



Research Article

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The Acute Effect of Arousing and Relaxing Music on Athletes' Mood: A Study to Identify the Difference Between Contact and Non-contact Sports

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Abstract

The purpose of this study is to determine the acute effect of arousing and relaxing music on mood variables among contact and non-contact sports participants. This experimental study was conducted recruiting 52 male athletes from contact sports (n=26) and non-contact sports (n=26) aged range from 23 to 26 years with more than five years of experience in their sports. Participants listen to either arousing or relaxing music for 15 minutes before they complete the Brunel Mood Scale which measured their mood. Each athlete listened to both music types randomly on two consecutive dates. Data were not normally distributed ($P < 0.05$). Hence, non-parametric tests were used to analyse the data. To analyse the effect of arousing and relaxing music on all participants, Wilcoxon signed-rank test was used, and results showed that vigour is significantly high after listening to arousing music, and tension and depression mood variables were significantly high with relaxing music ($p < 0.00$). To find the effect of both music types on contact and non-contact sport athletes, the Mann-Whitney U test was used, and results revealed that there is a significant difference between contact and non-contact sport athletes on fatigue ($p = 0.01$) and confusion ($p = 0.02$) mood variables after listening to the arousing music. The findings indicate that there is an acute effect of music type on some mood variables among the athletes. Hence, listening to music can rapidly change athletes' mood and music can be used to increase arousal or relax athletes during competitions. More research is needed to confirm the outcome of this study.

Keywords: Arousing Music, Relaxing Music, Mood, Contact Sport, Non-Contact Sport.

INTRODUCTION

The term mood is difficult to define as it depends on individuals' perception and condition of affective state [1]. According to Lane and Terry (2000), mood can be considered as a set of different emotions with varying intensities and durations. Hence, mood can be one of the factors that directly affect sports performances. The mood can be measured through six variables such as anger, vigour, depression, tension, fatigue, and confusion. Rapid mood changes can be witnessed among athletes during practices and competitions.

Depression is one of the variables that affect a person's mood. It is known as a serious medical condition that negatively affects an individual's emotional and physical wellbeing and can decrease the working capacity [2]. Vigour is a person's feeling of cognitive livelihood, physical and emotional strength, mental robustness and energy [3]. Confusion is another mood variable and can be interpreted as a person who feels depressed and unable to think clearly, unable to concentrate or make decisions [4]. If a person suffering from confusion for a longer period, dementia may be the cause and this variable is a negative impact on the mood. Tension is the mental health of a person due to tightness and extreme strain or pressure which is similar to stress [5]. Fatigue, the last mood variable means an uncertain concept that is particularly related to the reaction to physical and mental workload including various experiences and moods [6].

Athletes are engaged in different types of sports. Some sports can be considered as a contact sport and others as a non-contact sport. A sport that physically separates athletes and they do not have physical contact and physical conflicts during a game are known as a non-contact sport and swimming, athletics, gymnastics, and racket sports (table tennis, tennis, badminton) can be considered as non-contact sports. Contact sport is a sport in which players physically contact each other or with an inanimate object and

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rugby, football, boxing, and martial arts (karate, wrestling, judo, and taekwondo) are examples of contact sports.

Even though the mood has both negative aspects and positive aspects competitive athletes often find that they fail to perform well in the competitions because of the poor mental condition which comes with negative aspects of the mood. Therefore, maintaining a good mood during competitions is very important to achieve high performance in the game. Some sports require high arousal while other sports require low arousal to fulfil the aspects of the game. Even though sports psychologists use different types of methods to reduce or induce arousal in athletes, most of these methods should be practised over a long period to acquire their benefits. Many studies have been conducted to identify the effect of music therapy as a relaxation technique, but a limited number of studies has been conducted to identify its effect on different types of sports. A study conducted by Brownley, (1995) found that music types and intensity of the exercise (low/moderate/high) are significantly important to evoke the positive aspect of the mood of untrained runners [7]. Therefore, this study focused on the acute effect of music on mood and try to determine how these effects can influence athletes according to the game they play. Hence, the objective of this study is to determine the acute effect of arousing and relaxing music on mood variables among the athletes who are engaged in contact and non-contact sports.

MATERIALS AND METHODS

Sample

Participants for the present study were recruited after getting their consent. Purposively selected fifty-two ($n = 52$) male athletes who play contact and non-contact sports over five years from the University of Sri Jayewardenepura, Sri Lanka. Twenty-six ($n = 26$) players were from contact sports (Karate-10, Taekwondo-08, Wrestling-08) and twenty-six ($n=26$) players from non-contact sports (Swimming-08, Athletics-10, Badminton-08) were recruited and explained the research procedure before getting their consent. Female participants were not included to avoid the menstrual effects on mood.

Data Gathering Techniques

Brunel Mood Scale (BRUMS) was used to gather data on six mood variables. This scale consisted of twenty-four questions on six subscales such as anger, vigour, depression, tension, fatigue, and confusion. Participants were reacted to this sensation on a 5-point Likert scale where they rated zero to four (0 = not at all, 1 = a bit, 2 = moderate, 3 = enough; 4 = extremely) on this self-reported inventory [8]. Cronbach alpha coefficients of the subscales were 0.72 for anger, 0.70 for confusion, 0.74 for depression 0.70 for fatigue, 0.77 for tension and 0.71 for vigour.

Experiment Procedure

Players were divided according to the sports type (contact and non-contact) and coded accordingly. On the first day of the experiment randomly selected 26 players from both sport types were instructed to listen to arousing music for 15 minutes and fill the BRUMS self-reported inventory. Similarly, other 26 players were instructed to listen to relaxing music and asked to fill the BRUMS self-reported inventory. On the second day, the same procedure was carried out changing the music type among the players. All the players listened to both types of music in consecutive two days and filled the mood inventory. Music used for this research was selected from the previous studies and as arousing music, rocky music theme was used [9]. and as relaxing music, Erik Satie's Gymnopedie number-1 [10]. was used. Before recruiting athletes for the present study, the procedure was clearly explained to all participants and their consent was taken. Research was conducted according to the Helsinki guidelines. Participants' information kept

confidentially and gave them chance to withdraw from the research any time during the study period.

Data Analysis

The acute effect of arousing and relaxing music on mood was statistically analysed using SPSS statistical software version 22. Data were not normally distributed and Kolmogorov-Smirnov values for all the mood subscales were less than 0.05 ($p < 0.05$). Hence, non-parametric tests were used to analyse the data. To see the reliability of the mood subscales, the Cronbach Alpha reliability coefficient was checked, and the Cronbach Alpha value was more than 0.65 for all the variables in the mood scale which assure the reliability of the data.

RESULTS

Acute Effect of Music Type on Mood among Participants

Fifty-two male participants were tested in the present experimental study on two consecutive dates. Mood subscales were analysed after listening to arousing music and relaxing music and according to the descriptive statistics percentages were shown in figure 1. To find the difference between two music types on mood Wilcoxon signed-rank test was applied. According to the results, there is a significant difference between arousing and relaxing music types on participants' depression ($Z = -3.92, p = 0.00$) where participants showed high depression scores after listening to relaxing music.

The tension mood subscale also showed significant differences with two music types ($Z = -2.63, p = 0.00$) where participants showed high tension after listening to relaxing music. Moreover, the vigour mood subscale showed a significant difference with the music ($Z = -5.42, p = 0.00$) where vigour was high in participants after listening to arousing music as expected. Other variables did not show any significant effects.

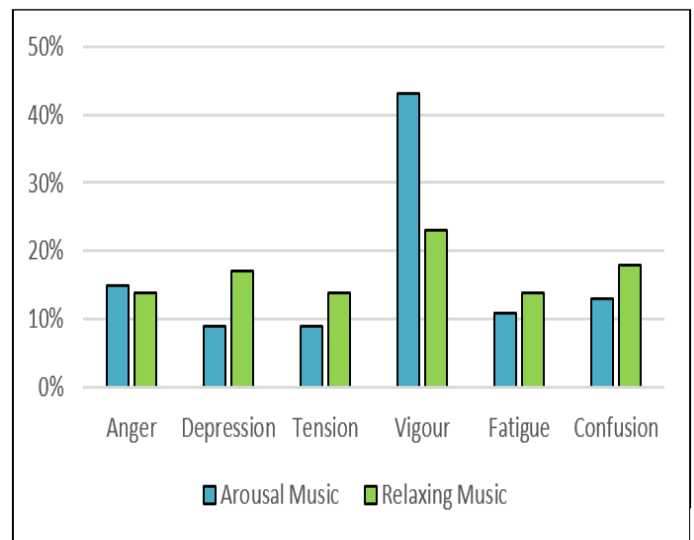


Figure 1: Mood scores with arousing and relaxing music ($n = 52$)

Effect of Music Type on Contact and Non-contact Sports Athletes

Participants were selected for the present study from contact sports and non-contact sports categories. To see the effect of arousing and relaxing music on those two different sport types, the Mann Whitney U test was carried out. According to the results, there was a significant difference between contact and non-contact sports athletes on fatigue ($p = 0.01$) and confusion ($p = 0.02$) after listening to arousing music. Athletes who play contact sports showed high fatigue and confusion after listening to the arousing music, but no other significant differences were found after listening to the relaxing music.

Table 1: Effect of Arousing and Relaxing Music types on Contact and Non-contact Sports

Arousing Music				Relaxing Music			
Mood Component	Sport type	Mean Value	P-Value	Mood Component	Sport type	Mean Value	P-Value
Anger	Contact	30.08	0.08	Anger	Contact	26.31	0.92
	Non-Contact	22.92			Non-Contact	26.69	
Depression	Contact	29.54	0.13	Depression	Contact	30.38	0.06
	Non-Contact	23.46			Non-Contact	22.62	
Tension	Contact	26.88	0.84	Tension	Contact	28.46	0.34
	Non-Contact	26.12			Non-Contact	24.54	
Vigour	Contact	26.04	0.82	Vigour	Contact	23.71	0.17
	Non-Contact	26.96			Non-Contact	29.29	
Fatigue	Contact	31.63	0.01*	Fatigue	Contact	26.83	0.87
	Non-Contact	21.37			Non-Contact	26.17	
Confusion	Contact	31.23	0.02*	Confusion	Contact	28.46	0.34
	Non-Contact	21.77			Non-Contact	24.54	

DISCUSSION

According to the results arousing music is beneficial to improve vigour among the athletes rather than relaxing music. Moreover, it can trigger depression and tension among the athletes which may be affected positively or negatively their sports performance. Further study needs to confirm whether those variables are facilitative or deliberative.

Some research studies mentioned accumulating evidence that appropriately selected music can improve physical performances and enhance the subjective component of the exercise experience [11]. According to that selected music can influence the athletes' mood but athletes may have different music preferences. According to the study conducted by Karageorghis in 1999, the motivational qualities of music can affect participants' psychophysiological components and qualities and characteristics that are differed from personal variables including age, gender, and sporting experience of the athlete [12].

According to the study conducted by Peter *et al*, to identify the effect of music on exercise and sport which was a meta-analytic study mentioned that negative valence effect physical activities severely and music can help to overcome this condition towards positivity. Music plays an integral part in dance, ice skating and rhythmic gymnastics and the influence of music on the human organism has already revealed where fast loud music activates the central nervous system resulting in elevated heart rate, blood pressure, body temperature, skin conductance and muscle tension. Soft slow music has the converse effect, and it decreases sympathetic arousal [13]. This may be the reason for the significant elevation of vigour among athletes after listening to the arousing music. Effects of warming up with music on moods and training motivation among athlete were studied and researchers found that listening to music does not have any significant effect on athlete's motivation but improve their mood [14].

CONCLUSION

This study was conducted at the University of Sri Jayewardenepura recruiting 52 athletes who are engaged in contact sports and non-contact sports aiming to find the acute effect of two different music types on their mood variables. According to the results, all athletes showed a significantly high rate of vigour after listening to the arousing music and significantly high tension and depression after listening to relaxing music. Moreover, contact sports athletes showed significantly high fatigue levels and confusion levels after listening to the arousing music. Hence, more research studies are needed to confirm the present results. Future studies could be conducted on how athletes'

moods can be affected by different music types and the personal preferences of the athletes when they are engaged in recreational activities. Furthermore, the effect of music on team sports and individual sports could be cared out in future research and relate them with athletes' performances. Adding audio-visual modes could be more effective rather than using audio only for the research studies.

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Conflicts of interest

None declared.

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REFERENCES

- Nicholls AR, Morley D, Perry JL. Mentally tough athletes are more aware of unsupportive coaching behaviours: Perceptions of coach behaviour, motivational climate, and mental toughness in sport. *International Journal of Sports Science & Coaching*. 2016;11(2):172-81.
- National Institute of Mental Health., "Major depression," 2019. <https://www.nimh.nih.gov/health/statistics/major-depression.shtml> (accessed Dec. 11, 2020).
- Shirom A. Vigor as a positive affect at work: Conceptualizing vigor, its relations with related constructs, and its antecedents and consequences. *Review of General Psychology*. 2011;15(1):50-64.
- Healthline, "What You Should Know About Confusion," 2005. <https://www.healthline.com/health/confusion#:~:text=Confusion is a symptom that,it%27s referred to as delirium.> (accessed Dec. 12, 2020).
- Good Therapy, "Psychological tension," 2007. <https://www.goodtherapy.org/blog/psychpedia/tension> (accessed Dec. 12, 2020).
- Avlund K. Fatigue in older adults: an early indicator of the aging process?. *Aging clinical and experimental research*. 2010;22(2):100-15.
- Brownley KA, McMurray RG, Hackney AC. Effects of music on physiological and affective responses to graded treadmill exercise in trained and untrained runners. *International journal of psychophysiology*. 1995;19(3):193-01.
- Terry PC. Lane. AM, & Fogarty, G. Construct Validity of the Profile of Mood States-A for Use with Adults. *Psychology of Sport and Exercise*. 2003;4:125-39.

9. Hall KG, Erickson B. The effects of preparatory arousal on sixty-meter dash performance. *Applied Research in Coaching and Athletics Annual*. 1995;10:70-79.
10. Iwanaga M, Ikeda M, Iwaki T. The effects of repetitive exposure to music on subjective and physiological responses. *Journal of Music Therapy*. 1996;33(3):219-30.
11. Matesic BC, Cromartie F. Effects music has on lap pace, heart rate, and perceived exertion rate during a 20-minute self-paced run. *The sport journal*. 2002;5(1).
12. Karageorghis CI, Dimitriou LA, Terry PC. Effects of circadian rhythms on mood among athletes. *Journal of Sports Sciences*. 1999;17:56-7.
13. Terry PC, Karageorghis CI, Curran ML, Martin OV, Parsons-Smith RL. Effects of music in exercise and sport: A meta-analytic review. *Psychological Bulletin*. 2020;146(2):91.
14. Khazdozi G, Bahari SM, Ashayeri H. Effects of warming up with music on moods and training motivation among athletes. *Revista Administração em Diálogo-RAD*. 2017;19:87-95.

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