

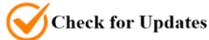
The Effect of Music on Sport Applied Lessons of Sport Sciences Faculty Students

Döndü UĞURLU ¹ *Hakan YAPICI ²

¹ Kırıkkale University, Faculty of Sport Sciences; Kırıkkale/Türkiye

² Kırıkkale University, Faculty of Sport Sciences; hakanyapici24@hotmail.com; Kırıkkale/Türkiye

* Corresponding author: Döndü Uğurlu; dondusimsek@kku.edu.tr



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Abstract: The aim of this study was to examine the effect of music on students' motivation, attention, and performance during practical courses at the Faculty of Sports Sciences. A total of 312 students (190 women, 122 men) voluntarily participated in the study from a state university in Turkey during the 2024–2025 academic year. The research utilized a descriptive survey model, and data were collected using the "Effect of Music in Sports Applications Scale" which includes sub-dimensions of psychological resilience, physical strength-performance, and motivation. The scale was applied simultaneously with the physical activities. Independent samples t-tests and one-way ANOVA were conducted to analyze the data. The findings revealed that gender, age, years of regular sports participation, weekly exercise frequency, and type of sports activity (team or individual) significantly influenced the effects of music. Participants who believed that music positively affected their performance had significantly higher scores in all subdimensions. The study concludes that music is an effective external stimulant that can enhance psychological and physical performance in practical sports courses and suggests its integration into physical education practices.

Keywords: Alpine climbing; mountaineering; anthropometry; somatotype; physical fitness.

1. Introduction

Sports education is a multifaceted and dynamic process that aims to support not only the physical development of individuals but also their cognitive competencies, emotional well-being, and social interaction skills (Condello et al., 2021; Kao, 2019). The successful and sustainable implementation of this process is directly related to the appropriateness of teaching methods and the influence of environmental factors (Chu et al., 2022; Martín-Rodríguez et al., 2024). Especially in applied courses, students' level of active participation, intrinsic motivation, and overall performance are among the primary determinants that shape the quality and depth of learning outcomes (Raza et al., 2020; Wei et al., 2023). In this context, music used in educational settings has emerged as a prominent pedagogical tool due to its notable emotional resonance and physiological impact (Frid, 2019).

The effects of music on humans have been extensively investigated across diverse scientific disciplines for many years (Welch et al., 2020; Erfanian et al., 2019). Particularly in the realm of sports and exercise, research reveals that music has a measurable and favorable impact on psychological states, reduces the perceived exertion levels during physical activity, and significantly enhances motivational drive (Yapıcı et al., 2023; Uğurlu et al., 2023). Music, through its rhythmic properties, can synchronize and regulate movement tempo, making it one of the key variables influencing athletic performance (Wright & Palmer, 2020). This influence is observable both in casual recreational activities and within the scope of elite-level professional sports performance (Rose et al., 2021; Hammerschmidt & Wöllner, 2023). However, despite the growing body of literature on the use of music in exercise settings, its specific impact on educational outcomes in applied sports courses remains underexplored.

Applied courses offered in faculties of sport sciences serve as critical experiential learning platforms where students are able to translate theoretical knowledge into practical skills and gain firsthand professional experience (Bartlett & Drust, 2021; Finlay et al., 2022). Structuring the teaching strategies employed in these courses in a way that maximizes student engagement and fosters enthusiasm significantly contributes to the effectiveness and retention of the learning process (Munna & Kalam, 2021; Chans & Portuguese Castro, 2021). The fact that music is often perceived as a positively stimulating external factor, particularly among young adults, underscores the importance and necessity of in-depth research in this area (Gupta & Singh, 2020; Cloutier et al., 2020).

Therefore, the aim of this study is to comprehensively examine the effects of music integrated into applied courses within the Faculty of Sport Sciences. Specifically, it aims to evaluate how the use of music during these sessions influences students' motivation, participation, and perceived learning outcomes. This study aims to examine the impact of music on students' psychological and physical responses during sports practices. The research hypothesis (H_1) proposes that music significantly increases students' psychological resilience, physical strength and performance, and motivation levels during sports activities. In contrast, the null hypothesis (H_0) assumes that music has no significant effect on students' psychological resilience, physical strength and performance, or motivation levels in the context of sports practices.

2. Materials and Methods

2.1. Research Group

The sample of the study consisted of a total of 312 students studying at the Faculty of Sport Sciences of a state university in Turkey in the 2024-2025 academic year. 190 of the participants were women, and 122 were men students. The students were selected using a convenience sampling method and included in the study on a voluntary basis. Students were informed about the purpose of the study, and ethical consent was obtained. All participants were aged 18 years and over. Demographic data were collected to contribute to the analysis process.

2.2. Research Design

In this study, a descriptive survey model was planned to determine the effect of music use on students during applied sports lessons. In the study, it was aimed to evaluate the instant effects of music in the sportive practice process. The questionnaire was administered directly during the sport practice, not before or after the applied lesson, and data were collected on students' experiences during the applied sports lesson simultaneously with music. With this method, it is aimed to examine the effects of music on the applied course processes of the students of the faculty of sport sciences. Specifically, the study targeted three key performance indicators: (1) motivation, (2) psychological resilience, and (3) physical strength and performance. These indicators were evaluated through a scale specifically structured to measure students' subjective perceptions of how music influenced these performance components during the lesson. No direct objective performance metrics (e.g., time, repetition count, or measurable physical outputs) were used; instead, the focus was on self-reported experiences aligned with these performance categories.

2.3. Data Collection

In the collection of data, the Scale of the Effect of Music in Sportive Practices (SUMEÖ), the validity and reliability study of which was conducted by Karayol and Turhan (2020), was used. This scale is structured with a 5-point Likert-type rating system. The scale consists of three sub-dimensions: Psychological Resilience (items 17, 16, 12, 13, 18, 15, 14) - $\alpha=0.806$, Physical Strength and Performance (items 8, 7, 9, 10, 11, 6) - $\alpha=0.785$, and Motivation (items 4, 3, 2, 5, 1) - $\alpha=0.718$. The total scale reliability coefficient (α) is 0.885. In this study, the scale was administered only during the sportive practice so that students' simultaneous experiences with music were directly assessed.

2.4. Data Analysis

Data analysis was carried out using SPSS 25.0 statistical software. Percentages, frequency distributions, and descriptive statistics regarding the demographic characteristics of the participants were calculated. An independent sample t-test was used to examine the effect of music during the practice lessons of the students studying at the Faculty of Sport Sciences. One-way analysis of variance (ANOVA) was used to compare three or more independent groups. In all

statistical analyses, the significance level was determined as $p < 0.001$, and p values below this value were considered statistically significant.

2.5. Ethics Committee Permission

This study was carried out with the permission of Kırıkkale University Social and Human Sciences Researches Ethics Committee (Date: 17.03.2025, Decision No: 3/11). Before data collection, participants were thoroughly informed about the study through a detailed presentation and subsequently provided written consent. The research was carried out in accordance with the ethical guidelines of the Declaration of Helsinki.

3. Results

Table 1. Frequency and Percentage Distributions of the Participants According to Their Answers to the Questions in the Personal Information Form

Variables	Groups	N	%
Total number of participants		312	100
Gender	Women	190	60.9
	Men	122	39.1
Age	19	89	28.5
	20	80	25.6
	21	77	24.7
	22	66	21.2
How many years have you been doing sports regularly? (Your Sports Age)	1-3 years	71	22.8
	4-6 years	104	33.3
	7-9 years	83	26.6
	Over 10 years	54	17.3
How many days a week do you exercise?	1-2 days	51	16.3
	3-4 days	148	47.4
	5-6 days	90	28.8
	7 days	23	7.4
Do you think that music has a positive effect on your performance during your sports practical lessons?	Yes	164	52.6
	No	148	47.4
Sports Event Category	Individual sports	102	47.4
	Team sports	210	52.6

Table 2. Effect of Music on Sports Practical Lessons According to Gender

Sportive Implementation Phase	Group	n	mean	t	p	Cohen's d	Descriptor
Psychological Resilience	Women	190	75.3± 11.3	-5,607	0.010*	0.65	Large
	Men	122	82.3± 10.4				
Physical Strength and Performance	Women	190	80.9± 9.6	-6,156	0.046*	0.72	Large
	Men	122	73.6± 10.6				
Motivation	Women	190	83.5± 9.3	4,874	0.006*	0.58	Large
	Men	122	77.6± 11.1				

$p < 0.001^*$

Table 1 presents the frequency and percentage distributions of the participants' responses to the personal information form. When the gender distribution of the participants is examined, the majority of the sample is men, while the rest are women. When the age groups are examined, the highest participation belongs to the 19-year-old group, while the other age groups are distributed in the 20, 21, and 22 age categories, respectively. When the duration of the participants' sports activities is taken into account, a significant portion of the sample has been doing sports regularly for 4-6 years. According to the weekly sports frequency, the majority of the participants prefer to do sports 3-4 days a week, whereas

a smaller group does sports 1-2 days and 5-6 days. The majority of the participants stated that music has a positive effect on their performance during sports practical lessons.

Table 2 shows that men students received statistically significantly higher scores than women students in the “psychological resilience” sub-dimension of the scale. In contrast, women students scored statistically significantly higher than men students in the “physical strength and performance” and “motivation” sub-dimensions. These differences were found to be statistically significant, with high effect sizes.

Table 3. Music’s Impact on Sports Practice: Gender and Age Differences

Sportive Implementation Phase	Group	n	mean	F	p	Tukey
Psychological Resilience	19 ¹	89	77.6± 9.9	5,86	0.001*	1=2<3<4
	20 ²	80	78.1± 10.5			
	21 ³	77	81.0± 10.6			
	22 ⁴	66	83.9± 10.4			
Physical Strength and Performance	19 ¹	89	84.5± 10.8	12,24	0.001*	4=3<2<1
	20 ²	80	81.3± 11.6			
	21 ³	77	76.3± 10.9			
	22 ⁴	66	75.3± 10.5			
Motivation	19 ¹	89	77.5± 12.0	1,58	0.001*	1=2<3<4
	20 ²	80	76.8± 13.0			
	21 ³	77	79.2± 11.9			
	22 ⁴	66	80.8± 11.9			

$p<0.001^*$

According to Table 3, a significant difference was found across all sub-dimensions of the scale based on age groups ($p<0.001$) when the effect scores of music on applied lessons in the Faculty of Sports Sciences were compared. In the “Psychological Strength” and “Motivation” sub-dimensions, the effect of music on applied lessons increases with age. Conversely, in the “Physical Strength and Performance” sub-dimension, the effect of music is greater among younger age groups. These results suggest that while the impact of music on physical strength and performance tends to decrease with age, its influence on psychological aspects and motivation grows stronger. Overall, the findings indicate that age plays a role in the psychological and physical responses to music in sports-related practices.

Table 4. Sport Age to the variable According to Sporty Applied to the lessons Oriented the Music The effect

Sportive Implementation Phase	Group	n	mean	F	p	Tukey
Psychological Resilience	1-3 years ¹	71	76.3± 10.1	16,71	0.001*	1=2<3=4
	4-6 years ²	104	77.2± 10.3			
	7-9 years ³	83	81.4± 11.1			
	10 years and above ⁴	54	82.6± 9.7			
Physical Strength and Performance	1-3 years ¹	71	74.8± 10.1	26,46	0.001*	1=2<3=4
	4-6 years ²	104	75.9± 11.2			
	7-9 years ³	83	82.5± 10.9			
	10 years and above ⁴	54	83.1± 10.7			
Motivation	1-3 years ¹	71	75.3± 11.3	14,42	0.001*	1=2<3<4
	4-6 years ²	104	76.1± 10.9			
	7-9 years ³	83	78.3± 11.1			
	10 years and above ⁴	54	82.9± 10.7			

$p<0.001^*$

According to Table 4, a significant difference was found in the sub-dimensions of "Psychological Strength," "Physical Strength and Performance," and "Motivation" based on the variable of sports age ($p < 0.001$). Participants with 1–3 years and 4–6 years of sports experience had lower scores, while those with 7–9 years and over 10 years of experience showed higher scores. It was observed that the effect of music on applied sports lessons increases across all sub-dimensions as sports age increases. These findings suggest that individuals demonstrate higher physical and psychological performance with longer durations of regular sports participation. This may be attributed to the fact that as individuals gain more sports experience, they find it easier to integrate external factors such as music into their sports practices.

Table 5. Per week Sport Don't do that Day Number of to the variable According to Sporty Applied to the lessons Oriented the Music The effect

Sportive Implementation Phase	Group	n	mean	F	p	Tukey
Psychological Resilience	1-2 days ¹	51	73.7± 9.6	17,86	0.001*	1=2<3=4
	3-4 days ²	148	74.2± 10.3			
	5-6 days ³	90	78.1± 10.1			
	7 days ⁴	23	77.5± 10.4			
Physical Strength and Performance	1-2 days ¹	51	71.4± 10.7	19,16	0.001*	1=2<3<4
	3-4 days ²	148	72.5± 10.6			
	5-6 days ³	90	79.4± 10.4			
	7 days ⁴	23	83.5± 9.5			
Motivation	1-2 days ¹	51	71.3± 11.2	15,69	0.001*	1<2<3=4
	3-4 days ²	148	73.7± 10.1			
	5-6 days ³	90	75.2± 8.2			
	7 days ⁴	23	76.8± 9.5			

$p < 0.001^*$

Table 5 shows that as the number of days individuals engage in sports per week increases, there are significant increases in the scores for "Physical Strength and Performance," "Motivation," and "Psychological Resilience." In particular, individuals who participate in sports 5–6 days or 7 days per week scored higher in these sub-dimensions compared to those who engage in sports 1–2 days or 3–4 days per week. According to the results of the ANOVA and Tukey tests, these differences are statistically significant ($p < 0.001$). These findings indicate that the frequency of weekly sports participation positively affects both sports performance and psychological indicators.

Table 6. Sporty Application in the Phase of the Music Effect Your Points: Sports Event by Category Comparison

Sportive Implementation Phase	Group	n	mean	t	p	Cohen's d	Descriptor
Psychological Resilience	Team	210	77.6± 10.4	9,42	0.001*	0.65	Medium
	Individual	102	70.7± 11.2				
Physical Strength and Performance	Team	210	76.3± 10.3	5,51	0.001*	0.38	Medium
	Individual	102	72.4± 10.5				
Motivation	Team	210	75.6± 11.1	7,11	0.001*	0.49	Medium
	Individual	102	70.3± 10.5				

$p < 0.001^*$

Table 6 presents the comparison of music's effect scores during the sports application phase based on the type of sports activity (team vs. individual sports). The results show significant differences in the sub-dimensions of "Psychological Strength," "Motivation," and "Physical Strength and Performance." Participants engaged in team sports scored significantly higher than those involved in individual sports across all sub-dimensions. These differences were statistically significant ($p < 0.001$), with moderate effect sizes (Cohen's $d = 0.38$ – 0.65). These findings suggest that music

during practice has a more pronounced positive impact on the psychological and physical performance of individuals participating in team sports.

Table 7. Sporty Application in the phase of The Music Effect, your points According to its Effect on Participants' Performance Comparison

Sportive Implementation Phase	Group	n	mean	t	p	Cohen's d	Descriptor
Psychological Resilience	Yes	164	79.5± 10.1	8,19	0.001*	0.64	Medium
	No	148	72.7± 11.3				
Physical Strength and Performance	Yes	164	84.4± 10.0	10,36	0.001*	0.81	Medium
	No	148	76.1± 10.5				
Motivation	Yes	164	82.4± 9.8	11,14	0.001*	0.87	Medium
	No	148	73.7± 10.1				

$p < 0.001^*$

Table 7 demonstrates that participants who reported that music had an impact on their performance scored significantly higher in the sub-dimensions of "Psychological Resilience," "Motivation," and "Physical Strength and Performance" during the sports practice phase. These differences were found to be statistically significant ($p < 0.001$), with moderate to high effect sizes (Cohen's $d = 0.64$ – 0.87). These findings provide strong evidence that the perceived impact of music positively influences sports performance across both psychological and physical dimensions.

4. Discussion

In this study, the effects of music use during applied courses among students of the Faculty of Sport Sciences were analyzed. The findings revealed that music had an impact across all sub-dimensions of the scale during sportive practices. According to the findings based on the gender variable, men students scored higher than women students in the 'psychological resilience' sub-dimension, while women students scored higher than their men counterparts in the 'physical strength and performance' and 'motivation' sub-dimensions. This suggests that the way individuals relate to music in the context of sport may differ by gender, potentially influencing emotional states and stress-coping mechanisms. These results indicate that gender plays a determinative role in certain psychological and physical variables during sportive practices. Similarly, the literature highlights that women individuals may develop higher levels of intrinsic motivation, particularly in exercise environments enhanced by music. [Ekiz and Atasoy \(2021\)](#) reported that the perceived effect of music during sportive practices was higher in men than in women.

Regarding the age variable, it was found that as age increases, so does the effect of music in the sub-dimensions of 'psychological resilience' and 'motivation' during applied courses. However, in the 'physical strength and performance' sub-dimension, the effect of music appeared to be more pronounced at younger ages. This implies that the physical benefits of music during sport may diminish with age, while its psychological influence becomes more significant over time. [Cloutier et al. \(2020\)](#) noted in their research that there was no difference in the attentional effects of background music between younger and older individuals. Similarly, [Ekiz and Atasoy \(2021\)](#) found no significant age-related differences in the effects of music during sportive practices.

With respect to the variable of sport age (i.e., the number of years individuals have been engaged in sports), it was observed that the effect of music increased across all sub-dimensions as sport age increased. This finding emphasizes the cumulative influence of long-term physical activity on both psychological and physical aspects, reinforcing the idea that sustained engagement in sport enhances the receptivity and effectiveness of music during exercise. [Turhan \(2021\)](#), however, reported no significant differences in the sub-dimensions of psychological resilience, physical strength and performance, and motivation with regard to sport age. In contrast, [Bektaş and Demir \(2022\)](#) found that individuals with a sport age of 4–5 years or more exhibited higher levels of motivation.

In terms of weekly training frequency, results showed that the impact of music on sportive practices was high across all sub-dimensions, including physical strength and performance, motivation, and psychological resilience. This

suggests that the more frequently individuals engage in regular physical activity, the more pronounced the psychological and physiological benefits of music become. The continuity of exercise as a habitual activity appears to strengthen individuals' mental and physical structures. Supporting this, [Gürpınar et al. \(2021\)](#) reported that listening to music during physical activity can positively affect university students' level of physical activity and reduce negative attitudes toward exercise.

In comparisons based on the type of sports activity, participants engaged in team sports scored higher in all variables than those involved in individual sports. This may be attributed to the synergistic effects of social interaction, collective performance, and shared goals in team sports, which are further amplified by the use of music in applied sport courses.

Lastly, when analyzing individual perceptions regarding the effect of music on performance, it was found that those who believed music was effective scored significantly higher in all dimensions. This highlights that the impact of music is both cognitive and emotional and that personal beliefs about its usefulness are directly reflected in sportive performance. Supporting this, [Çelik and Karabilgin \(2022\)](#) noted that using music during training promotes self-confidence, self-worth, focus, and motivation to continue training. In contrast, [Özdemir and Coşkuner \(2018\)](#) found no significant effect of music in physical education classes in their research on students.

5. Conclusion

The findings of this research demonstrate that music has a significant positive impact on students' sportive performance during applied physical education courses, based on variables such as age, years of sports experience, gender, weekly activity frequency, type of sport, and its influence on performance. The structured and rhythmic nature of music enhances students' participation in practical lessons, boosts their physical performance, and supports their psychological resilience. Furthermore, music positively influences not only physical effort but also key psychological variables that shape athletic performance, such as attention levels, motivation, and mental endurance.

In this context, the conscious and strategic use of music within faculties of sport sciences holds the potential to improve the overall quality of the educational process. When instructors incorporate music as an instructional tool in practical courses, it contributes to the development of student-centered and interactive learning environments. Increasing educators' awareness of the pedagogical benefits of music can enhance both the effectiveness of instruction and the holistic development of students in terms of physical and psychological competencies.

Limitations

The study is limited by the absence of a control group and the timing of the scale administration. We administered the scale during the practice session to capture students' immediate responses and minimize recall bias, but this approach may have potential distracting effects. Additionally, the music selection was confined to high-tempo, instrumental, or minimally vocal electronic music commonly played in university sports halls. The music was selected through a collaborative decision between instructors and students, and the same music tracks were used across all groups to standardize the study.

Author Contributions: For research articles with several authors, a short paragraph specifying their individual contributions must be provided. The following statements should be used "Conceptualization, D.U. and H.Y.; methodology, D.U. and H.Y.; software, D.U. and H.Y.; validation, D.U. and H.Y.; formal analysis, H.Y.; investigation, D.U.; resources, D.U. and H.Y.; data curation, D.U.; writing—original draft preparation, D.U.; writing—review and editing, D.U. and H.Y.; visualization, D.U. and H.Y.; supervision, D.U. and H.Y.; project administration, D.U. and H.Y.; All authors have read and agreed to the published version of the manuscript."

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Declaration of Data Availability: The data is publicly available.

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