The Impact of Aerobic Exercise on Esport Performance –
A novel and complex motor learning task

Rodriguez AG, Wong ML
University of Miami, Department of Physical Therapy, Coral Gables, FL

**PURPOSE**

Esports, or competitive videogaming, is a growing sport. There are currently over 50 collegiate Esport teams across the US, and professional Esport viewing audiences already rival other professional sports. However, research on Esport performance is sparse. Acute bouts of aerobic exercise (AE) are known to improve acquisition and retention of novel motor tasks. Thus, the purpose of this study was to examine the effect of AE on Esport performance using a single-subject design. We hypothesized moderate aerobic exercise (M-AE) would improve immediate performance with minimal carry over, while intense aerobic exercise (I-AE) would result in long-lasting performance improvement.

**SUBJECT**

The subject was a 36-year-old male videogame player, who played an average of 20 hours per week. He had no prior exposure to the test game for this study.

**METHODS**

Esport performance was defined as the number of scored goals in 100 attempts on the popular Esport title Rocket League®. Performance was assessed twice weekly, with one session occurring immediately after either rest, 25 minutes of M-AE, or 15 minutes of I-AE at 65% or 80% of age predicted maximal heart rate respectively. The second assessment occurred 72 hours after the rest or exercise intervention. The subject was exposed to each condition twice.

**RESULTS**

Large performance gains occurred over the first 3 sessions of baseline/rest conditions likely due to a learning effect. Mild gains were noted after the first round of M-AE, followed by a 26% performance increase after the first round of I-AE. The subsequent rest condition resulted in a 23% scoring decrease. Reintroduction of M-AE resulted in another 22% increase, followed by a 4% increase after the final round of I-AE.

**IMPORTANCE**

Improvements in scoring were consistently observed during each AE condition. There was a large decrement in performance with the removal of AE for the second rest condition. Therefore, it is likely that AE enhanced performance gains. AE may enhance Esport performance via different processes such as cognitive priming and increased corticomotor excitability which implicate biological and psychological pathways as performance facilitators.

These findings suggest AE may be a beneficial tool for the Esport athlete to improve performance. The term “Esport performance” as described in this study is interchangeable with the phrase “novel and complex motor learning task.” As an adjunct to physical therapy interventions, it seems the application of AE has vast potential to create a facilitatory environment from which to engage in motor learning tasks with generalizability to numerous populations and settings of physical therapy practice.

**REFERENCES**