GNYACSM Abstract

The Physiological and Emotional Responses to eSports Across Different Populations

CHRISTOPHER MIRANDA, DANIEL OLATUNDUN, ANTONIO EVOLA, FRANK BILLERO, & JOSEPH SAUCHELLI

Exercise Science Lab; Integrated Health & Exercise Science; Georgian Court University ; Lakewood, New Jersey

Category: Undergraduate

Advisor / Mentor: Chen, Vincent (vchen@georgian.edu)

ABSTRACT

PURPOSE

The study investigated the impact of virtual shooting task on physiological and psychological parameters in various demographics, including sex, athletic status, and gaming experience.

METHODS

31 participants were recruited to perform two continuous 1.5-minute virtual target-shooting tasks from a virtual distance of 60 meters and rested for three minutes before and after gameplay. Continuous VO_2, VCO_2, and heart rate were recorded. Psychological states were assessed using the Short Stress State Questionnaire (SSSQ), filled out before and after the gaming session. The athletic status was confirmed during the recruitment process. Participants who were athletes were directly recruited from the Athletic Department at Georgian Court University. Every participant who is an athlete is officially listed on each team's roster, and therefore, we could categorize them into different sport types.

RESULTS

There were significant increases in VO_2 and Heart Rate with no significant change in Respiratory Exchange Ratio (RER) during the gameplay. From rest to gaming, the change in heart rate was higher in males than females, with no significant differences between athletes and non-athletes. The change in VO_2 were the same regardless of sex and athletic status. The change in RER remained the same between sex, while athletes exhibited a lower change than non-athletes. Dissatisfaction, Alertness, Impatience, Annoyance, and Irritation increased, and Activeness decreased during the gameplay. There were no emotional differences across sex in gaming. However, resistance athletes and intermittent-high intensity athletes exhibit lower annoyance levels than non-athletes during gameplay.

CONCLUSION

Male and female respond to the gameplay similarly. While the intensity of the game may be insufficient to detect the differences in oxygen consumption and heart rate changes between athletes and non-athletes, athletes may perform with a more stable energy metabolism than non-athletes. Athletes experience less annoyance when playing video. Our results showed that individuals with sports participation experience exhibited higher levels of stability in metabolism and emotion while performing virtual shooting tasks. Therefore, physical sports participation may be suggested for the inclusion of eSport training.