

# The Effect of Motivational Music Type on Mood and Sprint Performance in American Footballers

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The purpose of this study was to investigate the effects of synchronous, motivating music and asynchronous, non-motivating music on 40-yard sprint performance. It further investigated the interaction of pre-performance mood with music condition and sprint times. The first research hypothesis predicted that listening to non-motivational music prior to performing will have a negative effect on sprint times. The second research hypothesis predicted that listening to motivational music prior to performing will yield the fastest sprint times. Thirty-six male athletes all who play or have previously played American football volunteered to rate the motivational qualities of six songs using the Brunel Music Rating Inventory-3 (BMRI-3). Participants then participated in three experimental conditions; no music condition, motivational music condition and non-motivational music condition. Pre-performance mood was assessed using the Brunel University Mood Scale (BRUMS) with positive mood affect and negative mood affect as the covariates. The dependent variable was sprint time, in which participants completed six 40-yard sprints in total. An interaction was shown between positive mood affect and the music conditions, therefore sprint times were combined with the positive mood affect scores. Results support the first research hypothesis and revealed that listening to non-motivational music with a positive mood before performing, yields the slowest sprint times. However, results do not support the second hypothesis, revealing that listening to no music before performing yields the fastest sprint times. These results suggest that listening to music in training before sprinting is not beneficial to American football players. It appears that synchronous motivational music can be applied to anaerobic performance, but with little to no effect.

## INTRODUCTION

Music can be used to aid physiological performance in athletes and can capture attention, encourage rhythmic movements, increase work output and change or regulate mood (Karageorghis et al., 2006). Synchronous music produces work-enhancing effects across a range of activities including treadmill running (Bood et al., 2013), swimming (Karageorghis et al., 2013), and 400m track running (Simpson & Karageorghis, 2006).

Music has been projected in helping to increase positive moods and decrease negative moods in sporting settings (Hewston et al., 2005). Motivational music is thought to promote an increased exercise adherence for exercisers and to create a more effective pre-event routine for athletes (Karageorghis & Priest, 2012). Currently, research predominantly focuses on how music influences performance alone, rather than how music and mood influence performance. The current study aimed to investigate this with a design suited to a group of athletes.

## AIMS AND HYPOTHESES

This study aimed to investigate whether the motivational properties of a piece of music had an effect on pre-performance mood and 40-yard sprint times in American footballers in training.

It was predicted that listening to non-motivational music prior to performing will have a negative impact on sprint times. It was also predicted that listening to motivational music prior to performing will yield the fastest sprint times.

## METHOD

- 36 male current or former American footballers, mean age 21.81.
- Within-subjects design. One independent variable, music condition, with three levels.
- Music choice was selected using the BMRI-3 (Karageorghis & Terry, 2011) and mood was measured using the BRUMS (Terry et al., 1999).
- Dependent variable was sprint time - the average was taken from two sprints in each condition.

## RESULTS

- ANCOVA revealed an interaction between positive affect and the music conditions
- Data failed to meet assumptions
- A one-way ANOVA on the interaction scores revealed a significant difference in sprint times in the different music conditions  $F(1.46, 50.97) = 6.17, p = .008$  (see Figure 1).

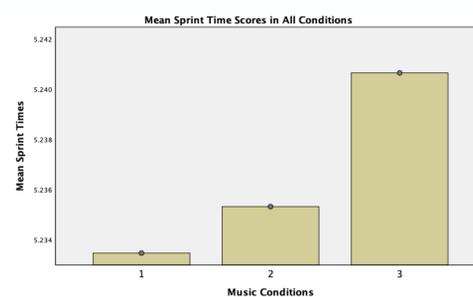


Figure 1: A Bar Graph to Show the Mean Sprint Scores for All Three Music Conditions for the Interaction Data

- Data was transformed accordingly for a normal distribution.

- A one-way ANOVA on the transformed scores also revealed a significant difference in sprint times in the different music conditions  $F(2, 70) = 7.24, p = .001$  (see Figure 2).
- Subsequent paired samples t-tests showed significant difference between no music and non-motivational music  $t(35) = -3.17, p > .003$  and between the two music conditions  $t(35) = -2.09, p > .044$  for the interaction scores.
- For the transformed scores, the t-test showed a significant difference between no music and motivational music  $t(35) = -2.68, p > .011$  and between no music and non-motivational music  $t(35) = -.98, p < .335$ .

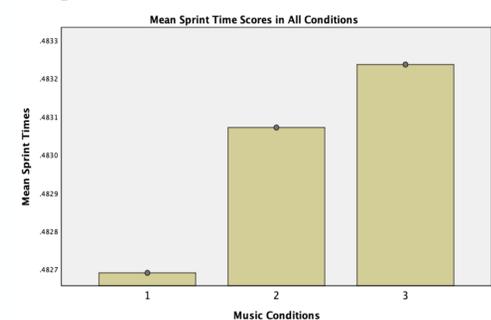


Figure 2: A Bar Graph to Show the Mean Sprint Scores for All Three Music Conditions for the Transformed Data

## DISCUSSION

- The findings support the first research hypothesis and research which proposes that sedative music yields a lower performance in muscular strength (Karageorghis et al., 1996; Pearce, 1981).
- The athletes produced the fastest sprints when listening to no music prior to performing. Thus the second research hypothesis was not supported and that listening to motivational music is not beneficial to sprint performance which is contrary to existing research which found that listening to music (motivational or oudeterous) during performance produced faster sprint times than listening to no music (Simpson & Karageorghis, 2006).
- Findings support previous research that physiological cues dominate attentional processes and so external cues (music) may become less important to the individual (Rejeski, 1985; Tenenbaum et al., 2001).

- The lack of influence that music had on performance may be explained by considering that a piece of music is not associated with certain psychological effects as it is dependent on individual preferences (Sloboda, 2008).

## APPLICATION TO CURRENT RESEARCH

- Findings highlight increasing evidence suggesting that synchronous, motivating music has a more positive effect on anaerobic performance than asynchronous, non-motivating music.
- The study highlights how music may not always be beneficial in all areas of training, in American footballers.

## IMPLICATIONS FOR FUTURE RESEARCH

- Allow athletes to choose their own music from their own selection to find more significant results.
- Conduct a pilot study to establish the effectiveness of the mood measurement design.
- Investigate the influence of music on post-sprint mood.
- Implement in a different training session e.g. weight training in American footballers where music can be played during the session, possibly having a larger impact.

## CONCLUSION

- Positive mood has been shown to interact with the music conditions.
- Listening to no music prior to sprinting produces faster sprint times.
- When a positive pre-sprint mood is accompanied with non-motivational music, slower sprint times are produced.
- The use of synchronous, motivational music was not preferable.
- Music type alone cannot influence sprint scores. Pre-sprint mood has no significant influence on sprint performance.
- Highlights individual preference when listening to music in training.
- Demonstrates a new knowledge that can help when choosing methods in training to aid sport performance.

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