com, July 15, 2011, accessed December 27, 2023. http://stringvisions.ovationpress.com/2011/07/interview-michael-tree-part-iii/.

with them."[77] As you discover left-hand technique for yourself, experiment with finding fingerings that suit your hand and serve your expressive needs.

Double Stops

In broad terms, there are two ways we can think about balancing the hand and fingers in double stops: the two fingers as individuals or the two fingers as one unit. When the fingers are approached as individuals, the hand balance can be manipulated to support one finger over the other. When the fingers are treated as one unit, the hand balance should equally support both fingers and the overall shape of the hand can be memorized. The approach to balancing the fingers in double stops depends on the expressive and contextual needs of the music.

In this discussion, double stops are conceptualized as finger combinations within one position and between two strings. Here is a list of the finger combinations and their corresponding double stops within one octave:

Fingers 1+2, fingers 2+3, fingers 3+4: 6ths, 4ths,

Fingers 1+3, fingers 2+4: 7ths, 3rds

Fingers 1+4: 8ves, 2nds

Double stops will first be addressed as adjusting for individual fingers, second as one unit, and lastly there is a section on fifths.

Double Stop as Individual Fingers

The double stop exercises focus on gaining finger mobility in spreading, extension, and flexion. As many of the exercises require complex movements rarely used in daily life, focus on pinpointing the primary joint involved with the motion and keeping suppleness in the hand. It is

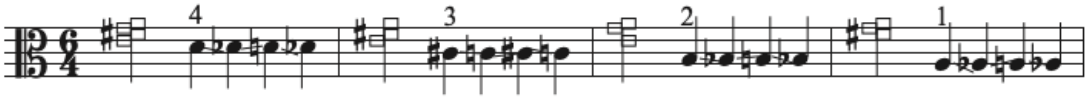
[77] Ibid.

important to gain awareness and agility gently over time. Improved ability comes gradually through healthy and intentional practice, so do not be discouraged if you are unable to do all the exercises right away.

As muscular force is a common reaction to poor intonation, it is best to do all the exercises without the bow first, prioritizing fluid and healthy motions and giving our sense of kinesthesia full attention. Do not resort to forcing your hand into uncomfortable shapes for extended periods of time and be careful not to strain anything!

Exercise 39: Finger Isolations for Double Stop Preparation, Lower String.
Source: By author.

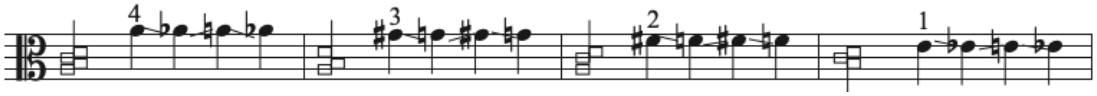
1. With the left-hand alone, place all four fingers down on the D string on the notes in the square heads. Make sure the hand and fingers feel supported and relaxed.
2. Now, hop an isolated fourth finger over to the G string, through extension and supporting the finger with humeroscapular rotation and its resultant thumb rotation. Make sure that the other three fingers remain lightly resting on the D string.
3. Once the fourth finger is on the G string, "polish" the string by sliding the finger up and down a half step through spreading from FJ1 and FJ2. Keep the finger light and supple. Repeat as many times needed.
4. Return the fourth finger to the D string and then continue with the remainder of the exercise.
5. Try these finger isolations between two strings, on all string combinations.



Exercise 40: Finger Isolations for Double Stop Preparation, Upper String.
Source: By author.

1. With the left-hand alone, place all four fingers down on the G string on the notes in the square heads. Make sure the hand and fingers feel supported and relaxed.
6. Now, hop the fourth finger over to the D string in flexion, supporting the finger with humeroscapular rotation and its resultant thumb rotation. Make sure that the other three fingers remain lightly resting on the G string.
2. Once the fourth finger is on the D string, "polish" the string by sliding the finger up and down a half step through spreading from FJ1 and FJ2. Keep the finger light and supple. Repeat as many times as needed.

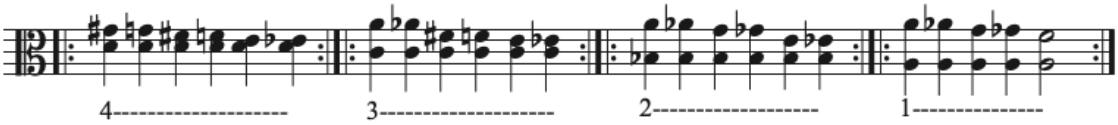
3. Return the fourth finger to the G string, while the third finger hops over to the G string (as printed). Continue with the remainder of the exercise.
4. Try these finger isolations between two strings, on all string combinations.



The following diagnostic exercises are meant to help you find your natural capabilities and weaknesses. Take note of any double stops that are particularly challenging for you. Ideally, we could play all possible double stops in one position between two strings with minimal adjustments, but this is often not a reality. Keep working on gently gaining mobility, while also learning how to adjust through humeroscapular rotation, radius rotation, and utilizing a bend in the wrist.

Exercise 41: Double Stop Diagnostic, Descent
Source: By author.

1. Try the exercise without the bow first, focusing on ease of movement in the left hand.
2. As the half step spacing changes, focusing on easing the entire palm and spreading from FJ1 and FJ2.
3. Take note of what works well and what does not.
4. Try this exercise on all string combinations.

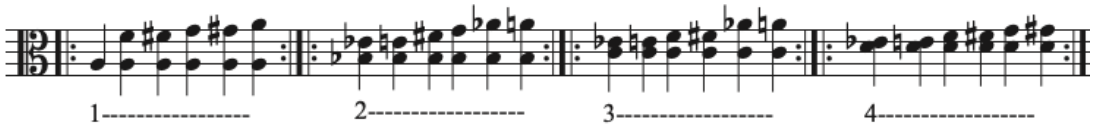


Notice that when we start with the fourth finger on the lower string, we are balancing for the lower string and higher finger. Your hand will be more parallel to the fingerboard, which allows for the spreading apart of the fingers from FJ1 (connection of finger bones to wrist bones) and FJ2 (base knuckles). When building upwards from the lower finger on the lower string in the next exercise, you will likely have a more open frame towards the fingerboard, and which allows

for the extension and flexion of the fingers to be highly effective for reaching the note on the upper string.

Exercise 42: Double Stop Diagnostic, Ascent.
Source: By author.

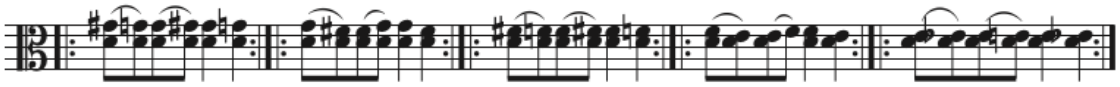
1. Try the exercise without the bow first, focusing on ease of movement in the left hand.
2. As the half step spacing changes, focusing on easing the entire palm and spreading from FJ1 and FJ2.
3. Take note of what works well and what does not.
4. Try this exercise on all string combinations.



Now we will analyze a measure from the diagnostic exercise for making any necessary adjustments utilizing the wrist, supination, and humeroscapular rotation.

Exercise 43: Adjusting for Double Stops.
Source: By author.

1. Take one measure from the diagnostic exercise that was uncomfortable and analyze it. First, add a double slur to find out if the issue is the relationship between two double stops or a particular double stop itself.
2. Perhaps the thumb needs to move when you go from a high third finger to a low third finger? Maybe the shoulder needs to rotate to provide a new finger angle? Does the wrist need to bend in slightly? Try to memorize the adjustments necessary.



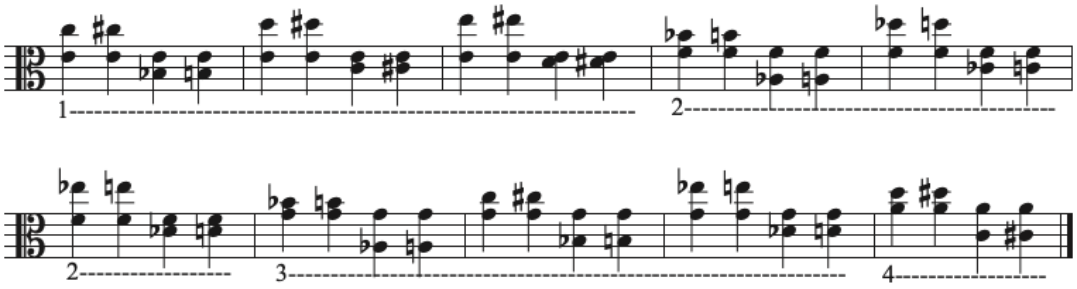
3. Once you've learned those adjustments, try going the opposite way by building upwards from the lower finger.

If the issue is not the relationship between two double stops, but rather one particular double stop, look at that double stop individually to analyze how to support both fingers. You may need to adjust the thumb or have slight shoulder rotation. Once the double stop feels comfortable, memorize the shape of the hand and use it with double slurs.

Now that we've gained familiarity with the necessary adjustments, the string crossings will be added to the diagnostic exercise. The string crossings require constant humeroscapular rotation and emphasize the importance of adjustment.

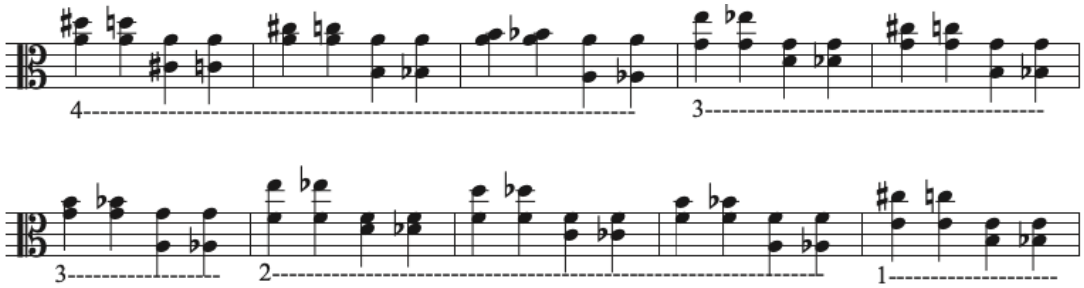
Exercise 44: Adjusting with Humeroscapular Rotation for Double Stops, Descent. *Source*: By author.

1. Do this left-hand alone first, focusing on using humeroscapular rotation to swing the elbow for the string crossings. The finger that stays down can act as a pivot finger.



Exercise 45: Adjusting with Humeroscapular Rotation for Double Stops, Ascent. *Source*: By author.

1. Do this left-hand alone first, focusing on using humeroscapular rotation to swing the elbow for the string crossings. The finger that stays down can act as a pivot finger.

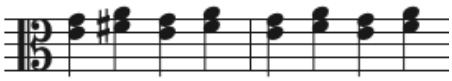


Double Stops as One Unit

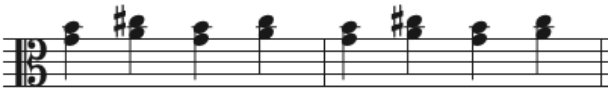
In approaching double stops as one unit, the finger combination necessary for the double stop can be seen as a shape within the hand. The following exercise uses fingers 1+3 and 2+4 to create sevenths and thirds, but it can be applied to any of the other finger combinations.

Exercise 46: Two Fingers as One Unit on One String.
Source: By author.

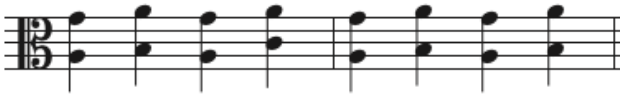
1. Put the first and third fingers down and then second and fourth fingers down all on the D string. Do this silently with the left hand alone, focusing on picking up and dropping both fingers simultaneously as one unit.



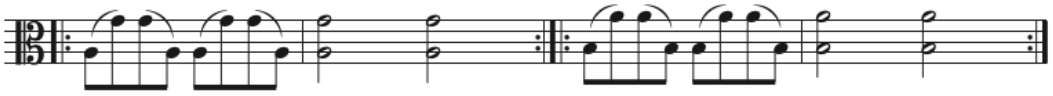
2. Once the fingers are moving as one unit, transfer the lower finger to the A string. Notice that you will need to adjust for having the shorter fourth finger on the lower string while keeping a 'tunnel' for the A string notes. This will likely require a slight humeroscapular rotation to raise the knuckle. Think about the shape of the hand and arm as you practice lifting and dropping the fingers simultaneously. Do this first without the bow, and then add in the bow. Make sure that intonation issues don't create tension.



3. Next, transfer the lower finger to the G string to create sevenths. Notice how the shoulder must rotate and the thumb needs to adjust. Memorize the shape of the hand and arm as you practice lifting and dropping the fingers simultaneously. Once this feels comfortable with the left hand alone, add the bow.



4. If you struggle to find a nice balance in the hand, play the double stop as individual notes with a double slur until both fingers feel comfortable. Typically, the easiest way to find comfortable balance is to focus on balancing towards the highest finger number and having the arm adjust for the lower string.



Perfect Fifths

Fifths are unique double stops as one finger needs to depress two strings. The violist's finger pad and shape of the fingertip in combination with their instrument determines how each violist approaches fifths. There are two basic (and oversimplified) ways to play fifths on the viola.

1. Have the fingernail somewhat facing you so that the width of the finger is in a better position to reach two strings. The hand in a more open position to the fingerboard.
2. Approach fifths more like a cellist, and bar the finger across two strings. The hand is in a more parallel position to the fingerboard.

Experiment with your own fingers and viola to find out what angle gives you the best ability to put weight into two strings. You may want to experiment with the curvature of the fingers. For instance, I find it is easiest for the first and second fingers to approach the fifth with the nail facing me and the fingers curved, while the third and fourth fingers approach fifths by barring the string with flatter fingers. Start exploring fifths in lower positions first so that the strings are closer together. As you get higher up the fingerboard the further distance between the strings may require you to use two fingers to play the fifth.

It is important to practice fifths without the bow first so that you focus on the tactile feeling of touching both strings. Only after you feel confident in setting the finger with enough weight on the strings, try with the bow. Adjust intonation through humeroscapular rotation and the subsequent change in finger angle.

While we want fifths to be clean and tidy, in the repertoire it can be a free-for-all and you may need to use unconventional measures for the fifths. Fifths on the viola can get quite messy! For instance, you may need to pull the lower string inwards as the fifths ascend to up the fingerboard in the first movement of Béla Bartók's Viola Concerto (fig. 27, next page).

Figure 27. Ascending Fifths in Bartok Viola Concerto.
Bracketed passage shows fifths ascending into the high positions.
Source: Bartók, "Viola Concerto, Op. posth.," edited by Tibor Serly, 6-7.

Fifths can also be hidden within the repertoire as intervals of fifths underneath slurs. Although technically they aren't double stops, these are "hidden fifths" where one finger needs to depress the double stop to have the legato slur (fig. 28–29).

Figure 28. "Hidden Fifths" in Bartok, Viola Concerto, Mov. 1.
Bracketed notes reveal the "hidden fifths" in the passage.
Source: Bartók, "Viola Concerto, Op. posth.," edited by Tibor Serly, 5.

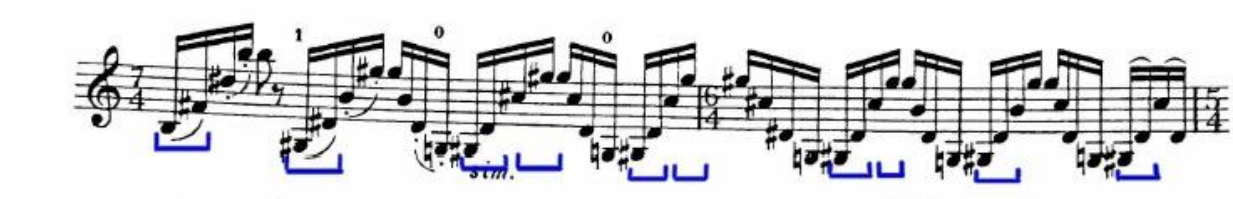
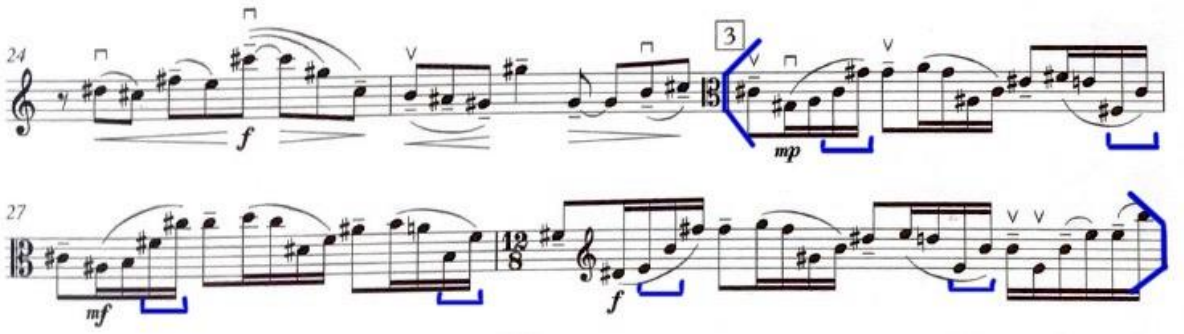


Figure 29. "Hidden Fifths" in Walton, Viola Concerto, Mov. 1.
Bracketed notes reveal the "hidden fifths" in the passage.
Source: William Walton, "Concerto for Viola and Orchestra" Edited by Christopher Wellington. (Oxford: Oxford University Press, 2002), 1.



Reflection on Left-Hand Balance on the Viola

We are often taught that the hand frame should remain as fixed as possible. Unfortunately, this ideal can greatly stunt left-hand fluency and expression for the violist. Instead, violists can approach hand frames as left-hand balance, freely framing the hand to support the needs of the fingers. The larger arm unit can frame the hand, relieving the small muscles within the hand and keeping the palm supple for optimum finger mobility.

Having freedom and flexibility in the hand is vital for responding to the many demands of viola playing. The primary ways we can adjust are through bending of the wrist, rotating the radius, and humeroscapular rotation. Each motion directly impacts the left-hand fingers and their relationship to the fingerboard. For instance, bending the wrist allows for the far reach back of the first finger, rotation of the radius influences the distance to the fingerboard, and the humeroscapular rotation results in elbow swing and a change in the knuckle height and finger angle. The amount of adjustment necessary will be dependent on the unique hands of the violist in combination with their viola, in addition to the needs of the repertoire.

Chapter 5: Finger Articulation[78]

What is Finger Articulation?

Finger articulation refers to the manner in which the finger approaches and stops the string to create a new pitch. The defining principals of finger articulation are speed, weight, and angle. Within these three variables, there are limitless possibilities and nuance for expression.

Speed: the rate of the lift and drop.

Weight: the pressure or weight that the finger puts into the string.

Angle: the angle and part of the finger (fingertip or finger pad) depressing the string.

The way in which the arm frames the fingers toward the string determines the possibilities of finger speed, weight, and angle. Therefore, left-hand balance is a manipulatable tool for expressive finger articulation.

While the basic principles of finger articulation are the same for both the violinist and violist, the thicker strings of the viola require great finger agility to produce the speed and weight necessary. Additionally, the violist can take advantage of the springy string, gravity, and natural arm weight in gaining expressivity and ease with finger articulation.

Misconception: The fingers should hover over the string at all times.

The common ideals of "hovering over the string" and "efficiency" for left-hand finger articulation are not always practical for the violist in every scenario. For instance, if a violist with a smaller pinky tries to always hover the fourth finger over the string, they may end up muscularly locking the fourth finger, resulting in a weak finger articulation. The idea of "efficiency" and keeping the fingers close to the string is generally a good idea, but there are

[78] Video demonstrations of exercises from this section are in supplemental files or at this link.

instances where the violists may need more distance in the lift and drop of the finger to utilize momentum for clearer finger articulation.

Before we can experiment with the motions of finger articulation, we need to look beyond the fingertip itself to comprehend the larger movements that control the finger. As Havas conveys " to the eye, the left finger-tip seems so authoritative when in contact with the string [...] but as our fingers are some of the smallest and weakest parts of our whole body […] it would be a mistake to overburden them with the responsibility of all the technical problems." [79] The fingertip, despite the undeniable importance of its direct contact with the string, is merely the messenger from larger motions.

Understanding the Muscles Behind Finger Movement

What controls the joints that we learned about in the hand frame chapter? Where are the muscles that we use?

Misconception: The hand muscles primarily control finger motion.

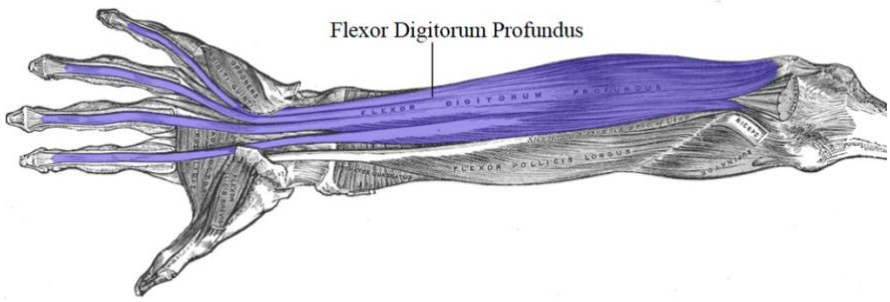
While there are numerous small muscles inside the hand, the primary muscles used to activate the fingers are not in the hand itself, but rather in the forearm. The main muscles at play attach on the forearm and then cross the wrist via the carpal tunnel with very long tendons. The wrist bones must be fully unrestricted to allow proper movement in the carpal tunnel.

[79] Havas, *The Twelve Lesson Course in a New Approach to Violin Playing, With Exercises Relating to the Fundamental Balances*, 30.

Major Muscles that Attach in the Forearm

There are distinct muscles that contribute to the flex and extension of the fingers. The extensor muscle attaches on the backside of the forearm and the flexors attach on the inside of the forearm (palm side.) The two key muscles that control the flex of the fingers are the flexor digitorum profundus and the flexor digitorum superficialis.[80] These are located on the palm-side of the forearm and attach inside the phalanges. The flexor digitorum profundus comes from the shaft of the ulna (pinky side) and then turns into four different tendons that go through the carpal tunnel and go all the way to the distal phalanges (the smallest, furthest finger bone) (fig. 30). The flexor digitorum superficialis originates at the humerus, ulna and radius and then also splits into four tendons that go through the carpal tunnel to the phalanges of the four fingers but not all the way to the most distal phalange.[81]

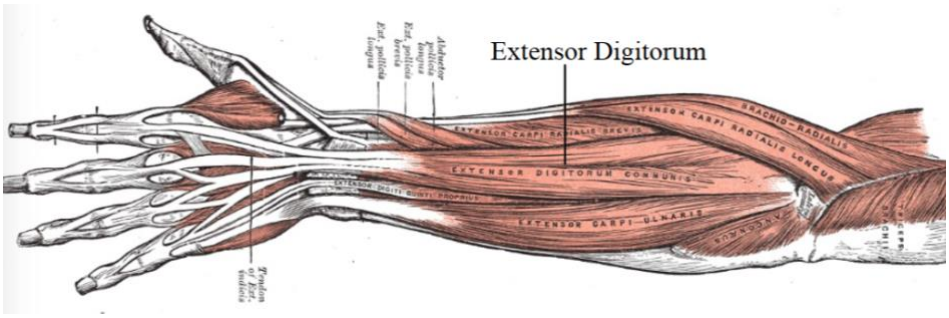
Figure 30. Flexor Digitorum Profundus Muscle, Palmar View.
Tendons of the flexor digitorum extending to the most distal phalanges, label by author.
Source: Illustration by Henry Vandyke Cater, from Henry Gray, *Anatomy of the Human Body*, 1918. Plate 415.



[80] Dimon, *Anatomy of the Moving Body: A Basic Course in Bones, Muscles, and Joints, 178.*
[81] Ibid.

There is just one muscle that extends the fingers, the extensor digitorum (fig. 31). It comes from the common extensor origin and then splits into four tendons that attach on the back of the phalanges.

Figure 31. Extensor Digitorum, Dorsal View.
Extensor digitorum the back of the forearm, extending to the phalanges, label by author.
Source: Illustration by Henry Vandyke Cater, from Henry Gray, *Anatomy of the Human Body*, 1918. Plate 418.



It must be emphasized that there are different muscles that control the flexion and extension of the fingers. Therefore, when we go between lifting and dropping fingers in viola playing, it requires the use of one muscle in correlation with the release of another muscle.

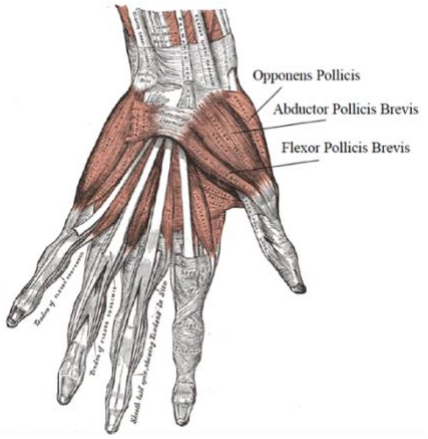
Exercise 47: Feeling the Flexor and Extensor Muscles.
Source: By author.

1. Bend your left arm the elbow as if about to wave to someone, then turn your palm to face yourself. Take your right hand and palpate both the front and back of the left forearm near the elbow.
2. Take your fingers and point them straight up in the air. Bend the fingers at finger joint 2 so that they are perpendicular to the floor. Where did you feel the muscle in the front of the forearm?
3. Now bring the fingers back up to straight and then extend backwards. Did you feel the muscle on the back of the forearm?
4. Experiment this lifting and dropping individual fingers.

Unique Advantages of Individual Fingers

The thumb is extremely independent with its own muscles in the forearm and hand that control movement. Four muscles in the forearm that move the thumb are the flexor pollicis longus, abductor pollicis longus, extensor pollicis brevis, extensor pollicis longus. The thumb also has muscles within the hand itself: the flexor pollicis brevis, opponens pollicis and the abductor pollicis brevis. Located inside the palm, these four muscles form the thenar eminence (fig. 32) which is the fleshy pad of the thumb. Experiment with movement of the thumb, noticing how the thumb can oppose the fingers, rotate in a circle, and stretch back.

Figure 32. Thenar Eminence.
Thumb muscles in the hand forming the thenar eminence. Labels by author.
Source: Illustration by Henry Vandyke Cater, from Henry Gray, *Anatomy of the Human Body*, 1918. Plate 427.



In string playing, we often think about keeping the thumb stable with minimal use instead of utilizing the thumb's unique muscles in the hand and forearm. The thumb has the potential to be active, flexible, and independent of the other fingers.

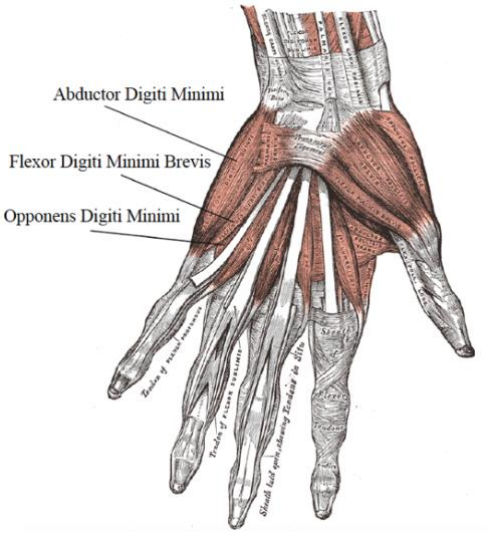
Misconception: All the left-hand fingers use the same muscles.

The thumb isn't the only finger with special muscles. The extensor indicis, a muscle originating in the forearm, moves the index finger independently, as in when pointing. When playing viola this muscle can help the first finger reach back for large intervals.

Misconception: The pinky is weak.

The pinky also has a lot of muscular support in the forearm, the wrist, and hand. If you feel that your pinky is weak, think about a baby's surprisingly strong grip. You may need to learn to engage and activate its unique muscles. There are three muscles of the little finger that stem from the wrist; the abductor digiti minimi, flexor digiti minimi brevis, and the opponens digiti minimi.[82] Together they form the hypothenar eminence, which is the padded side of the hand on the pinky side (fig. 33). The abductor digiti minimi is a powerful muscle that is used when grasping a large item with the fingers spread apart.[83] Additionally there is the extensor digiti minimi which attaches in the forearm and acts on the little finger. These muscles give the index finger and little finger a natural advantage for finger articulation on the viola. Experiment with moving the pinky and finding its full range of motion. Did you notice how the pinky is able to stretch forward?

Figure 33. Hypothenar Eminence.
Pinky muscles in the hand forming the hypothenar eminence. Labels added by author.
Source: Illustration by Henry Vandyke Cater, from Henry Gray, *Anatomy of the Human Body*, 1918. Plate 427.



[82] Dimon, *Anatomy of the Moving Body: A Basic Course in Bones, Muscles, and Joints*, 186.
[83] Jarmey, *The Concise Book of Muscles*, 419.

Other Muscles in the Hand and Wrist

While the muscles in the forearm are primarily used to move the fingers up and down, there are many muscles inside the hand that control finger motion. The interossei, which are muscles located in the middle of the palm, are prevalent for spreading the fingers apart and back together. They occupy the space in between the metacarpal bones and insert into the phalanges.[84] There are four muscles that are on the backside of the hand that draw the fingers apart, and then three muscles on the palm side of the hand that draw the fingers together. One thing to remember is that the interosseous muscles cannot spread from finger joint 2 while they the finger is bent.

There are also the lumbrical muscles that stem from the tendons of the forearm. These can flex the first phalanges and extend the second and third phalanges. They make it possible to grasp things. These smaller muscles can be used when not wanting to use the larger flexor muscles of the biceps and forearms.[85]

Ligaments in the Hand

Another factor in finger articulation is the elastic ligaments connecting the different finger bones together. There are the dorsal metacarpal ligaments located on the backside of the hand and the palmar metacarpal ligaments located on the palm side of the hand at the base of FJ1, the connection of the wrist and finger bones.[86] Then there are the deep transverse metacarpal ligaments located at FJ2. These ligaments are what Johnson describes as 'bands of elastic'[87] that can rebound and allow the fingers to move in a springing fashion.

[84] Dimon, *Anatomy of the Moving Body: A Basic Course in Bones, Muscles, and Joints*, 186.
[85] Dimon, *Anatomy of the Moving Body: A Basic Course in Bones, Muscles, and Joints*, 189.
[86] Johnson, *What Every Violinist Needs to Know About the Body*, 118.
[87] Ibid.

Reflection on the Muscles in Regard to Finger Movement

It is easy to use muscles out of habit rather than making a conscious choice. By gaining awareness of the many muscles involved in finger movement, we can discover greater ease and expressive control in viola playing.

Have you ever been anxious to play a passage and then suddenly lost finger mobility? Unconsciously, you may respond to mental pressure by tensing the many intricate muscles in the hand. As muscles can both facilitate and hinder movement, tight muscles in the hand can actively oppose the movement of the forearm muscles, resulting in the forearm muscles needing to compensate with extra force. The muscles can either work together or in direct opposition to each other.

When the palm is supple the forearm muscles can freely act upon the finger joints. While it may seem convenient to use small muscles in the hand to contort for the sake of a "good hand frame," it is at the expense of optimum finger mobility. Adjusting the left-hand balance for suppleness increases finger mobility, expressivity of the finger articulation, and produces better stamina.

Lastly, it is common to focus on activating the muscles for the next task while overlooking the release of the old muscle. For instance, we are often taught to drill passages on repeat until our muscle memory is secure. Make sure that you are also drilling the *immediate release* of the muscle in addition to the activation. If the muscle does not return to a relaxed and lengthened state in between each repetition, you are teaching your muscle to memorize strain and tension. The activation and release of muscles is a constant dance as we play stringed instruments.

Tuttle was very intentional in teaching students to release muscles in a coordinated manner while playing viola. Her student, Robert Dew discusses the release of muscles as always being "linked to a simultaneous increase in muscular effort elsewhere" and used the analogy of "a snake gliding through the grass [as] a good example of myriads of simultaneous contractions and relaxations resulting in smooth, sinuous movement."[88] As you explore your muscles in relation to finger articulation, try to gain awareness of when the muscles are in a released and lengthened state versus when they are in their engaged and contracted state. When we use our muscles intentionally in a coordinated manner, ease and expression are at our fingertips!

Exploratory Exercises: Experimenting with Speed, Weight, and Angle

Take a moment to reflect on the how you utilize finger articulations for expression. Would you approach a lyrical melody in a Brahms Sonata the same way as a passage from Strauss *Don Juan*? What about the first movement of Schubert's Arpeggione Sonata? Would you approach the lyrical first theme in the same way as the virtuosic passages? What are some differences you might feel in the hand and fingers? What would you ideally want the fingers to feel like? There is a huge range of potential expression when it comes to finger articulation. To increase our expressive abilities, we will isolate finger speed, weight, and angle.

Experimenting with Speed

It is easy to associate clearer and faster finger articulation with muscular effort. While we do utilize muscles when dropping and lifting the fingers, leveraging momentum at the base joints with minimal muscular effort greatly increases finger agility, clarity, and stamina. Due to the

[88] Irvine and others, *The Karen Tuttle Legacy: A Resource and Guide for Viola Performers, Teachers and Students*, 118.

many muscles in the hand that can act in opposition to the antagonist muscle it is important to focus on keeping the palm supple. Additionally, as the extension and flexion of the fingers use different muscles, we need to release the old muscle simultaneously with the engagement of the new muscle as we lift and drop fingers consecutively. In the following exercise, experiment with dropping the finger with minimal muscular use, taking advantage of momentum, and immediately releasing the muscle after use.

Exercise 48: Dropping the Fingers and Feeling the Flexor Muscles.
Source: By author.

1. Hold your arm up in front of you as if about to wave to a friend and then turn your palm to face yourself. Have the left-hand fingers pointed straight up in the air and take your right hand and palpate the left forearm near the elbow.
2. Now take the left fingers as one unit and bend at finger joints 2 (base knuckles.) Go back and forth a few times, feeling the flexion muscles activate as the fingers drop.
3. Allow the fingers to relax into a natural hanging curve and experiment with dropping each individual finger with minimal muscular effort. How quick can the drop impulse be? How quickly can you release the muscle after the impulse? Enjoy the natural rebound of the finger.
4. For contrast, try not releasing the muscle after the initial impulse to feel the resistance. Go back to immediately releasing the muscle after the impulse, allowing momentum and gravity to increase the speed.

What did you discover about the individual fingers? Did some have a greater range than others? Did you find that some fingers wanted to move together? You may have felt that certain fingers have different motivators of movement, as the fourth finger, first finger, and thumb all have unique muscles acting on them advantages. While we often want even and smooth finger articulation, understanding the differences of the fingers is the first step to creating unified articulation.

Misconception: Only the finger drops matter for clear articulation.

The overemphasis of the finger drop can cause extreme overuse of the flexor muscles in viola playing, while the extensor muscles lifting the fingers are often underutilized. The lift is equally important in finger articulation.

Exercise 49: Lifting the Fingers and Engaging the Extensor Muscle.
Source: By author.

1. Place your left hand and fingers flat on a table or any hard surface. Take your right hand and palpate the top of the forearm near the elbow.
2. First, lift all the fingers together as one unit while keeping the entire palm flat on the table. Do you feel the muscle activate?
3. Now go through and lift each individual finger. You may notice that when you lift individual fingers the other fingers may want to react as well. To keep the other fingers down, you may be activating two different muscles: the extensor muscle to lift the individual finger and the flexor muscles acting as the stabilizers to keep the other fingers in place.
4. Now lift the palm from the table and place the fingers into a buoyant curve, as if you were playing the piano. Have the fingertips rest on the surface and lift each individual finger up. How does that compare?

The following exercise, we will put the lift and drop together. Focus on engaging the extensor muscles on the lift, and then use momentum and gravity on the drop, with a natural springing rebound propelling the finger back up.

Exercise 50: Lift and Drop Together with Rebound.
Source: By author.

1. Have your left hand in the air as if about to wave to someone, then turn your palm to face yourself. Palpate both sides of the left forearm near the elbow with the right hand.
2. First let's find the necessity of releasing muscles.
3. Having the fingers extended straight upwards, try bending the fingers at FJ2 (base knuckles) as one unit with muscular force, keeping the muscle activated in a tight grip. Now try lifting them. Do you feel the conflicting restriction and tension? This is because the lifting muscles are working against the dropping muscles. Try this a few times to remember the feeling.
4. Now allow the fingers to relax into a natural curved shape. Drop the fingers bending at FJ2 (base knuckles) focusing on a quick impulse with the immediate release of the muscle in correspondence with the lift of the finger.

5. Experiment with dropping the fingers using as little muscular activity as possible, utilizing gravity and momentum. Notice how releasing the muscle allows for a natural rebound of the fingers that can propel the finger up into the lift.
6. Try this with individual fingers.

The finger bones are connected by elastic bands of ligaments that naturally want to rebound. As we explore the lift and drop on the instrument, focus on using the elasticity of the ligaments in addition to the natural buoyancy of the string. Think of the string like a trampoline, where your finger drop initiates the resilient action of the string and causing it to propel your finger lift.

Exercise 51: Lift and Drop on the Instrument.
Source: By author.

1. Without your bow, put your viola into a playing position and have the left hand poised to play with the fingers relaxed in a natural curved state. Don't worry about placing the fingers in any particular place on the fingerboard.
2. Lift and drop each individual finger in a curved manner focusing on a quick impulse at FJ2 (base knuckles) coming from the muscles deep within the forearm. Memorize the feeling of immediate release of the muscle in correspondence with the lift of the finger.
3. Experiment with dropping each finger using as little muscular activity as possible, utilizing gravity, momentum, and the natural buoyancy of the string.

One particularly effective way to take advantage of string's buoyancy in combination of the springiness of the fingers are Tuttle's "rag doll" fingers. The fingers will have a resilient drop with a vibrato impulse that reacts to the springy string.

Exercise 52: Rag Dolls (by Tuttle and Murdock).
Source: Murdock, interview by author, online, November 2023.

1. Play individual fingers in a scalar fashion, having the fingers go down resiliently and react to the natural springy-ness of the string with a vibrato impulse. They can be described as 'lift and plop.'

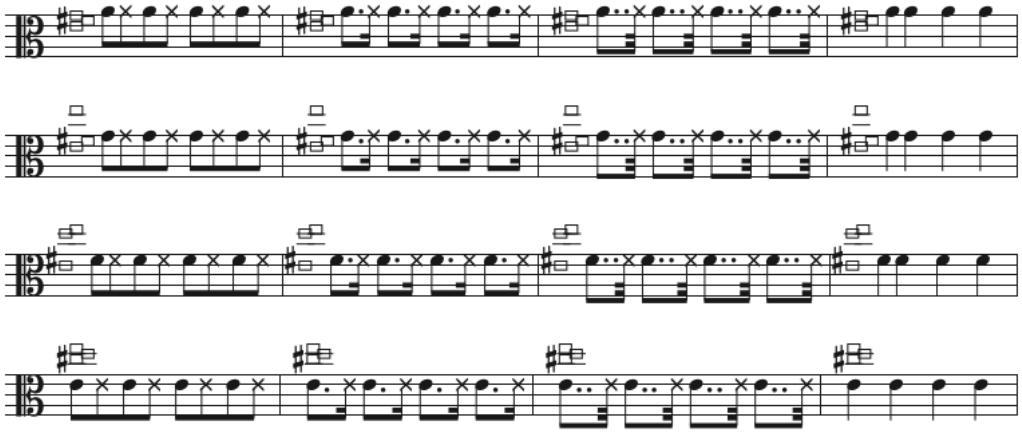
Murdock uses the perceptive analogy of a piano hammer quickly striking the string and rebounding to describe the dance of the left-hand finger.[89] The more we grow in awareness of muscular use and leverage the natural elasticity of the fingers the better our stamina and control.

Isolating the Finger Lift

Students are often able to drop the fingers quickly but struggle with lifting the fingers. This is typically due to the extensor muscle being underutilized, in addition to muscular holding after the drop. The following exercises focus on engaging the extensor muscles and energetically articulating the lift of the fingers. As these can be quite challenging, make sure not to strain yourself. Gaining awareness and muscular ability happens gradually overtime.

Exercise 53: Isolating the Finger Lift No. 1.
Source: By author.

1. Do the exercise with your left hand alone. Try to keep your fingers down on the square shaped whole notes, lightly resting on the string, while you isolate lifting and dropping one finger at a time. Make sure that the thumb and fingers on the square notes aren't overly gripping.
2. The "X" symbol means to energetically lift the finger. As you go through these isolations, focus on articulating the lift of the finger with quickness and perhaps thinking of hitting an imaginary surface with the back of your finger.
3. Make sure that the tempo is steady, so that the lift quickens while the amount of time on the dropped note lengthens. The height of the lift will decrease as the lift quickens.

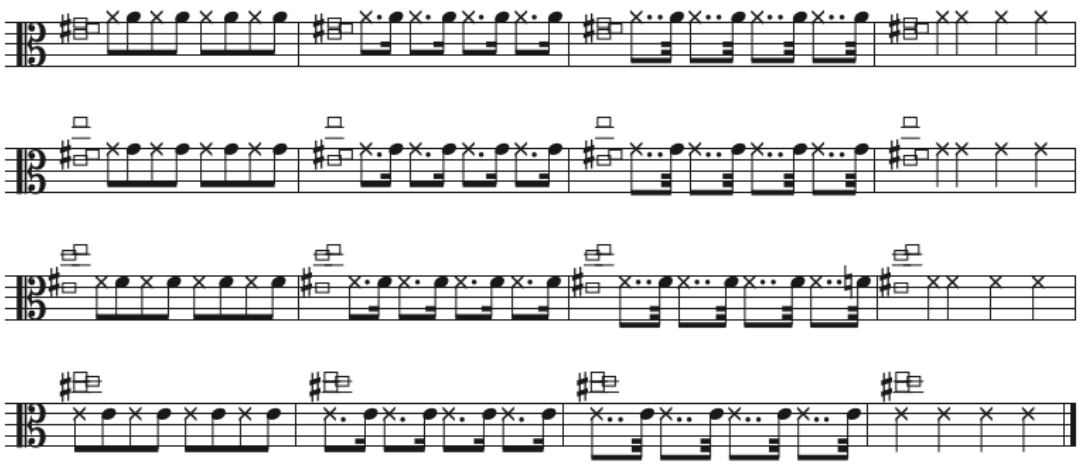


[89] Murdock, interview by author, online, November 2023.

In the next exercise, the lift becomes the first ‘note,’ so that you are always returning to the lift. For the fourth measure of each line note that the finger never touches the string, but rather pulses upwards to rearticulate the lift. Think of a lizard tongue to depict the quick lift and return motion.

Exercise 54: Isolating the Finger Lift No. 2.
Source: By author.

1. Do the exercise with your left hand alone. Try to keep your fingers down on the square shaped whole notes, lightly resting on the string, while you isolate lifting and dropping one finger at a time. Make sure that the thumb and fingers on the square notes aren’t overly gripping.
2. The “X” symbol means to energetically lift the finger. As you go through these isolations, focus on articulating the lift of the finger with quickness and perhaps thinking of hitting an imaginary surface with the back of your finger.
3. Make sure that your tempo stays the same, so that the return to the lift quickens.

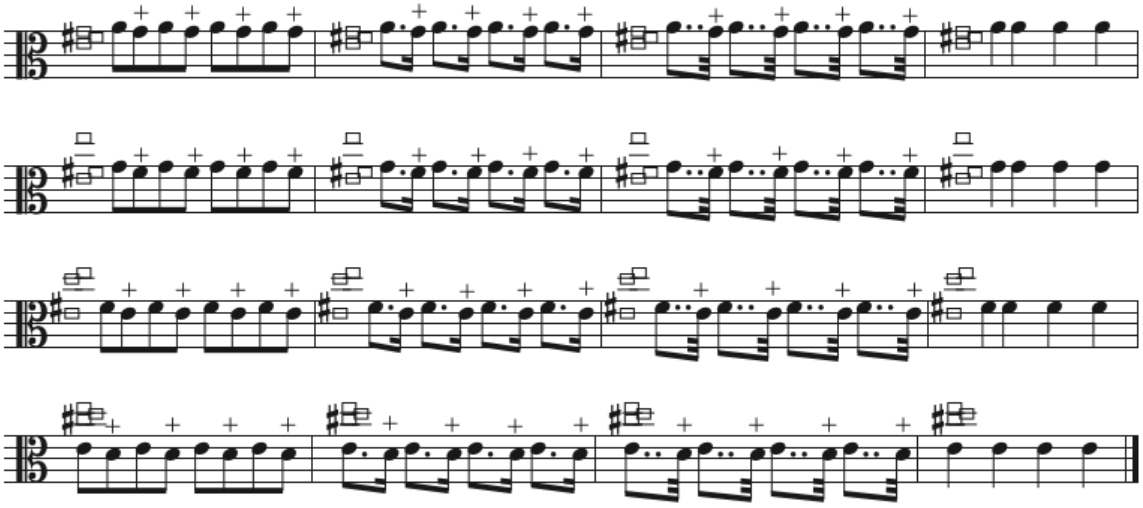


In addition to lifting the finger in a vertical motion, we have the option to depart the string in a more horizontal manner with the finger making a circle motion.

Exercise 55: Circular Motion with Left-Hand Pizzicato.
Source: By author.

1. Do the exercise with your left hand alone, producing a soft left-hand pizzicato as the finger leaves the string in a circular manner. Attempt to keep your other fingers lightly resting on the string with the square whole notes. This is a challenging exercise and you

may not be able to do it right away. Focus on the circular motion of the finger and make sure not to strain yourself.



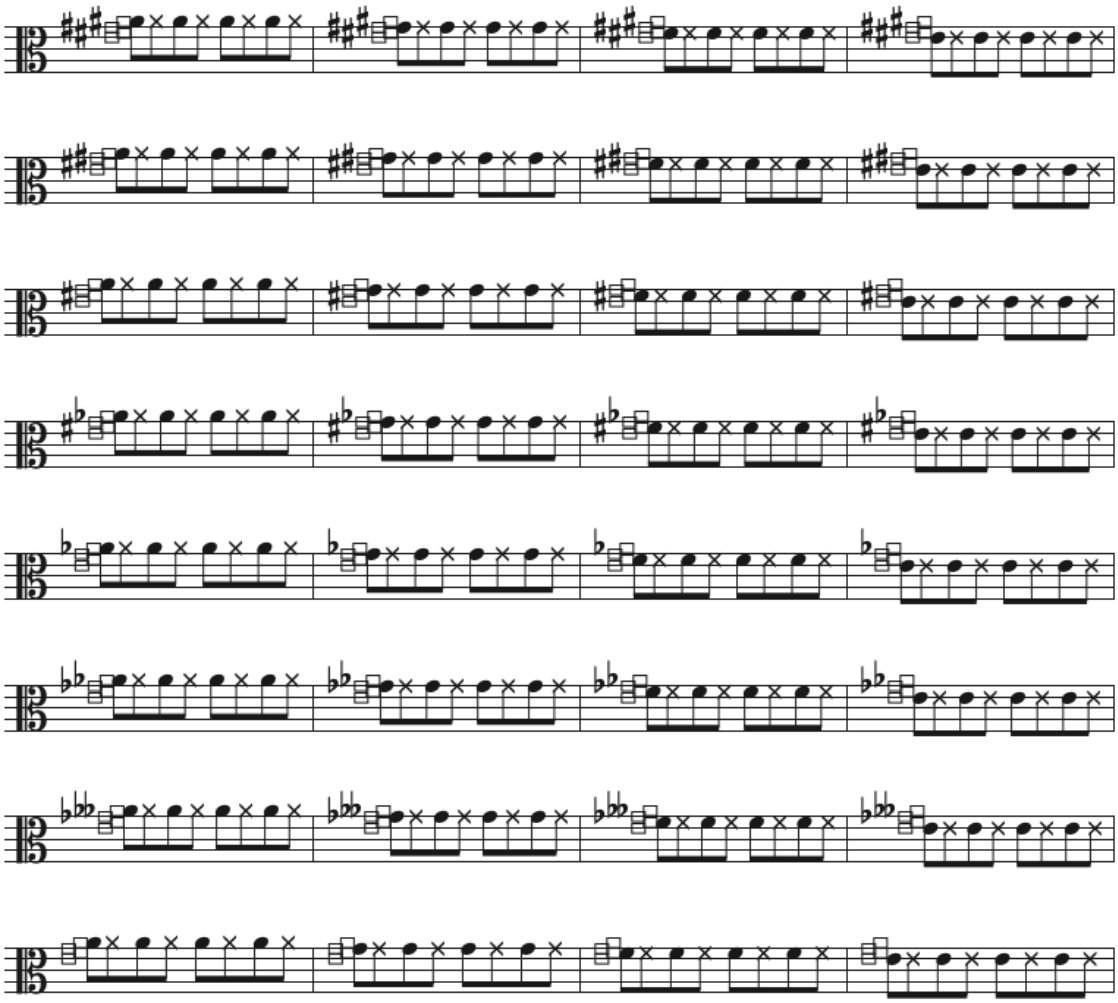
Lift and Drop with Different Spacing.

The following set of exercises combine finger articulation with the different left-hand finger patterns from Chapter 4. The first diagnostic exercise explores the current mobility of the fingers within each pattern. As this exercise is quite challenging, make sure not to strain yourself and do not get discouraged. Focus on lifting and dropping the fingers resiliently with immediate muscular release.

Exercise 56: Lift and Drop, Finger Pattern Diagnostic.
Source: By author.

1. Keep the fingers lightly resting on the string in the square whole notes as you go through the isolations. The “X” refers to energetically lifting of the finger.
2. Take note of which patterns are difficult to control the articulation of the lift and drop. As we continue to the other exercises, use adjustments from the previous section to set up each finger in the best way.

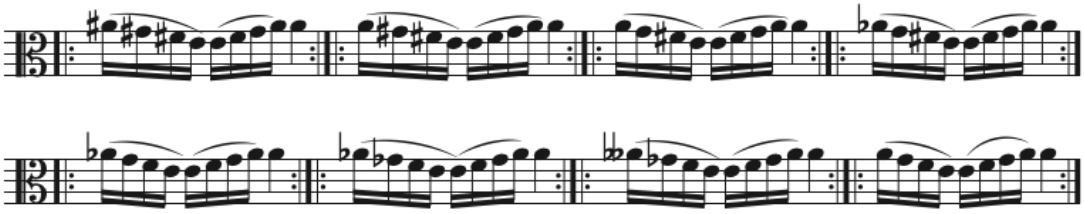
3. Try this exercise on each string.



Were some patterns and spacings more difficult for certain fingers? Were you able to lift and drop the fingers resiliently? In the following exercise, pay special attention to any pattern you found particularly difficult and make necessary adjustments in the left-hand balance to enable optimum finger mobility and clear finger articulation. Think about the buoyant “rag doll” fingers explored earlier.

Exercise 57: Lift and Drop for Fluidity, Descent.
Source: By author.

1. Try the exercise with the left hand alone first, focusing on the tactile feeling of the lift and drop of the fingers in combination with the adjustments your arm needs to make to set up your fingers.
2. For each measure, start slow emphasizing a resilient and buoyant finger articulation. Gradually increase the speed while allowing the adjustments and finger articulation to turn into one fluid and easy gesture.
3. Add your bow and take note of each finger's pressure and ability to lift quickly.

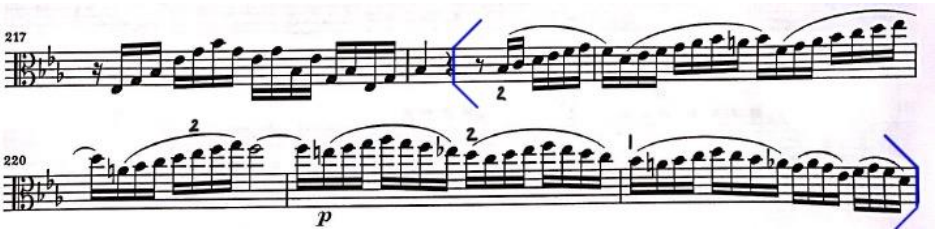


Exercise 58: Lift and Drop for Fluidity, Ascent.
Source: By author.

1. Try the exercise with the left hand alone first, focusing on the tactile feeling of the lift and drop of the fingers in combination with the adjustments your arm needs to make to set up your fingers.
2. For each measure, start slow emphasizing a resilient and buoyant finger articulation. Gradually increase the speed while allowing the adjustments and finger articulation to turn into one fluid and easy gesture.
3. Add your bow and take note of each finger's pressure and ability to lift quickly.

Buoyant and resilient finger articulation with a defined lift and drop can create a beautiful clarity for quick scalar passages. Try playing the passage from the first movement of Mozart, Sinfonia Concertante (fig. 34, next page) focusing the fluidity of the finger articulation combined with any necessary adjustments to left-hand balance.

Figure 34. Resilient Lift and Drop in Sinfonia Concertante.
The bracketed passage features a mixture of ascending and descending scalar work.
Source: Mozart, "Sinfonia Concertante, KV 364 (320d)," 4.

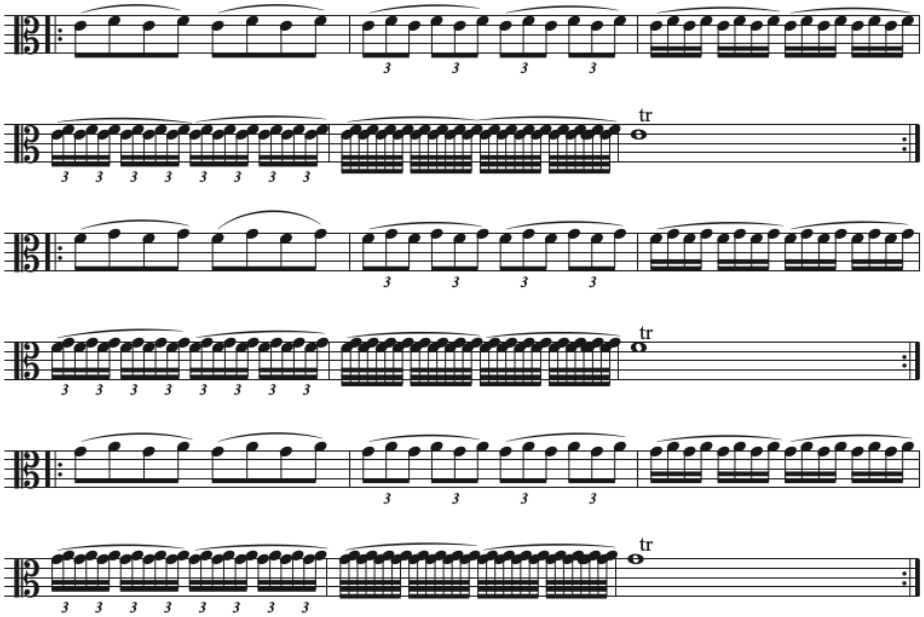


Trill and Impulse Fingers

Having agile fingers is important for fast passages in repertoire. In the following exercise focus on increasing the speed of finger impulse with immediate muscular release.

Exercise 59: Trill and Impulse Fingers.
Source: By author.

1. First, go through the exercise starting with an exaggerated lift and drop of the fingers that gets progressively smaller as the fingers speed up.
2. Next, try playing through the exercise with the lower note not fully depressing the string, but instead lightly resting on the string with harmonic weight.
3. Then, experiment with oscillating the fingers, where the lower finger actually lifts while you drop the upper finger. This way the down motion is correlated with a lift motion in the opposite finger. As the exercise speeds up, your lower finger will likely be resting on the string the entire time but can still have a lift and drop impulse.



Experimenting with Weight

We create a new pitch by changing the string length with our left-hand, our finger being the centralized spot where weight is pin pointed. Finger articulation is a continuous dance of distributing weight through the fingers and into the string, it is rarely a robotic or muscular motion. How do we transfer weight into the string? Where does the weight come from?

Misconception: Finger pressure and muscular force stop the string.

It is common to use finger pressure and muscular force to stop the string instead of utilizing two advantageous resources at our disposal: natural arm weight and gravity. When we desire more weight in the string, we can easily transfer our natural arm weight through our left-hand fingers.

Exercise 60: Transferring Arm Weight with Curved Fingers.
Source: By author.

1. First, secure your viola on a stand, table, or against the wall as you try this exercise.
2. Place your left-hand fingers on the D string (E-F#-G-A,) and take the thumb off the neck.
3. Keep the same curve in the fingers as you allow your arm to release heavily downwards, as if it is just dead weight. Notice, how the fingers easily sink all the way to the fingerboard while maintaining their curvature.
4. Experiment with vibrato on each finger while keeping your arm weight in the string.
5. Experiment with lifting and dropping the fingers while keeping the arm weight in the string. Notice if the left-hand balance changes for each finger.

Murdock uses the analogy of a monkey arm swinging on a branch, to describe the ability of the fingers to sink into the string while maintaining suppleness and structure of the finger.[90] We have the choice of either maintaining the structure of the curved finger or sinking onto the finger pads.

[90] Murdock, interview by author, online, November 2023.

Exercise 61: Transferring Arm Weight with Finger Pads.
Source: By author.

1. First, secure your viola on a stand, table, or against the wall as you try this exercise.
2. Place your left-hand fingers on the D string (E-F#-G-A,) with a nice curve, and then take the thumb off the neck.
3. This time, as your heavy arm releases downwards as if dead weight, allow your fingers to rock back to the finger pads with lower knuckles. Notice, how the fingers easily sink all the way to the fingerboard. Enjoy the tactile sensation of the finger pads wrapping around the string.
4. Experiment with vibrato on each finger while keeping your arm weight in the string.
5. Experiment with lifting and dropping the fingers while keeping the arm weight in the string. Notice if the left-hand balance changes for each finger.

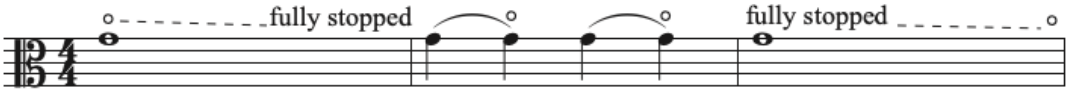
The arm can provide more than enough weight to stop the string! While we cannot release our arm weight in its entirety when our instrument isn't externally secured, we can at least partially replicate this release while playing.

Misconception: You need to feel the fingerboard with your left-hand fingers.

While we have a fingerboard, we do not need to depress the string fully into it. Take for instance the Chinese erhu, a string instrument that does not even have a fingerboard.[91] In the next set of exercises we will experiment with transferring different amounts of weight in the string.

Exercise 62: Harmonic to Full Weight.
Source: By author.

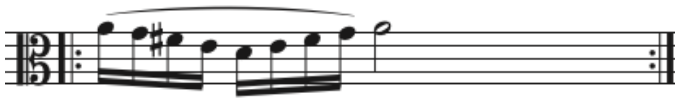
1. Practice going from a light harmonic weight to depressing the string completely into the fingerboard. Experiment with how little weight you can put into the string and still have it speak.



[91] Here's is a recommended link you're interested in learning more about the erhu, https://youtu.be/YJ2O7vQfeiE?si=-lBEbfqv4uVrsOX9.

Exercise 63: Quick Fingers with Light Pressure.
Source: By author.

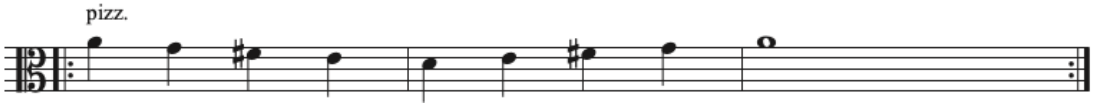
1. Try playing the following measure with quick fingers as you experiment with finger weight. Start with fully stopped notes, and then lighten the finger pressure on each repeat until it you reach harmonic pressure.



Were you surprised by how little weight you needed to get a clear pitch?

Exercise 64: Pizzicato Weight.
Source: By author.

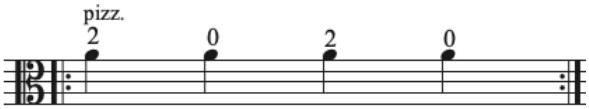
1. Experiment with finding the weight needed to get a resonant pizzicato. Start with harmonic pressure and then add weight with each repeat.



Were you surprised by how much weight you needed to get a resonant pizzicato? As Murdock teaches, it's best to use the fingertips for pizzicato as they have more firmness with the finger bone than the fleshy pads. The fingertips can help us better replicate the ebony that stops the open strings.[92]

Exercise 65: Stopped Versus Open String Pizzicato.
Source: By author.

1. In this exercise, try replicating the resonance of the open A string pizzicato with the stopped note pizzicato.
2. Experiment with using your finger pads versus fingertips.

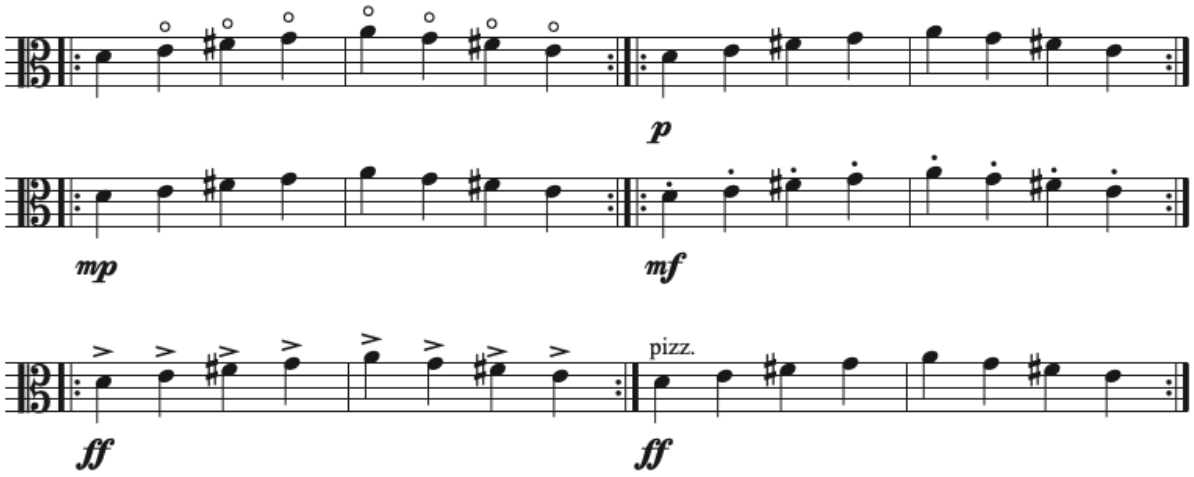


[92] Murdock, interview by author, online, November 2023.

There are many different variables that go into determining the necessary or desired finger weight. For instance, the thickness of the string, the speed of the notes, and the position on the string. Additionally, the weight needed to stop the string will correspond with the bow weight, speed, contact point, or pizzicato.

Exercise 66: Different Amounts of Left-Hand Weight.
Source: By author.

1. Do this exercise with the bow, repeating each two bars to experiment with the left-hand weight and find the minimal amount needed to produce the desired sound. Keep in mind that the first two bars are meant to be 'harmonic pressure' and the fingers do not need to produce clear harmonics.
2. After you do this with the bow, try going back and doing the left hand alone while replicating the amount of left-hand weight needed when playing with the bow.



Experimenting with Finger Angle

There are different opinions about playing on the fingertips versus finger pads. It is important that the violist can use either one for expression. As you may have already noticed, different parts of the finger work best for different speeds and weights.

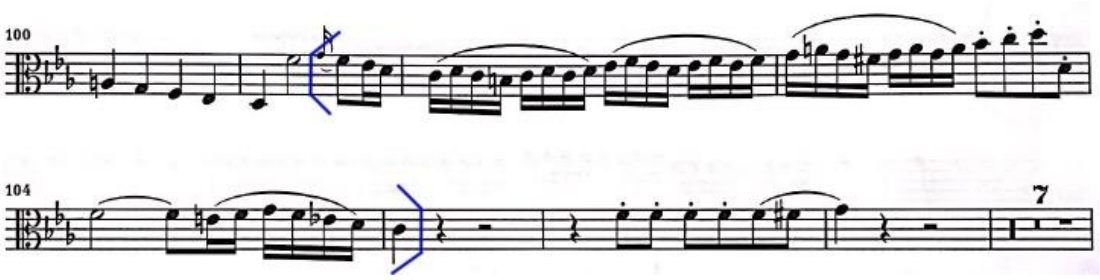
Advantages of the fingertip:

1. Naturally curved fingers allow quicker speed of articulation.
2. Ease in reaching (and creating tunnels) across strings for double stops and string crossings.
3. Easier access for the 4th finger since the base knuckles will be closer to the fingerboard.
4. Fast dropped vibrato.
5. More finger bone, best for clear pizzicato.

To play a passage more on the fingertips, the elbow may be swung slightly into your midline. Think about finding a curved and strong fourth finger first, which should help the other fingers to be more curved and on their tips. The fingertip allows more bone to strike the string rather the fleshy finger pad. This produces more overtones, as the hard bone stops the string in a manner more closely resembling the ebony stopping the open strings at the nut.

Try the following passage from the first movement of Mozart, *Sinfonia Concertante* thinking about using light touch on the fingertips with a quick speed and a fast-dropped vibrato for the sixteenth notes (fig. 35).

Figure 35. Playing on the Fingertips.
The bracketed passage showcases a quick scalar passage.
Source: Mozart, "Sinfonia Concertante, KV 364 (320d)," 2.



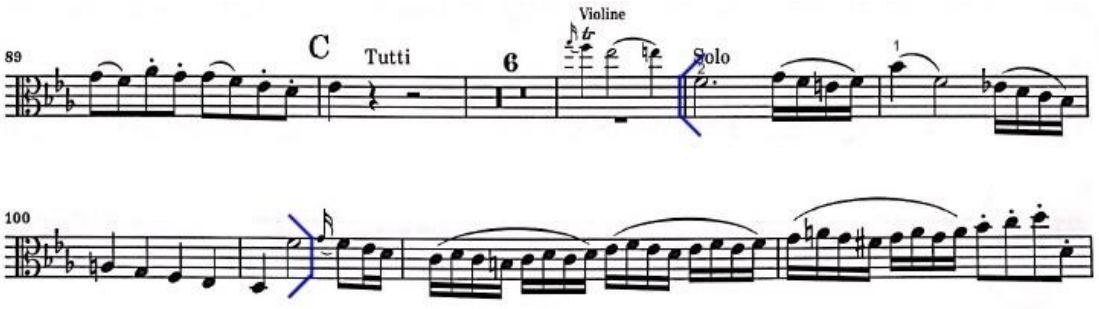
Advantages of the finger pad:

1. Wider vibrato as you can cover a greater surface area of the string.
2. Can utilize more gravity and arm weight allowing for deeper sound.
3. Flatter fingertips usually optimize conditions for more fluent and natural slides.
4. Fingers are closer to the string, facilitating legato trade-off of pitches and making continuous vibrato easier.

In order to play a passage more on the pads of the finger, the elbow may swing slightly to your left side. This should help the fingers to be flatter, touching the string with the fleshy pads. Think about the hand frame being more open and not parallel to the string. Framing the hand around the first finger might help to utilize the finger pads.

Try the following excerpt from Mozart, Sinfonia Concertante, thinking about using gravity and arm weight and a continuous vibrato for the lyrical three measures (fig. 36).

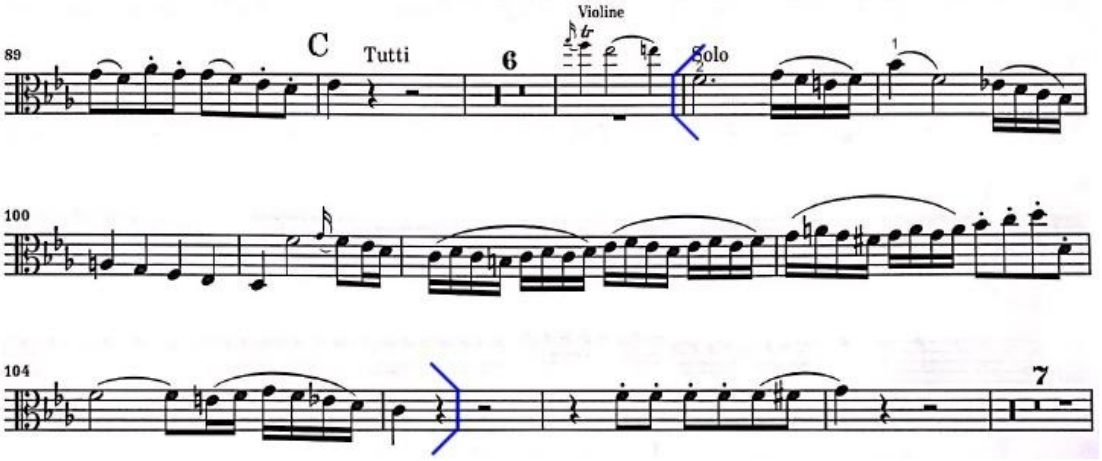
Figure 36. Playing on the Finger Pads.
The bracketed section displays a short expressive passage.
Source: Mozart, "Sinfonia Concertante, KV 364 (320d)," 2.



While one finger angle might be significantly easier and natural to you (dependent on your hand, fingers, and instrument), in repertoire you can freely alternate from using the finger pads and fingertips depending on your desired finger articulation. In the following example we can adjust the finger angle within the same passage of Mozart Sinfonia Concertante (fig. 37). In mm. 98

manipulate the left-hand balance to play on the finger pads during the expressive three measures, and then adjust to the fingertips in mm. 102 to achieve a quick and clear finger articulation.

Figure 37. Adjusting Finger Angle in One Passage.
Even within this short passage the finger angle can be manipulated for expressive purposes.
Source: Mozart "Sinfonia Concertante, KV 364 (320d)," 2.



Experimenting with Finger Articulation in the Repertoire

While we have isolated the finger speed, weight, and angle, remember that there are endless possibilities for expressive combinations. Try playing through the two repertoire examples below and experiment with the variables to find the sound you desired for each passage (fig. 38–39). Support your desired finger articulation by manipulating the left-hand balance.

Figure 38. Finger Articulation in Brahms, Sonata No. 1.
Experiment with left-hand balance to support the desired finger articulation.
Source: Johannes Brahms, "Sonata for Viola and Piano, Op. 120, No. 1" (Schirmer, Inc., 1979) 1.

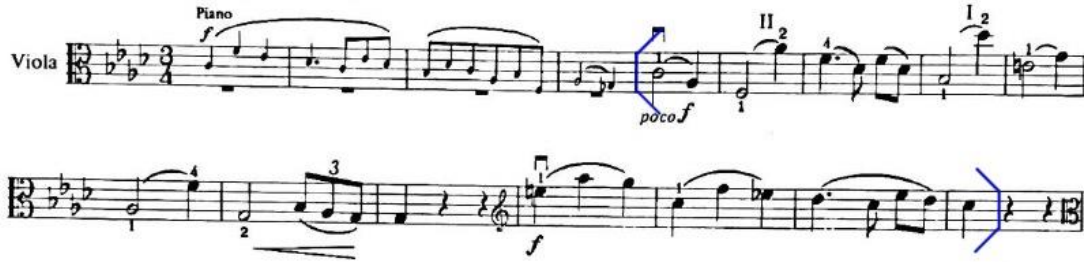
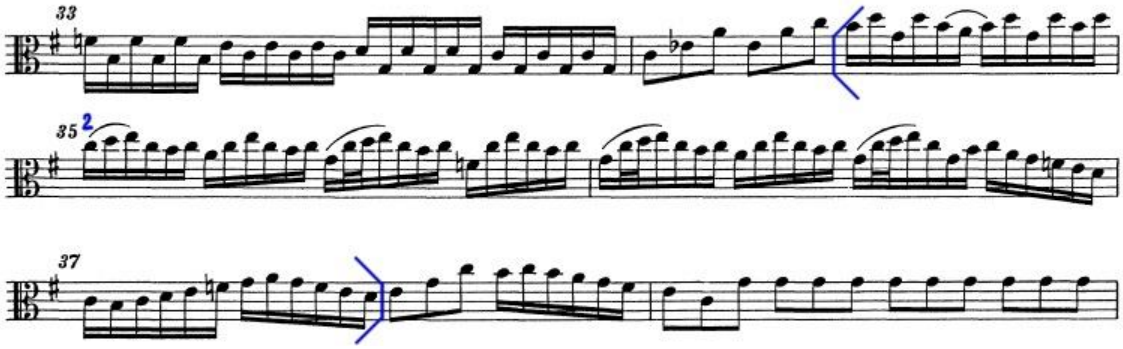


Figure 39. Finger Articulation in Bach, Brandenburg No. 3.
Experiment with left-hand balance for your desired finger articulation. Labels by author.
Source: Johann Sebastian Bach, "Brandenburg Concerto No. 3 in G Major, BWV 1048" (Leipzig: Breitkopf und Härtel, 1871), 7.



Reflection on Finger Articulation

In the quest for expressive and fluid finger articulation, it is vital to gain awareness of the muscles in the forearm and hand that dictate finger movement. The constant activation and release of muscles is a continuous dance in viola playing. As muscles can facilitate or hinder movement, keeping the palm supple and practicing the immediate release of a muscle are imperative for finger agility.

By manipulating the speed, weight, and angle of the fingers, the violist can have boundless expressivity in finger articulation. It is imperative that the violist approach finger articulation in a manner different than the violinist, as the thicker strings of the viola require more weight and speed to create clear pitches in addition to the further intervallic spacing. For instance, keeping the fingers hovering in *all* scenarios may result in muscular tension that constricts finger mobility. Additionally, the violist can utilize the natural advantages of the springy string, gravity, and arm weight for greater ease and a wider color palette of expressivity in finger articulation.

Pre-cursor to Navigating the Bouts: Instrumental Factors

1. The intervallic spacing decreases higher on the fingerboard.
2. The distance between strings increases higher on the fingerboard (the strings flare out).
3. The string height increases higher on the fingerboard (greater string tension).

The Intervallic Spacing Decreases

As we play higher on a string, the intervallic spacing decreases. Galamian notes that "the span of the frame of the eighth position will be half the size of that of the first position." [93] Despite the significant physical difference of intervals in high versus low positions, we often approach fingerings and hand frames in a similar manner for each. This is not always practical. For instance, while in lower positions we need to use the 1st and 4th fingers to reach a perfect 4th, in high positions we could easily use 1st and 3rd fingers. For large intervals in upper positions, you may not need to shift at all. While you may not be able to reach the interval of a 10th between two strings in 1st position, it may be well within your reach in an upper position.

The String Spacing Increases

The strings are spaced further apart on the bridge than they are on the nut. Therefore, as you go higher up on the fingerboard, there is more distance between strings. Take a look at your viola and notice how the strings and fingerboard flare out. As we shift upwards the fingers need to compensate for the new spacing. This is done subtly by flexion or extension of the fingers and slight change of the angle finger.

Misconception: My fingers will fall off the string up high.

[93] Galamian, *Principles of Violin Playing and* Teaching, 24.

This is a common fear that can be quickly remedied once we are accounting for the change in string spacing. One way to practice adjusting for this change is to play chromatic scales up and down one string at a time. If you're playing on the C string, notice that your fingers will have to reach further in extension as they get higher up to compensate for the flare out of the string. If you're playing a chromatic scale on the A string, your fingers will get more curved and flexed as they go higher up the string.

The String Height Increases

Due to the height of the bridge being significantly higher than the nut of the instrument, the string height increases greatly in the higher positions. This results in an increase in string tension closer to the bridge. Practically speaking, this influences the tactile feeling of the fingers on the string and the finger articulation. To stop the pitch in an accurate manner, the finger articulation will need to adjust with the speed and weight in correspondence with the new string tension. Remember that the finger does not necessarily need to touch the fingerboard to create a clean pitch. This will become almost impossible up high.

Wrap Up on Instrumental Factors

With these factors at play, the touch and feel of the fingers in high positions is exceedingly different than in low positions. It's helpful to play chromatic scales up and down each string to notice these gradual changes.

Misconception: A big shift is just a shot in the dark.

These different factors can be used to our advantage if we think of shifting as going to a distinct location. Each note has its own unique location on the fingerboard that can be visually seen, tactilely felt in addition to being aurally heard. Instead of always practicing a shift from the old

note to the new note, start with the new note to memorize its distinct feature. Memorize the feeling of the finger, the angle of the finger, visual location on the fingerboard, the look of the hand. It's helpful to try this without the bow, as we are often hyper focused on our ear, and need to allow our other senses to participate equally.

Chapter 6: Shifting in Regard to Navigating the Shoulder Bouts[94]

What is the Issue with Navigating the Bouts?

One of the most significant differences between left-hand technique on the viola versus the violin is navigating the shoulder bouts and ribs of the viola. If unaddressed, these structures can greatly inhibit fluency and expressivity of the shift itself, as well as the left-hand balance and finger articulation in higher positions. As the shoulder bouts come in many different shapes and sizes, the ribs have different widths, and the heel impacts the fingerboard in a unique place, it makes navigating the bouts extremely individualized for each violist. Revisit pg. 5–6 to admire some of the many shapes of the violas by Hiroshi Iizuka, David Rivinus, and Anne Cole.

Take a second to appreciate your viola's unique size and shape of the shoulder bouts and width of the ribs, in combination with your finger lengths and palm size. In what position does the heel start to impact your shifts? Please note that if your viola has shoulder cut outs (like the Iizuka model) the information in this chapter may not be entirely relevant to you.

As shifting in general is a well-researched topic and there are many resources readily available, this chapter only contains a short section on a few general shifting principles pertinent to our discussion. It does not discuss shifting in relation to the bow, expressive slides, or intonation in-depth. Instead, the discussion focuses on *shifting with ease and fluency* as it pertains to navigating the shoulder bouts of the viola. By working on the fluidity of shifts as the fluidity of motions, the violist will gain ease, accuracy, and be empowered with more expressive options.

[94] Video demonstrations of exercises from this section are in supplemental files or at this link.

Basic Principals of Shifting

As stated by violinist, Robert Gerle, "technical shifts are dictated by the need to go from one position to another […] expressive shifts, on the other hand, try to approximate to the quality of the singing human voice and bring out the lyric and emotional quality." [95] The defining principles of a shift are the same as the principles of finger articulation (speed, weight, and contact point), except that they happen simultaneously with the motion of traveling on the fingerboard. These three factors can be manipulated for desired expression.

Speed

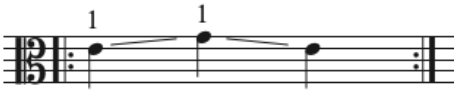
The speed of a shift is determined by the speed of motion of the arm traveling to the new position. With any motion, pinpointing the biggest joint allows for greater ease and minimal muscular involvement. Additionally, it is imperative to release the thumb muscles from gripping the neck or squeezing with the first finger prior to shifting. Any excess muscular use can greatly inhibit fluidity and expressive control of the speed of shift.

Misconception: Shifts (ascending or descending) always involve a fast motion.

The speed will vary, depending on the context and expression the shift. Experiment with the speed of motion on a simple same-finger shift from first to third position.

Exercise 67: Exploring Speed During a Shift.
Source: By author.

1. In this simple same-finger shift, the motion will take place from the bending and unbending of the elbow. Start with a slow even slide, gradually increasing the speed with each repeat while focusing on fluidity of motion.
2. Make sure that the thumb is released and moving freely with the arm.



[95] Robert Gerle, *The Art of Practising the Violin: With Useful Hints for All String Players (*London: Stainer & Bell, 1983) 96-97.

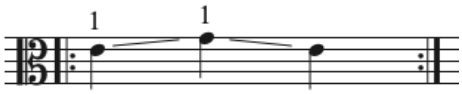
Weight

During a shift, we need to release the weight of the old finger to that of a harmonic. The finger can 'polish' the string as it safely glides to the new position without excess finger pressure deterring the ease of motion. It can be helpful to imagine a rainbow arc on the string when we shift. The weight from the old note is released as the finger glides over the arc at harmonic weight, and then adds weight when landing on the new note.

In the next exercise, we will experiment with the amount of weight on a simple same-finger shift from first to third position. Make sure that the finger is not putting weight on the string through muscular force or tension, but instead utilizing arm weight.

Exercise 68: Varying the Amount of Weight While Shifting.
Source: By author.

1. Start gliding with a harmonic weight, then go to a half-weight and gradually increase weight until the string is fully depressed so that you gain awareness of the different amounts of weight. Keep in mind that the thumb is also at a 'harmonic' weight as it glides along with the hand.
2. Next, start with full weight, go to half-weight, and then return to the harmonic.



Contact Point

The third factor of the shift is the contact point of the finger itself. Do you want to arrive on the finger pad? Or a dropped finger on the fingertip? Your desired contact point between the finger and string will influence your decision to use an "old finger shift" versus a "new finger shift."

During an "old finger shift," the old finger acts as the guide note, taking the hand to the new position which allows the new finger to clearly articulate the new note by dropping on the

fingertip. If you were to add an expressive slide, you would likely hear the departure of the old finger taking the hand to the new position.

During a “new finger shift,” the new finger acts as the guide note, taking the hand to the new position. If you want to add an expressive slide you would showcase the arrival of the new note on the finger pad.

Basic Body Principles of Shifting

While most obvious joint involved in a shift is the elbow joint, humeroscapular rotation and the wrist are also pertinent to navigating the bouts. Humeroscapular rotation is a highly important motion in navigating the shoulder bouts and ribs that often gets overlooked. If the shoulder area is locked, it can cause jerky and overly muscular movement during the shift. It is key that the humeroscapular rotation, which involves motion of the collarbone and shoulder blade, supports the hand and fingers up high.

The elbow is the meeting place of three different bones from the upper and lower arm: the humerus, radius, and ulna. The upper arm humerus inserts into a notch in the ulna (the pinky side bone in the forearm.) When we ‘lean on our elbows’ the bump that we lean on is part of the ulna. Note that the radius is not a part of the notch, which gives it the freedom to swivel in rotation. Take a moment to feel the bump that is the end of the ulna and bend at the elbow a few times. Do you feel the ulna open and close into the humerus (upper arm bone)? What muscle is supporting this motion?

As you may have guessed, the upper arm biceps are used in bending the elbow. Mime shifting by bending and unbending your elbow, focusing on the use of the bicep. What happens if the muscle remains tight and frozen after the movement? Try increasing the speed of opening and closing the joint while decreasing muscular force. While the biceps are used to stimulate the

bending and unbending movement in shifting, once the shift is over the muscle must return to its resting and lengthened state. Keep in mind that the elbow joint, just like all the other joints can use momentum in the motion.

Unlike the hinge joint of the elbow, the wrist is made up of 8 bones that create three different joints. It is vital for finger mobility that the wrist remains supple and the joints do not get locked. Remember that the wrist houses the carpel tunnel that allows the tendons to manipulate the fingers and provide blood and circulation.

Clamping Down

Before continuing, one of the most common inhibitors in the fluidity of shifts must be addressed. Often times, students worry about the instrument slipping when they play up high and press down with their neck in an effort to support the entire instrument.

Misconception: I need to clamp down with my neck to free up my left hand up high.

Excess pressure on the chinrest and unnecessary muscular tension in the neck greatly hampers the movement of the entire arm, resulting in unreliable shifts, spotty intonation, and poor finger articulation. Having a right relationship between the head and spine is vital in having fluid and expressive shifts.

Misconception: My instrument will fall when I shift downward.

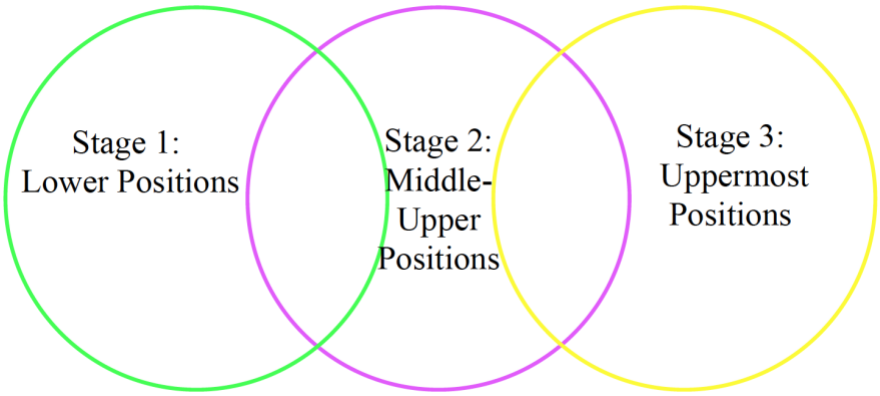
Shifting upwards often feels more secure than shifting down for violists. As we shift up, the hand moves in towards the body which simultaneously encourages the instrument to hug into our neck, creating a natural feeling of security. In contrast, shifting down can create apprehension. As the hand moves away from our body during the descent, it can feel like the viola is pulling away from the neck. Additionally, if you moved the viola upwards during the ascending shift, the viola needs to return to its original resting state during the descending shift. If the instrument

maintains contact with the collarbone, it can react to the motions of the arm and safely return to its neutral spot. Revisit pages 43–47 to gain comfortability with the movement of the viola. If you find it necessary to secure the instrument with the neck and head on the downward shift, make sure to practice releasing the muscles immediately after the shift.

Navigating the Bouts: Understanding the Stages

While there are numerous ways that violists traverse the fingerboard and navigate the bout and ribs up high, there are general principles that all violists can use. Murdock divides shifting into three stages in coordination with the area of the fingerboard (fig. 40). The exact place on the fingerboard where the stages of shifting occur will depend on the unique shape and size of the shoulder bouts and violist's hands.

Figure 40. Venn Diagram of the 3 Stages.
Venn diagram displaying the three stages with overlap.
Source: By author.



There is overlap between the stages so that you can choose how to approach the shift. In the following diagram (fig. 41, next page) notice that the overlap between Stage 1 to Stage 2 is labeled as Stage 1 Extension, and the overlap between Stage 2 and Stage 3 is labeled as Stage 2 Extension.

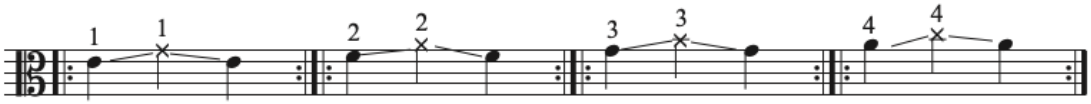
Figure 41. The Stages on the Fingerboard in Approximate Placement.
The three stages and the extensions displayed on the fingerboard.
Source: By author.

Stage 1: Lower Position Shifts

In lower positions unencumbered by the shoulder bouts or ribs (likely first through third or fourth position) the typical shifting motion occurs through opening and closing the elbow to bring the entire arm unit and thumb higher up the fingerboard. Try the following exercise starting in first position and going to any note (marked with the "X") in approximately third position.

Exercise 69: Gliding in Stage 1.
Source: By author.

1. First, try the motion without the viola, focusing on the fluency of opening and closing the elbow joint with minimal use of the bicep.
2. Next, do the motion on the instrument without the bow. Allow the left-hand fingers to be at harmonic weight and remember to fully release the thumb muscles for a fluid motion. Try the shifting motion slow, medium, and then fast, learning to control the speed of bending of the elbow while keeping the muscular involvement minimal.
3. Next, play the slide with the left hand and bow, releasing the stopped pitch to a harmonic weight while simultaneously releasing any thumb pressure before shifting. Experiment with half-weight and full weight then back to a harmonic.
4. Try mixing up the speed of the shift while at a harmonic weight.



Once you reach the heel where the neck meets the ribs, you can continue upwards in Stage 1 Extension, by keeping your thumb at the heel without pivoting and have the wrist bend and the fingers extend upwards (fig. 42). Depending on your pinky length, you may not be able to use your fourth finger.

Figure 42. Stage 1 Extension.
The fingers extending up the string while the thumb remains at the heel in Stage 1 Extension.
Source: By author.

Here are the isolated movements of Stage 1 and Stage 1 Extension:

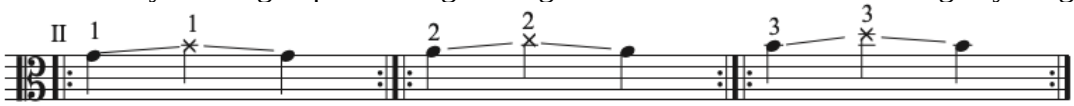
1. In Stage 1 (lower positions) we have the bending and closing of the elbow bringing the entire hand and thumb up together during the shift.
2. In Stage 1 Extension, the thumb stays at the heel while the wrist bends out and the fingers extend forward on the finger pads.

Try the following exercise, starting in third position and going to any note (marked with the "X") in approximately fifth position. Notice the somewhat open position of the hand in relation to the strings.

Exercise 70: Gliding in Stage 1 Extension.
Source: By author.

1. First do the motion without the bow, with the left-hand fingers at harmonic weight. Focus on having the thumb stay at the heel while the wrist and fingers extend upwards on the

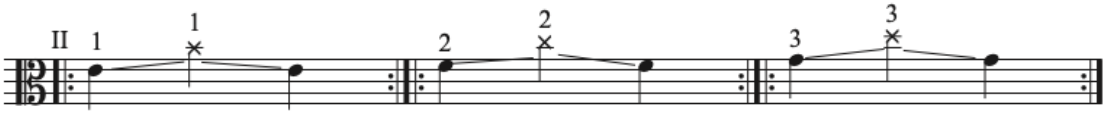
pads. How far can you reach? Try the shifting motion slow, medium, and then fast while keeping the muscular involvement minimal. Do not tense the thumb for a fluid motion.
2. Next, play the slide with the left hand and bow, releasing the stopped pitch to a harmonic weight while simultaneously releasing the thumb before shifting. Experiment with half-weight, full weight and then back to a harmonic.
3. Try mixing up the speed of shift while at a harmonic weight.
4. See how far you can go up the string in Stage 1 Extension without straining anything.



Exercise 71: Ghostly Glissando in Stage 1 (by Murdock).
Source: Murdock, interview by author, online, November 2023. Image by author.

The ghostly glissando exercise is broken into three steps. Step one combines the motion of Stage 1 to Stage 1 Extension with the bend of the elbow. Step two will loosen the wrist by adding a wide vibrato, and step three will activate the muscles for the lift and drop of the left-hand fingers. *Each step should be integrated until it is easy and fluid before moving on to the next step.*

1. Slide with the left-hand finger at harmonic weight, focusing on the fluency of the motion. Try mixing up the speed of the shift from very slow to fast.
2. Slide at harmonic weight with a relaxed wide vibrato, keeping the wrist and fingers extremely loose. Have the vibrato start before sliding. Practice changing the speed of the shift from very slow to fast.
3. Try the slide while simultaneously tapping the left-hand fingers up and down lightly in a random fashion, waking up the fingers. Practice changing the speed of the shift from very slow to fast.



Stage 2: Pivoting While the Thumb Stays at the Heel

When the thumb reaches the heel at the intersection of the neck and shoulder bouts, the arm will pivot through humeroscapular rotation, bringing the wrist and hand above the ribs and around the shoulder bouts (fig. 43, next page). Note that the thumb will rotate and pivot during the rotation to support the hand and wrist coming around the shoulder. The distance between the thumb and first finger will expand, but ultimately the thumb will stay touching the heel. This keeps the

thumb in opposition to the other fingers, creating a feeling of stability. Notice that the hand is in a slightly more "open position" towards the fingerboard, and you may have trouble reaching your fourth finger.

Figure 43. Stage 2 Pivoting.
The hand and wrist pivot around the viola shoulder bout and rib in Stage 2.
Source: By author.

Here are the isolated movements when shifting from Stage 1 to Stage 2:

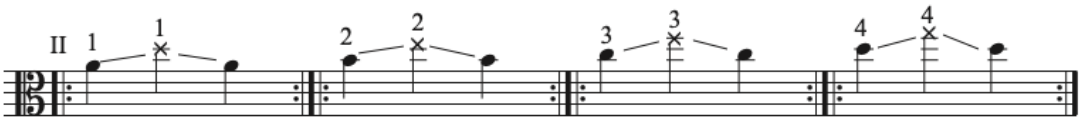
1. In Stage 1 we have the bending and closing of the elbow bringing the entire hand and thumb up during the shift.
2. Once we reach the heel, the thumb will rotate as the wrist and hand pivot around the ribs and shoulder bout primarily through humeroscapular rotation in Stage 2. The thumb will remain touching the heel.

The amount of pivot that is needed to get the hand and fingers over the ribs depends on the size and shape of the shoulder of the viola, and the individual hands of the violist. It will also be contextually dependent on the demands of the repertoire.

Try the following exercise starting in fourth position and going to any note (marked with the "X") in approximately seventh position. Depending on your unique hand and viola relationship, you may have difficulty using your fourth finger in Stage 2.

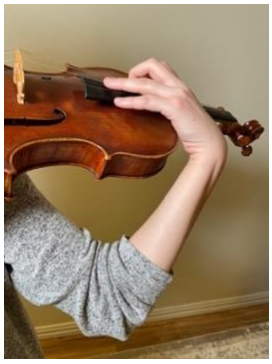
Exercise 72: Gliding in Stage 2.
Source: By author.

1. First do the motion without the left-hand fingers down at all, but instead slightly curved and hovering over the string. Focus on the motion of humeroscapular rotation automatically pivoting the hands and fingers above the ribs and around the bouts while the thumb rotates. Keep in mind that you don't want to pivot beyond what is necessary. Allow your optimal finger angle to determine how much pivoting is necessary. Try the shifting motion slow, medium, and then fast while keeping the muscular involvement minimal. Remember to release the thumb muscles for fluid motion.
2. Next, play the slide with the left hand and bow, releasing the stopped pitch to a harmonic weight while simultaneously releasing the thumb before shifting. Experiment with half-weight, full weight and then back to a harmonic.
3. Try mixing up the speed of shift while at a harmonic weight.
4. Try this on each string.



To continue up the fingerboard in Stage 2 Extension, the wrist can bend allowing the fingers to extend forward high up the string. As the fingers get higher up the string, notice that they will be much flatter and the base knuckles will be lower to the fingerboard (fig. 44). Some violists will even move the thumb to onto the shoulder bout itself to reach further. Your palm and finger length will determine how high you can play in Stage 2 Extension. Make sure that you don't strain anything in the wrist or hand in the uppermost region of your reach.

Figure 44. Stage 2 Extension.
Fingers extend up the string on their pads with low base knuckles in Stage 2.
Source: By author.



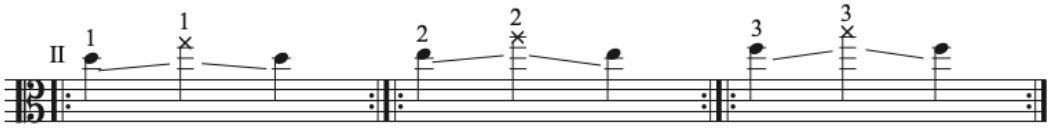
Here are the isolated movements when shifting from Stage 1 to Stage 2 Extension.

1. In stage one (lower positions) we have the bending and closing of the elbow bringing the entire hand and thumb up during the shift.
2. Once the thumb reaches the heel, it will rotate as the wrist and hand pivot around the ribs and shoulder bout primarily through humeroscapular rotation in Stage 2. The thumb will remain touching the heel.
3. To continue up the fingerboard in Stage 2 Extension, the wrist joints will bend to propel the fingers forward up the string on their pads. Some violists have the thumb on the shoulder bout to the right side of the neck for this.

Try the following exercise, starting in seventh position and going to any note (marked with the "X") in approximately tenth position. Keep in mind that in Stage 2 Extension you will likely have difficulty using your fourth finger.

Exercise 73: Gliding in Stage 2 Extension.
Source: By author.

1. First do the motion without the bow with left-hand fingers at harmonic weight. Focus on the wrist bending to propel the fingers far up the string. How far can you reach? Try the shifting motion slow, medium, and then fast while keeping the muscular involvement minimal. Make sure to keep the thumb muscles released for fluid motion.
2. Next, play the slide with the left hand and bow, releasing the stopped pitch to a harmonic weight while simultaneously releasing the thumb before shifting. Experiment with half-weight, full weight and then back to a harmonic.
3. Try mixing up the speed of shift while at a harmonic weight.
4. Try this on each string.

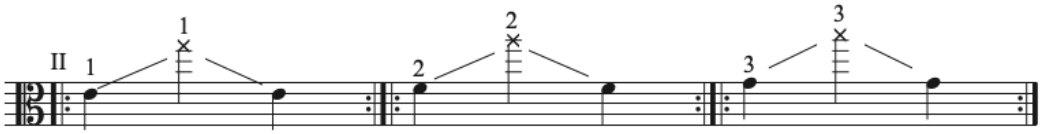


Once the isolated movements feel comfortable, combine Stage 1, Stage 2, and Stage 2 Extension into one fluid motion with the Ghostly Glissando exercise.

Exercise 74: Ghostly Glissando Through Stage 2 (by Murdock).
Source: Murdock, interview by author, online, November 2023. Image by author.

The ghostly glissando exercise is broken into three steps. Step one combines the motion of Stage 1, Stage 2, and Stage 2 Extension with the bend of the elbow, pivot of the humeroscapular rotation, and the extension of the hand. Step two will loosen the wrist by adding a wide vibrato, and step three will activate the muscles for the lift and drop of the fingers. *Each step should be integrated until it is easy and fluid before moving on to the next step.*

1. Slide with the left-hand finger at harmonic weight, focusing on the fluency of the motion. Try mixing up the speed of the shift from very slow to fast.
2. Slide at harmonic weight with a relaxed wide vibrato, keeping the wrist and fingers extremely loose. Have the vibrato start before sliding. Practice changing the speed of the shift from very slow to fast.
3. Try the slide while simultaneously tapping the left-hand fingers up and down lightly in a random fashion, waking up the fingers. Practice changing the speed of the shift from very slow to fast.



Stage 3: The Hand and Thumb Come Fully Around

In the highest positions on the fingerboard, the thumb will slide underneath the neck and then come over the ribs and shoulder bout and slide alongside the fingerboard as the arm and hand continue upwards (fig. 45, next page). You can go to the uppermost region of your fingerboard in this manner. Notice that the knuckles are parallel to the neck in a more “closed position,” the fingers are highly curved, and the base joints are high above the fingerboard. Depending on your instrument, you may be able to have the thumb oppose the other fingers slightly by sliding it along the bottom edge of the fingerboard.

Figure 45. Stage 3 The Hand and Thumb Come fully Around.
The thumb alongside the fingerboard in Stage 3.
Source: By author.

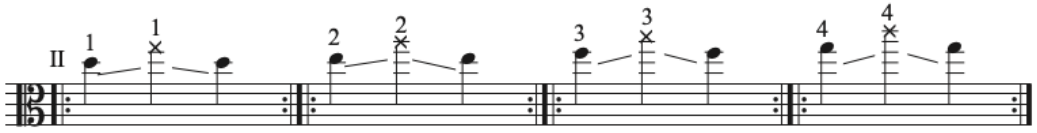
Here are the three isolated movements when shifting from a low to a high position coming around the bout.

1. In Stage 1 (lower positions) we have the bending of the elbow bringing the entire hand and thumb during the shift.
2. Once we reach the heel, the thumb will rotate as the wrist and hand pivot around the ribs and shoulder bout primarily through humeroscapular rotation in Stage 2.
3. Instead of remaining at the heel, the thumb will follow the hand with the humeroscapular rotation up and around the ribs and shoulder bout, coming to the side of the fingerboard in Stage 3.
4. Now the elbow can bend again to bring the hand and fingers to the next level higher up the fingerboard, while the thumb follows the fingers by sliding lightly along the side of the fingerboard or touching the bottom edge of the fingerboard.

Try the following exercise, starting in seventh position and going to any note (marked with the "X") in approximately tenth position. Note that Stage 3 can go all the way up the fingerboard without limitation.

Exercise 75: Gliding in Stage 3.
Source: By author.

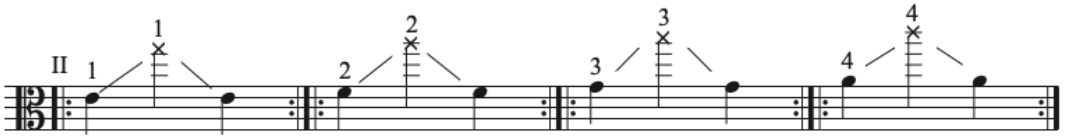
1. First do the motion without the bow with left-hand fingers at harmonic weight. Focus on the humeroscapular rotation and elbow bend to bring the hand up the fingerboard while the thumb comes along the side. Try the shifting motion slow, medium, and then fast while keeping the muscular involvement minimal. Make sure to release the thumb muscles for fluid motion.
2. Next, play the slide with the left hand and bow, releasing the stopped pitch to a harmonic weight while simultaneously releasing the thumb before shifting. Experiment with half-weight, full weight and then back to a harmonic.
3. Try mixing up the speed of shift while at a harmonic weight.
4. Try this on each string.



Exercise 76: Ghostly Glissando Through Stage 3 (by Murdock).
Source: Murdock, interview by author, online, November 2023. Image by author.

The ghostly glissando exercise is broken into three steps. Step one combines the motion of Stage 1, Stage 2, and Stage 3 with the bend of the elbow, pivot of the humeroscapular rotation, and another bend in the elbow. Step two will loosen the wrist by adding a wide vibrato, and step three will activate the muscles for the lift and drop of the left-hand fingers. *Each step should be integrated until it is easy and fluid before moving on to the next step.*

1. Slide with the left-hand finger at harmonic weight, focusing on the fluency of the motion. Try mixing up the speed of shift from slow to fast.
2. Slide at harmonic weight with a relaxed wide vibrato, keeping the wrist and fingers extremely loose. Have the vibrato start before sliding. Practice changing the speed of the shift from very slow to fast.
3. Try the slide while simultaneously tapping the left-hand fingers up and down lightly in a random fashion, waking up the fingers. Practice changing the speed of the shift from very slow to fast.



Focus on the descent of the shift, making sure that the thumb leads the descent in the upper registers, and then the wrist returns to a slight “giving” position in first position.

Exploratory Exercises: Unique Advantages of Each Stage

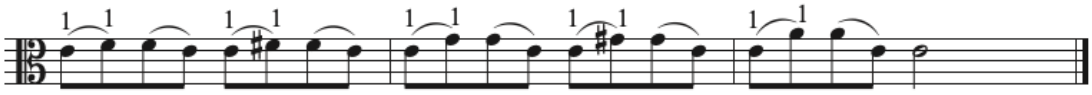
Now that you gained fluency in the shifting motions itself, let's examine a few of the *unique* advantages of the stages, as well as a guided comparison between Stages 2 and 3. Keep in mind that each of the stages has much more to be explored than can be written about in this chapter.

Stage 1 Option: Shifting While the Thumb Remains

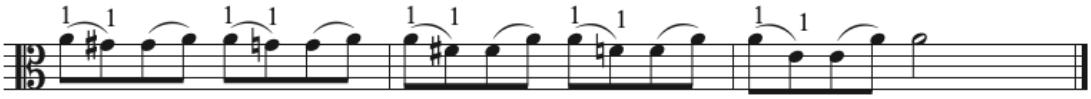
The most common shifting motion in lower positions is having the thumb and hand move together as one unit. There are many resources on this type of shift, and it does not need to be expanded upon here. One unique option in lower positions is to keep the thumb still while the fingers move up and down the fingerboard. This is useful for finger replacements and quick passage work with small intervallic shifts.

Exercise 77: Shifting While the Thumb Remains.
Source: By author.

1. Try the following exercise keeping the thumb still while the first finger shifts up and back down. Make sure that the thumb is not gripping the neck. Depending on your hand and instrument you may not be able to reach the fourth while the thumb remains. Be gentle and do not to strain yourself.



2. Now try the corresponding exercise where the thumb remains as the finger shifts down and back up.

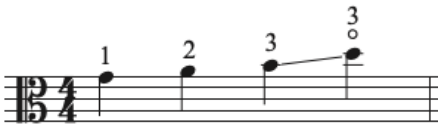


Stage 1 Extension Option: Harmonics

Stage 1 Extension is useful for reaching harmonics in the middle range of the instrument as the fingers can extend forward on the pads while the thumb stays at the heel.

Exercise 78: Stage 1 Extension Harmonic.
Source: By author.

1. Keep the hand and thumb at the heel while the third finger extends on its pad to the harmonic.



Harmonics in Stage 1 Extension are common throughout the repertoire. Try the following example from the first movement of Walton Viola Concerto (fig. 46).

Figure 46. Stage 1 Extension Harmonic in Walton Viola Concerto.
The ending harmonic in the bracketed passage can be reached in Stage 1 Extension.
Source: Walton, "Concerto for Viola and Orchestra," 3.

Stage 2 Option: Extension Fingerings

In stage two we can utilize the wonderful ability to stretch far in extension in combination with the smaller intervallic spacing of the higher positions. This allows us to reach bigger intervals up high without needing to shift.

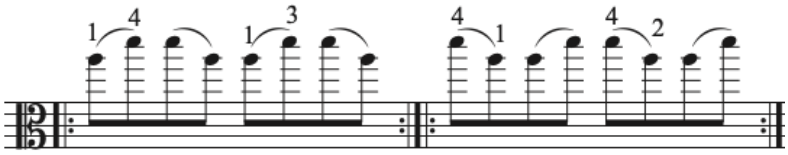
Exercise 79: Finger Spreading in Stage 2.
Source: By author.

1. Try this exercise with the left hand alone.
2. Go to roughly 7th position on the A string (first finger on A) and have the first three fingers down lightly. Don't worry about having the fingers on specific notes; this is to focus on the spreading motion to increase the intervallic space between the fingers.
3. While maintaining light contact with the string, have the fingers come together so that they are all touching each other.
4. Now spread the fingers as far away from each other as possible while still maintaining contact with the string. Where is the spreading motion coming from? Is it spreading mostly from FJ1 and FJ2? Or from the extension of the fingers?
5. Repeat the motion of coming together and spreading far apart.

Notice that the motion not only involves spreading FJ1 and FJ2, but also the extension and flexion of the fingers.

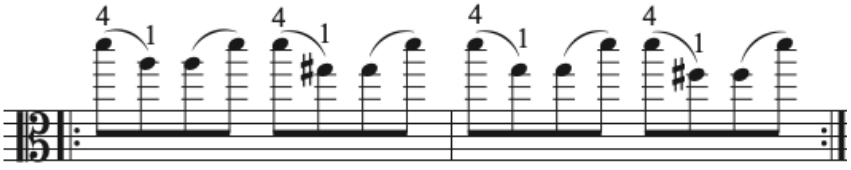
Exercise 80: Extension Fingerings in Stage 2.
Source: By author.

1. Keep the hand in seventh position while the finger extends to the note instead of shifting. Make sure to keep the palm supple as you reach.



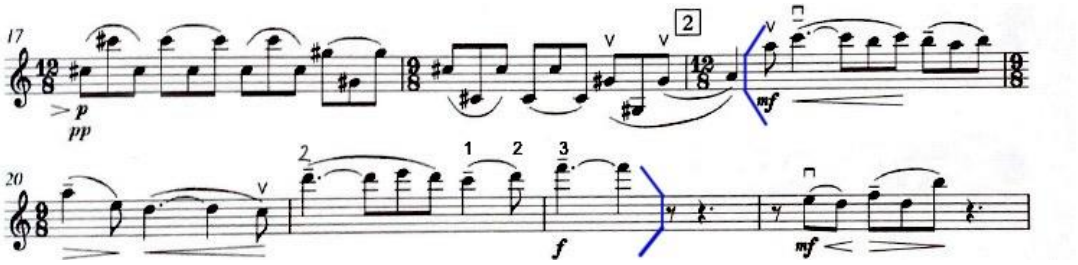
Exercise 81: First Finger Extension Back.
Source: By author.

1. Keep the hand in seventh position as the first finger extends back to reach the new note instead of shifting. Make sure to keep the palm supple and not to strain yourself.



Extension fingers are extremely helpful in creating a nice legato between the fingers without an audible shift. Try the following extension fingering in mm. 22-23 in the following passage from Walton Viola Concerto (fig. 47).

Figure 47. Extension Fingering in Walton Viola Concerto.
An extension fingering in mm. 22-23 is helpful in creating a smooth legato. Labels by author.
Source: Walton, "Concerto for Viola and Orchestra," 1.



Stage 2 Extension Option: High Harmonics and Lyrical Notes

Shifting in Stage 2 Extension is useful for high harmonics and high lyrical notes. The flat fingers on the pads allow for rich vibrato, new finger slides, and the ability to easily control the finger pressure for harmonics. Try the following examples having the fingers extend up the string on their pads while the thumb stays back (fig. 48–50).

Figure 48. Stage 2 Extension Harmonics in Zimbalist's Zapateado.
This passage showcases high harmonics that can be reached with Stage 2 Extension. Labels by author.
Source: Efrem Zimbalist, "Sarasateana, Suite of Spanish Dances*,"* In *The Virtuoso Violist, Six Works for Viola and Piano*, edited by William Primrose, 44-64 (New York: Schirmer, 1995) 28.

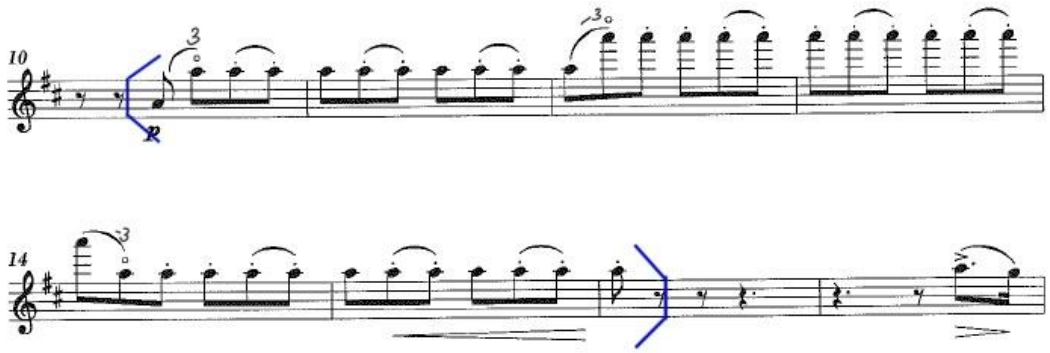


Figure 49. Stage 2 Extension in Zimbalist's Tango.
The high harmonic found in the bracketed material can be played in Stage 2 Extension. Labels by author.
Source: Efrem Zimbalist, "Sarasateana, Suite of Spanish Dances," 21.

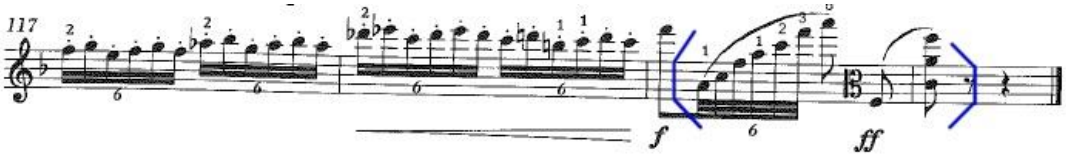
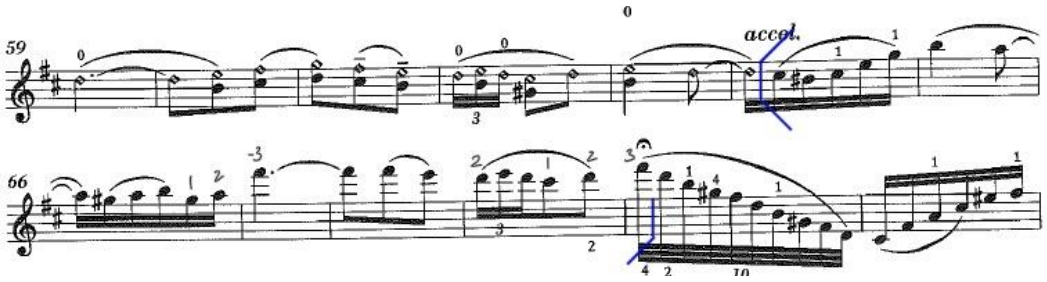


Figure 50. Stage 2 Extension Lyrical High Notes
The high lyrical notes can be played with rich and expressive vibrato in Stage 2 Extension. Labels by author.
Source: Efrem Zimbalist, "Sarasateana, Suite of Spanish Dances," 22.



Stage 3 Option: Finger Patterns with the Fourth Finger

In Stage 3, the motion of spreading comes primarily through the first two finger joints (the connection of the finger to the wrist and the base knuckles,) and you can visually see the spreading take place at the base knuckles. Try the following exercise to notice how your fingers spread in Stage 3.

Exercise 82: Finger Spreading in Stage 3.
Source: By author.

5. Try this exercise with the left hand alone.
1. Go to roughly 9th position on the A string (first finger on C) and put all four fingers down lightly. Don't worry about having the fingers on specific notes; this is to focus on the spreading motion to increase the intervallic space between the fingers.
6. While maintaining light contact with the string, have the fingers come together so that they are all touching.
7. Now spread the fingers as far away from each other as possible while still maintaining contact with the string. Where is the spreading motion coming from? Is it spreading mostly from FJ1 and FJ2? Or from the extension of the fingers?
8. Repeat the motion of coming together and spreading far apart.

What did you notice? How was this different from the same exercise in Stage 2? Stage 3 is great for utilizing the fourth finger up high. Additionally, the finger spreading combined with the smaller intervallic spacing up high makes it easier to reach intervallic patterns. Try the following examples of different finger patterns in the upper register (fig. 51–53).

Figure 51. Finger Patterns in Stage 3, No. 1.
This displays finger patterns up high that can involve the fourth finger.
Source: Bartók, "Viola Concerto, Op. posth.," edited by Tibor Serly, 15.

Figure 52. Finger Patterns in Stage 3, No. 2.
This passage displays finger patterns up high conducive for Stage 3.
Source: Bartók, "Viola Concerto, Op. posth.," edited by Tibor Serly, 15.

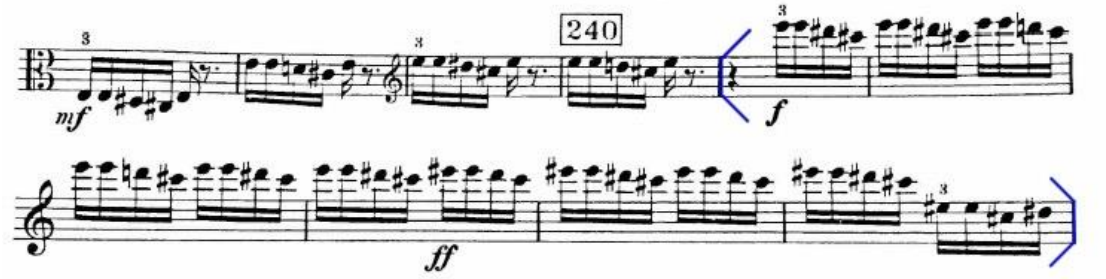
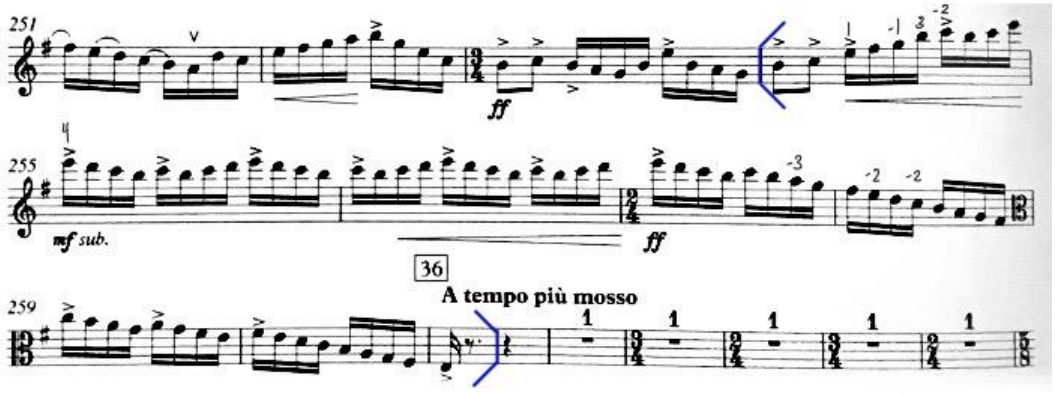


Figure 53. Finger Patterns in Stage 3, No. 3.
Finger patterns up that can utilize the fourth finger in Stage 3.
Source: Walton, "Concerto for Viola and Orchestra," 8.



Stage 2 and Stage 3 Comparison

Stage 2 and Stage 3 have much overlap and therefore the violist will decide how to approach the shift based on the needs of the repertoire, the desired expression, along with the natural strengths of their hand and finger proportions. It is always helpful to start in the new position and decide what finger articulation and hand frame will serve you best, and then go back for the shift.

For most of the exercises and examples, you will try them both ways, once in Stage 2 and once in Stage 3. The goal is to learn what works best for you, so don't be discouraged if you are unable to execute the exercises both ways!

Finger Articulation: Speed Up High

Try the following exercise once in Stage 2 and once in Stage 3.

Exercise 83: Lift and Drop Up High
Source: By author.

1. Try this exercise with the left-hand alone. First, go to roughly 10th position on the D string (first finger on F.)
2. Now lift and drop each individual finger in a gently curved manner and find their full range of motion. Try to over-exaggerate the lift. Don't worry about placing the fingers in any particular place on the fingerboard, just focus on using the muscles deep within the forearm to control the lift and drop of the finger. Keep in mind that you may not be able to reach fourth finger while in Stage 3.
3. Try doing trills between 1st-2nd finger, 2nd-3rd finger, 3rd-4th finger.
4. Try this on every string.

What did you notice? When the arm comes around in Stage 3 the base knuckles will be significantly higher than the fingerboard. This may facilitate quicker drops for the fingers, but the lift might feel more cumbersome. When the thumb stays at the heel in Stage 2, the base knuckles are lower and closer to the string in height, which will help the lift of the fingers to feel more agile.

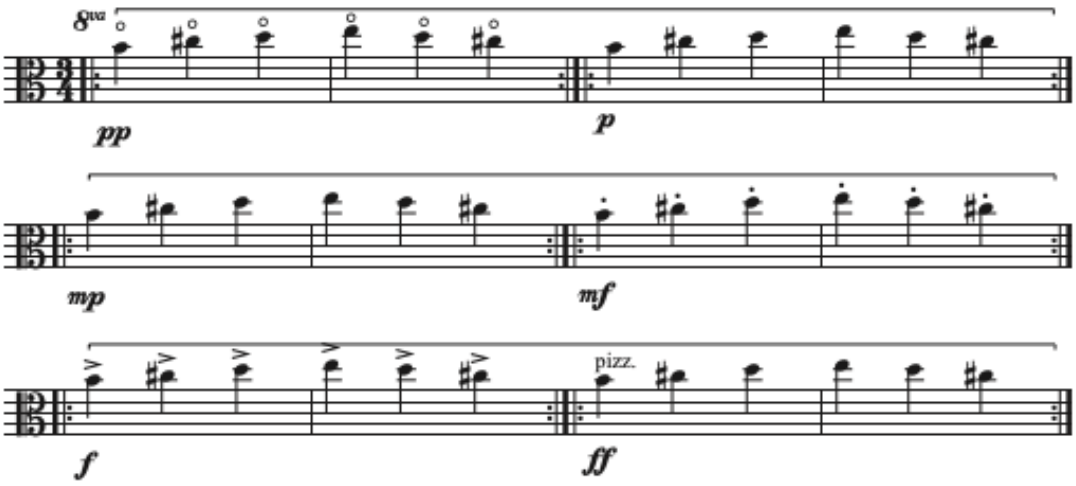
As the bridge is higher than the nut of the instrument, the string height and string tension increases greatly in the higher positions. Therefore, the speed and weight of finger articulation will need to be adjusted in correspondence with the new string tension. Remember that the finger does not need to touch the fingerboard to create a clean pitch.

Finger Articulation: Weight Up High

Try the following exercise to experiment with different finger weights in 8th position, once in Stage 2 and once in Stage 3.

Exercise 84: Finger Weight in Eighth Position.
Source: By author.

1. Play through the following exercise with the bow first. Gradually increasing finger weight in correspondence with the dynamic and bow stroke.
2. Now try the left-hand alone while replicating the finger weight.



What did you notice? In Stage 2 you may feel more secure and able to release your arm weight into the string. Notice how the lower base knuckles and finger pads can sink down into the string. When the arm comes around in Stage 3, the base knuckles are a bit higher and the fingers

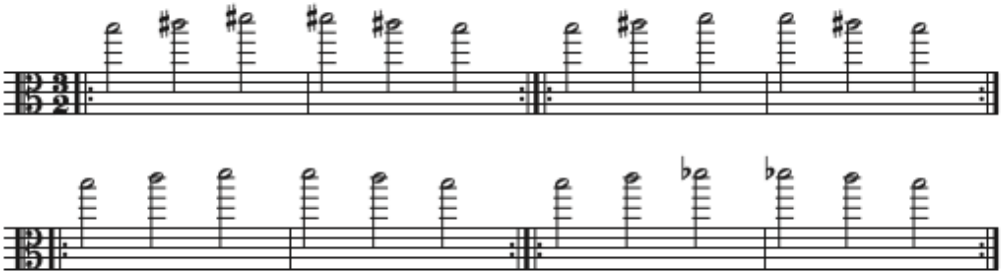
are more curved on the fingertips. If you feel uncomfortable, an option is to rest the thumb and whole hand unit on the shoulder bout as you release weight into the string.

Finger Articulation: Contact Point and Vibrato Up High

Vibrato is intricately connected with finger weight. Keep in mind that the vibrato will need to involve less oscillation as you go up higher on the string due to the smaller intervallic spacing.

Exercise 85: Vibrato in Eighth Position.
Source: By author.

1. Try this exercise once in Stage 2 and once in Stage 3. Spend time on each finger and try to find the point of gravity that the finger can oscillate.
2. Experiment with different speeds and widths of vibrato as well as having continuous vibrato.



What did you notice? Due to the flatter fingers and finger pad contact that occurs in Stage 2, there are more choices for vibrato and it also allows for a continuous vibrato between the fingers.

Try the following examples from the repertoire once in Stage 2 and once in Stage 3, focusing on your desired finger speed, weight, contact point, and vibrato (fig. 54–56, next page).

Figure 54. Stage 2 and 3 Comparison, Walton mvmt. 1.
This passage has lyrical expression in the high register conducive for Stage 2 or 3.
Source: Walton, "Concerto for Viola and Orchestra," 1.

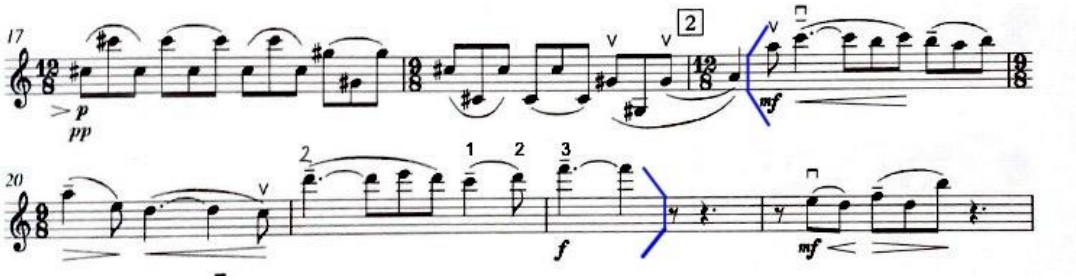


Figure 55. Stage 2 and 3 Comparison, Bartók mvmt. 1.
This is an impassioned section of music in the upper most region of the fingerboard.
Source: Bartók, "Viola Concerto, Op. posth.," edited by Tibor Serly, 10.

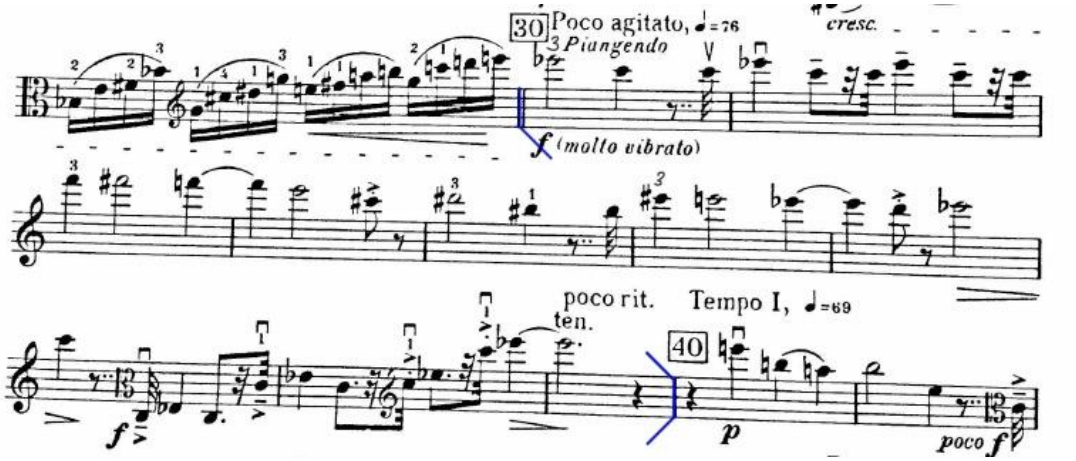
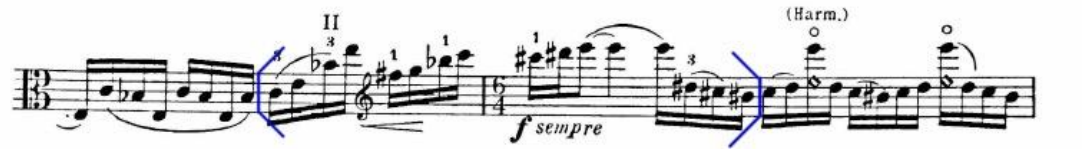


Figure 56. Stage 2 and 3 Comparison, Bartók mvmt. 1.
This passage demonstrates a strong passionate moment in the upper register.
Source: Bartók, "Viola Concerto, Op. posth.," edited by Tibor Serly, 2.



Reflection on Navigating the Bouts

Navigating the bouts is a highly individualized technique for violists. The many variables of the instrument size and shape, along with the unique body of the player, make it impossible to codify shifting. Instead, violists are constantly figuring out "what works for them." As I discovered watching my colleagues approach the high G# in Strauss *Ein Heldenleben* during orchestra repertoire class, there are many options to approach shifting on the viola.

To understand the possibilities available for navigating the bouts, we can conceptualize the fingerboard into three overlapping stages: Stage 1 in the lower position, Stage 1 Extension; Stage 2 with pivoting around the bouts, Stage 2 Extension; and coming around fully in Stage 3. By understanding each stage and the physical motions involved with approaching that region of the fingerboard, violists can be empowered to make conscious choices of what works best for themselves and the needs of the repertoire.

Chapter 7: Conclusion

The journey to greater freedom and expressivity on the viola is through a fluent understanding of technique for oneself and one's unique instrument. This requires flexibility and experimentation to fully understand the potentialities of the instrument, the body, and the interplay between them.

The idea of technique can feel overwhelming. If separated from expression, it turns into its own monster, as if it were something to conquer prior to freely and fully expressing ourselves in the music. We must reverse the cycle! As Tuttle rightly points out, "the genius, or the highly talented and energetic child often becomes successful in spite of these impositions. But how many countless others are locked and bound all of their lives with this sad approach to 'discipline.'"[96]

It is my hope that violists do not feel stunted by what they know or do not know or feel trapped by discipline. Think of the baby, who does not wait to cognitively understand a leg or an arm before attempting to crawl, but instead allows their desire to move drive their efforts of trial and error. Similarly, let us allow our desire to create music propel us forward in exploration, as we make discoveries for greater fluency in left-hand expression.

Unlike the baby, our minds have been filled with ideas about how our bodies work, how we move, or what technique should look like. This can even lead us to believe that our bodies should work in ways it cannot or should not, and can greatly restrict our music making. For violists, pre-conceived notions often stem from trying to uphold certain ideals of violin technique on the viola. These notions can prevent us from discovering what actually works for our unique

[96] Irvine and others, *The Karen Tuttle Legacy: A Resource and Guide for Viola Performers, Teachers and Students*, 116.

bodies and instruments. By approaching technique and movement in an exploratory manner without judgement, we can learn gently by trial and error.

Experiencing movement somatically, from the inside out, is vital in the quest for greater ease and expression on the viola, as it is foundational in integrating the mind and body. At the end of the day, only the individual can determine what feels good, and what works best for themselves. By looking at technique through a lens of movement, the violist is empowered to explore healthy movement for themselves and utilize the body and all its wonderful capabilities for expression.

Additionally, focusing on the movements of technique can be a major asset to pedagogy. As technique may look different for each violist, focusing on fluidity of right movement can simplify complicated issues, and basic anatomical knowledge can serve as a tool in problem solving. While this paper focuses on left-hand technique specifically, the concepts in this paper can be applied to any aspect of viola playing. Anytime there is discomfort or limited expression, the violist can use this as a blueprint for finding greater ease of motion. First, identify where the motion originates, the biggest joint involved. Once identified it can be explored in isolation in the air, making sure to release unnecessary muscles. From there, the motion can be gently applied to the instrument without aural stimuli from the viola while focusing on the fluency of the motion somatically. The motions should be repeated for ease so that the body can make natural adjustments and memorize the feeling. Lastly, the motion can be applied to the instrument with aural stimuli.

As we gain fluency and ease with movement in our body, we can achieve fluency and ease on the instrument. The body is capable of an infinite variety of movement and nuance which translates to an infinite variety of music making. The body strives for pleasure, and we gain

endorphins through exercise and motion. Why not enjoy the motions of viola playing? We should aim to have our technique be filled with a variety of joyful, whole-body movements in service to greater musical communication and expression.

Appendix A

The following videos can be found in the supplemental files or with the clickable links below.

Demonstration Videos:

1. Incorporating the Viola
2. Left-Hand Balance
3. Left-Hand Balance: Adjusting in Action
4. Finger Articulation
5. Navigating the Bouts

Recital Videos:

Walton, Viola Concerto, Movement 1

Mozart, Sinfonia Concertante

Zimbalist, Sarasateana Suite

Brydern, Bebop for Beagles

Appendix B

Tonya Burton, Final DMA Recital

Ulrich Recital Hall
April 6th at 5pm

Tonya Burton, viola
MuChen Hsieh, violin
Guzal Isametdinova, piano

Concerto for Viola and Orchestra — William Walton (1902-1983)
- I. Andante con moto

Sinfonia Concertante K. 364 — Wolfgang Amadeus Mozart (1756-1791)
- I. Allegro maestoso
- II. Andante
- III. Presto

(Intermission)

Sarasateana Suite of Spanish Dances — Efrem Zimbalist (1890-1985)
- I. Tango
- II. Polo
- III. Malaguena
- IV. Zapateado

Bebop for Beagles — Benedikt Brydern (b.1966)
- I. Hoover's Holiday
- II. Cookies in Space
- III. Purzelbaum
- IV. Roosevelt's Sun Shower
- V. Flea Control: Mission Impossible
- VI. Kitchen Blues
- VII. Bebop for Beagles

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