

## The Effect of Music Tempo on Heart Rate and Rating of Perceived Exertion During Submaximal Exercise

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Category: Undergraduate

### ABSTRACT

Many people listen to music during exercise, possibly attempting to dissociate from the activity.

**PURPOSE:** To examine the effect of music tempo on time-to-target heart rate (THR) and rating of perceived exertion (RPE) during submaximal exercise. **METHODS:** Eighteen college-age subjects were recruited ( $n=18$ ). Prior to participation in the experimental trials, subjects were measured for mass, stature, and resting heart rate. Subjects then performed the Bruce Treadmill protocol on three different days to a target heart rate of 85% of predicted maximal heart rate ( $HR_{max}=220-age$ ). Using a balanced crossover design over the three experimental trials, subjects performed one bout with fast tempo music (FST,  $\geq 140$  beats $\cdot$ min $^{-1}$ ), one bout with slow tempo music (SLO,  $\leq 85$  beats $\cdot$ min $^{-1}$ ), and one bout with no music (CON). THR was compared across music tempo (FST, SLO, CON) using an ANOVA with repeated measures,  $\alpha=0.05$ . RPE at target heart rate was compared across music tempo using Friedman ANOVA by ranks,  $\alpha=0.05$ . Adjustments to *post-hoc* analyses were made to maintain the experimentwise error rate at 0.05. **RESULTS:** THR did not differ between the experimental trials (FST=9.2 $\pm$ 2.6 min; SLO=9.6 $\pm$ 2.3min; CON=9.3 $\pm$ 2.2min)( $p=0.4820$ ). RPE did differ significantly between the three experimental trials ( $p=0.041$ ). *Post-hoc* analysis revealed specific differences between RPE at SLO (14.9 $\pm$ 2.1) and FST (13.9 $\pm$ 2.3), but neither SLO nor FST differed significantly from CON (14.5 $\pm$ 2.5). **CONCLUSION:** The use of fast tempo music as a dissociative device while exercising does decrease RPE compared to slow tempo music, but does not change THR (i.e., submaximal heart rate). These findings are consistent with most previous research. However, the data suggest that exercising with no music at all yields a similar RPE response as exercising with fast tempo music.

