

opposite trend was evident in the control condition. It appears that trained women do not perform better than their male counterparts when synchronous movements are compared. Also, men may be more able to coordinate their movements to a regular beat in the absence of musical stimuli (i.e., a metronome). Therefore, music used for male groups should have high motivational qualities and a particularly prominent beat. Also, practitioners should be particularly sensitive to the affective qualities of music when selecting an accompaniment for women participating in anaerobic exercise.

Keywords: music, synchronize movements, performance, aerobic and anaerobic tasks, gender differences

Quantification of physiological arousal during familiar arousing music, unfamiliar arousing music, and unfamiliar relaxing music during imagery in elite shooters

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In the current study, we aimed to determine whether arousing music produces higher levels of physiological arousal than relaxing music during sport imagery. This was a precursor to examining the impact on performance of imagery accompanied by music. We examined whether unfamiliar music increased or decreased arousal level during familiar sport imagery. We chose unfamiliar music to minimize confounding effects of past associations. We added familiar arousing music for comparison. 10 elite shooters (7 males, 3 females) performed shooting imagery while we played relaxing music, unfamiliar arousing music, and familiar arousing music. Using a ProComp+ system and BioGraph Software version 5.0 from Thought TechnologiesTM, we monitored blood volume pulse-amplitude (BVPAmplitude), heart rate (HR), galvanic skin response (GSR), and peripheral temperature (PT), for consistent patterns of physiological arousal during each type of music, while participants did sport imagery. All participants listened to nine classical music excerpts, chosen by the researchers, before their normal

training schedule. Three excerpts were played in each of three training sessions. Resting levels of physiological measures were recorded first. Between music excerpts, participants rested until those levels were reached again. Analysis of variance revealed significant changes on GSR, $F_{2,162}=15.35$, $p<.05$, $\eta^2=.16$, BVPAmplitude, $F_{2,162}=10.83$, $p<.05$, $\eta^2=.12$, and HR, $F_{2,162}=24.33$, $p<.05$, $\eta^2=.23$, for different categories of music. There was a significant interaction effect for PT and different categories of music, $F_{16,162}=1.87$, $p<.05$, $\eta^2=.16$. Unfamiliar arousing music created higher arousal levels than familiar arousing music. Relaxing music showed lower levels of arousal compared to other pieces of music. GSR, PT, and HR showed consistent patterns of interpretation for arousal level of music during imagery. BVPAmplitude showed more variable results, which might be due to the highly sensitive measurement of BVP, which could be easily influenced by small amounts of noise. In conclusion, some music may produce greater arousal or relaxation than others. Thus, careful selection of music to be used during imagery rehearsal is important to manipulate arousal level for examining the effect of arousal/relaxation on imagery.

Keywords: physiological arousal, familiar arousing music, unfamiliar arousing music, unfamiliar relaxing music, sport imagery

Effects of synchronous music on treadmill running among elite triathletes

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Research has shown that running in time to music that is synchronized to stride rate can provide significant benefits for sub-elite athletes, although it is uncertain whether such benefits also accrue for elite performers. The present study evaluated the effects of running in time to music on a treadmill using a range of psychological, physiological and performance indices among a sample of elite triathletes. An initial test was conducted to establish aerobic