
2327 Board #246 May 28 2:00 PM - 3:30 PM

Effects Of Mental Fatigue On Maximal Exercise Test Performance In Physically Active And Sedentary Adults

Nien Xiang Tou, Govindasamy Balasekaran, FACSM, Tiago Manuel Barbosa. *Nanyang Technological University, Singapore, Singapore.*

Email: nie17toun7250@e.ntu.edu.sg

(No relationships reported)

PURPOSE: This study examined the effects of mental fatigue on maximal treadmill walking exercise performance.

METHODS: 50 young male ($n = 25$) and female ($n = 25$) adults were recruited to perform a maximal treadmill walking exercise test to volitional exhaustion on two occasions. Prior to the exercise test, participants performed a cognitive task in a randomized, counterbalanced manner for 30 minutes, with the incongruent Stroop task in the mental fatigue condition, and leisure magazine reading in the control condition. Subjective ratings of perceived mood, fatigue, and motivation to exercise were assessed before and after the cognitive task. Perceptual and physiological responses were collected throughout the exercise test.

RESULTS: Significant decrease in perceived mood ($p < 0.001$) and motivation ($p = 0.001$), and significant increase in fatigue ($p = 0.028$) were found in the mental fatigue condition. Participants were found to rate their perceived physical exertion higher during the exercise test in the mental fatigue condition ($p = 0.042$). However, there were no significant differences in physiological responses and test exhaustion time.

CONCLUSIONS: Mental fatigue increased perceived physical exertion during maximal treadmill walking exercise but did not impair exercise performance in both active and sedentary adults.

2328 Board #247 May 28 2:00 PM - 3:30 PM

Effects Of Self-selected Or Experimenter-selected Music On Psychological Responses During A Sprint Interval Training Session

Marcelo Marques, Valéria Panissa, Victor Staibano, Emerson Franchini. *University of São Paulo, São Paulo, Brazil.*

Email: marcelomarques@usp.br

(No relationships reported)

Music is widely used as an ergogenic aid before and during exercise to enhance performance. The ergogenic effects of music seem to be influenced by its choice and exercise intensity. However, little is known concerning its effects during sprint interval training (SIT).

PURPOSE: The purpose of this study was to analyze the effects of self-selected and experimenter-selected music on perceptual (affective responses, perceived exertion, attentional focus, and enjoyment), and performance (power output) during a SIT protocol compared to a control condition.

METHODS: 14 active males (27.0 ± 3.9 years; 79.0 ± 9.1 kg; 176.4 ± 5.3 cm) performed SIT sessions composed by 8 x 15s all-out bouts against a fixed load of 9% of body mass interspersed by 120s of passive recovery under three conditions: self-selected music (playlist of high-tempo subject's favorite music), experimenter-selected music ("Power Workout" playlist from an online streaming music platform) and no-music (control). Affective responses, perceived exertion, and power output were measured throughout the protocols. Enjoyment and attentional focus (effort and recovery) were measured after each exercise session.

RESULTS: Perceived exertion did not differ between conditions, but a main effect of time was detected ($F_{2,26} = 1.67$; $p = 0.208$; $\eta_p^2 = 0.114$), with lower values in the first bout when compared to all others moments ($p < 0.001$). The affective responses differed between conditions ($F_{2,26} = 4.02$; $p = 0.030$; $\eta_p^2 = 0.236$), but the post-hoc indicated only a tendency ($p = 0.067$) of lower values for the self-selected music (1.3 ± 1.3 a.u.) compared to experimenter-selected music (2.0 ± 1.2 a.u.). Attentional focus also differed between conditions ($F_{2,26} = 6.62$; $p = 0.005$; $\eta_p^2 = 0.337$), however, just between self-selected (70.2 ± 30.3 a.u.) and no-music conditions (42.9 ± 27.1 a.u. $p = 0.043$). Enjoyment and power output measures did not differ between conditions, however, a main effect of time was observed for peak power ($F_{2,26} = 0.96$; $p = 0.393$; $\eta_p^2 = 0.069$), and mean power ($F_{2,26} = 1.23$; $p = 0.307$; $\eta_p^2 = 0.087$), throughout the bouts ($p < 0.001$).

CONCLUSIONS: Although there were no significant differences between conditions concerning performance, perceived exertion, and enjoyment, listen to the self-selected music during the SIT session increased the attentional focus.

2329 Board #248 May 28 2:00 PM - 3:30 PM

Validity Of The Session Rpe For Detecting Accumulated Fatigue

Andrea Fusco¹, William Sustercich², Keegan Edgerton², John P. Porcari, FACSM², Richard P. Mikat², Matthew J. Andre², Salvador J. Jaime², Cristina Cortis¹, Carl Foster, FACSM². ¹University of Cassino e Lazio Meridionale, Cassino, Italy. ²University of Wisconsin-La Crosse, La Crosse, WI.

Email: andrea.fusco@unicas.it

(No relationships reported)

Studies have shown that the ratio of blood lactate concentration to Rating of Perceived Exertion (HLA/RPE) and session RPE (sRPE) may be considered useful to detect overreaching and accumulated fatigue. However, no study has investigated their relationship.

PURPOSE: To examine the relationship between HLa/RPE and sRPE during a period of intensified training.

METHODS: Twelve young adults performed incremental exercise to assess their max power output (MPO). They performed 30 and 60-min interval workouts on a cycle ergometer over a 2-week period. Each session started with a 5-min warm-up at 25% MPO followed by 5-min at 50% MPO, 2-min at 25% MPO, 5-min at 75% MPO, 2-min at 25% MPO, 2-min at 100% MPO, 2-min at 25% MPO and 7-min at 50% MPO, which finished the 30-min session. During the first week, 4 sessions consisting of 30-min on Monday, Tuesday, Wednesday and a 60-min (30-min session back to back) on Thursday, were organized. After 3 days off, the second week consisted of 3 consecutive 60-min sessions (Monday to Wednesday) with the last day (Thursday) being of 30-min. HLa and RPE were measured at the end of each stage of the interval training, and HLa/RPE computed for each session. sRPE was obtained after the sessions. Non-linear regression analysis was used to assess the relationship between HLa/RPE and sRPE.

RESULTS: A very large negative relationship ($r = -0.70$, Root-mean-squared error = 0.59, $p < 0.0001$) was found (Figure 1).

CONCLUSIONS: The negative relationship supports the concept that sRPE is a sensitive tool that, in addition to information about relative exercise intensity, might provide further information on accumulated fatigue. Coaches and exercise scientists without access to HLa measurement may gain insight into accumulated fatigue during periods of increased training by using sRPE.

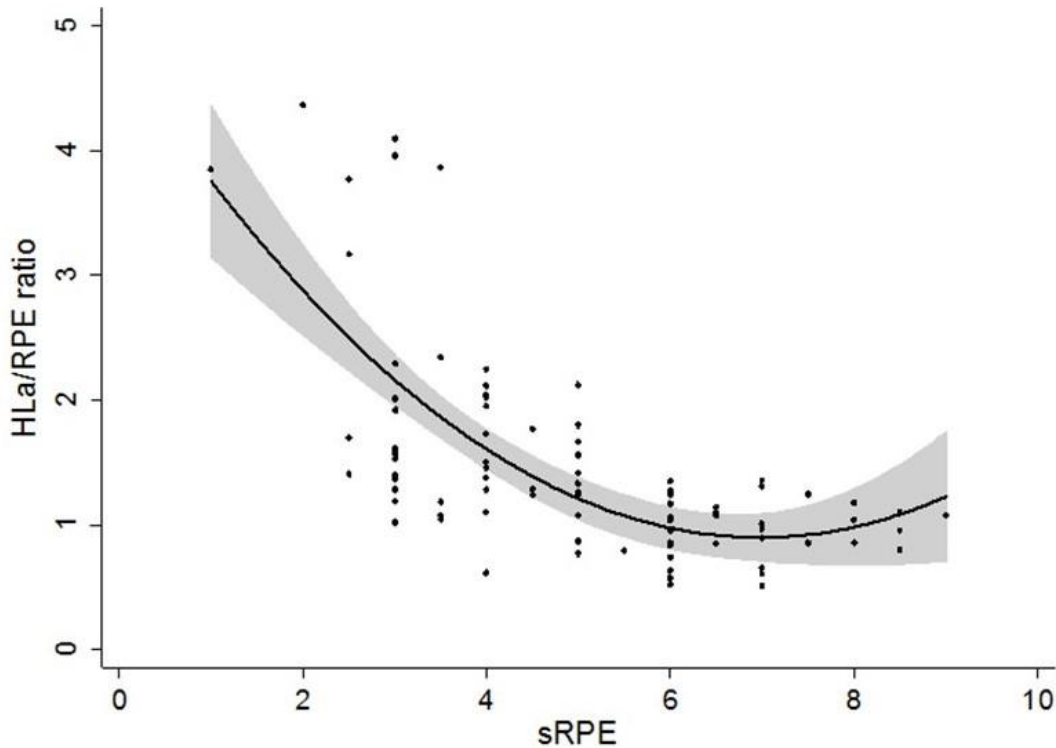


Figure 1. Relationship between HLa/RPE and sRPE

Black dots represent all subjects' training session; black line represents the predicted mean; the grey shade area represents the 95% confidence interval of the predicted mean.

2330 Board #249 May 28 2:00 PM - 3:30 PM

Association Between Perceived Recovery And Heart Rate In A Submaximal And Maximal Task In Firefighters

Carly A. Wahl¹, Rudi A. Marciniak¹, Cody S. Tesch², Barbara B. Meyer¹, Kyle T. Ebersole¹. ¹University of Wisconsin-Milwaukee, Milwaukee, WI. ²City of Milwaukee Fire Department, Milwaukee, WI.

Email: cwahl@uwm.edu

(No relationships reported)

The job of a firefighter is physically and mentally demanding and requires maximal or near maximal effort. As time on a shift progresses, these tasks may be performed in an under recovered state due to stressors of the work. Prior research in athletes has explored the relationship between subjective measures of stress/recovery and performance on exercise tests. As such, it is possible that a firefighter's subjective assessment of recovery may influence objective measures of performance on an exercise test.

PURPOSE: To determine the association between perceptions of recovery and heart rate (HR) response in both a submaximal and maximal task in firefighters.

METHODS: 16 (14 male, 2 female) active-duty firefighters (35.3 ± 8.0 years, 179.1 ± 6.2 cm, 91.1 ± 16.9 kg) volunteered to participate. Participants completed a submaximal Queens College Step Test (SUBMAX) and a maximal treadmill test (MAX) with 24-72 hours separating each test. Prior to testing, participants stated their perceived recovery status (PRS; 0-10 scalar measure) to assess current state of recovery. Upon completion of each test, participants reported a rating of perceived exertion (RPE). HR was recorded at the conclusion of each test (HR_{PEAK}) and after 60 seconds of seated recovery (HR₆₀). Bivariate Pearson correlations determined the relationship between PRS, RPE, HR_{PEAK}, and HR₆₀ on both SUBMAX and MAX tests. An alpha of 0.05 determined statistical significance.

RESULTS: Significant correlations were identified in the SUBMAX test between HR_{PEAK} (137.5 ± 12.7 bpm) and RPE (10.8 ± 1.8) ($r = 0.707, P = 0.002$), and HR₆₀ (95.4 ± 18.8 bpm) and RPE ($r = 0.619, P = 0.011$), but neither were related to PRS (6.8 ± 2.4). On the MAX test, HR_{PEAK} (183.0 ± 9.7 bpm) and HR₆₀ (147.4 ± 13.7 bpm) were not related to either RPE (18.2 ± 1.1) or PRS (6.0 ± 2.1).

CONCLUSION: These results suggest that among firefighters, PRS may not be a meaningful instrument to understand readiness for performance, regardless of task intensity. In addition, the task specific response for RPE may suggest self-reporting of effort is not an effective method to evaluate intensities greater than a submaximal level. Firefighter-specific measures should be developed to better determine subjective recovery and effort to guide implementation strategies with which to optimize health and performance readiness.

2331 Board #250 May 28 2:00 PM - 3:30 PM

Reducing Sedentary Time In Fibromyalgia (ReSeT-FM): A Feasibility Study

Eric Evans. Indiana University - Purdue University Indianapolis, Indianapolis, IN.

(No relationships reported)

Fibromyalgia (FM) is characterized by chronic widespread musculoskeletal pain, impaired functional mobility and extreme sedentary behavior (SB). Research suggests that individuals with FM who spend more time in SB experience greater clinical pain and overall impact of FM, irrespective of time spent in moderate to vigorous physical activity (PA). To date, no studies have investigated the potential impact of reducing SB on key clinical outcomes in FM.

PURPOSE: To evaluate the feasibility of an 8-week behavioral intervention designed to replace SB with light PA in Veterans with FM.