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RESEARCH ARTICLE

Does Music Matter? Examining Genre and Tempo in Collegiate Women's Gymnastics Floor Routines

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Abstract

This study investigated whether the genre and tempo of floor music influenced performance outcomes in NCAA Division I women's gymnastics. Floor exercise is the only gymnastics event performed to music, introducing an artistic component that may contribute to subjective scoring variation. Using data from 376 gymnasts across 62 programs during the 2023–2024 season, the researchers analyzed National Qualifying Scores (NQS), music genres, and beats per minute (BPM) obtained from publicly available competition videos. Thirteen music genres met the inclusion criteria for analysis. Descriptive comparisons showed that R&B, Latin/electronic dance, and jazz/electronic dance were associated with the highest mean NQS; however, overall differences across genres were minimal. A Pearson correlation indicated no significant relationship between BPM and NQS, and scores remained consistent across BPM quartiles. These findings suggested that while genre and tempo may enhance performance elements such as rhythm, emotional expression, or motivation, they did not independently predict higher floor scores. The results underscored the strategic importance of music selection in choreography and presentation, particularly in a sport where judging is subjective, and outcomes are often determined by small score differentials.

Keywords: Athlete Performance, Gymnastics, Music Genre, Performance Scoring, Tempo.

1. Introduction

Gymnastics is represented in all three (Division I, Division II, Division III) National Collegiate Athletics Association (NCAA; 2024a) institutional classifications, with 86 women's programs competing throughout the membership. At the Division I level, 62 colleges and universities sponsor women's gymnastics (NCAA, 2024a). Each team is made up of roughly 20 gymnasts, who compete in anywhere between one and four events. Gymnasts who compete in all four events (vault, bars, beam, floor), are considered all-arounders.

At the collegiate level, routines are scored out of a 10.0, meaning the highest score a gymnast can receive is a 10. Throughout the routines, judges deduct points, tenths, and even hundredths for mistakes made in execution that are subtracted from the 10.0 score the gymnast started with (Grimsley, 2019). Falling, taking extra steps on landings, flexed feet, and bent knees often result in deductions (Grimsley, 2019). On floor routines, common deductions are stepping out of bounds, falling, over or under-rotating a tumbling pass, taking extra steps on landings, form (bent knees, flexed feet, bad body position), and performance quality (Grimsley, 2019). Gymnasts may receive

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performance deductions for not performing their routine to an appropriate standard and involving pauses, confidence, smiling, and other artistic dynamics that may catch a judge's eye throughout their routines. An ideal performance would include a high level of artistry with sharp movements where the gymnast makes points throughout her routine to engage with the audience and judges through eye contact and facial expressions.

In collegiate gymnastics, six gymnasts compete in each event, but only five scores count towards the team score, dropping the lowest score. Some collegiate teams may have over 15 gymnasts that are ready to compete in the floor routine, but only six will have the opportunity to compete. Other collegiate teams may only have five ready to compete, ensuring that every floor routine will automatically count towards the team score. Gymnasts must perfect every detail in their routines because their coaches must decide who will compete and who will not, and performance quality could be the determining factor in such a decision.

1.1 Floor Exercise

The floor exercise, or "floor," is one of the most captivating and dynamic aspects of the sport (GymnasticsHQ, 2024). The event consists of a combination of music, artistry, tumbling, and performance to showcase flexibility, strength, and creativity (GymnasticsHQ, 2024). Floor routines are roughly a minute and a half long, and each gymnast gets to choose the music and develop their own dance/artistry. Gymnasts get their routines choreographed from a coach or professional, or on rare occasions, create it themselves. The floor apparatus itself is a 40 foot by 40-foot square, which creates a 56-foot diagonal path for gymnasts to tumble (Astor, 2021). The event is composed of a carpet covering springs or foam blocks designed to support high dynamic tumbling and reduce the impact on the gymnast's body (GymnasticsHQ, 2024).

A quality floor routine should have strong tumbling and dance elements that are performed with good form, height, and controlled landings. Gymnasts should utilize the entire floor space by showcasing their personality and choreography style and connecting with the judges and audience through eye contact and cultivating dance (GymnasticsHQ, 2024). Floor routines consist of two and four tumbling passes that can include forwards and backwards flips and twists. Alongside tumbling passes, the gymnast performs dance passages that includes leaps and jumps connected by running or dance steps.

The gymnastics floor routine is an events scored subjectively (Suominen, 2023). Judges have a code of points that defines scoring guidelines for each event, resulting in deductions from the 10.0 start value (NCAA, 2024b). Gymnastics routines happen quickly and due to no video reviews in the sport, the scoring is subjective to individual judges. There are methods that gymnasts "hide" errors from judges through choreography or quickly moving on to the next skill making it difficult to identify a mistake. Therefore, some judges will take deductions in places others will not. These gray areas in judging gymnastics routines can inevitably lead different judges to score the exact same routine differently. In 2005, the Judges' Assignor System (JAS) was implemented by the NCAA to develop consistency in judging, prevent home teams from selecting their own judges, and eliminate the intimidation factor and bias (Baghurst & Fort, 2008). Since the implementation of JAS, scores on all events have lowered, but teams still receive favorable scoring when competing in their home arenas (Baghurst & Fort, 2008). This illustrates gymnastics scoring is subjective, and multiple factors are involved in a gymnast's final routine score.

The floor apparatus is unique in gymnastics as gymnasts compete a choreographed routine to music. This factor adds an additional level of judging to the floor exercise that is not included in the other events. On top of usual deductions, such as form, landings, and execution, gymnasts can get deductions for ending their movements after the music has ended, being off beat with the music, and not performing their choreography with artistry (NCAA, 2024a; 2024b). Adding another component for deductions to the floor exercise impacts the scoring, and subjectivity of such, on this event specifically.

Humans inherently have biases and in terms of music and possess different perceptions of the beats of songs (Grahn & McAuley, 2009). The discrepancies in perception to music by different judges can add another category of deduction to the existing ones, such as execution and timing. For example, a song choice with clear beats to landings could distract from errors in execution or unintentionally make errors stick out. The distinct beats can also make it easier to tell when the gymnasts are timed up with the music, allowing deductions based on music timing more reliant on song choice (Loo et al., 2019). An additional category of deductions is caused by the beat perceptions of judges where those who naturally engage in the song beats could judge differently than those who do not (Veit et al., 2022). With more room

for subjectivity in judging of the floor routine due to song choice, it is essential to understand how songs affect the score.

At the collegiate level, winning scores can differ by as little as 0.025 or less. Therefore, every detail in a gymnast's routine is important, including the floor music a gymnast selects. When wining scores differ by as small as 0.025, the small fraction of subjectivity in scoring by the judges can alter wins and losses for individual gymnasts and teams. This study seeks to determine if there is a correlation between the genre and tempo of floor music used by Division I gymnasts for their floor routine and their routine score. This study strives to address the two following research questions:

RQ1: Which gymnastics floor music genre yields the highest scores in Division I gymnastics?

RQ2: Which gymnastics floor music tempo yields the highest scores in Division I gymnastics?

If the type of music a gymnast chooses affects their score, this could be substantial information for gymnast who compete at the collegiate level. This study can impact the sport and influence the floor music gymnast select that could potentially lead to a scoring advantage.

1.2 Benefits of Music in Exercise

The relationship between music and exercise has been researched extensively. It has been shown that music has a positive effect on performance in exercise (Priest & Karageorghis, 2008; Shin, 2022; Thakur & Yardi, 2013). Music can motivate people during exercise and make exercise a more pleasant activity (Barney et al., 2012; Cutrufello, 2020). Karageorghis & Priest (2008) explained that music affects exercise in five ways. First, dissociating from thoughts of fatigue and increasing pleasure in performance. Second, as an arousal regulator, either exciting the athlete or calming the athlete down. Third, increasing work output through synchronizing movements with music. Fourth, increasing attainment of motor skills, by increasing coordination and rhythm. Lastly, music helps athletes into a flow state. This extreme focus can improve performance.

When using music to enhance movement, the music should be consistent with the activity for optimal results (Karageorghis & Priest, 2008; Karageorghis et al., 2012). For example, high intensity training should be accompanied by quick, loud music. Whereas, stretching and recovery exercise can be paired with slow, calming music. While the music should match the type of exercise, the presence of lyrics does not affect the athletes' performance. Sanchez et al. (2014) found that using music, with and without lyrics, while cycling increased rotations per minute. Additionally, the effects of music on exercise varies based on activity. Brooks & Brooks (2010) found that aerobic exercise with music improved performance, mental arousal, and physical arousal. The results for anaerobic exercise with music remain inconclusive (Brooks & Brooks, 2010). To maximize the benefit of music during exercise, it is important to consider the tempo and genre of music in relation to the movement.

Using the Situational Motivation Scale (SIMS) and semi-structured interviews, de Klerk (2019) studied the effects of music on gymnasts during conditioning exercises using physiological monitoring. The presence of music during conditioning had many benefits for gymnasts, including better energy efficiency, economic breathing, decreased fatigue, as well as increased arousal and motivation (de Klerk, 2019). The use of music in exercise promotes positive emotions when exercising and a dissociation from the arduous task; therefore, making an activity more enjoyable and increasing performance (Barney et al., 2012; Karageorghis & Priest, 2008).

1.3 Music Genre in Exercise

Different music genres can have varying effects on exercise performance. Pop, hip-hop, and electronic dance genres can boost motivation, energy, and endurance (Louis, 2024). These upbeat music genres can enhance high-intensity exercises such as running or cycling. Listening to upbeat music improves endurance by reducing perceived effort (Louis, 2024). The uplifting nature of the music can also have psychological effects such as improved mood and an increased desire to complete challenging routines. However, genres such as classical can induce feelings of calmness which is linked to reduced anxiety and stress (Louis, 2024). Calming genres are typically preferred during low-intensity activities (e.g., yoga, Pilates, stretching). These calming genres can also enhance recovery after intense workouts by reducing cortisol levels and promoting relaxation (Somnil et al., 2023). Additionally, calm music supports concentration, allowing individuals to maintain proper technique in exercises that demand precision, such as balance training (Dass et al., 2023). Genres like classical can facilitate a meditative state that helps improve overall focus, as it fosters a sense of

peace and satisfaction. This evidence suggests music genre selection can optimize exercise experiences depending on the workout intensity.

1.4 Psychological Effects of Different Music Tempos

Music tempo plays a crucial role in shaping emotional responses. Music tempo's effects on memory and attention further display its psychological effects. Research has shown that fast-tempo music improves performance on memory recall (Balch & Lewis, 1996). Faster tempos tend to evoke feelings of excitement or joy while slower tempos are more likely to induce feelings of calmness or sadness (Bernardi et al., 2006; Clore & Huntsinger, 2007). Husain et al. (2002) found that listeners exposed to faster music rated their mood as more positive and reported higher levels of alertness. Higher alertness can correlate with improved judgment and decision-making, leading to judges scoring gymnasts more accurately with faster tempos (Canales-Johnson et al., 2020). Music with a faster tempo has also been linked to increased energy and motivation, which is why it is often used in settings that require stimulation (Karageorghis & Priest, 2012). On the other hand, slower tempo music (typically below 60 Beats Per Minute; BPM) tends to evoke more sadness and calmness (Juslin & Laukka, 2004), and lower arousal levels, which can reduce enthusiasm (Trochidis & Bigand, 2013). However, music with low tempos reduces response times in decision-making tasks (Karageorghis & Priest, 2012).

1.5 Applications of Music Theory in Sport Psychology

Rhythmic Auditory Stimulation (RAS) is a neurologically based technique that uses rhythm and auditory cues to improve motor timing, coordination, and movement precision, traditionally in clinical populations such as those with Parkinson's disease, stroke, or brain injury (Braun Janzen et al., 2022). The rhythmic component of RAS is central to its effectiveness, as it engages brain regions such as the basal ganglia and cerebellum to support movement synchronization with external acoustic stimuli (Thaut & Abiru, 2010). In athletic contexts, RAS has been shown to enhance performance by aligning physical movement with rhythmic cues, improving efficiency, and extending time to exhaustion (Bood et al., 2013). While much of the literature focuses on endurance or agility-based sports, the foundational premise of RAS—external rhythm guiding internal motor response—offers theoretical relevance to any activity where timing, coordination, and expressive movement converge. The theory also aligns with psychological research on rhythm response and musicality, where synchronization to musical tempo and pitch supports both movement flow and emotional engagement (Karageorghis & Priest, 2012). Thus, RAS provides a useful framework for understanding how rhythmic structure in auditory stimuli may influence performance across various domains of physical activity.

2. Methods

The National Qualifying Scores (NQS) on the floor routines for every NCAA Division I female gymnast (N = 376) that competed during the 2023-24 season was gleaned from the RoadtoNationals (n.d.) website. Gymnasts competed across 11 conferences including the Atlantic Coast Conference (ACC), Big 12, Big 10, East Atlantic Gymnastics League (EAGL), Gymnastics East Conference, (GEC), Mid-American conference (MAC), Midwest Independent Conference (MIC), Mountain Specific Sports Federation (MPSF), Mountain West (MW), Pac -12, and Southeastern Conference (SEC). The gymnasts' year in school were freshman (n = 60), sophomore (n = 82), junior (n = 103), senior (n = 116), and graduate (n = 15).

2.1 Data Analysis

To determine which floor music genre yielded the highest NQS, the mean NQS was compared across music genres that were employed by a minimum of seven gymnasts. Music genres used by less than seven were not included. This resulted in the comparison of 13 music genres amid a total of 67. Notably, because many of the n sizes within music genres were small and unbalanced, the mean comparisons were examined descriptively and not inferentially. Additionally, to better understand the potential influence of music genre on NQS floor routines, a second analysis was conducted in which the BPM associated with each music genre was added to the comparisons. By doing this analysis, it could be seen if music genres with slower or faster beats possibly relate to floor routine NQS.

To assess the relationship between floor music tempo (beats per minute) and the gymnasts' floor routine NQS, a Pearson's correlation was employed. To elucidate the relationship, floor routine BPM were put into quartiles to examine NQS within each range. Lastly, a scatter plot showing the relationship between BPM and floor routine NQS was examined.

3. Results

Overall, a comparison of the mean NQS across music genres showed little differences (see Table 1). However, there were three music genres associated with a mean NQS of 9.7 or higher in comparison to the other 10 music genres with a mean NQS ranging from 9.82 – 9.87. The music genres associated with the three highest mean NQS were R&B (9.90), Latin/electronic dance (9.90), and jazz/electronic dance (9.70). When examining BPM in relationship to these three music genres (see Table 2), two of them are associated with some of the highest BPM among the 13 genres. The BPM for jazz/electronic dance is 170.57 along with Latin/electronic dance having a BPM of 161.43. Conversely, R&B has a BPM of 134.22 which is the slowest BPM among the 13 genres. Thus, there is conflicting evidence whether music genres with fast beats versus slower beats is related to a gymnast's floor routine NQS. Consideration should also be given to the fact that 54 music genres were excluded from the analysis due to a small n size, e.g., 1 or 2 gymnasts within a genre. Consequently, we are unable to obtain a complete understanding of how music genres might influence performance.

The second research question was to determine if there is a relationship between floor routine NQS and the BPM of the chosen music. A Person correlation showed a small negative correlation $r(374) = -.08$, $p = .13$ that was not statistically significant at the .05 level. This result suggests that there is little relationship between floor routine NQS and BPM of the music more generally. In support of the correlation analysis, Table 3 shows a comparison of the mean NQS within each quartile for BPM. The mean NQS across quartile ranges are nearly identical. Lastly, a scatterplot (see Figure 1) shows that the relationship between a gymnasts' NQS and BPM of their floor routine music is highly variable, i.e., a high NQS is associated with music that has a high or low BPM.

Table 1. *Comparison of National Qualifying Scores (NQS) on Floor Routine Between Music Genres*

Genre	M	n	SD
Electronic dance	9.84	132	.06
All other genres	9.84	99	.09
Classical/electronic dance	9.85	13	.05
Jazz	9.83	16	.07
Pop	9.85	21	.09
Pop/electronic dance	9.82	22	.07
R&B	9.90	9	.03
Rap hip-hop	9.84	16	.07
Rap hip-hop/electronic dance	9.87	8	.02
Rock	9.85	11	.05
Soundtrack	9.86	15	.08
Latin/electronic dance	9.90	7	.05
Jazz/electronic dance	9.70	7	.08

Note: *Only music genres with a minimum of seven gymnasts were included.*

Table 2. *Comparison of National Qualifying Scores (NQS) on Floor Routine and Floor Music Beats Per Minute (BPM) Between Music Genres*

Genre	M (NQS)	SD	M (BPM)	SD	n
Electronic dance	9.84	.06	158.31	37.67	132
All other genres	9.84	.09	148.70	39.84	99
Classical/electronic dance	9.85	.05	155.08	25.60	13
Jazz	9.83	.07	150.88	34.90	16
Pop	9.85	.09	138.19	29.26	21
Pop/electronic dance	9.82	.07	142.18	28.59	22
R&B	9.90	.03	134.22	26.97	9
Rap hip-hop	9.84	.07	166.88	35.69	16
Rap hip-hop/electronic dance	9.87	.02	172.00	35.27	8
Rock	9.85	.05	154.36	29.22	11
Soundtrack	9.86	.08	142.60	30.83	15
Latin/electronic dance	9.90	.05	161.43	30.84	7
Jazz/electronic dance	9.70	.08	170.57	38.03	7

Table 3. *Comparison of National Qualifying Scores Within Quartile Ranges of Beats Per Minute (BPM)*

Quartiles (BPM)	M	n	SD
132.00 and below	9.85	102	.09
132.00 – 152.00	9.84	91	.07
152.00 - 176	9.84	99	.06
176.00 and above	9.83	84	.11

Note: *The 25th percentile = 132.00, the 50th percentile = 152.00, and the 75th percentile = 176.00.*

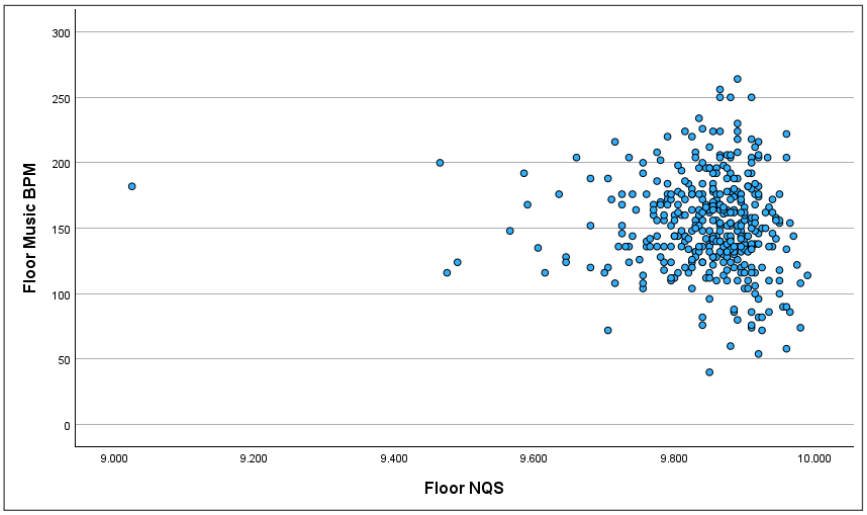

Figure 1. *Relationship Between Music Beats Per Minute and National Qualifying Scores (NQS) on the Floor Routine*

4. Discussion

This study strived to determine whether there was a correlation between the genre and tempo of floor music used by Division I women's gymnasts and their floor routine score. The findings provide limited evidence that either music genre or tempo significantly influences floor routine outcomes. Although three genres (R&B, Latin/electronic dance, jazz/electronic dance) were associated with the highest mean (NQS), the differences across the 13 genres analyzed were minimal. This suggests that while certain genres may complement performance elements such as energy, rhythm, and style, genre alone does not appear to be a strong or consistent predictor of scoring outcomes. In addition, music tempo, measured in beats per minute, showed no significant relationship to scoring. A Pearson correlation revealed a small and nonsignificant negative relationship between tempo and NQS, indicating that gymnasts achieved high scores with both fast and slow music. This was further supported by quartile analysis and a scatterplot, both of which illustrated a high degree of variability in scores across different tempo ranges. These results suggest that other factors such as technical execution, choreography, and the gymnast's ability to interpret and perform to the music likely have a more substantial impact on scoring. While music may enhance the expressiveness and overall presentation of a routine, genre and tempo alone do not independently predict higher floor routine scores in Division I women's gymnastics.

Although this study did not find a statistically significant relationship between music tempo and floor routine scores, and only minimal differences across music genres, the role of music in athletic performance should not be dismissed. Descriptive results indicated that the highest-scoring routines were associated with genres such as R&B, Latin and electronic dance, and jazz and electronic dance. These genres are often characterized by strong rhythmic components, emotional depth, and high energy, which may enhance the gymnast's ability to perform with power, precision, and expression. This finding is consistent with previous research that identifies upbeat genres like pop, hip-hop, and electronic dance music as beneficial for motivation, endurance, and energy output during high-intensity exercise (Louis, 2024). These genres can improve arousal, reduce the perception of fatigue, and promote a positive psychological state, which in turn can elevate performance (Barney et al., 2012; Cutrufello, 2020; Karageorghis & Priest, 2008).

Although tempo alone was not significantly related to performance outcomes, the psychological and physiological effects of tempo are well-documented in the literature. Fast-tempo music has been associated with increased alertness, improved mood, and higher cognitive performance (Balch & Lewis, 1996;

Bernardi et al., 2006; Husain et al., 2002). These effects may indirectly support athletic performance by fostering greater focus, arousal, and motivation. Conversely, slower tempo music tends to evoke lower arousal states and is associated with calmness, sadness, or introspection (Juslin & Laukka, 2004; Trochidis & Bigand, 2013). While slower tempos may not hinder performance directly, they may not provide the same motivational boost needed in dynamic and expressive routines like those performed on floor exercise. However, the presence of rhythmic structure, even at lower tempos, could still facilitate movement coordination and emotional expression, depending on the gymnast's style and the routine's design (Karageorghis et al., 2012).

The findings also align with the RAS, which posits that external rhythmic cues can regulate and improve motor timing and coordination (Braun Janzen et al., 2022; Thaut & Abiru, 2010). Although originally developed for clinical populations, RAS has been extended to athletic contexts, showing that synchronization to external rhythm can enhance movement efficiency, consistency, and endurance (Bood et al., 2013). In gymnastics, where artistry and technical execution are both essential, the principles of RAS help explain how rhythmic elements in music may support a gymnast's timing, flow, and expressive capabilities. Synchronizing movements to tempo—a process known as rhythm response—has been shown to increase motor coordination and skill acquisition (Karageorghis & Priest, 2008). Gymnasts who can align their movements effectively with musical beats may be perceived as more fluid and precise, potentially influencing judges' evaluations, especially under the musicality component of the scoring rubric.

Limitations and Future Research

Several limitations may have influenced the findings of this study. One major limitation was the challenge of classifying gymnastics floor routine music into clearly defined genres. Many routines used songs that combined multiple styles or featured hybrid arrangements, which created over 60 different genre labels in the dataset. To ensure meaningful comparison, only genres with at least seven routines were included in the analysis, which limited the sample and may have obscured trends within underrepresented categories. Additionally, this study used 30-second clips to determine music tempo, adapting the approach of Schreiber and Müller (2018), who found this duration sufficient for capturing beat accuracy without introducing fatigue. While full floor routines are 90 seconds and may include tempo changes, a 30-second segment provided a practical and consistent method for estimating tempo across a large dataset. Determining tempo using only 30-second clips of each routine may not have captured the full variability of music used in floor routines. Since floor music is typically 90 seconds long, and often includes tempo changes to match choreography or highlight specific moments, analyzing a single segment may have missed important rhythmic shifts that influence performance.

Another limitation was the method of data collection, which relied on publicly available YouTube videos of routines as they were performed during competition. The presence of background noise, such as commentators and crowd reactions, often interfered with the clarity of the music and may have affected the accuracy of genre and tempo identification. Furthermore, the subjectivity inherent in gymnastics judging presents a significant constraint. Judges bring personal interpretations, preferences, and biases to the evaluation process, particularly when it comes to performance quality and musicality. These factors, combined with the lack of video review in collegiate gymnastics and variation in judging panels across meets, likely introduced inconsistencies not captured by this study.

Future research should build on these findings by analyzing complete floor routines to account for tempo shifts and dynamic transitions that occur throughout the performance. Studies may also benefit from collecting higher-quality audio data or partnering directly with programs and choreographers to access original music files. Additionally, incorporating qualitative methods such as interviews with judges, gymnasts, and coaches could provide insights into how music is selected and perceived in the judging process. Finally, exploring how music preferences and performance impact vary based on gymnast experience level or team culture may help to further refine the role of music in collegiate women's gymnastics.

Implications

The findings of this study suggest that while music genre and tempo may not significantly predict floor routine scores, they still hold practical implications for athlete performance, perception, and scoring in NCAA Division I women's gymnastics. With floor exercise being the only event performed to music, the selection of music becomes an essential aspect of routine construction and competitive presentation. Coaches and athletes must consider that even minor details, including musicality and synchronization, can

influence a gymnast's score in a sport where results are often decided by hundredths of a point.

As judges assess not only technical execution but also artistry and alignment with music, the type and tempo of music selected could contribute to performance deductions when not well-matched to the routine. For example, music that lacks clear rhythm or emotional intensity may limit a gymnast's ability to engage the audience and judges, reducing overall presentation quality. Conversely, music that enhances energy, emotional expression, and timing may elevate the visual and expressive impact of the routine. Given that only six gymnasts are selected to compete floor and just five scores count toward the team total, performance quality—including how effectively a gymnast performs to her music—can be a deciding factor in lineup decisions.

Moreover, because gymnastics is a subjectively judged sport, individual judge preferences or interpretations of beat alignment and performance quality may influence scoring outcomes. Judges may respond differently to certain genres or tempos based on personal perception or musical sensitivity, which can lead to subtle scoring variations. In such a competitive environment, selecting music that supports strong rhythm, confident choreography, and audience connection may offer gymnasts a competitive edge, even if those advantages are not reflected in statistical correlations. Ultimately, this study underscores the importance of viewing music choice as a strategic element of routine design that supports both technical execution and overall performance presentation.

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Conflict of Interest

We have no conflicts of interest to disclose.

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