MUSIC AS PSYCHOLOGICAL SUPPORT AMONG UITM ATHLETES

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Abstract. Music is widely used in sport and exercise settings, yet evidence from Malaysian university athletes remains limited. This quantitative cross-sectional survey examined UiTM athletes' perceived effects of music on psychological endurance, physical strength and performance, and motivation, and tested gender differences in these perceptions. Data were collected from 131 athletes (58 male, 73 female) using a structured questionnaire adapted from the Impact of Music on Sportive Activities Scale and analysed using descriptive statistics and Welch independent-samples t-tests. Results showed that athletes frequently perceived music as beneficial during sport activities. Motivation recorded the highest overall mean score (M = 3.64, SD = 0.81), followed by psychological endurance (M = 3.63, SD = 0.77) and physical strength and performance (M = 3.60, SD = 0.80). At item level, music was most strongly associated with relaxation, energy, stress reduction, emotional regulation and concentration. Welch t-tests showed no significant gender differences across the three dimensions ($p > .05$), with small or negligible effect sizes. The findings suggest that music may be managed as a low-cost psychological support strategy shaped by athlete preference, session purpose and training intensity rather than by gender alone.
Keywords: *motivation, psychological endurance, athletic performance, gender differences, physical strength*

Introduction

Music has become a routine part of contemporary sport, exercise and fitness environments. Athletes listen to music before training to increase readiness, during repetitive activities to support pacing, and after exercise to regulate affect and recovery. In team settings, music also shapes the collective training atmosphere by creating energy, shared rhythm and informal social connection. The practical appeal is clear. Music is inexpensive, accessible through personal devices and speakers, and easy to incorporate without major facility, staffing or equipment changes. For university sport programmes operating with limited resources, this makes music a potentially useful psychological and environmental support tool rather than a mere entertainment accessory. Research in exercise and sport psychology shows that music can influence psychological, psychophysical, physiological and performance-related outcomes. The meta-analytic review by Terry et al. (2020) concluded that music listening generally benefits affective valence, perceived exertion, oxygen consumption and performance, although the size and direction of effects depend on exercise mode, timing and individual characteristics. More recent systematic reviews sharpen this point. Delleli et al. (2023) found that pre-task music can influence exercise performance and associated psychophysiological responses, while Marques et al. (2024) reported that music may

improve selected power outcomes during high-intensity intermittent exercise but does not consistently reduce ratings of perceived exertion. The literature therefore supports a qualified claim: music can help athletes, but it does not operate as a universal performance enhancer across every sport task or athlete group.

The Malaysian university sport context deserves closer attention. University athletes must balance academic demands, training schedules, team obligations, competition pressure and social expectations. Studies on collegiate athletes show that academic and athletic stressors can interact with wellness, perceived readiness and performance monitoring needs (Lopes Dos Santos et al., 2020). Within this dual-role environment, low-cost psychological strategies are valuable because they can be implemented in daily training without requiring specialist intervention every time. Music may be one such strategy. It may not replace formal sport psychology support, but it can help athletes manage arousal, mood, effort and concentration in ordinary training settings. This issue is particularly relevant to social sciences and humanities because music use in sport is not only a physiological or biomechanical matter. It involves perception, emotion, preference, identity, behaviour and the management of social environments. Athletes do not simply respond to tempo or loudness as mechanical stimuli. They interpret music through personal preference, cultural familiarity, lyrical meaning, memories, peer influence and the immediate demands of a training session. A song that energises one athlete may distract another. A shared playlist may strengthen group cohesion in one team but create irritation in another if athletes feel their preferences are ignored. These social and psychological dimensions justify studying music as part of athlete wellbeing and training-environment management.

Gender differences also require careful treatment. Some earlier evidence suggests that male and female athletes may differ in music preference or response under particular conditions (Cole and Maeda, 2015). Recent warm-up and performance studies also show that participant sex, training status and sport type may moderate how athletes respond to music (Jebabli et al., 2025; Meglic et al., 2021). However, a simple gender-based prescription can be misleading if individual preference and training purpose are stronger determinants of response. The applied question is not only whether male and female athletes differ, but whether any difference is large enough to justify different music-management strategies in university sport. This study therefore examined UiTM athletes' perceived effects of music on sport activities. It focused on three dimensions: psychological endurance, physical strength and performance, and motivation. The objectives were: (1) to determine the perceived effects of music on sport activities among UiTM athletes and (2) to examine whether male and female UiTM athletes differed significantly in these perceived effects. The study positions music as a practical social, behavioural and psychological strategy that may support athlete engagement, emotional regulation and training readiness in a university setting.

Review of literature

Music in sport and exercise as psychological support

The strongest explanation for music effects in sport and exercise lies in the interaction between affect, attention and perceived effort. Music can draw attention away from discomfort, create more positive emotional states, regulate arousal and increase the perceived meaningfulness of movement. Terry et al. (2020) showed that music effects are not limited to performance outcomes. Psychological and

psychophysical responses are central, especially when music changes mood, attention or perceived exertion. This matters for university athletes because training quality often depends on psychological readiness and persistence, not only physical capacity. Preference is a key moderator. Ballmann (2021) argued that preferred music tends to produce stronger exercise responses than music chosen without regard to the listener's taste. Studies on preferred versus non-preferred music support this claim across several exercise contexts, including resistance exercise and endurance exercise (Ballmann et al., 2022; Ballmann et al., 2021). The implication is practical. Music selection should not be treated as neutral background sound. It is part of how athletes organise motivation and emotional readiness. A playlist imposed by a coach may be less effective than a playlist developed with athlete input, even if the imposed playlist has a theoretically suitable tempo. Recent experimental work further suggests that the timing and function of music matter. Pre-task or warm-up music may prime arousal and mood before physical effort begins (Delleli et al., 2023). During-task music may support dissociation, pacing and persistence. Recovery music may help reduce arousal after intense effort. Schittenhelm et al. (2024) found that fast-beat music improved rowing interval performance without increasing perceived exertion, while slow-beat music supported recovery-related responses. These findings suggest that music should be matched to the purpose of the training phase rather than used uniformly throughout a session.

Psychological endurance, affect regulation and stress reduction

Psychological endurance refers to an athlete's ability to sustain effort, focus and emotional control under physically or mentally demanding conditions. It differs from objective endurance capacity because it concerns how athletes experience and manage effort. Music may support this process by reducing negative affect, increasing positive energy and helping athletes shift attention away from discomfort. This does not mean that music eliminates fatigue. Rather, it may change the athlete's interpretation of fatigue and the willingness to continue working despite it. The relevance of psychological endurance is strengthened by the demands placed on student-athletes. Collegiate athletes face academic, social, financial and sport-related stressors, while still needing to maintain training quality (Lopes Dos Santos et al., 2020). Mental toughness and sport-related wellbeing have also been linked to athlete functioning and attitudes toward mental health support (Bird et al., 2021). In such contexts, low-intensity daily strategies that support affect regulation can be useful. Music can be one part of a broader psychological skills environment that includes goal setting, self-talk, recovery habits and coach-athlete communication. Music also has a social function. Shared music can influence the emotional climate of a team, while personal music listening through earphones can create psychological distance before competition or training. The same mechanism can be beneficial or problematic depending on context. Before a high-pressure event, personal music may help an athlete regulate anxiety. During a team strategy session, however, individual listening may reduce communication. Sport managers and coaches therefore need to understand music as a context-sensitive tool that can support, rather than replace, deliberate training communication.

Physical strength, perceived performance and training engagement

The evidence connecting music to physical performance is more mixed than the evidence linking music to mood and motivation. Some studies report improvements in

anaerobic, resistance or endurance tasks when athletes listen to preferred or motivational music. Meglic et al. (2021), for example, reported that preferred warm-up music influenced repeated sprint-related outcomes in collegiate female athletes. Ballmann et al. (2021) also found that preferred music affected resistance exercise performance. In a Malaysian context, Mohd Saleh et al. (2023) found that preferential music affected aerobic endurance performance and perceived exertion responses. These studies support the view that music can influence how athletes approach effortful activity. However, performance effects depend on task characteristics. Marques et al. (2024) showed that music effects during high-intensity intermittent exercise are not consistent across all outcomes. Similarly, Delleli et al. (2023) emphasised that pre-task music effects differ across physical, perceptual and physiological variables. This mixed evidence is important for the present study because the data measured athletes' perceived effects of music, not objective output such as speed, load lifted, heart rate or competition results. Perceived physical strength and performance should therefore be interpreted as the athlete's subjective experience of readiness, power and effort maintenance. The distinction between objective performance and perceived performance is not a weakness if handled correctly. Perceptions matter in sport because they influence whether athletes initiate training, persist through discomfort and engage with repeated practice. Self-determination theory argues that motivation quality is shaped by autonomy, competence and relatedness (Ryan and Deci, 2020; Standage and Ryan, 2020). Music may support these mechanisms when athletes feel ownership over music selection, when music makes training feel more manageable, and when shared music contributes to team belonging. From this viewpoint, music is not only an ergogenic aid. It is also a behavioural engagement resource.

Motivation, preference and gender

Motivation is one of the most consistent reasons athletes report using music. Music can increase energy, readiness to train and enjoyment of repetitive activity. Ntoumanis et al. (2021) showed that motivation-focused interventions in health contexts can influence behaviour and psychological outcomes, especially when autonomy-supportive processes are strengthened. In training environments, athlete choice in music selection may therefore be more than a matter of taste. It may support autonomous motivation because athletes feel that the training environment reflects their preferences and goals. The current literature also warns against overgeneralising gender differences. Cole and Maeda (2015) found sex-related differences under specific endurance-running conditions, and recent sport-specific studies have continued to examine whether male and female athletes respond differently to musical cues. Yet many effects appear tied to preference, tempo, task intensity and training status rather than gender alone (Jebabli et al., 2025; Ballmann, 2021). Coaches who treat gender as the main basis for music planning may therefore overlook more actionable variables. A stronger approach is to ask what the session requires and what music helps athletes meet that requirement. Another issue concerns the difference between individual and collective music use. Individual listening allows athletes to choose songs that fit their own mood and preparation needs. Collective listening, usually through speakers, can structure the emotional atmosphere of an entire training group. Both forms may be useful, but they involve different management problems. Individual listening raises questions about safety, communication and attention to coaching instructions. Collective listening raises questions about whose preferences dominate the environment and whether the chosen

music supports the intended session. This study does not separate individual and collective listening, but its findings justify future work on how music is negotiated within university teams. The present study adopts that cautious position. It tests gender differences because they are practically relevant in sport settings, but it does not assume that gender must be the primary explanation for music response. If gender differences are small or non-significant, the practical recommendation should move toward individualised and purpose-based playlist management. Such an approach is consistent with recent work on music choice, which highlights self-selected and preferred music as important conditions for psychological and performance responses.

Materials and Methods

Research design and participants

This study used a quantitative cross-sectional survey design. The design was appropriate because the study measured athletes' perceptions at one point in time and compared mean scores between gender groups. The population consisted of UiTM athletes who were actively involved in sport training and competition. A purposive sampling approach was used because the study required respondents with relevant sport participation experience. A total of 131 athletes participated in the study. The sample included 58 male athletes (44.3%) and 73 female athletes (55.7%). Most respondents were aged 21 to 30 years (71.8%), while 28.2% were aged 18 to 20 years. Team-sport athletes represented 56.5% of the sample, and individual-sport athletes represented 43.5%. The sample is therefore suitable for examining perceived music effects among university athletes, although it should not be treated as representative of all Malaysian athletes (*Table 1*).

Table 1. *Participant profile.*

Category	Frequency	Percentage
Gender		
Male	58	44.3
Female	73	55.7
Age		
18-20 years	37	28.2
21-30 years	94	71.8
Major sport		
Individual sports	57	43.5
Team sports	74	56.5
Music use during exercise		
Always	34	26.0
Often	32	24.4
Sometimes	42	32.1
Rarely	14	10.7
Never	9	6.9
Preferred genre		
Pop	25	19.1
Hip-hop	23	17.6
K-pop	21	16.0
Electronic dance music	19	14.5
Malay pop	18	13.7

Rock	13	9.9
Classical	11	8.4
Others	1	0.8
Main factor in music choice		
Genre or personal preference	49	37.4
Tempo	47	35.9
Lyrics	35	26.7

Instrument

Data were collected using a structured questionnaire. Section A captured demographic characteristics, including gender, age, major sport, sport experience, frequency of music use during exercise, preferred music genre and factors considered when selecting exercise music. Section B measured perceived music effects using items adapted from the Impact of Music on Sportive Activities Scale developed by Karayol and Turhan (2020). The adapted instrument used a five-point Likert scale ranging from 1 = Never to 5 = Always. Items were organised into three dimensions: psychological endurance, physical strength and performance, and motivation. Higher scores indicated more frequent perceived benefits of music during sport activities. The adaptation was suitable because the study did not seek to measure objective physiological change. It examined athletes' subjective perceptions of how music supported psychological and sport-related experiences.

Data analysis

Data were analysed using descriptive statistics and independent-samples comparisons. Frequencies and percentages were used to describe the respondent profile. Means and standard deviations were used to summarise perceived music effects. Welch independent-samples t-tests were used to compare male and female athletes because the gender groups were unequal in size and Welch's approach is recommended as a robust default in many psychological comparisons involving independent groups (Delacre et al., 2017). Cohen's d was calculated to support practical interpretation of gender differences (Cohen, 1988). Statistical significance was evaluated at $p < .05$. The Likert interpretation used the following interval: 1.00-1.80 = Never, 1.81-2.60 = Rarely, 2.61-3.40 = Sometimes, 3.41-4.20 = Often and 4.21-5.00 = Always. This interpretive scheme was used to avoid overstating small differences between mean scores and to present the findings in a form that is useful for coaches, sport managers and health-fitness practitioners.

Results and Discussion

Overall perceived effects of music

Table 2 shows that all three dimensions fell within the Often category. Motivation recorded the highest mean score, followed closely by psychological endurance and physical strength and performance. The differences between the dimensions were small, which indicates that respondents did not view music as useful for only one narrow purpose. Instead, they frequently associated music with motivational, emotional and perceived performance-related benefits. The item-level findings strengthen this interpretation. For psychological endurance, the strongest item was relaxation (M =

3.92, SD = 1.064), followed by moving away from negative feelings and thoughts (M = 3.79, SD = 1.148) and moving away from stress (M = 3.79, SD = 1.065). These results indicate that the clearest perceived value of music was emotional regulation. Athletes did not merely use music to feel entertained. They used it to create a more manageable psychological state during exercise. For physical strength and performance, the highest item was increased endurance (M = 3.68, SD = 1.090), followed by being mentally calm (M = 3.65, SD = 1.227) and feeling more powerful (M = 3.63, SD = 1.185). These findings suggest that athletes associated music with effort maintenance and perceived readiness rather than with direct technical improvement. Lower ratings for coordination and hormonal balance suggest that athletes were less certain about music's physiological or skill-specific effects. For motivation, the strongest item was increased energy (M = 3.73, SD = 1.142), followed by improved wellbeing (M = 3.65, SD = 1.150) and increased concentration (M = 3.63, SD = 1.198). This pattern supports the view that music can help athletes initiate and sustain training effort. In applied sport management, this is important because motivation influences attendance, engagement, persistence and the quality of daily training experiences.

***Table 2**. Overall descriptive statistics by dimension.*

Dimension	Mean	SD	Likert interpretation
Psychological endurance	3.63	0.77	Often
Physical strength and performance	3.60	0.80	Often
Motivation	3.64	0.81	Often

Gender differences in perceived music effects

Table 3 presents the gender comparison by dimension. Female athletes reported slightly higher mean scores for psychological endurance and physical strength and performance, while male athletes reported a slightly higher mean score for motivation. However, these differences were not statistically significant. The effect sizes were small or negligible across all dimensions. For psychological endurance, female athletes reported a slightly higher mean score (M = 3.699, SD = 0.736) than male athletes (M = 3.539, SD = 0.807). The difference was not significant, t(116.84) = -1.17, p = .244, Cohen's d = -0.21. For physical strength and performance, female athletes again reported a slightly higher score (M = 3.635, SD = 0.784) than male athletes (M = 3.566, SD = 0.815), but this difference was also not significant, t(120.19) = -0.49, p = .625, Cohen's d = -0.09. For motivation, male athletes reported a slightly higher score (M = 3.672, SD = 0.818) than female athletes (M = 3.605, SD = 0.803), but this result was not significant, t(121.37) = 0.47, p = .640, Cohen's d = 0.08. The statistical results therefore do not support a strong gender-based explanation of perceived music effects in this sample. Although the direction of means varied by dimension, the differences were too small to justify separate music strategies for male and female athletes. The more defensible interpretation is that music was broadly perceived as useful by both groups.

***Table 3**. Gender differences in perceived music effects.*

Dimension	Male M (SD)	Female M (SD)	t (df)	p	d	Sig.
Psychological endurance	3.539 (0.807)	3.699 (0.736)	-1.17 (116.84)	.244	-0.21	ns
Physical strength and performance	3.566 (0.815)	3.635 (0.784)	-0.49 (120.19)	.625	-0.09	ns
Motivation	3.672 (0.818)	3.605 (0.803)	0.47 (121.37)	.640	0.08	ns

Music as a tool for emotional regulation and training readiness

The findings show that UiTM athletes frequently perceived music as beneficial during sport activities. Motivation was the highest-rated dimension, but psychological endurance and physical strength and performance were rated almost as highly. This pattern suggests that music operates through multiple perceived pathways. It energises athletes, helps them manage stress and negative feelings, supports concentration and contributes to a sense of readiness for effort. These findings are consistent with sport and exercise psychology literature showing that music can influence affect, attentional focus, perceived exertion and exercise engagement (Ballmann, 2021; Terry et al., 2020). The strongest item-level results came from relaxation, stress reduction, moving away from negative feelings and increased energy. This combination is theoretically important. Athletes appear to use music both to raise energy and to manage emotional strain. The same athlete may use fast-tempo music before conditioning work and calmer music during cooldown or pre-competition anxiety management. This dual function echoes recent evidence that different music characteristics may serve different training phases. Schittenhelm et al. (2024) showed that fast-beat music supported interval performance, while slow-beat music had greater relevance for recovery-related responses. The present data support the practical value of that distinction at a perceptual level. The results also align with the growing emphasis on preferred or self-selected music. Preferred music has been associated with improved exercise responses in several experimental studies (Ballmann et al., 2022; Ballmann et al., 2021; Meglic et al., 2021). In the present study, genre or personal preference was the most frequently reported factor in music choice, followed closely by tempo. This suggests that athletes do not treat music selection as a purely technical matter. They combine affective preference with rhythmic considerations. For coaches, the lesson is direct: tempo can help, but preference still matters.

Interpreting perceived performance carefully

The physical strength and performance dimension was also rated in the Often category. However, this finding should be interpreted as perceived performance support, not proof of objective performance enhancement. The study did not measure sprint time, running time, repetitions completed, load lifted, heart rate, lactate or competition results. The evidence therefore supports the conclusion that athletes often feel more enduring, powerful or ready when using music, not that music directly improves all performance outputs. This distinction is consistent with the broader literature. Experimental studies have shown that music can enhance selected performance outcomes, particularly when it is preferred, motivational or matched to warm-up demands (Bougrine et al., 2025; Jebabli et al., 2025; Boujabli et al., 2024; Mohd Saleh et al., 2023). At the same time, systematic reviews show that effects vary by task, intensity and outcome measure (Marques et al., 2024; Delleli et al., 2023). The present study therefore should not be read as a claim that music automatically improves sport performance. It demonstrates that athletes perceive music as a useful support for readiness, endurance and effort management. That perceived support still has applied value. In university sport, training consistency and engagement are crucial. If music helps athletes feel more prepared, focused and energised, it may indirectly support training quality even when its direct physiological effect is uncertain. From a self-determination theory perspective, allowing athletes to participate in playlist decisions may support autonomy and relatedness, while music that makes training feel more manageable may reinforce competence (Ryan and

Deci, 2020; Standage and Ryan, 2020). These mechanisms are behavioural and social, not merely physiological.

Gender differences and the need for athlete-centred music management

The absence of significant gender differences is one of the most practically important findings. It challenges a simple assumption that male and female athletes need fundamentally different music strategies. Although previous studies have examined sex differences in music and endurance performance (Cole and Maeda, 2015), the present data show that perceived music benefits were broadly similar across male and female UiTM athletes. The small effect sizes reinforce this conclusion. In applied settings, a statistically non-significant result with negligible effect size should not be converted into a gender-based rule. A better strategy is athlete-centred music management. Coaches and practitioners should ask what the music is supposed to do. If the goal is warm-up arousal, fast-tempo preferred music may be appropriate. If the goal is concentration, athletes may need music with fewer distracting lyrics. If the goal is recovery or emotional decompression, slower or calming music may work better. If the goal is team bonding, a shared playlist may be useful, but only if athletes feel some ownership over it. This approach treats music as a flexible training-environment tool rather than as a fixed intervention. The gender finding also has implications for inclusion. A rigid gender-based playlist policy could reproduce stereotypes about musical preference and emotional response. The data do not support that. Since both male and female athletes reported frequent benefits, music planning should be flexible enough to respect individual preference, sport type, training phase and team culture. This is more likely to support wellbeing and engagement than a one-size-fits-all strategy based on gender.

Practical implications for sport management and wellbeing

The findings offer several implications for sports management and health-fitness practice. First, music can be integrated into training plans as a low-cost strategy to improve athlete engagement. Most respondents already used music at least sometimes during exercise, so coaches can build on existing behaviour rather than introduce an unfamiliar intervention. This is particularly useful in university sport settings where budget constraints may limit access to specialised psychological support for every training session. Second, playlist design should be purposeful. Warm-up playlists may emphasise energy, rhythm and readiness. Endurance playlists may support pacing and persistence. Strength or conditioning playlists may be selected to increase arousal without compromising technique. Recovery playlists may emphasise relaxation and emotional regulation. Athletes should be involved in playlist development because personal preference appears central to response. This also reduces the risk that communal music becomes a distraction or source of conflict. Third, music can support inclusive training environments. Since gender differences were not significant, a single gender-based policy would be weak. A better strategy is to allow flexible, athlete-led music options that respect individual preference while supporting team goals and session purpose. In team settings, coaches can rotate playlist responsibility, create separate playlists for different training phases, and set rules for when personal earphones are acceptable. These procedures make music use deliberate rather than random. Fourth, sport managers should not oversell music as a substitute for evidence-

based coaching, recovery planning or mental health support. Music is useful because it is accessible and psychologically meaningful, but it does not solve structural problems such as excessive workload, poor communication or unmanaged stress. It works best as part of a wider wellbeing-oriented training environment that recognises the academic and athletic demands faced by university athletes. Fifth, coaches can use music-related discussion as a simple way to understand athletes' psychological states. Asking athletes what kind of music helps them prepare, concentrate or recover can reveal information about their preferred arousal level and emotional needs. This should not become intrusive monitoring. Rather, it can support ordinary communication between coaches and athletes. A team that discusses music openly may also become more aware that preparation routines differ across individuals. That awareness can reduce unnecessary assumptions about motivation and help coaches design training environments that are structured but still responsive to athlete voice.

Social-scientific contribution

The study contributes to social science by treating music as a situated behavioural practice rather than a purely acoustic stimulus. In many sport-science discussions, music is described mainly through tempo, volume or physiological response. Those factors are important, but they do not fully explain why athletes choose particular songs, why music becomes meaningful before difficult sessions, or why a playlist can influence the emotional climate of a team. The present findings show that athletes connect music with energy, stress reduction, relaxation and concentration. These are human experiences shaped by preference, identity, culture and context. For EJSSH, this framing strengthens the article because it links sport participation with wellbeing, perception and behaviour in a university community. The UiTM setting also adds contextual value. Much of the experimental literature on music and performance comes from Western sport or laboratory environments. Malaysian university athletes train within a different cultural, institutional and linguistic environment, where preferences may include pop, hip-hop, K-pop, electronic dance music, Malay pop, rock and classical music. The respondent profile showed that genre or personal preference and tempo were the two most common factors in music choice. This supports a locally grounded interpretation: athletes make music decisions through both personal meaning and perceived training function. The study further suggests that low-cost wellbeing strategies should not be dismissed simply because they appear ordinary. University sport programmes often focus on formal interventions, facilities and performance technologies. These remain important, but everyday practices such as music listening can also shape training readiness and emotional regulation. The value of music lies partly in its accessibility. It can be used by athletes before training, adjusted by coaches for different session aims, and embedded into team routines with minimal cost. This makes it relevant for inclusive sport management, especially in resource-conscious university settings.

Limitations and future research

Several limitations should be acknowledged. First, the study used a cross-sectional survey design, so causal claims cannot be made. The data show how athletes perceived music, not whether music objectively improved performance. Second, the sample was limited to UiTM athletes, which restricts generalisation to other universities, elite athletes or recreational exercisers. Third, the study relied on self-reported responses.

Such data may be affected by memory, personal preference and social desirability bias. Fourth, the study did not experimentally manipulate music type, tempo, volume, timing, lyrical content or self-selection. These variables are likely to influence music response. Fifth, the study compared gender groups but did not test interactions between gender, sport type, training experience and preferred genre. A larger sample would allow more nuanced analyses. Finally, the study did not include physiological or objective performance indicators. Perceived physical strength and performance should therefore be interpreted as subjective readiness and effort-related perception rather than as measured performance improvement. Future research should use experimental or longitudinal designs to test whether specific music conditions improve objective performance indicators such as running time, repetitions completed, load lifted, heart rate, perceived exertion or recovery markers. Future studies should also examine the interaction between music preference, tempo, lyrics, sport type and training intensity. These variables may explain individual differences better than gender alone. Qualitative work would also be useful because interviews could reveal how athletes choose music, when they avoid music and how team culture shapes playlist decisions.

Conclusion

This study found that UiTM athletes frequently perceived music as beneficial during sport activities. Motivation was the highest-rated dimension, followed closely by psychological endurance and physical strength and performance. The strongest perceived benefits were increased energy, relaxation, stress reduction, emotional regulation and concentration. Gender differences were not statistically significant, and effect sizes were small or negligible. The findings suggest that music can be managed as a practical psychological support tool in university sport settings. The most useful recommendation is not to prescribe music according to gender, but to help athletes select music that fits their preferences, emotional needs, exercise intensity and training goals. Used deliberately, music can support athlete engagement, training readiness and the management of the sport environment. For social sciences and humanities, the study contributes by showing how a familiar cultural practice such as music listening can shape perceived wellbeing, motivation and behaviour in university sport.

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Conflict of interest

The authors declare that this research was conducted in the absence of self-benefits, commercial interests or financial conflicts.

REFERENCES

[1] Ballmann, C.G. (2021): The influence of music preference on exercise responses and performance: A review. – Journal of Functional Morphology and Kinesiology 6(2): 14p.
[2] Ballmann, C.G., Favre, M.L., Phillips, M.T., Rogers, R.R., Pederson, J.A., Williams, T.D. (2022): Effects of music volume preference on endurance exercise performance. – Journal of Functional Morphology and Kinesiology 7(2): 10p.
[3] Ballmann, C.G., McCullum, M.J., Rogers, R.R., Marshall, M.R., Williams, T.D. (2021): Effects of preferred vs. nonpreferred music on resistance exercise performance. – Journal of Strength and Conditioning Research 35(6): 1650-1655.
[4] Bird, M.D., Simons, E.E., Jackman, P.C. (2021): Mental toughness, sport-related well-being, and mental health stigma among National Collegiate Athletic Association Division I student-athletes. – Journal of Clinical Sport Psychology 15(4): 306-324.
[5] Bougrine, H., Paillard, T., Jebabli, N., Ceylan, H.I., Maitre, J., Dergaa, I., Stefanica, V., Ben Abderrahman, A. (2025): Ergogenic effects of combined caffeine supplementation and motivational music on anaerobic performance in female handball players: A randomized double-blind controlled trial. – Nutrients 17(10): 16p.
[6] Boujabli, M., Jebabli, N., Sahli, F., Sahli, H., Zghibi, M., van den Tillaar, R. (2024): Combined effects of listening to preferred music and video feedback, during warm-up, on physical performance in young kickboxers. – Sports 12(5): 13p.
[7] Cohen, J. (1988): Statistical Power Analysis for the Behavioral Sciences. 2nd ed. – Lawrence Erlbaum Associates, Hillsdale, New Jersey 567p.
[8] Cole, Z., Maeda, H. (2015): Effects of listening to preferential music on sex differences in endurance running performance. – Perceptual and Motor Skills 121(2): 390-398.
[9] Delacre, M., Lakens, D., Leys, C. (2017): Why psychologists should by default use Welch's t-test instead of Student's t-test. – International Review of Social Psychology 30(1): 92-101.
[10] Delleli, S., Ouergui, I., Ballmann, C.G., Messaoudi, H., Trabelsi, K., Ardigò, L.P., Chtourou, H. (2023): The effects of pre-task music on exercise performance and associated psycho-physiological responses: A systematic review with multilevel meta-analysis of controlled studies. – Frontiers in Psychology 14: 23p.
[11] Jebabli, N., Boujabli, M., Ouergui, I., Ouerghi, N., Yagin, F.H., Yagin, B., Khlifi, M., Bouassida, A., Ben Abderrahman, A., Elkholi, S.M. (2025): Effect of listening to preferred music at different frequencies during warmup on physical performance and psychophysiological responses in male athletes. – Scientific Reports 15: 13p.
[12] Karayol, M., Turhan, M.O. (2020): Impact of Music in Sportive Activities Scale (IMSAS): Validity and reliability assessment. – African Educational Research Journal 8(2): 297-304.
[13] Lopes Dos Santos, M., Uftring, M., Stahl, C.A., Lockie, R.G., Alvar, B., Mann, J.B., Dawes, J.J. (2020): Stress in academic and athletic performance in collegiate athletes: A narrative review of sources and monitoring strategies. – Frontiers in Sports and Active Living 2: 10p.
[14] Marques, M., Henrique, N., Takito, M.Y., Franchini, E. (2024): Effects of music on perceptive and performance responses during high-intensity exercise: A systematic review. – Sport Sciences for Health 20: 727-738.
[15] Meglic, C.E., Orman, C.M., Rogers, R.R., Williams, T.D., Ballmann, C.G. (2021): Influence of warm-up music preference on anaerobic exercise performance in Division I NCAA female athletes. – Journal of Functional Morphology and Kinesiology 6(3): 9p.
[16] Mohd Saleh, M., Abd Razak, F.A., Abd Rahman, S.A., Ab Razak, R., Sanuddin, N.D., Linoby, A., Mohamed Kassim, N.A., Wiz, A.W. (2023): 'Music to move' – Effects of listening to preferential music on aerobic endurance performance and rate perceived of exertion responses. – Malaysian Journal of Sport Science and Recreation 19(2): 341-350.
[17] Ntoumanis, N., Ng, J.Y.Y., Prestwich, A., Quested, E., Hancox, J.E., Thøgersen-Ntoumani, C., Deci, E.L., Ryan, R.M., Lonsdale, C., Williams, G.C. (2021): A meta-analysis of self-determination theory-informed intervention studies in the health domain:

Effects on motivation, health behavior, physical, and psychological health. – Health Psychology Review 15(2): 214-244.

[18] Ryan, R.M., Deci, E.L. (2020): Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. – Contemporary Educational Psychology 61: 11p.

[19] Schittenhelm, A., Brandt, T., Andres, D., Adler, P., Fairhurst, M.T., Schmidt, A. (2024): Music influences performance without increasing perceived exertion during high-intensity rowing intervals: A cross-over design study. – Frontiers in Psychology 15: 12p.

[20] Standage, M., Ryan, R.M. (2020): Self-determination theory in sport and exercise. – In: Tenenbaum, G., Eklund, R.C. (eds.) Handbook of Sport Psychology, John Wiley & Sons 20p.

[21] Terry, P.C., Karageorghis, C.I., Curran, M.L., Martin, O.V., Parsons-Smith, R.L. (2020): Effects of music in exercise and sport: A meta-analytic review. – Psychological Bulletin 146(2): 91-117.