

THE APPLICATION OF CIRCULAR MOTION IN PIANO PERFORMANCE: REDUCING TENSION AND ENHANCING AGILITY

Natsarut Chandee, Sornsuang Tangsinmonkong,* Preeyanun Promsukkul

College of Music, Mahidol University, Nakhon Pathom, Thailand

Received 01/08/2025, Revised 14/11/2025, Accepted 08/01/2026

Abstract

Background and Objectives: Piano study at the undergraduate and graduate levels requires both technical skill and understanding of musicality, yet many students face challenges with muscle tension caused by excessive practice or ineffective technique. This tension can interfere with performance, restrict musicality, and potentially lead to long-term injury. Building on a pedagogical perspective, this study investigates circular motion as a method for reducing tension and improving agility. Although circular motion is widely acknowledged in pedagogical literature, its practical use in specific repertoire is often overlooked. This study addresses that gap by providing applied examples, comparative analysis and performance videos. The following objectives drive the research: 1) To study the injury risks posed by muscle tension in piano performance and to examine its effects on the freedom of movement and the expression of musicality; 2) To study the concept of circular motion described by pedagogues; 3) To apply circular motion in piano performance to reduce tension and improving agility, and to demonstrate the differences after its application.

Methods: This study uses a documentary method to investigate sources from books, theses, journal articles, and online pedagogical sources to support the research objectives, involving a literature review on muscle tension and the pedagogical perspective of circular motion. Furthermore, the study explores the effectiveness of circular motion by practical application on selected piano repertoire which were chosen based on their variety of techniques, including running notes, broken chords, leaps and arpeggios. Moreover, the study visualizes the differences from applying circular motion in demonstration videos and public performance in a lecture-recital. Finally, the findings are be compiled in a research article.

Results: The results of this study can be summarized as follows. 1) Muscle Tension: across a variety of the piano technique literature, pedagogues and piano teachers consistently emphasize the importance of cultivating awareness of muscle tension in piano performance. Tension is widely recognized as a major culprit, as it limits agility, restricts freedom of movement and finger flexibility, inhibits performance, and increases the risk of injury. To prevent this, pedagogues encourage the use of multiple parts of the body and promote relaxation as a healthier approach. 2) Circular motion involves natural, curved movements of the wrist, forearm, hand,

* Corresponding author, email: sornsuang.tan@mahidol.ac.th

and shoulder, allowing tension to be shared among these areas, which is more effective and helps prevent physical strain and stiffness compared to abrupt, linear movement. 3) Circular motion can be applied to various musical passages. It provides better angles to strike the keys when performing running notes, smoother transitions when playing arpeggios and greater accuracy when playing leaps. The application of this technique reduces physical strain and promotes fluid, effortless performance. 4) Lecture-recital: the lecture-recital described in this article clearly illustrated the improvement in musicality when playing with and without the application of the circular motion. Moreover, the performer experienced physical ease throughout the entire performance.

Conclusions: This study highlights the importance of avoiding muscle tension in advanced piano study and proposes circular motion as an effective approach to both injury prevention and technical fluency in performance. Demonstration videos and a lecture-recital help to clearly visualize the improvement achieved through the use of circular motion. Its implementation in pedagogy offers educators and students a practical and adaptable approach for developing healthier and more expressive playing habits.

Keywords: Circular Motion / Piano Technique / Injury / Muscle Tension

Introduction

Piano study at the undergraduate and graduate levels presents unique challenges that require technical skill, comprehensive understanding of musicality, and effective practice methods. Despite dedicated effort, many students experience muscle tension, often caused by excessive practice or improper methods, which can lead to physical strain, limit artistic expression or lead to long-term injury.

The issue of tension in piano playing has been widely addressed in pedagogical works. Louis Adam cautioned against its effects on finger flexibility,¹ while Tobias Matthay introduced “relaxation” as a key to reduce tension, improving agility and enhancing musicality.² More recent figures like Thomas Mark emphasized efficient, tension-free movement as essential for expressive and secure playing.³ Carola Grindea founded the *International Society for the Study of Tension in Performance* to raise awareness and offer solutions for performance-related physical issues.⁴ These insights have led to development of technical methods like forearm rotation or arm weight technique to promote efficiency and prevent injury. Among these, circular motion emerges as a particularly effective approach, frequently mentioned in both pedagogical texts and academic work. Tobias Matthay described it as a “weight-touch” from the wrist and forearm to enhance tone

¹ Sandra P. Rosenblum, *Performance Practices in Classic Piano Music* (Bloomington: Indiana University Press, 1988), 195.

² Tobias Matthay, *The Act of Touch in All Its Diversity: An Analysis and Synthesis of Pianoforte Tone-Production* (London: Longmans, Green, 1903), 22.

³ Thomas Mark, *What Every Pianist Needs to Know about the Body* (Chicago: GIA Publications, 2003), 5.

⁴ Carola Grindea, as cited in Michele Wheatley-Brown, Gilles Comeau, and Donald Russell, “The Role and Management of Tension in Pedagogical Approaches to Piano Technique,” *Arts BioMechanics* 2, no. 1 (2014): 2, https://piano.uottawa.ca/wp-content/uploads/2016/04/Publications/Physical%20aspects/22.%20Brown_Tension%202013.pdf.

and expression.⁵ Rudolf Maria Breithaupt emphasized wrist circles and joint cushioning to support tone quality and relaxation.⁶ Seymour Fink examined the anatomy of wrist and shoulder circles to improve phrasing and legato.⁷ József Gát referred to it as a “spindle motion” that supports hand movement,⁸ while Thomas Fielden saw it as a rotatory movement initiated from the shoulder, facilitating smooth transitions with less effort.⁹ These perspectives suggest that incorporating circular motion technique may help alleviate physical tension, promote more flowing movements and enhancing musicality.

Although many pedagogues have recognized the importance of circular motion, they have rarely demonstrated its practical application in specific piano repertoire. This article aims to bridge that gap by providing concrete examples supported by visual and audio media. Through images, comparative videos and performance videos, this study aims to offer an applied perspective on how circular motion can be integrated into piano playing for tension reduction and physical agility improvement.

Research Objectives

1. To study the injury posed by muscle tension in piano performance and to examine its effects on the freedom of movement and the expression of musicality.
2. To study the concept of circular motion described by pedagogues.
3. To apply circular motion in piano performance, enhance agility, and demonstrate the resulting improvements.

Research Methodology

This study uses a documentary research methodology to investigate muscle tension and circular motion techniques in piano playing. Sources were selected based on their relevance to the research objectives. After selection, a total of nine sources were identified, including six books by Fielden,¹⁰ Fink,¹¹ Gát,¹² Mark,¹³ Matthay,¹⁴

⁵ Tobias Matthay, *The Act of Touch in All Its Diversity: An Analysis and Synthesis of Pianoforte Tone-Production* (London: Longmans, Green, 1903), 107-108.

⁶ Rudolf Maria Breithaupt, *Natural Piano-Technic: Preliminary to Intermediate Grade* (Leipzig: D.F. Kahnt, 1909), 41.

⁷ Seymour Fink, *Mastering Piano Technique: A Guide for Students, Teachers, and Performers* (Portland, OR: Amadeus Press, 1992), 78.

⁸ József Gát, *The Technique of Piano Playing* (Budapest: Corvina, 1974), 121.

⁹ Thomas Fielden, *The Science of Pianoforte Technique* (London: Macmillan, 1961), 92-95.

¹⁰ Thomas Fielden, *The Science of Pianoforte Technique* (London: Macmillan, 1961).

¹¹ Seymour Fink, *Mastering Piano Technique: A Guide for Students, Teachers, and Performers* (Portland, OR: Amadeus Press, 1992).

¹² József Gát, *The Technique of Piano Playing* (Budapest: Corvina, 1974).

¹³ Thomas Mark, *What Every Pianist Needs to Know about the Body* (Chicago: GIA Publications, 2003).

¹⁴ Tobias Matthay, *The Act of Touch in All Its Diversity: An Analysis and Synthesis of Pianoforte Tone-Production* (London: Longmans, Green, 1903).

and Rosenblum;¹⁵ one journal article by Wheatley-Brown et al.;¹⁶ one unpublished thesis by Timothy;¹⁷ and one online pedagogical article by Bar-Niv.¹⁸ The research procedure involved six steps.

1. Literature review of muscle tension that discusses the effects of muscle tension in piano performance and its solution.
2. Pedagogical analysis of circular motion focused on the concept, biomechanical understanding and its role in reducing muscle tension.
3. Application of circular motion in chosen repertoire, based on a variety of techniques, such as broken chords, running notes, arpeggios, and leaps, to determine where circular motion could be integrated to reduce tension and enhance agility.
4. Demonstration and comparison videos. Each selected passage was recorded in two versions, one without using circular motion and one with it in order to visualize the differences in musicality and movement. The effectiveness of the technique was assessed through performer's reflection.
5. Conducting a lecture-recital with the aim of presenting the findings in a practical context, including live demonstrations of circular motion, comparisons of different approaches, and performance of the selected works.
6. Preparing a research article presenting the theory, application, and outcomes of using circular motion to reduce tension in piano playing.

Result

After investigating from the sources and applying the technique on selected work, the results can be summarized in four parts: 1) Muscle Tension; 2) Circular motion; 3) Application of circular motion; 4) Lecture-Recital. The research findings are as follows.

1. Muscle Tension

Throughout the various literature on piano technique, tension is widely recognized as a major culprit in both limiting agility and causing injury. Many pedagogues and piano teachers agree that muscle tension should be avoided.¹⁹ For example, Louis Adam, who is a pioneer of Paris Conservatory tradition in

¹⁵ Sandra P. Rosenblum, *Performance Practices in Classic Piano Music* (Bloomington: Indiana University Press, 1988).

¹⁶ Michele Wheatley-Brown, Gilles Comeau, and Donald Russell, "The Role and Management of Tension in Pedagogical Approaches to Piano Technique," *Arts BioMechanics* 2, no. 1 (2014): 1-17, https://piano.uottawa.ca/wp-content/uploads/2016/04/Publications/Physical%20aspects/22.%20Brown_Tension%202013.pdf.

¹⁷ Johannes Timothy, "Personal Account on the Development of Wrist and Arm Techniques in Piano Playing" (Research Project, Royal Conservatoire of Scotland, 2020), <https://www.academia.edu/44688214>.

¹⁸ Rami Bar-Niv, "The Magic of Wrist Circles," *International Journal of Music*, last modified March 2022, <https://ijm.education/piano/the-magic-of-wrist-circles/>.

¹⁹ Michele Wheatley-Brown, Gilles Comeau, and Donald Russell, "The Role and Management of Tension in Pedagogical Approaches to Piano Technique," *Arts BioMechanics* 2, no. 1 (2014): 2, https://piano.uottawa.ca/wp-content/uploads/2016/04/Publications/Physical%20aspects/22.%20Brown_Tension%202013.pdf.

18th-19th century and a writer of early method book for piano, warned about drawbacks and complications that come from tension: "...for all muscular tension blocks freedom of movement and makes it impossible for the hands to extend and contract the fingers properly, which one needs to be able to do at all times".²⁰ This highlights the effect of muscle tension, which restricts the freedom of movement and finger flexibility.

Some pedagogues advised relaxation as a remedy. For example, Tobias Matthay describes his thoughts on relaxation in *The Act of Touch in All Its Diversity*: "Really complete relaxation may possibly be physically unattainable, but the term thoroughly conveys what has *practically* to be striven for. For it is the completest possible *Relaxation* of all muscles that should be passive that forms the real 'secret' of all good tone-production (including Agility) at the Pianoforte."²¹ This quote highlights his belief of relaxation as a key to achieve the technical mastery and freedom of movement without risking injury.²²

In addition, Thomas Mark, a piano teacher and author of *What Every Pianist Needs to Know About Their Body*, conveys a similar idea in the following statement: "Piano playing that is accomplished by high-quality movement, in which each part contributes its proper share with no tension, will be free, expressive, and secure,"²³ implying that proper coordination of body parts is essential for good piano playing.

These insights highlight the awareness of muscle tension in pedagogical works, while emphasizing relaxation and natural movement as a better approach.

2. Circular Motion

Circular motion is a piano technique that refers to circular movement of the wrist, forearm, arm, elbow all the way to shoulder. Applying this technique can enhance fluidity, phrasing, tone control, and reduce unnecessary tension. Instead of abrupt linear movements, using this circular movement can enhance agility and reduce tension.

Rami Bar-Niv, a piano teacher, explains the concept of circular motion using an analogy of running toward a wall and needing to change direction instantly. A sharp turn is both difficult and inefficient. However, approaching the wall at a slight angle makes change in the direction much smoother. The same principle can be applied to the wrist by altering the turn. The motion becomes more fluid and natural, resulting in a circular or oval movement.²⁴

Similarly, Thomas Fielden, a British piano teacher, describes circular motion as a rotatory movement of the elbow and wrist, driven by the shoulder. He explains that straight, angular movements are inefficient, because

²⁰ Sandra P. Rosenblum, *Performance Practices in Classic Piano Music* (Bloomington: Indiana University Press, 1988), 195.

²¹ Tobias Matthay, *The Act of Touch in All Its Diversity: An Analysis and Synthesis of Pianoforte Tone-Production* (London: Longmans, Green, 1903), 22.

²² Michele Wheatley-Brown, Gilles Comeau, and Donald Russell, "The Role and Management of Tension in Pedagogical Approaches to Piano Technique," *Arts BioMechanics* 2, no. 1 (2014): 2-3, https://piano.uottawa.ca/wp-content/uploads/2016/04/Publications/Physical%20aspects/22.%20Brown_Tension%202013.pdf.

²³ Thomas Mark, *What Every Pianist Needs to Know about the Body* (Chicago: GIA Publications, 2003), 5.

²⁴ Rami Bar-Niv, "The Magic of Wrist Circles," *International Journal of Music*, last modified March 2022, <https://ijm.education/piano/the-magic-of-wrist-circles/>.

to angularly change the direction of movement in straight lines, a force is required to overcome the inertia of the previous direction. On the other hand, curved, elliptical movements allow more time for the inertia of the previous direction to be converted to the new direction, which allows for smoother direction changes with less force. This elliptic trajectory is experienced by the elbow and the wrist, as they are the fulcrums.²⁵ Figure 1 compares the visual appearance of these two movements.

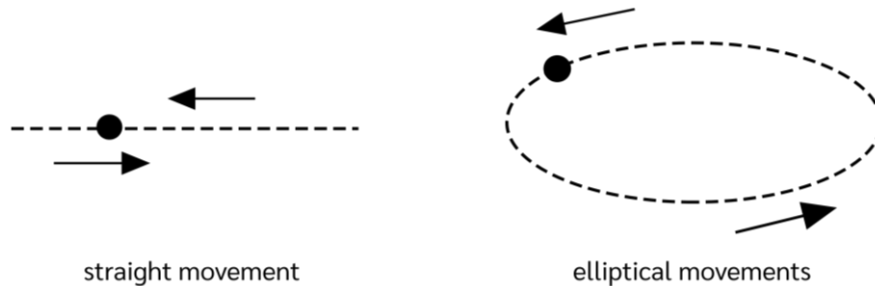


Figure 1 Schematic representation of straight as compared with elliptical trajectory

Source: by author

Moreover, Seymour Fink described circular motion as “lateral twist” and “shoulder circling,” emphasizing its role in legato playing. He explains that these movements enhance subtle control, allow free arm movement with smooth connections and support varied finger patterns. He theorized circular motion into pronation and supination circles. In pronation, the thumb acts as an anchor, pressing into the key while guiding an inward movement. While in supination, the pinky serves as the anchor, leading an outward circling motion. These are subtle movements that accompany the circling of the arm.²⁶ Figure 2 illustrates these two movements, with an accompanying link to a demonstration video.

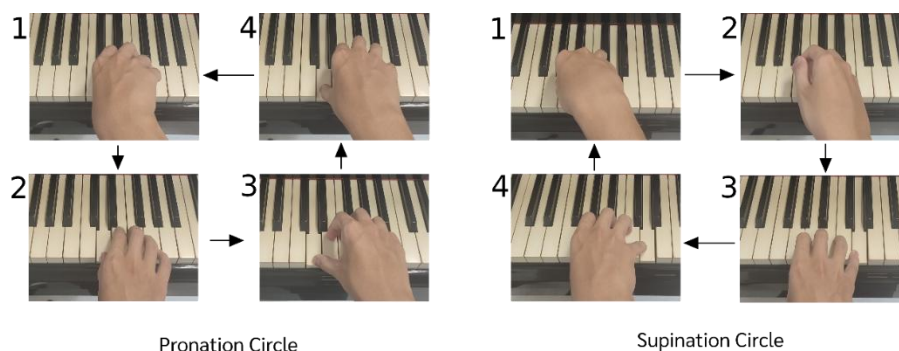


Figure 2 Illustration of the pronation circle and supination circle with QR Code for demonstration video

Source: by author²⁷

²⁵ Thomas Fielden, *The Science of Pianoforte Technique* (London: Macmillan, 1961), 92-95.

²⁶ Seymour Fink, *Mastering Piano Technique: A Guide for Students, Teachers, and Performers* (Portland, OR: Amadeus Press, 1992), 78-81.

²⁷ Natsarut Chandee, “Seymour Fink - Pronation circle and Supination circle demonstration,” YouTube video, 0:43, April 18, 2025, <https://www.youtube.com/watch?v=mXiZAORIUQ0>.

Another insightful description of this technique comes from József Gát, a pioneer in keyboard music education in Hungary. He describes the “spindle motion of the arms”²⁸ comparing their movement to that of a skipping rope. This continuous motion supports the hands as they play, making the action feel more natural, reduce strain, and allowing the hands to work more smoothly and efficiently.²⁹ To illustrate this movement, Figure 3 provides access to the demonstration video.



Figure 3 QR Code for demonstration video, “Spindle motion of the arms”

Source: by author³⁰

Although different terms are used, such as “lateral twist,” “rotatory movement,” or “spindle motion,” they all highlight the importance of fluid motion for reducing physical tension and enhancing control, tone, and fluidity of movement. These insights collectively emphasize that circular motion promotes efficient movement by aligning with the body's natural biomechanics.

3. Application of circular motion

The study uses a selection of technical passages from works by Wolfgang Amadeus Mozart, Frédéric Chopin, Jean Sibelius, and Sergei Rachmaninoff, by focusing on various passages with different techniques, including running notes, broken chords, leap and arpeggios. All of these examples feature links and a QR codes for viewing the demonstration videos.

3.1 Running notes

An example of how this technique can help playing running notes can be seen in Mozart's Piano Sonata in C minor, K. 457, first movement, measures 21 to 22, highlighted in the box of Example 1. This passage should be played legato, with all notes evenly articulated. While it is possible to play this passage by focusing solely on finger movement, applying the circular motion technique ensures that each finger strikes the key at the better angle for optimal control and smoothness.

²⁸ József Gát, *The Technique of Piano Playing* (Budapest: Corvina, 1974), 121.

²⁹ Johannes Timothy, “Personal Account on the Development of Wrist and Arm Techniques in Piano Playing” (Research Project, Royal Conservatoire of Scotland, 2020), 7, <https://www.academia.edu/44688214>.

³⁰ Natsarut Chandee, “József Gát's ‘spindle-motion of the arms’ demonstration video,” YouTube video, 0:13, June 9, 2025, <https://www.youtube.com/watch?v=xwJnMyEx0f4>.



Example 1 Mozart - Piano Sonata in C minor No. 14, I. Molto Allegro, mm. 21-24,
with QR Code for demonstration video

Source: by author³¹

This idea works similarly in example 2, measures 67 to 69. To perform this passage can be challenging, especially when the fourth finger place on black key and fifth finger on white, creating inefficient position. However, by applying the circular motion technique, the wrist rotates to a better angle, enhancing control and allowing for a more precise and effective key strike.



Example 2 Mozart - Piano Sonata in C minor No. 14, I. Molto Allegro, mm. 67-70,
with QR Code for demonstration video

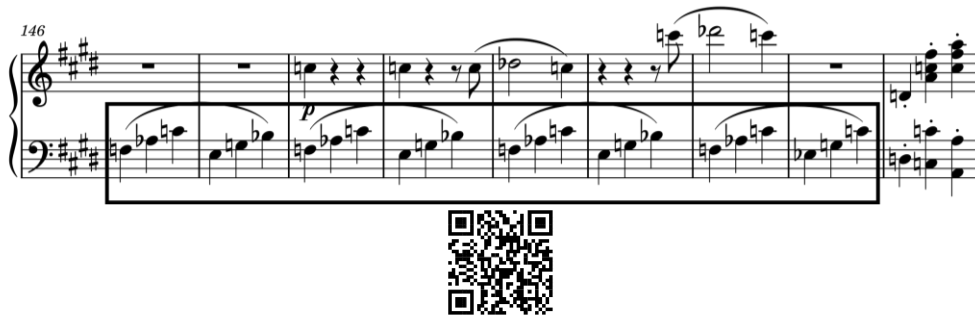
Source: by author³²

3.2 Broken Chord

The circular motion technique can also be applied when playing broken chords, as seen in the third movement. The box in Example 3 shows broken triads pattern for the left hand. Applying this technique, rather than relying solely on fingers, promotes more evenness of sound.

³¹ Natsarut Chandee, "Mozart's Piano Sonata in C minor, K. 457 : Demonstartion video 1," YouTube video, 0:27, October 20, 2025, <https://www.youtube.com/watch?v=aT-zJ5F2MMw>.

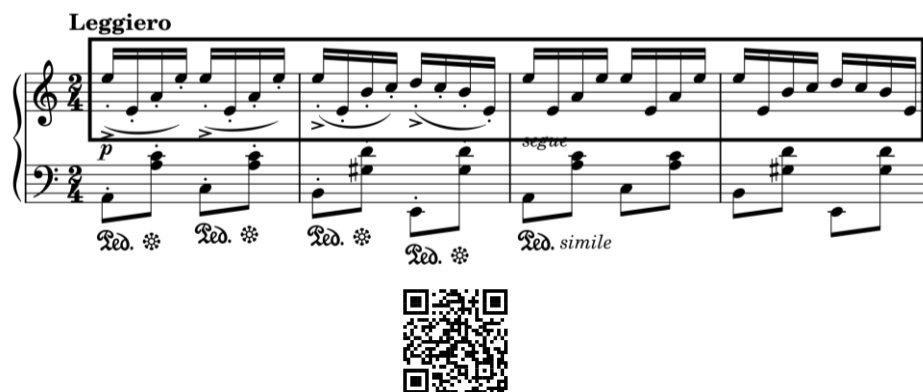
³² Natsarut Chandee, "Mozart's Piano Sonata in C minor, K. 457 : Demonstartion video 2," YouTube video, 0:27, October 20, 2025, <https://www.youtube.com/watch?v=UfBJLmFD2uM>.



Example 3 Mozart - Piano Sonata in C minor No. 14, III. Allegro assai, mm. 146-154,
with QR Code for demonstration video

Source: by author³³

Another useful example appears in Sibelius's Etude, Op. 76 No. 2. The right-hand pattern in Example 4 features broken chords with accent on the top note, which serves as the main melody. Relying solely on the fingers can be challenging, especially at fast tempo, as it increases the risk of tension. The application of circular motion incorporates the wrist to support the fingers, which reduces unnecessary tension, making it easier to strike the accented the top note more effectively.



Example 4 Sibelius - Etude in A minor, Op. 76, No. 2, mm. 1-4, with QR Code for demonstration video

Source: by author³⁴

3.3 Leaps and Jumps

In the same piece, the left hand follows a leaping pattern that repeats throughout the entire piece. As seen in Example 5, playing these patterns continuously at a fast tempo while maintaining accuracy can be challenging with direct horizontal motion. By applying circular motion, the movement becomes smoother, more continuous, and more precise. Moreover, this motion assists the projection of the bass note, which serves as the support of the harmony.

³³ Natsarut Chandee, "Mozart's Piano Sonata in C minor, K. 457 : Demonstartion video 3," YouTube video, 1:24, October 31, 2025, <https://www.youtube.com/watch?v=wF8lmLrLsxl>.

³⁴ Natsarut Chandee, "Sibelius - 13 pieces for piano, Op. 76, No. 2 : Demonstration Video 1," YouTube video, 0:53, October 31, 2025, <https://www.youtube.com/watch?v=LPFh4SUYt7U>.

Leggiero

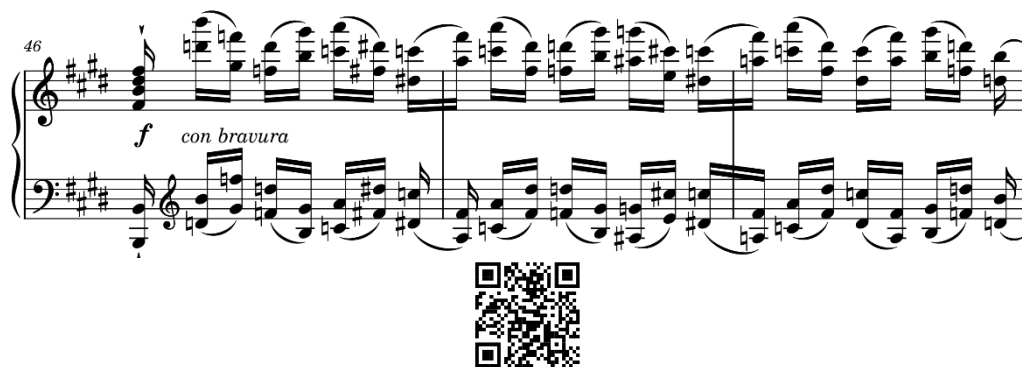


QR Code

Example 5 Sibelius - Etude in A minor, Op. 76, No. 2, mm. 1-4, with QR Code for demonstration video

Source: by author³⁵

Another example of using this technique to assist in leap passages can be found in Example 6, Chopin's Etude in E Major, Op. 10 No. 3. In the climactic section, the passage presents a significant challenge of fast interval jump while emphasizing the top note. However, incorporating the circular motion technique can help reduce tension caused by continuous leaps and also achieve a better angle for striking the keys more efficiently, enhancing both accuracy and control to highlight the top note.



QR Code

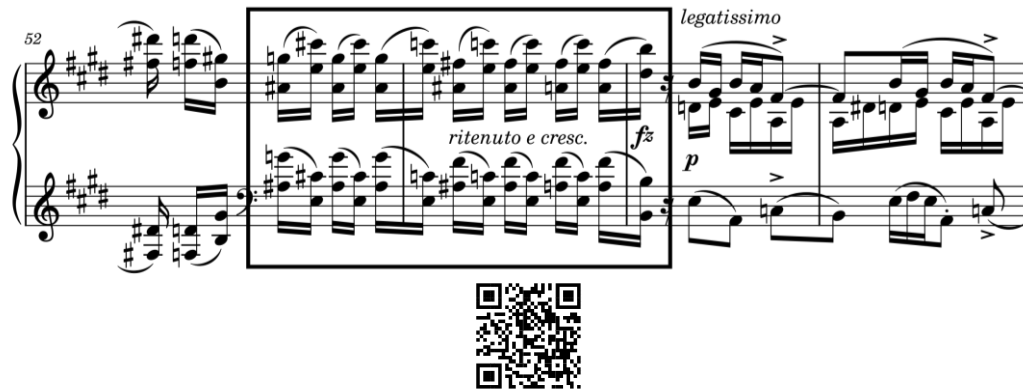
Example 6 Chopin - Etude in E major, Op. 10, No. 3, mm. 46-48, with QR Code for demonstration video

Source: by author³⁶

As the harmony transitions to the dominant chord in Example 7, measures 52 to 55 feature wide chords that can be challenging to play. While it is possible to reach them by stretching the hand, this often causes tension, especially for performers with smaller hands. Applying circular motion promotes more natural, relaxed movement and reduces strain, providing a smooth crescendo through the use of the circular motion technique.

³⁵ Natsarut Chandee, "Sibelius - 13 pieces for piano, Op. 76, No. 2 : Demonstration Video 2," YouTube video, 0:40, June 5, 2025, <https://www.youtube.com/watch?v=GT7QH2Rulhc>.

³⁶ Natsarut Chandee, "Chopin - Etude in E major, Op. 10, No. 3 : Demonstration Video 1," YouTube video, 1:09, October 31, 2025, <https://www.youtube.com/watch?v=aLtUCRmeog0>.

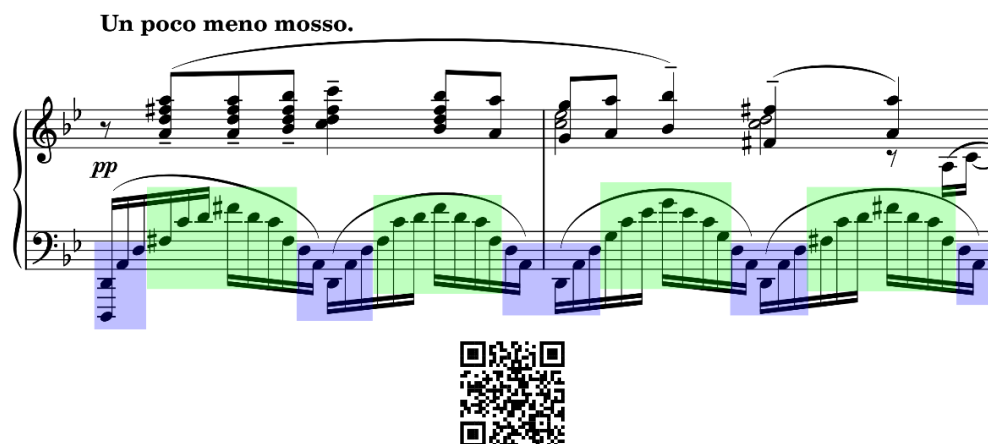


Example 7 Chopin - Etude in E major, Op. 10, No. 3, mm. 52-55, with QR Code for demonstration video

Source: by author³⁷

3.4 Arpeggios

Circular motion can also be employed when playing arpeggios, such as in the middle section of Rachmaninoff's Prelude in G minor, Op. 23 No. 5. In Example 8, the left hand executes a two-octave arpeggio pattern. The most effective way to perform this pattern is to divide it into two main finger positions: the lower position (blue highlight) and the upper position (green highlight). This method allows for more efficient fingering. However, a common issue arises when the hand suddenly changes position: the first note of each new position may be unintentionally accented due to abrupt and unnatural movement. By applying the circular motion technique, the transitions become smoother and more natural. This helps eliminate the problem and allows the sound to flow smoothly.



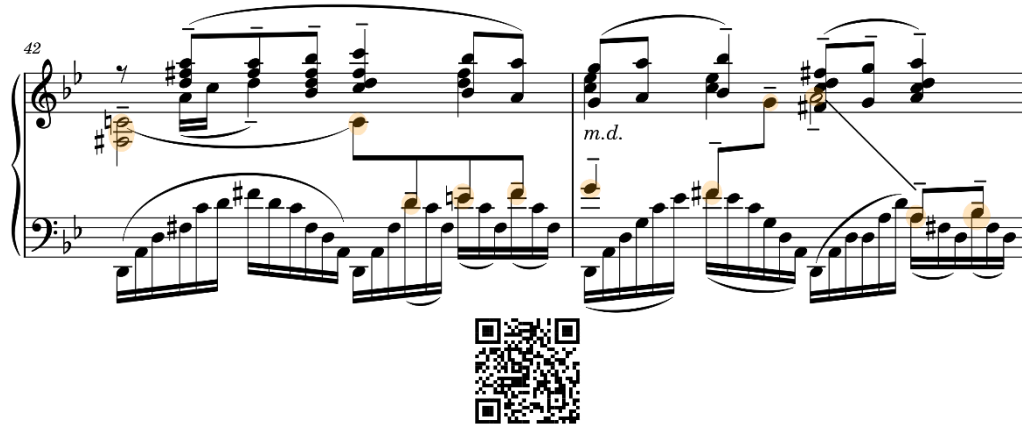
Example 8 Rachmaninoff - Prelude in G minor, Op. 23, No. 5, mm. 35-36, with QR Code for demonstration video

Source: by author³⁸

³⁷ Natsarut Chandee, "Chopin - Etude in E major, Op. 10, No. 3 : Demonstration Video 2," YouTube video, 0:26, October 20, 2025, <https://www.youtube.com/watch?v=OOymw70188>.

³⁸ Natsarut Chandee, "Rachmaninoff Prelude in G minor, Op. 23, No. 5 : Demonstration Video 1," YouTube video, 0:56, October 31, 2025, https://www.youtube.com/watch?v=bh_CwNc8wnY.

In Example 9, when the passage repeats in measure 42, a middle-line melody (highlighted in orange) is introduced and played with the left-hand. Applying the circular motion technique allows the wrist to rotate into a better position for striking the key with the thumb, making it easier to emphasize the middle-line melody effectively while maintaining overall fluidity.



Example 9 Rachmaninoff - Prelude in G minor, Op. 23, No. 5, mm. 42-43, with QR Code for demonstration video

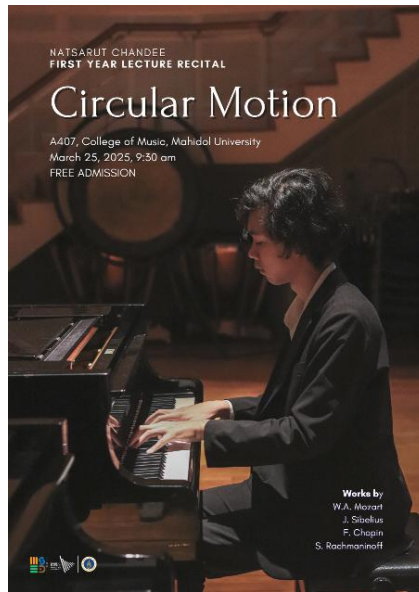
Source: by author³⁹

These examples demonstrate how circular motion enhances body movement, leading to greater efficiency, smoother sound, reduced strain, and a more relaxed playing experience across diverse techniques. This highlights its adaptability to many different kinds of musical passages. As a result, this approach provides greater physical ease, enabling the performer to achieve their desired musical sound and full expressive potential.

4. Lecture-Recital

The First Year Lecture-Recital took place on March 25, 2025 at A407, College of Music, Mahidol University. The presentation and performance clearly demonstrated the difference before and after applying circular motion. The performer experienced physical ease and enhanced agility throughout the performance. Figure 4 features a QR code and link to the full lecture-recital video.

³⁹ Natsarut Chandee, "Rachmaninoff Prelude in G minor, Op. 23, No. 5 : Demonstration Video 2," YouTube video, 0:50, October 20, 2025, <https://www.youtube.com/watch?v=Yp3ZuSe7GL4>.



**Natsarut Chandee
First Year Lecture Recital**

Tuesday, March 25, 2025
9:30 am, A407

Program

Piano Sonata No. 14 in C minor, K. 457 I. Molto Allegro II. Adagio III. Allegro Assai	Wolfgang Amadeus Mozart (1756 - 1791)
13 Pieces, Op. 76, No. 2 "Etude"	Jean Sibelius (1865 - 1957)
Etude in E Major, Op. 10, No. 3 "Tristesse"	Frédéric Chopin (1810 - 1849)
Prelude in G minor, Op. 23, No. 5	Sergei Rachmaninoff (1873 - 1943)

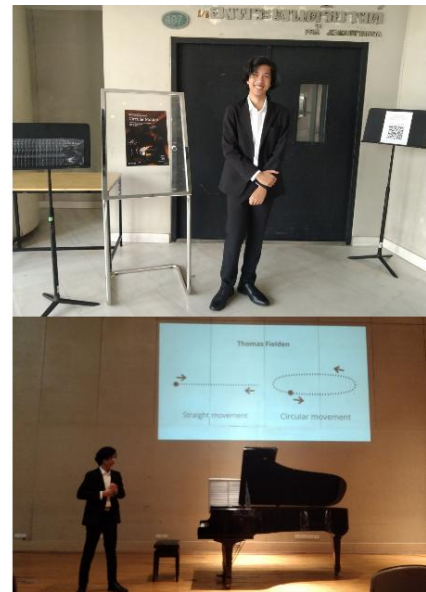


Figure 4 Natsarut Chandee First year Lecture-Recital at Mahidol University, March 25, 2025
with QR Code for performance video

Source: by author⁴⁰

Conclusion and Discussion

Muscle tension can limit movement and increase the risk of injury, which can be avoided by relaxation or movements that enable various body parts to distribute physical load. Circular motion, involving smooth rotational movement of the wrist, arm, and elbow, was identified as an effective strategy to reduce tension and support natural coordination. When circular motion is applied to challenging passages like running notes, broken chords, leaps, and arpeggios, it improves tone quality, phrasing, and overall physical ease, thereby enhancing both technical execution and minimizing muscle tension.

The issue remains a critical concern in piano performance, particularly for students at the undergraduate and graduate levels. It interferes with natural movement, limits expressive potential, and increases the risk of injury. As seen in the writings of Adam, Matthay, and Mark, excessive or involuntary contraction of muscles can restrict technical freedom, disrupt phrasing, and result in harsh or uneven tone. Consequently, relaxation is not merely a physical condition but an essential requirement for musicality and physical agility. Without physical ease, the expressive capacity of a pianist becomes compromised, and technical challenges can escalate into physical strain. Thus, effective management of tension is indispensable for both artistic and physical well-being in piano performance.

⁴⁰ Natsarut Chandee, "Natsarut Chandee First year Lecture Recital - Circular Motion," YouTube video, 1:05:20, June 9, 2025, <https://www.youtube.com/watch?v=uhDHS3wBYc>.

To solve this issue, circular motion has emerged as a promising technique for minimizing tension while supporting expressive playing. This approach involves smooth, elliptical movements, as described by Fielden, which is highly effective in continuous leap passages that require accuracy, such as those shown in Example 5. Moreover, the use of circular motion demonstrates the spindle-like motion of the arms that support the hand's movement particularly when playing wide chords without stretching the hand, as seen in Example 6. Additionally, the application of this technique reveals the formation of pronated circular movement, as described by Seymour Fink, which can be seen in passages such as running notes (Example 1), broken chords (Examples 3 and 4), and arpeggios (Example 8). However, these examples do not show supination, which may appear in other repertoires. These examples highlight circular motion as a practical and effective technique. It helps reduce muscle tension, encourages natural movement, and promotes relaxation.

The practical demonstrations and performer reflections provide strong support that circular motion can both reduce muscle tension and enhance agility. The technique encouraged more efficient body use, minimizing muscle strain, and allowing each joint to contribute to the motion. This cooperative contribution helps distribute tension equally across each part, aligning with Mark's ideas. Pianists reported a greater sense of physical ease and improved tonal consistency after applying the technique. In particular, better dynamic control, more balanced phrasing, and improved accuracy were observed in sections that previously felt tense or technically difficult. As a result, performances not only became physically more comfortable and more expressive but also built confidence in the performer, strongly reinforcing the idea that muscle tension, musicality and physical freedom are closely interconnected.

Although the benefits are clear, this technique may not be equally effective in every musical context or for every performer. In fast passages, like in Example 7, large circular movements may not be practical and even disadvantageous. In this case, the motion should be adjusted to smaller for more efficiency. Additionally, other factors like anatomical differences or musical styles can influence its effectiveness. For instance, Baroque repertoire, which emphasizes tone clarity, can be played solely on finger technique, leading it to be downplayed.⁴¹ However, with careful instruction and exploration of technique, circular motion can still serve as essential component for a healthy and expressive piano technique.

The findings of this study suggest that incorporating circular motion into piano technique can significantly reduce muscle tension and enhance agility, particularly in technically demanding passages. This has important implications for piano pedagogy, highlighting the need to include movement-based approaches alongside traditional finger techniques. While not universally applicable to all repertoire or performers, when thoughtfully adapted, circular motion supports healthier, more efficient playing. Its integration into teaching practices can

⁴¹ Chih-Tung Cheng, "Baroque Pianism: Perspectives on Playing Baroque Keyboard Music on the Piano, with Emphasis on Bach's Fugues in the *Well-Tempered Clavier*" (DMA diss., The City University of New York, 2019), 14-48, https://academicworks.cuny.edu/gc_etds/3449.

help prevent injury, improve tone control, and foster a more holistic understanding of body mechanics in piano performance.

The future research is encouraged to explore the application of circular motion across various musical styles and level of proficiency, and to conduct comparative studies on how circular motion can be integrated with other techniques.

References

-
- Bar-Niv, Rami. "The Magic of Wrist Circles." International Journal of Music. Last modified March 2022.
<https://ijm.education/piano/the-magic-of-wrist-circles/>.
- Breithaupt, Rudolf Maria. *Natural Piano-Technic: Preliminary to Intermediate Grade*. Leipzig: D.F. Kahnt, 1909.
- Chandee, Natsarut. "Chopin - Etude in E major, Op. 10, No. 3 : Demonstration Video 1." YouTube Video, 1:09. October 31, 2025. <https://www.youtube.com/watch?v=aLtUCRmeog0>.
- Chandee, Natsarut. "Chopin - Etude in E major, Op. 10, No. 3 : Demonstration Video 2." YouTube Video, 0:26. October 20, 2025. <https://www.youtube.com/watch?v=-OOymw70188>.
- Chandee, Natsarut. "József Gát's 'spindle-motion of the arms' demonstration video." YouTube Video, 0:13. June 9, 2025. <https://www.youtube.com/watch?v=xwJnMyEx0f4>.
- Chandee, Natsarut. "Mozart's Piano Sonata in C minor, K. 457 : Demonstartion video 1." YouTube Video, 0:27. October 20, 2025. <https://www.youtube.com/watch?v=aT-zJ5F2MMw>.
- Chandee, Natsarut. "Mozart's Piano Sonata in C minor, K. 457 : Demonstartion video 2." YouTube Video, 0:27. October 20, 2025. <https://www.youtube.com/watch?v=UfBJLmFD2uM>.
- Chandee, Natsarut. "Mozart's Piano Sonata in C minor, K. 457 : Demonstartion video 3." YouTube Video, 1:24. October 31, 2025. <https://www.youtube.com/watch?v=wF8ImLrLsxl>.
- Chandee, Natsarut. "Natsarut Chandee First year Lecture Recital - Circular Motion." YouTube Video, 1:05:20. June 9, 2025. <https://www.youtube.com/watch?v=-uhDHS3wBYc>.
- Chandee, Natsarut. "Rachmaninoff Prelude in G minor, Op. 23, No. 5 : Demonstration Video 1." YouTube Video, 0:56. October 31, 2025. https://www.youtube.com/watch?v=bh_CwNc8wnY.
- Chandee, Natsarut. "Rachmaninoff Prelude in G minor, Op. 23, No. 5 : Demonstration Video 2." YouTube Video, 0:50. October 20, 2025. <https://www.youtube.com/watch?v=Yp3ZuSe7GL4>.
- Chandee, Natsarut. "Seymour Fink - Pronation circle and Supination circle demonstration." YouTube Video, 0:43. April 18, 2025. <https://www.youtube.com/watch?v=mXiZAORIUQ0>.
- Chandee, Natsarut. "Sibelius - 13 pieces for piano, Op. 76, No. 2 : Demonstration Video 1." YouTube Video, 0:53. October 31, 2025. <https://www.youtube.com/watch?v=LPFh4SUyt7U>.

- Chandee, Natsarut. "Sibelius - 13 pieces for piano, Op. 76, No. 2 : Demonstration Video 2." YouTube Video, 0:40. June 5, 2025. <https://www.youtube.com/watch?v=GT7QH2Rulhc>.
- Cheng, Chih-Tung. "Baroque Pianism: Perspectives on Playing Baroque Keyboard Music on the Piano, with Emphasis on Bach's Fugues in the *Well-Tempered Clavier*." DMA diss., The City University of New York, 2019. https://academicworks.cuny.edu/gc_etds/3449.
- Fielden, Thomas. *The Science of Pianoforte Technique*. London: Macmillan, 1961.
- Fink, Seymour. *Mastering Piano Technique: A Guide for Students, Teachers, and Performers*. Portland, OR: Amadeus Press, 1992.
- Gát, József. *The Technique of Piano Playing*. Budapest: Corvina, 1974.
- Mark, Thomas. *What Every Pianist Needs to Know about the Body*. Chicago: GIA Publications, 2003.
- Matthay, Tobias. *The Act of Touch in All Its Diversity: An Analysis and Synthesis of Pianoforte Tone-Production*. London: Longmans, Green, 1903.
- Rosenblum, Sandra P. *Performance Practices in Classic Piano Music*. Bloomington: Indiana University Press, 1988.
- Timothy, Johanes. "Personal Account on the Development of Wrist and Arm Techniques in Piano Playing." Research Project, Royal Conservatoire of Scotland, 2020. <https://www.academia.edu/44688214>.
- Wheatley-Brown, Michele, Gilles Comeau, and Donald Russell. "The Role and Management of Tension in Pedagogical Approaches to Piano Technique." *Arts BioMechanics* 2, no. 1 (2014): 1-17. https://piano.uottawa.ca/wp-content/uploads/2016/04/Publications/Physical%20aspects/22.%20Brown_Tension%202013.pdf.