

Music and Perceived Exertion

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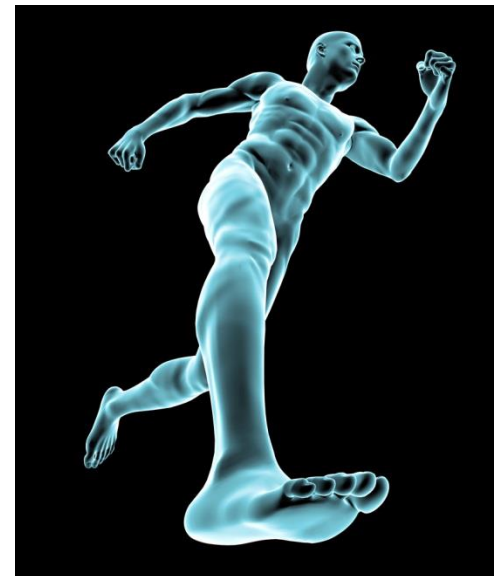
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What is perceived exertion?

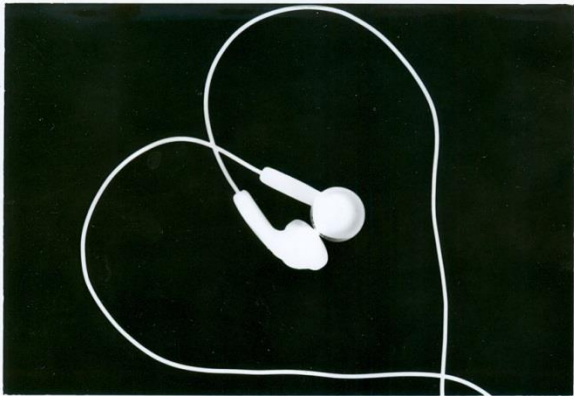
- The subjective perception of how hard a person feels they are working to complete a given task
- Borg (1982) revised a scale to self-assess the perceived exertion of an individual
 - Rating of Perceived Exertion (RPE) – quantifiable measurement of subjective symptoms (0 – 10)
- Perceived exertion integrates the signals from:
 - the working muscles
 - cardiovascular system
 - respiratory system
 - central nervous system (Borg, 1982)



How can music help?

■ Dissociation – a psychological concept

- music provides a distraction, the individual can detach from internal responses of task and effort








■ Self-selecting the music

- Individual preferences are highly varied for many reasons (Karageorghis et al., 1999)
- Allowed subjects to self-select to encourage greater performance compared to an auto-selected song by the researcher

■ Trained vs. untrained and maximal vs. submaximal intensity

- Debated theories:
 - music will not help the trained athlete improve
 - subjects cannot use music to dissociate from the task when intensity is high

Music/RPE literature

Author(s)	Subjects	Protocol	Results
Nakamura et al. (2010) 	Trained	High intensity cycling	RPE was sig. lower w/ preferred music and no music conditions ($p = .026$)
Brownley et al. (1995) 	Trained and untrained	Graded treadmill exercise	Trained group reported higher RPE in music condition, and had lowest RPE in no music condition
Tenebaum et al. (2004) 	Untrained runners	High intensity treadmill	Found no sig. difference in RPE for music and no music conditions
Ghaderi et al. (2009) 	Trained runners	High intensity treadmill to exhaustion	RPE was sig. lower for the music groups ($p = .007$) compared to no music
Elliott et al. (2005) 	Untrained students	Submaximal cycle ergometer	Sig. Time x Condition interaction as RPE climbed higher for the two music conditions

Our Study



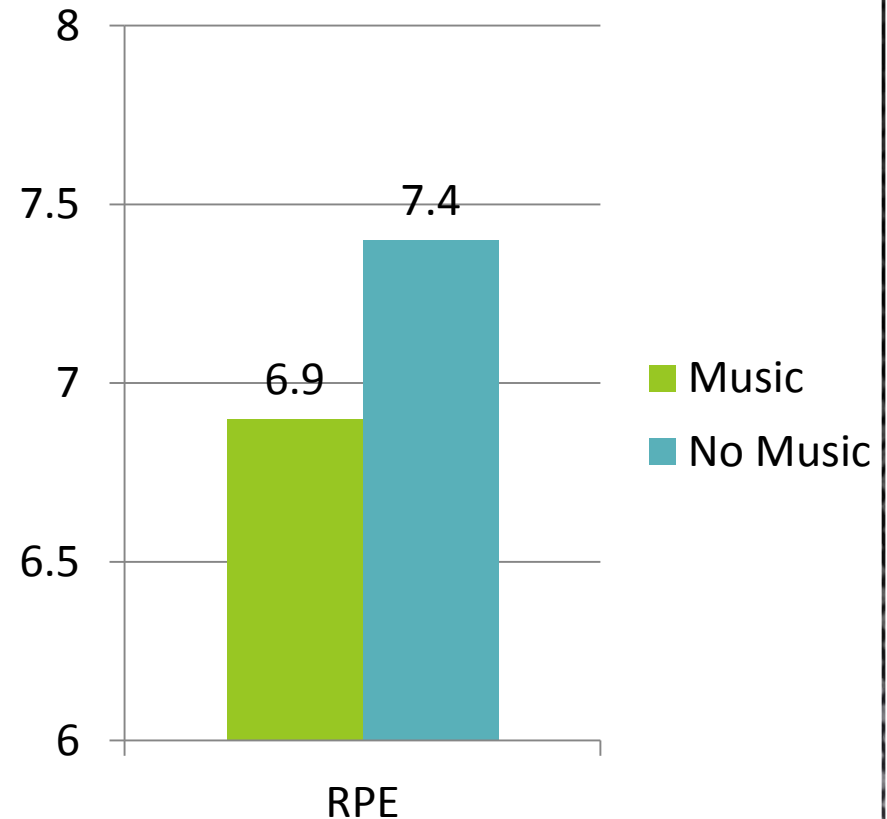
- 1.5 mile time trial
 - Outdoor setting
 - Trained runners
 - Maximal intensity effort
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- Repeated measures crossover design
 - One time trial with the motivational song, one without music (random order)

Our Study (continued)

- 14 subjects
(male = 6, female = 8)
- Age 19-34
($M = 24.86 \pm 5.12$ years)

Results:

- Subjects' RPE was significantly lower with music ($M = 6.9$, $SE = .32$) than without music ($M = 7.4$, $SE = .27$)
 $t(13) = 2.446$, $p = .029$, $r = .56$



How can you apply these results?

- Allow music during class, exercise, practices, or workouts, when appropriate
- You may observe higher intensity performances from students or athletes in the presence of motivating music (whether trained or untrained)
- Allow individual selection of music, when appropriate





How can you apply these results? (continued)

- When selecting motivating music for a group:
 - The rhythm component is most important in deeming a song highly motivating (Karagheorgis, C. Terry, P. & Lane, A., 1999)
 - Our study also found the beat of the song to be the most motivating quality
 - Q6: The beat of this music would motivate me during exercise
 - ($M = 6.92$) out of possible score of 7
 - Average tempo for all songs 122 beats per minute
 - Music with a STRONG (not necessarily fast) beat and also highly rhythmic music

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