Ergogenic, psychological, and psychophysiological effects of synchronous music on treadmill running.

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Music has been shown to exert various ergogenic (i.e., work-enhancing), psychological (e.g., improved mood), and psychophysical (i.e., lowered perceptions of exertion) benefits during physical activity. When movements are performed in synchrony with music, some of the benefits (e.g., work-enhancement) appear to be amplified

(see e.g., Karageorghis, Mouzourides, Priest, Sasso, Morrish, & Whalley, 2009). To further develop the train of research on synchronous music and to extend it to elite athletes, the present study utilised a sample of Australian triathletes (N = 11) who were exposed to either self-selected motivational music, a neutral equivalent (in terms of its motivational qualities), or a no-music control during steady-state and exhaustive treadmill running. The measured variables were work output (aerobic endurance), psychological (mood states, feeling states), psychophysical (RPE scale), and physiological (blood lactate, oxygen consumption, metabolic efficiency). Both music conditions, in particular the motivational selection, were found to exert consistent benefits across each dependent measure when compared to the no-music control. Notably, feeling states remained more positive throughout the test in the motivational music condition when compared to the other conditions. However, the differences in endurance between motivational and neutral music conditions were negligible, indicating that that music's affective/aesthetic qualities are of lesser importance when used synchronously. The present findings also indicate that both music conditions enhanced metabolic efficiency to a degree that implies a practical value at the highest levels of competition. Guidelines will be offered to facilitate the application of synchronous music among elite endurance athletes.