PHYSICAL ASPECTS OF PLAYING THE PIANO AND INJURIES TO MUSICIANS
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Physical Aspects of Playing the Piano

Musical technique is conceptual and rests upon basic principles of motion and shaping. Discovering these concepts and principles should be what improving one's technique is about, and not attempting to build muscular strength or engaging in mindless, mechanical drilling. The great pedagogue Tobias Matthay wrote that "technique is a matter of mind." Leopold Godowsky, one of the most skilled pianists ever to play, echoed this thought when, after a concert, an attendee remarked: "My, what small hands you have." His reply was :"Madame, do you think I play the piano with my hands! "

Technique can be defined as whatever means are utilized to achieve an expressive result. It is completely intertwined with rhythm, the processes of tone production, and interpretation. It should never be separated from expressive playing . As Vladimir Horowitz said, "to be able to produce many varieties of sound – that is what I call technique."

One may ask how a palette of a wide variety of sounds is created. What a pianist actually does to create dynamic variety is to determine exactly when to play a key and how fast to put the key down. The speed of the key's descent through its 3/8th inch depth is what determines its dynamic level, and the differing speeds of key descent are what create the variety of dynamics. Many people play by striking the keys from above. However, a piano key is most effectively controlled with a non-percussive touch, which means starting the key descent after already being in touch with the key. The arm may come from above until the key is reached. But at that point beautiful playing requires the player to ride the key down at the exact speed which will produce the desired sound already implanted from practice in the player's ear. A non-percussive touch is essential in obtaining a wide range of differing shades of sonority, and to guarantee that loud sounds are not angular and harsh.

Being a pianist is somewhat like being a baseball pitcher. In baseball there are pitchers who are only "throwers". A true pitcher constantly varies the speed and spin of his pitches. A true artist of the piano constantly varies the speeds of the key descents. To develop increased subtleties of the control of the key, Chopin asked all his students to practice playing the same key 20 times producing 20 different sonorities. Making sounds that float and blossom is a crucial skill in becoming a beautiful pianist.

Technical facility is largely a matter of rhythmic co-ordination . That is why players with an outstanding rhythmic sense frequently have an especially fluent, well-coordinated technique, and those with a well-coordinated, fluent technique usually possess superior rhythmic precision. The good news is that everyone can tighten his/her rhythmic acuity, which is what regulates our coordination at the keyboard.

The entire body is interconnected, and we need to be aware of all the parts of the body when we play. We should also feel connected with the piano. As Schumann wrote, "To play the instrument, you must be one with it." We need to prioritize ease, elasticity and flexibility , and seek to avoid all stiffness.

Chopin's constant admonitions to all of his students were "souplement,"(suppleness, pliability, limpness) and "facilement,"(easily). (See Playing Chopin.pdf (dersnah-fee.com) for valuable information on Chopin's teaching and his approach to the piano.)

The body should feel balanced and must be allowed to tell us where it wants to go – sometimes moving in a bit, sometimes out a bit, sometimes to the left and sometimes to the right. Sitting rigidly is never desirable, although extraneous and excessive physical movements should be avoided. I believe that a player should usually sit rather erectly, exude an air of dignity and simplicity, and avoid facial grimaces. When Beethoven played, people said there was something "masterfully quiet and noble in his expression."

Overall, we want our entire body to feel light and buoyant, with no feeling of struggle, exertion or feeling weighed down. We should feel in our imaginations that we are singers and, to an extent, aim to emulate the erect posture of singers when they are onstage. Too little attention is usually paid to where a pianist's feet are, and the exact positioning of the feet can make some passages in pieces easier to play. Sometimes we benefit from the left foot being straight back, and sometimes out to the left.

Our neck and shoulders should feel free and loose. Many people think that we play the piano with our fingers. However, the arm is the key to playing the piano, and so we should focus on the arm which should feel suspended and not heavy. Without a flexible wrist, a pianist is, to an extent, paralyzed, and unable to execute difficult music expressively or fluently. The importance of relaxing the thumb cannot be overemphasized.

It is the role of the fingers is to support the weight of the arm, like the legs of a table. The fingers should be allowed to fall in a natural position. Lifting and over-individualizing the fingers are major impediments to playing. While the fingers, of course, are somewhat rounded when playing, the traditional injunction of teachers to "curve your fingers " and any exercises which involve lifting of the fingers, can result in inefficient playing and even injury. The palm of the hand should feel open, with the fingers not drawn in and tightened.

Fingerings should be selected which feel natural and comfortable and do not contort the hand into strained and awkward positions. An enormous number of fingerings found in printed music are devoid of common sense and make playing more difficult than it need be. They are frequently products of tradition, and, as Mahler said, "tradition is laziness." Selecting fingerings should be like trying on clothes--they should fit each individual, and we should utilize what fits our own hand most effortlessly and efficiently regardless of what an editor has supplied. The forearm must be allowed to rotate from a relaxed elbow, and although forearm rotation may not be visible, one cannot play successfully without its occurrence.

After playing a key we want to be sure that we are not pressing on the key and remaining longer than necessary. Extraneous pressure is referred to as "keybedding", a frequent culprit in causing injury at the keyboard. An important aspect of effortless and beautiful playing is to feel the rebound of the key (For more on this subject see Liszt Thoughts.pdf (dersnah-fee.com)). Once the key has passed what is called

the tone spot, where the depression of the key has thrown the hammer toward the string, the arm and hand need to be weightless and free to move to the next notes and chords.

It is crucial for the bench to be at the appropriate height for each pianist's own unique body. It is unfortunate that scant attention is usually paid to the height of the bench, which, if ergonomically incorrect, can make playing much more difficult than it need be and can be a contributing factor to injury. The goal is for the arm to be level with the keys and most benches are too high to allow most adults to be in an optimum playing position. Therefore, purchasing an adjustable bench is a worthwhile and sometimes necessary investment for many pianists. It is obvious that a small child or a person with short arms and a short torso should not sit at the same height as a person with long arms and a long torso . A person's overall height is not relevant because one is seated when playing the piano, and what is relevant is the distance from the shoulder to the top of the bench and the length of the upper arm of the player. The distance at which a player is situated away from the piano and whether a player sits erectly, or slouches are also factors that determine the appropriate bench height.

Musicianship demands that there always be a horizontal musical line and yet the physical act of playing the piano requires vertical motions. Therefore, the concepts discussed in the companion essay, "Musical Interpretation Simplified" Essays & Educational Resources (dersnah-fee.com) can be utilized to solve technical difficulties in pieces. These include the concepts of feeling a direction ahead to destinations, shaping so that all notes and chords are not played at the same volume, and a logical, practical musical grouping of the notes and chords. I recall hearing the famed guru of technique, Dorothy Taubman, say that she was once asked the question: "If you were able to only give only one word of advice to pianists, what would it be?" Her answer was: "Grouping."

To create a beautiful line, is essential that a pianist master the art of playing legato–the connecting of one note to the next. This involves not only the physical act of connecting successive notes, but just as importantly, acutely listening so that the connected notes are shaped to create a line.

Many of the physical challenges which we experience in playing are caused by attempting to play a piece faster than we are capable of playing it accurately and expressively. There is no shame in playing a piece slower than it is customarily played, as long as one is playing it with shape and direction. It is squareness which is our enemy , and not a particular speed.

Many difficulties in playing are caused by overplaying in terms of volume. While early level pianists may tend to play under-confidently, advanced pianists frequently play louder than is necessary or even appropriate. We should view ourselves as effortlessly gliding over the keyboard like a ballet dancer or a skater.

A musician is never too old to keep growing and evolving in his/her discovery of the means to better achieve expressive results. It is known that Liszt, reputedly the greatest piano virtuoso in history, was constantly evolving his technical approaches to the keyboard throughout his long life, (See Liszt Thoughts.pdf (dersnah-fee.com) which discusses in more detail many of the concepts in this essay.) Legendary pianists have throughout their lives continued to evolve in their technical insights. We lesser mortals should be encouraged that we should never believe that we have hit a ceiling in our technical

development. Sensitivity and expressivity do not substitute for the need to perpetually devote one's attention on discovering and internalizing the principles of a fluent and beautiful physical approach to the piano, so that one's musicianship may then be fully revealed.

Injuries to Musicians

It is well documented that amateur and professional musicians have been suffering injuries as a result of playing their instruments for many centuries. However, it is only since the late 1970's when the apparently career-ending injuries to the great pianists Leon Fleisher and Gary Graffman became widely publicized that extensive attention has been paid to this subject. At that point, literally thousands of other musicians summoned up the courage to openly acknowledge that they too were playing under the duress of serious pain. An entire movement known as "Music Medicine " was born, composed of medical practitioners and researchers, and music teachers devoted to solving this problem. However, the crisis of an epidemic of pain in musicians has continued unabated . A 2012 survey of orchestral musicians in Australia revealed that 84% of the players in Australia's eight leading professional orchestras "had experienced pain or injuries that had interfered with playing their instrument. . . . Fifty percent reported having such pain or injury at the time of the survey." A 2015 survey of 408 professional musicians in Germany found that 89.5% "had been affected by current or past playing-related musculoskeletal pain, 62.7% reported pain in the previous 3 months and approximately 40% of the musicians indicated frequent or permanent pain." My own survey of members of the Michigan Music Teachers' Association in 1994 revealed that 89% of the 91 respondents reported experiencing physical pain when playing and/or teaching. A few years ago, the highest paid classical pianist in the world suffered during practice sessions a potentially career-ending injury, which did not allow him to perform for well over a year.

Having myself been unable to play without pain and discomfort for 12 years (from 1979-1991, although I had never experienced any ache or pain in my 22 years of playing the piano previously), I am well acquainted with the mental and emotional anguish which an injured musician experiences. I am grateful that since 1991 I have been pain free at the piano, and that the long ordeal and odyssey to recovery did result in my becoming a better pianist and a more insightful teacher. Some of my thoughts regarding musical injuries follow.

It is my belief that the path to recovery for an injured musician begins by humbly accepting the fact that we can have brought our injury upon ourselves as a result of our attitudes and techniques of playing. There is no shame in this. Since today's highest paid concert pianist, who is also one of the most innately talented pianists in history, suffered a potentially career-ending injury when practicing , since pianists of the stature of Gary Graffman and Leon Fleischer sustained major injuries, and since the legendary pianist William Kapell reported experiencing ongoing pain in his fingers and arms before his untimely death in a plane crash at age 31, we should not feel that we are stupid or unique.

I believe that injured musicians should re-examine their mental outlook and attitudes, their approaches to practice, and exactly how they are playing the instrument. A musician is cured in part by self-

observation and experimentation. Gradually by trial and error, some conclusions may be drawn. One cannot expect a fast cure, although a speedy cure is not impossible. Tremendous persistence, determination, and a faith that progress can be made may be necessary, and years of effort may be required. However, one should not have to give up hope, unless medical tests have proven that a neurological condition exists which is expected to be permanent. Even if a complete recovery may remain elusive, a partial cure is better than none at all.

Stress is at the root of much illness in life and musical injuries are no exception. In talking with many dozens of injured musicians, I have discovered that almost all of them acknowledged that their injuries began simultaneously with stress in their nonmusical lives. This stress, of course, did not cause the playing injuries. But an especially stressful period of life seems to coincide with the time when injuries at the instrument begin. While factors such as instrumental techniques, or out of regulation instruments, are often significant contributing factors, injured musicians should admit that their own stress and tension can have played a role as a root cause of their injuries.

A root cause of injury when playing an instrument can also stem from feelings of inadequacy, resulting in a musician feeling a compulsion to overwork, and to try too hard. Many famous pianists who became injured have acknowledged that they were practicing far more hours in a day than was wise, and that they were doing so because they were feeling unusually stressed at the time and working under oppressive deadlines.

We musicians tend to be compulsive fanatics, and we frequently ignore common sense. We should be in the habit of taking frequent breaks in practice sessions, but too often we do not. We have in the past tended to ignore pain or discomfort if it arises. However, the “No pain, no gain” approach is insane. No discomfort should be downplayed or ignored. If pain or ANY discomfort occurs when playing , one should stop playing immediately, make a note of where it occurred, try and discern why it occurred, and make it the starting point of the next lesson with one’s teacher.

It is unfortunate that many amateur pianists who become injured have no teacher. If they had a teacher perhaps they would not have become injured or would have had help in recovering. Amateur pianists are frequently hurt when attempting to play pieces which are too difficult for them to execute well. Advanced pianists also need to be cautious when selecting their repertoire. I recall Dorothy Taubman, probably the most famous teacher specializing in treating injured musicians in the 20th century, stating that over 50% of the thousands of injured musicians who came to her over her long life, had their injuries commence when playing works of Brahms. (My own physical problems began when frantically working for a rapidly approaching performance on a work I had performed without difficulty previously, the Brahms Sonata in F-sharp Minor, Op. 2.)

We compulsive musicians are frequently guilty of endless repetitions of a passage or of similar passages. We too often practice in a mechanical way, sometimes accompanied by a mindset of frustration. One of the diagnoses for musicians’ injuries is “Repetitive Motion Syndrome,” and this is a very descriptive term, since pianistic figuration may be harmless in itself, but when repeated ad infinitum can become

toxic. That is why etudes, or etude -like pieces have been the graveyard for many pianists, since they are often comprised of the same type of physical motions over and over.

Injuries often occur when one is overplaying and allowing intense emotions to interfere with hearing the actual sounds which are being created. Even in forte playing we need to listen for beauty of tone and be able to hear ourselves. What a listener really desires to hear is continuous varieties in the sounds which pianists create. Chopin never played loudly, and instead elicited infinite gradations of shading from the piano.

When a player is truly listening, producing a beautiful tone, and feeling the subtleties and fluctuations of rhythmic timing, pain and discomfort are much less likely to occur. This may sound simplistic, but I believe it to be true from my own experience as a player and teacher.

When one plays in a truly rhythmic manner, which is not synonymous with metronomic, and allows the music to breathe, a player is in touch with the flow and shape of the music, rather than being focused on the vertical physical motions of playing.

We must be sure that no parts of the body are stiffening, no matter how exciting, dramatic, or powerful the music is. Perceiving a grouping of notes will avoid the tendency to sometimes think of individual notes rather than the direction of the notes and will allow the body to be in sync with the music.

As mentioned previously, sitting at an ergonomically inappropriate height can be a major culprit in causing pianistic injuries. With the goal being to have the arm level with the keyboard, how high a pianist should sit is dependent upon the player's upper arm length and torso length measured from the shoulder to the bench. A crucial ingredient in my recovery to be able to play again, was when I had a collapsible bench especially made for me at a height of 15 inches. In addition to relieving pain, this allowed me to create a richer, warmer tone and to gain increased control. Reduction of my discomfort while teaching occurred when I switched from sitting in a chair to sitting on a piano bench. The bench encouraged me to assume many positions rather than a static position when seated in a chair. Standing during portions of the lessons also alleviated some of the discomfort we teachers can experience from sitting for many consecutive hours.

Pianists frequently become injured when playing scales, arpeggios, and octaves. These are much less likely to cause injury if we are especially focusing on the pulse of groups of four notes in the scales and arpeggios, and groups of two, three or four notes when playing octaves.

Some pianists lift their fingers when playing scales and passagework. This can be a cause of injury, and exercises which call for lifting of the fingers have been proven to cause injuries. Such mindless gymnastics are best avoided, since there is little to gain and a lot to lose when practicing them. Exercises which call for holding down some notes while simultaneously playing others are also fraught with danger. While some experienced and insightful pianists know how to safely play such patterns the average pianist is "playing with fire" in practicing these types of exercises. Pianists do not need muscular strength--they ideally need an impeccable sense of co-ordination and an ideal amount of flexibility in the joints--not tight , but also not excessively loose.

There are times and places for employing the 4th finger on black keys in the playing of consecutive octaves. However, very often using the 5th finger will prove to be physically safer and result in better execution.

Videotaping can be a useful tool for self-observation, and videos also provide a vehicle for analyzing the healthy playing techniques of the great virtuosos.

It is unlikely that a pianist can cure him/ herself in isolation. Injured musicians may need to consider spending considerable dollars traveling as many miles as are necessary to receive pianistic and medical input on their situation. One can seek teachers who can show ways of avoiding pain. There is not just one way to play a musical instrument As Dr. Richard Lederman, a leading pioneer in the music medicine movement, responded when asked at the Grand Rapids Music Medicine conference in 1989 if there was one "correct" way to play the piano, "if there 500 ways to play the piano, perhaps 450 are wrong and 50 are right." Some injured musicians may respond to one approach and some to a different approach. Perhaps a valuable clue can be gleaned from one teacher and another clue from a different teacher. Applying the concepts of Dorothy Taubman and Freda Rosenblatt were pivotal in my being able to play again.

Studying anatomy and physiology to understand and be more aware of how the body functions can prove beneficial. While this may not immediately enable one to play free of pain, it can help in understanding the sources and causes of one's pain. While I believe that the road to recovery lies primarily in our own re-evaluating our approach to the piano, the medical profession is there to help us, and many musicians have benefitted from their efforts. Myotherapy has been extremely helpful for some musicians, as have the related disciplines of shiatsu and acupressure. Myofascial release, aka pressure point therapy, can help to remove spasms from the trigger points which are causing pain and the prescribed stretching exercises can aid in a return to a healthy state. Bonnie Pruden is the author of books on myotherapy . Other so-called "alternative" medical treatments have proven beneficial to musicians. Respondents to my 1994 survey of members of the Michigan Music Teachers' Association cited chiropractic, Alexander technique, and acupuncture, in addition to myofascial release, as helpful techniques. Exercise and physical therapy have also been helpful to some injured musicians. The Performing Arts Medicine Association, www.artsmed.org is a very valuable resource for injured musicians and there are now many clinics throughout the US and around the world helping musicians to recover from injuries.

The most important goal regarding injuries to musicians is prevention. The more that players and teachers educate themselves on the healthiest ways to play their instrument, the fewer musicians will in the future have to go through the nightmare of suffering injuries. It is significant that the healthiest ways of playing an instrument also enable a player to play with increased efficiency and ease, which then facilitate more expressive playing.