Journal of Exercise Sciences
& Physical Activity Reviews

ORIGINAL ARTICLE

Investigation of the Effects of Music Accompanied Fitness Classes on Students' Performance and Motivation: An 8-Week Study

Hakan Yapıcı[1*] | Döndü Uğurlu[1] | Zeynep Başer[2] | Murat Uygurtaş[1] | Çağrı Görkem Akyüz [1] | Ertunç Aydın[1]

[1]Faculty of Sport Sciences, Kirikkale University, Kirikkale, Türkiye
[2]Faculty of Humanities and Social Sciences, Kirikkale University, Kirikkale, Türkiye

ABSTRACT

This study aimed to examine the effects of fitness classes accompanied by music on the performance and motivation of students in the Faculty of Sports Sciences. Music is known to influence emotional and physical responses during exercise, and this study investigated its impact within university-level sports education. A quasi-experimental pretest-posttest design with repeated measures was used. The sample consisted of 180 students (male = 112, female = 68) at Kirikkale University. Of these, 90 students participated in fitness classes accompanied by music, while 90 students in the control group attended fitness classes without music. Data were collected using the Scale of Music's Effect in Sports Applications (SUMEÖ). Data analysis was performed using SPSS 25.0, and differences between groups were analyzed using the independent samples t-test and ANOVA. The findings revealed that students participating in music-accompanied fitness classes had significantly higher psychological resilience, physical strength and performance, and motivation scores compared to the control group during the fitness classes ($p < 0.001$). Effect size analyses showed variability across outcomes, with effects ranging from small to large during the intervention and tending to be low at the end of the intervention. The results indicate that music-accompanied fitness classes are effective in enhancing students' motivation and performance. Incorporating music strategically into exercise programs can improve both physical and psychological engagement, and its use is recommended in sports and fitness training settings.

Keywords: Music-accompanied fitness, student performance, exercise motivation

***Corresponding author**: :Hakan YAPICI hakanyapici@kku.edu.tr
Journal of Exercise Science & Physical Activity Review
https://doi.org/**10.5281/zenodo.18075717**

ARTICLE HISTORY
Received:28 November 2025
Accepted:27 December 2025
Published:29 December 2025

INTRODUCTION

Fitness is an important form of exercise that helps students maintain their physical health, improve their body composition, and enhance their quality of life (Mozolev et al., 2021; Joaquim et al., 2022). With the growing interest in healthy lifestyles worldwide, fitness programs have become a type of sport supported by various training techniques, practiced both individually and in groups (Kanmaz et al., 2024; Nanda et al., 2025). Fitness applications include multifaceted practices such as strength training, cardiovascular exercises, flexibility training, and endurance training, aiming to improve athletes' physical capacities (Mendoza et al., 2024; Doğan et al., 2023). However, motivational elements must be used to increase participants' interest and maintain their commitment to exercise in these programs (Vasudevan and Ford, 2022; Sun et al., 2021). In this process, music has a decisive effect on performance and motivation (Antonini Philippe et al., 2022; Cools et al., 2023). Music during training helps improve students' physical and mental performance by increasing their commitment to the exercise process (Feiss et al., 2021; Alves and Nogueira, 2024). Music enables students to extend their exercise duration, expend more energy, and maintain high motivation by harmoniously supporting the training tempo (Lu et al., 2024; Soenarti et al., 2024).

Music is one of the key factors that enhance students' performance in fitness applications (Clark et al., 2021; Wu et al., 2022). In this regard, the rhythm, tempo, and type of music play an important role in increasing adherence to exercise by affecting psychological states during training (Ballmann, 2021; Svoboda and Kostrna, 2024). According to the World Health Organization (WHO) data, approximately 25% of the world's population does not engage in the recommended level of physical activity, and this sedentary lifestyle, along with obesity, leads to an increase in chronic diseases (De la Corte-Rodriguez et al., 2021; Singh et al., 2024). Therefore, it is of great importance to identify motivational factors that will encourage students to participate in fitness programs and thus make these programs more appealing (Durau et al., 2022; Kim, 2022). The psychological and physical benefits that music provides during exercise make fitness activities more sustainable and effective (Goddard et al., 2023; Bradt et al., 2021).

Music in fitness applications has positive effects on both physical and mental performance (Jacquet et al., 2021; Suwabe et al., 2021). Music directly affects the student's heart rate, training pace, and exercise intensity (Zhou et al., 2021; Ito et al., 2022). High-tempo music, in particular, enables students expend more energy during exercise, while low-tempo music promotes relaxation during the recovery process (Hanh et al., 2022; Karageorghis et al., 2022). In addition, the rhythmic structure of music allows students to synchronize their movements and makes the training process more enjoyable (Large et al., 2023; Vuust et al., 2022).

In conclusion, the use of music in fitness classes stands out as an important tool for ensuring that students exercise more efficiently and with greater motivation, both physically and psychologically. Music is thought to have the potential to reduce the perceived effort of students during training, increase their focus, and improve their overall performance. In this context, the aim is to examine the effect of fitness classes accompanied by music on students' performance and motivation.

MATERIALS AND METHODS

Research Model

In this study, a quasi-experimental repeated-measures design was used to examine the effects of fitness classes conducted with music on the motivation and performance of sports science students. This model allows for the evaluation of students who take and do not take fitness classes through repeated measurements at specific time intervals, enabling the analysis of the relationship between music and motivation and performance variables within a dynamic process. Thus, by tracking changes over time, the aim is to more strongly demonstrate the effects of fitness classes accompanied by music on students' motivation and performance.

Research Group

The research group consisted of a total of 180 students (112 males, 68 females) enrolled in fitness classes at the Faculty of Sports Sciences at Kırıkkale University. Participants were selected on a voluntary basis from individuals aged 18 and over who were taking fitness classes, and participants were determined in accordance with the specified inclusion criteria. Participants were divided into an experimental group of 90 individuals (56 males and 34 females) and a control group of 90 individuals (56 males and 34 females). All the participants attended fitness classes for 8 weeks. Only the experimental group exercised to music, while the control group exercised without music. Participants were given detailed information about the purpose of the study and informed consent was obtained prior to data collection. In addition, demographic data were recorded in a manner that allowed for detailed analysis.

Data Collection

The Scale for the Effect of Music in Sports Applications (SUMEÖ), which underwent a Validity and Reliability Study by Karayol and Turhan (2020), was used to collect the data. The scale uses a 5-point Likert-type rating system. Subdimensions of the Scale of the Effect of Music in Sports Applications (Total Alpha Coefficient = 0.885) are as follows: Psychological Resilience (17, 16, 12, 13, 18, 15, 14) (Alpha value = 0.806), Physical Strength and Performance (8, 7, 9, 10, 11, 6) (Alpha value = 0.785), and Motivation (4, 3, 2, 5, 1) (Alpha value = 0.718). Depending on the sport(s) to be applied in the Scale of the Effect of Music in Sports Applications, it can be used only before the Sports Application, only during the Sports Application, or only after the Sports Application. In the study, the scale was administered to students who chose the fitness course before starting fitness classes at the beginning of the term. Subsequently, for 8 weeks, the experimental group (90 people) received fitness classes with music, while the control group (90 people) received fitness classes without music. The scale was administered once more during these classes. At the end of this 8-week program, the students returned to their regular classes, and the scale was administered again. In summary, the scale was administered to the experimental and control groups before taking fitness classes with music, while taking fitness classes, and after completing the 8-week program.

Statistical Analysis

The data obtained were analyzed using SPSS 25.0 software. Descriptive statistics such as percentages, frequency distributions, and summary statistics were calculated for demographic variables. An independent samples t-test was applied to examine the mean differences between those who participated in the fitness class and those who did not. In addition, a one-way ANOVA test was used to compare three or more independent groups. The significance level for all statistical tests was set at $p < 0.05$, and p values obtained

below this value were considered statistically significant.The following thresholds were used to determine the effect size of the relationships: <0.1 = nonsignificant; 0.1-0.3 = small; > 0.3-0.5 = moderate; > 0.5-0.7 = large; > 0.7-0.9 = very large; and >0.9 = nearly perfect (Hopkins et al., 2009).

Result

Statistical information about the demographic characteristics of the participants is shown in Table 1

Table1. Frequency and percentage distributions of the demographic characteristics of the participants

Variables		N	%
Total number of participants		180	100
Gender	Male	112	62.2
	Female	68	37.8
Age	18-22	120	66.7
	23-25	60	33.3
Sport Age (Year)	0-1	35	19.4
	2-4	55	30.6
	5-7	60	33.3
	8-10	30	16.7
Students Taking Fitness Classes	Participants in the Music-Accompanied Lesson (Experimental Group)	90	50.0
	Participants in the Lesson Without Music (Control Group)	90	50.0

In the study, which included a total of 180 participants, the percentage of male participants was 62.2%, while the percentage of female participants was 37.8%. When the age distribution examined, it was observed that the majority of participants (66.7%) were in the 18-22 age range, while the remaining 33.3% were in the 23-25 age range. In terms of sports experience, 19.4% of participants had 0-1 years of experience, 30.6% had 2-4 years, 33.3% had 5-7 years, and 16.7% had 8-10 years. Looking at the participants' attendance at fitness classes, 50% of the students attend classes with music, while the other 50% attend classes without music. These findings show that the sample has a balanced distribution in terms of gender, age, and sports experience.

Table 2. Comparison of Scores Obtained from the Scale by Female Participants in the Experimental and Control Groups in the Context of Fitness Classes

Sportive Implementation Phase	Group	N	mean	T	P	Cohen's d	Descriptor
Before Sportive Practice	Experimental	34	81.4±10.4	0.240	0.810	0.06	Trivial
	Control	34	80.8±10.2				
During Sportive Practice	Experimental	34	80.5±10.8	2.340	0.001*	0.57	Moderate
	Control	34	74.4±10.7				
After Sportive Practice	Experimental	34	77.5±12.4	0.200	0.840	0.05	Trivial

Sportive Implementation Phase	Group	N	mean	T	P	Cohen's d	Descriptor
	Control	34	76.9±12.1				

*p< 0,001

Analysis among female participants revealed a significant difference between the experimental and control groups during the fitness class (p<0.001). The experimental group scored higher than the control group. Cohen's d values indicate that the effect size during the application was moderate (Cohen's d = 0.57). These results reveal that the sports class applied with music is moderately effective on female participants, especially during the practical class conducted with music.

Table 3. Comparison of Scores Obtained from the Scale by Male Participants in the Experimental and Control Groups in the Context of Fitness Classes

Sportive Implementation Phase	Group	n	mean	t	p	Cohen's d	Descriptor
Before Sportive Practice	Experimental	56	72.4±10.5	0.260	0.800	0.70	Trivial
	Control	56	71.9±10.2				
During Sportive Practice	Experimental	56	71.5±11.2	4.080	0.001*	0.77	Large
	Control	56	62.9±11.1				
After Sportive Practice	Experimental	56	69.4±10.2	0.400	0.690	0.57	Trivial
	Control	56	68.6±11.1				

P<0.001*

In the analysis conducted among male participants, a significant difference was observed between the experimental and control groups during the fitness class (p<0.001). The experimental group's score was found to be higher than that of the control group. Cohen's d values indicate that the effect size during the application was Cohen's d = 0.77. These results reveal that the sports class applied with music is moderately effective on male participants, especially during the practical class conducted with music.

Table 4. Analysis of Pre-Class, Immediate, and Post-Class Data of Male University Students Participating in Fitness Classes with and without Music According to the Scale's Subdimensions

Sportive Implementation Phase		Experimental	Control	t	p	Cohen's d	Descriptor
Psychological Resilience	Before Sportive Practice	77.6± 9.9	78.1± 10.5	0.259	0.796	0.05	Trivial
	During Sportive Practice	81.0± 10.6	77.6± 10.2	1.730	0.05*	0.33	Small

	After Sportive Practice	79.1± 10.5	77.1± 10.8	0.994	0.323	0.19	Small
Physical Strength and Performance	Before Sportive Practice	75.3± 10.3	74.6± 10.6	0.354	0.724	0.07	Trivial
	During Sportive Practice	82.3± 10.4	75.3± 11.1	3.444	0.05*	0.65	Large
	After Sportive Practice	79.3± 10.1	78.8± 10.5	0.257	0.798	0.05	Trivial
Motivation	Before Sportive Practice	77.5± 12.0	76.8± 12.2	0.306	0.760	0.06	Trivial
	During Sportive Practice	83.5± 9.3	79.2± 11.9	2.131	0.05*	0.40	Moderate
	After Sportive Practice	79.0± 11.9	78.8± 13.0	0.085	0.932	0.02	Trivial

(p<0.05)

When the pre-class, immediate, and post-class data of male university students participating in fitness classes with and without music according to the scale's subscales examined, no significant difference was found between students who took classes with music (experimental group) and those who took classes without music (control group) in terms of the scale's psychological resilience, physical strength and performance, and motivation subscales before and after the fitness class. However, when the measurements taken during the fitness class were analyzed, a significant difference was observed in favour of students who took the class with music in the psychological resilience, physical strength and performance, and motivation sub-dimensions of the scale ($p<0.05$). These findings indicate that classes with music positively affect male students' psychological resilience, physical strength and performance, and motivation in class.

Table 5. Analysis of Pre-Class, Immediate, and Post-Class Data of Female University Students Participating in Fitness Classes with and without Music, According to the Scale's Subdimensions

Sportive Implementation Phase		Experimental	Control	t	p	Cohen's d	Descriptor
Psychological Resilience	Before Sportive Practice	74.3± 10.1	74.7± 10.4	-0.161	0.873	0.04	Trivial
	During Sportive Practice	77.8± 10.8	74.3± 10.1	1.380	0.05*	0.34	Small
	After Sportive Practice	76.1± 9.5	74.1± 10.5	0.824	0.413	0.20	Small
Physical Strength and Performance	Before Sportive Practice	76.2± 10.4	76.6± 10.8	0.156	0.724	0.04	Trivial
	During Sportive Practice	83.8± 10.7	79.3± 10.2	1.775	0.05*	0.43	Small

	After Sportive Practice	80.9± 10.5	78.1± 10.1	1.121	0.798	0.27	Small
Motivation	Before Sportive Practice	78.9± 12.2	79.1± 11.9	0.068	0.946	0.02	Trivial
	During Sportive Practice	84.5± 9.3	80.2± 10.1	1.826	0.05*	0.44	Small
	After Sportive Practice	81.5± 11.9	78.8± 11.0	0.972	0.335	0.24	Small

(p<0.05)

Examining the pre-class, immediate, and post-class data of female university students who participated in fitness classes with and without music according to the scale's subscales revealed that no significant difference existed between the experimental group (with music) and the control group (without music) in the psychological resilience, physical strength and performance, and motivation subscales before and after the class. However, measurements taken during the fitness class showed a significant difference in favour of the female students who participated in classes with music in all three sub-dimensions of the scale ($p<0.05$). These findings indicate that music-accompanied classes positively influence female students' psychological resilience, physical strength and performance, and motivation during the session.

DISCUSSION

This study examined the effects of fitness classes conducted with music on students' performance and motivation. The findings indicate that fitness classes conducted with music positively affect students' psychological resilience, physical strength and performance, and motivation during the classes. However, this improvement was not observed before or after fitness classes. In other words, conducting practical classes such as fitness classes with music will provide positive contributions to students and will lead to high productivity in classes.

Based on the analysis of pre-class, immediate, and post-class data of female university students, there was no significant difference between female university students who took fitness classes with music (experimental group) and those who took classes without music (control group) in the psychological resilience, physical strength and performance, and motivation subdimensions of the scale before and after the fitness class. Nevertheless, according to the measurements taken during the fitness class, there was a significant difference in favour of female students who took classes with music. These findings show that fitness classes with music positively affect female students' psychological resilience, physical strength and performance, and motivation during class. In their study with national athletes, Uğurlu et al. (2025) found that training with music resulted in higher scores for psychological resilience, physical strength and performance, and motivation among women than men. Karageorghis and Priest (2012) stated that music has a positive effect on muscle endurance and exercise. In their study with female university students, Thakur and Yardi (2013) found that listening to slow and fast-paced music increased walking

speed. Çelik and Karabilgin (2022) concluded that music has positive effects that enhance performance. Furthermore, Uğurlu and Yapıcı (2025) found in their study of sports science students that women who exercise to music experience increased physical strength and performance.

No significant difference was observed between male university students who took fitness classes with music (experimental group) and those who took classes without music (control group) in the psychological resilience, physical strength and performance, and motivation subdimensions of the scale before and after the fitness class. However, measurements taken during the fitness class showed a significant difference in favour of students who took the class with music in the psychological resilience, physical strength and performance, and motivation subdimensions of the scale. These findings show that classes with music positively affected male students' psychological resilience, physical strength and performance, and motivation in class. Smirmaul et al. (2015) stated that athletes' swimming performance increased and their swimming time became significantly shorter after listening to music of their own choice before a maximal 200 m freestyle swimming training session. Uğurlu and Yapıcı (2025) concluded in their study that exercising to music increased the psychological resilience levels of male individuals. Lee et al. (2017) found in their research that the type of music has positive effects on performance; listening to desired music during exercise increases running duration, contributes to endurance, and reduces shortness of breath.

CONCLUSIONS

Exercises performed to music during fitness classes are an effective method that significantly increases students' psychological resilience, physical strength and performance levels, and motivation, thereby raising participation rates in class. This demonstrates that music is a multidimensional tool that simultaneously supports learners' mental and physical processes; it particularly strengthens individuals' perception of endurance and nurtures their internal motivation during activities that require intense effort.

The findings suggest that the use of music can be considered a strategic element in making fitness programs offered by educational institutions and sports centers more appealing, sustainable, and participant-friendly. Considering that musical environments offer pedagogical and psychological contributions such as regulating the pace of the class, harmonizing participants' internal rhythms, and reducing the perceived level of difficulty, the present study reveals that the conscious and purposeful use of music in program design has significant potential.

These findings in the context of fitness classes suggest that music is not merely a supportive element specific to a particular type of exercise, but rather can be effectively used as a tool to enhance performance, increase motivation, and encourage participation in other sports disciplines and applied classes. Future research comparing different sports disciplines, age groups, and music genres is expected to yield more comprehensive and generalizable results regarding the multifaceted effects of music on performance.

Author Contributions

Conceptualisation, H.Y. D.U.; methodology, H.Y., D.U., M.U..; software, H.Y; validation, H.Y.,D.U.; formal analysis, H.Y.; research, D.U.,Z.B.; sources, M.U., E.A.,C.G.A.; data curation, H.Y.; writing-original drafting, H.Y., M.U., D.U., Ç.G.A.; writing-review and editing, D.U., H.Y., Z.B.; visualisation, D.U.; supervision, H.Y., Z.B.; project management, H.Y.; the authors have read and accepted the published version of the article."

Informed Consent Statement:

All subjects who participated in the study did so voluntarily..".

Acknowledgments:

This research was not funded by any institution or organization.

Funding:

This research was not funded by any institution or organization.

Conflicts of Interest:

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest

REFERENCES

Antonini Philippe, R., Kosirnik, C., Ortuño, E. ve Biasutti, M. (2022). Akış ve müzik performansı: profesyonel müzisyenlerin ve müzik öğrencilerinin görüşleri. Müzik Psikolojisi , 50 (4), 1023-1038. https://doi.org/10.1177/03057356211030987

Ballmann, C. G. (2021). The influence of music preference on exercise responses and performance: a review. Journal of Functional Morphology and Kinesiology, 6(2), 33. https://doi.org/10.3390/jfmk6020033

Bradt, J., Dileo, C., Myers-Coffman, K., & Biondo, J. (2021). Music interventions for improving psychological and physical outcomes in people with cancer. Cochrane Database of Systematic Reviews, (10). https://doi.org/10.1002/14651858.CD006911.pub4

Clark, J. C., Baghurst, T., & Redus, B. S. (2021). Self-selected motivational music on the performance and perceived exertion of runners. The Journal of Strength & Conditioning Research, 35(6), 1656-1661. DOI: 10.1519/JSC.0000000000002984

Cools, W., De Frère, U., & Caplin, A. (2023). Beden Eğitimi Sırasında Müzik Çalmanın Öğrencilerin İçsel Motivasyonu Üzerindeki Etkileri. Gençlik , 3 (2), 654-670. https://doi.org/10.3390/youth3020043

Çelik, Ç., & Karabilgin, B. N. (2022). Müziğin sporcular üzerindeki etkilerinin incelenmesi. Düzce Üniversitesi Spor Bilimleri Dergisi, 2(1), 38-44.

De la Corte-Rodriguez, H., Rodriguez-Merchan, EC, Alvarez-Roman, MT, & Jiménez-Yuste, V. (2021). Dünya Sağlık Örgütü'nün 2020 fiziksel aktivite ve hareketsiz davranış yönergelerinin hemofili hastalarına uygulanması. Hematoloji Uzman İncelemesi , 14 (5), 429-436. https://doi.org/10.1080/17474086.2021.1924054

Doğan, A. A., Uğurlu, D., Emlek, B., Yapıcı, H., İspenoğlu, C., Gülü, M., & Çetin, E. (2023). Investigation of the effects of 12-week pilates exercise program on some performance tests and body composition. International Journal of Curriculum and Instruction, 15(2), 1365-1376.

Durau, J., Diehl, S., & Terlutter, R. (2022). Motivate me to exercise with you: The effects of social media fitness influencers on users' intentions to engage in physical activity and the role of

user gender. Digital Health, 8, 20552076221102769. https://doi.org/10.1177/20552076221102769

Feiss, R., Kostrna, J., Scruggs, JW, Pangelinan, M. ve Tenenbaum, G. (2021). İzometrik kuvvet egzersizi sırasında müzik temposunun algılanan efor, dikkat, etki, kalp atış hızı ve performans üzerindeki etkileri. Spor Bilimleri Dergisi , 39 (2), 161-169. https://doi.org/10.1080/02640414.2020.1809974

Goddard, S. G., Stevens, C. J., Jackman, P. C., & Swann, C. (2023). A systematic review of flow interventions in sport and exercise. International review of sport and exercise psychology, 16(1), 657-692. https://doi.org/10.1080/1750984X.2021.1923055

Hanh, L. T. M., Tuan, T. M., Na, P. D., Van Bac, N., & Hooi, L. B. (2022). Effects of Synchronous Music Intervention Duration on Maximal Aerobic Speedin Female Students of Physical Education Classes. Journal of Pharmaceutical Negative Results, 2528-2536. DOI: 10.47750/pnr.2022.13.S06.327

Hopkins W, Marshall S, Batterham A, Hanin J. 2009. Progressive statistics for studies in sports medicine and exercise science. Medicine and Science in Sports and Exercise 41:3–12 DOI 10.1249/MSS.0b013e31818cb278.

Ito, E., Nouchi, R., Dinet, J., Cheng, C. H., & Husebø, B. S. (2022, August). The effect of music-based intervention on general cognitive and executive functions, and episodic memory in people with mild cognitive impairment and dementia: a systematic review and meta-analysis of recent randomized controlled trials. In Healthcare (Vol. 10, No. 8, p. 1462). MDPI. https://doi.org/10.3390/healthcare10081462

Jacquet, T., Poulin-Charronnat, B., Bard, P., Perra, J., & Lepers, R. (2021). Physical activity and music to counteract mental fatigue. Neuroscience, 478, 75-88. https://doi.org/10.1016/j.neuroscience.2021.09.019

Joaquim, A., Leao, I., Antunes, P., Capela, A., Viamonte, S., Alves, A. J., ... & Macedo, A. (2022). Impact of physical exercise programs in breast cancer survivors on health-related quality of life, physical fitness, and body composition: Evidence from systematic reviews and meta-analyses. Frontiers in oncology, 12, 955505. https://doi.org/10.3389/fonc.2022.955505

Kanmaz, H., Emlek, B., İlhan, O., Gülü, M., & Yapıcı, H. (2024). The Effect Of Pylates-Based Exercıse Programs On Gırls' Quıckness And Strength. Burdur Mehmet Akif Ersoy University Journal of Sports Sciences, 2(2), 53-69. https://doi.org/10.70701/makusbd.1586271

Karageorghis, C. I., Kuan, G., Mouchlianitis, E., Payre, W., Howard, L. W., Reed, N., & Parkes, A. M. (2022). Interactive effects of task load and music tempo on psychological, psychophysiological, and behavioural outcomes during simulated driving. Ergonomics, 65(7), 915-932. https://doi.org/10.1080/00140139.2021.2003872

Karageorghis, C. I., Priest, D.L. (2012). Music in the exercise domain: a review and synthesis (Part I). International Review of Sport and Exercise Psychology, 5 (1), 44-66

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.

Kim, M. (2022). How can I Be as attractive as a Fitness YouTuber in the era of COVID-19? The impact of digital attributes on flow experience, satisfaction, and behavioral intention. Journal of Retailing and Consumer Services, 64, 102778. https://doi.org/10.1016/j.jretconser.2021.102778

Large, E. W., Roman, I., Kim, J. C., Cannon, J., Pazdera, J. K., Trainor, L. J., ... & Bose, A. (2023). Dynamic models for musical rhythm perception and coordination. Frontiers in Computational Neuroscience, 17, 1151895. https://doi.org/10.3389/fncom.2023.1151895

Lee, K., Ahn, H.Y., Kwon, S. (2017). Music's Effect on Exercise Participants by Exercise Session. Journal of Applied Sport Psychology, 29 (2), 167-180.

Lu, L., Tao, M., Gao, J., Gao, M., Zhu, H., & He, X. (2024). The difference of affect improvement effect of music intervention in aerobic exercise at different time periods. Frontiers in Physiology, 15, 1341351. https://doi.org/10.3389/fphys.2024.1341351

Mendoza, M. F., Suan, N. M., & Lavie, C. J. (2024). Exploring the Molecular Adaptations, Benefits, and Future Direction of Exercise Training: Updated Insights into Cardiovascular Health. Journal of Functional Morphology and Kinesiology, 9(3), 131. https://doi.org/10.3390/jfmk9030131

Mozolev, O., Bloshchynskyi, I., Prontenko, K., Zdanevych, L., Kruty, K., Popovych, O., & Pisotska, L. (2021). Fitness tekniklerinin entegrasyonunun yetişkin kadınların fiziksel niteliklerinin ve morfo-fonksiyonel durumunun gelişimi üzerindeki etkisi. İnsan Hareketi, 22 (1), 57-65. https://doi.org/10.5114/hm.2021.98465

Nanda, FA, Hartati, H. ve Syamsuramel, S. (2025, Ocak). Spor Fiziksel Testleri için Web Tabanlı Medyanın Geliştirilmesi. Uluslararası Spor ve Egzersiz Bilimi Semineri'nde (ISSES 2024) (s. 4-13). Atlantis Press. https://doi.org/10.2991/978-94-6463-593-5_2

Singh, C., Bandre, G., Gajbe, U., Shrivastava, S., Tiwade, Y., Bankar, N. ve Moizuddin, K. (2024). Hareketsiz Alışkanlıklar ve Küresel Sağlık Üzerindeki Zararlı Etkileri: Bir Bakış Açısı. Ulusal Toplum Hekimliği Dergisi , 15 (02), 154-160. DOI: 10.55489/njcm.150220243590

Smirmaul, B.P., Dos Santos, R.V., Da Silva Neto, L.V. (2015). Pre-task music improves swimming performance. J Sports Med Phys Fitness, 55(12):1445-51.

Soenarti, S., Kurniawati, V. M., Zakiya, F. A., Pramesta, M. S., Sulistyaningsih, R., Lestari, H., ... & Marintan, S. (2024). The First Experience and Benefits of the 12-week VIVIFRAIL Exercise and Its Workout Music Selection for Elder Adults in the Community of Ardirejo, Kepanjen. Jurnal Kedokteran Brawijaya, 23-30. https://doi.org/10.21776/ub.jkb.2024.033.01.5

Sun, R. T., Han, W., Chang, H. L., & Shaw, M. J. (2021). Motivating adherence to exercise plans through a personalized mobile health app: enhanced action design research approach. JMIR mHealth and uHealth, 9(6), e19941. https://doi.org/10.2196/19941

Suwabe, K., Hyodo, K., Fukuie, T., Ochi, G., Inagaki, K., Sakairi, Y., & Soya, H. (2021). Positive mood while exercising influences beneficial effects of exercise with music on prefrontal executive function: A functional NIRS study. Neuroscience, 454, 61-71. https://doi.org/10.1016/j.neuroscience.2020.06.007

Svoboda, S. M., & Kostrna, J. (2024). Effects of tempo of self-selected music on isokinetic strength performance and psychological outcomes. Scandinavian Journal of Medicine & Science in Sports, 34(1), e14487. https://doi.org/10.1111/sms.14487

Thakur, A.M& Yardi Sujata (2012). Effect of different types of music on exercise performance in normal individuals. İndian Journal of Physiolog and Pharmacology, 57(4), 448-451.

Uğurlu, D., & Yapıcı, H. (2025). The Effect of Music on Sport Applied Lessons of Sport Sciences Faculty Students. Journal of Sport for All and Recreation, 7(2), 316-324. https://doi.org/10.56639/jsar.1682376

Uğurlu, D., Yapıcı, H., Koduman, T. İ., Kumtepe, D. G., Emlek, B., Başer, Z., & Gülü, M. (2025). The effect of music on national athletes' training. International Journal of Health, Exercise, and Sport Sciences (IJOSS), 2(3),75-85. https://doi.org/10.5281/zenodo.17451324

Vasudevan, A. ve Ford, E. (2022). Kadınlarda kuvvet antrenmanına başlama ve sürdürmeye yönelik motivasyonel faktörler ve engeller: sistematik bir inceleme ve meta-sentez. Önleme Bilimi , 23 (4), 674-695. https://doi.org/10.1080/01639625.2015.1060741

Vuust, P., Heggli, O. A., Friston, K. J., & Kringelbach, M. L. (2022). Music in the brain. Nature Reviews Neuroscience, 23(5), 287-305. https://doi.org/10.1038/s41583-022-00578-5

Wu, J., Zhang, L., Yang, H., Lu, C., Jiang, L., & Chen, Y. (2022). The effect of music tempo on fatigue perception at different exercise intensities. International Journal of Environmental Research and Public Health, 19(7), 3869. https://doi.org/10.3390/ijerph19073869

Zhou, Z., Zhou, R., Wei, W., Luan, R., & Li, K. (2021). Effects of music-based movement therapy on motor function, balance, gait, mental health, and quality of life for patients with Parkinson's disease: A systematic review and meta-analysis. Clinical rehabilitation, 35(7), 937-951. https://doi.org/10.1177/0269215521990526