

**3rd BRICSCESS 2024-New Delhi
Invited Speaker**



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Assoc. Prof. Dr. G. Balasekaran is at the Physical Education & Sports Science academic group, National Institute of Education, Nanyang Technological University, Singapore. His research projects include physiological responses in exercise and adaptations to health and sports performance, also investigating the influence of genetic factors on exercise related outcomes. He is currently actively involved in investigating physiological predictors of human performance. In addition, he is very well versed in the knowledge of sports science and its application in track & field and other sports. Dr Bala obtained his PhD from the University of Pittsburgh, USA and did his Post-Doctoral Fellowship in molecular genetics with a renowned genetics professor. He has published many research papers, abstracts, proceedings papers and book chapters in mostly first rated journals and books in the area of Sports Science. Dr Bala had represented Singapore in numerous long distance running events and had won medals in various international and local meets. He had also raced in the various States and Regional College meets in the USA and most notably qualified and raced in the prestigious National Collegiate Athletic Association (NCAA) cross-country championships in USA at Humboldt University. Currently he is a volunteer coach, coaching national long distance athletes – coached athletes to national records. He is also heading the Brain Breaks project in schools and gearing schools towards the United Nations Sustainable Development Goals in Singapore and internationally.

Using the OMNI Rate of Perceived Exertion (RPE) Scale to Self-Regulate Exercise Intensity to Induce Cardiovascular and Peripheral Adaptations During Soccer Training

Training at Ventilatory breakpoint (V_{pt}) is an optimal intensity to induce cardiovascular fitness. This study investigated the utilization of the OMNI Rate of Perceived Exertion (RPE) Scale during female soccer players' training sessions that corresponded to V_{pt} . Ten females' (age: 23.30 ± 1.49 years, height: 161.10 ± 7.50 cm, body fat: 22.20 ± 3.90 %) V_{pt} was determined by a treadmill test followed by two 30-minute field soccer sessions (S1 and S2 – warm up: 5 minutes, activity: 15 minutes and cool down: 5 minutes). Results indicated that V_{pt} was established at RPE 4.89 ± 0.93 . There was no significant difference for HR and RPE between both field sessions. (Warm up: HR: S1: 129 ± 11.2 beats \cdot min $^{-1}$ vs. S2: 125 ± 7.40 beats \cdot min $^{-1}$, $p = 0.08$; RPE S1: 2.30 ± 0.68 vs. S2: 2.30 ± 0.57 , $p =$

0.34), Activity: HR: S1: 162.50 ± 14.69 beats \cdot min $^{-1}$ vs. S2: 163.70 ± 8.92 beats \cdot min $^{-1}$, $p = 0.68$, RPE S1: 4.90 ± 0.99 vs. S2: 5.00 ± 0.47 , $p = 0.73$; Cool down: HR: S1: 108.10 ± 17.98 beats \cdot min $^{-1}$ vs. S2: 108.20 ± 11.56 beats \cdot min $^{-1}$, $p = 0.97$; RPE S1: 1.40 ± 0.52 vs. S2: 1.50 ± 0.52 , $p = 0.59$). RPE and HR were significantly different between warm up, activity (RPE: 2.2 ± 0.79 vs. 5.0 ± 0.47 , $p = 0.00$; HR: 132.30 ± 7.89 beats \cdot min $^{-1}$ vs. 167.00 ± 2.05 beats \cdot min $^{-1}$, $p = 0.00$), activity and cool down (RPE: 5.0 ± 0.47 vs. 1.7 ± 0.48 , $p = 0.00$; HR: 106.40 ± 7.03 beats \cdot min $^{-1}$ vs. 167.00 ± 2.05 beats \cdot min $^{-1}$, $p = 0.00$). Hence, participants were able to self-regulate exercise intensity at V_{pt} (RPE 4 to 6) during soccer field sessions which was at optimal intensity without excessive fatigue and may reduce long term risk of injuries. Appropriate exercise intensity is vital to enable students to enjoy the benefits and pleasure of an active lifestyle and reduce levels of reluctance towards physical activity.