METHODS: 14 healthy young (18-28 yo) LoL gamers played an individual LoL task of 20 min preceded by either 15 min of a high-intensity interval exercise or rest. The two conditions were administered on two separate days in a counterbalanced fashion. Video game performance was assessed as the number of targets destroyed, as well as accuracy, defined as the ability to destroy a target with only one attack. Attacks that required more than one attempt to destroy a target were counted as accuracy errors.

RESULTS: Exercise improved the capacity of participants to successfully destroy targets, but differences between exercise (119.43 ± 4.23) and rest (111.50 ± 3.98) did not reach statistical significance (paired t-test; t=2.181, p=0.094). Exercise enhanced accuracy, with fewer errors after exercise than after rest (paired t-test; t=2.38, p=0.033). Self-reported sitting time was negatively associated with total score after the rest condition (r=-0.55, p<0.040). Neither other variable (cardio-respiratory fitness, BMI, cognitive level) was associated with game performance.

CONCLUSION: Exercise performed before playing LoL improves video game performance increasing accuracy. The fact that players with less sitting time showed better performance reinforces the importance of reducing sedentary behaviors in this group. The implementation of exercise routines in video gamers may improve their general health and their gaming performance.

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2037 Board #193 May 30 2:00 PM - 3:30 PM
Association Between Cognitive Funtion And Handgrip Strength In Physical Education College Students
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PURPOSE: To analyze the association between cognitive function and handgrip strength in a sample of university students of Physical Culture in Bogotá, Colombia.

METHODS: The cross-sectional study included a total sample of 104 voluntary university students of Physical Culture, 18 - 25 years old, from Bogotá, Colombia. The handgrip strength was determined by the digital dynamometer and the cognitive function was evaluated individually by trained personnel through the Paced Auditory Serial Addition Test (PASAT), to evaluate the speed and flexibility of processing of auditory information, the sustained and divided attention, as well as the calculation capacity, a standardized audio was used in the speed of the stimulus, presenting the individual digits every 3 seconds (PASAT-3), adding each new digit to the previous one immediately. The shorter stimulus intervals were used in 2 seconds (PASAT-2), increasing the difficulty. The association between cognitive function and handgrip strength adjusted for weight, was performed using the linear logistic regression model in the statistical package SPSS v25.

RESULTS: The sample was middle-aged (Age=19.8±4.2yrs; N=87 men). The logistic regression model showed a strong association between hand grip strength adjusted to weight and cognitive function, through the stimulation of PASAT-2 (p = 0.026, Beta = 0.219), compared with PASAT-3 (p = 0.062; Beta = 0.184) where no significant difference was found, however a low tendency is identified.

CONCLUSION: The results of this study show that hand grip strength is associated with a better cognitive response in speed and flexibility of processing in college students of Physical Culture of Bogotá, Colombia, for which it is suggested to promote the regular practice of exercise physical that stimulates muscle strength, in order to improve cognitive performance in college students.

2038 Board #194 May 30 2:00 PM - 3:30 PM
Exercise Intensity Influences Prefrontal Cortex Oxygenation During Cognitive Testing
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Various types of exercise therapies, including high and low intensity aerobic exercise, along with mind-body exercise (e.g., yoga) have been implemented into treatment for those suffering from psychological disorders and traumatic brain injury. The prefrontal cortex (PFC), which houses key cognitive constructs is responsive to exercise, and is commonly measured using functional near infrared spectroscopy (fNIRS). Evidence suggests that exercise mediates neural adaptation through increased blood flow and neurogenesis, which enhances neural activation leading to improved cognitive performance. However, the type and intensity of exercise that has the most robust impact on brain blood flow is currently unknown.

PURPOSE: Therefore, the primary aim of the study is to compare PFC activation during cognitive tasks performed after low-intensity, high intensity, and yoga exercises. We also aim to determine if markers of cardiovascular and metabolic stress influence brain activity after each exercise bout.

METHODS: Eight subjects (4 male, 4 female), aged 35 ± 5 years completed a control, high intensity, low intensity, and yoga exercise trial followed by administration of a cognitive task (NIH Toolbox Fluid Cognition). Left and right PFC oxygenation were measured during the post-exercise cognitive assessment using fNIRS technology.

RESULTS: Oxygenation during the cognitive task was higher in the left PFC region after low intensity exercise compared to all other trials (control, high intensity, yoga). Regression model analysis showed that a 10% increase in %HRmax up to 70% intensity predicts an increase in left PFC oxygenation by 2.11 umol. No relationship was detected between PFC oxygenation and the cognitive task or the last response among participants in the current study, however a relationship between control levels of brain derived neurotrophic factor (BDNF) and processing speed was detected.

CONCLUSIONS: Acute exercise below 70% aerobic intensity increased brain blood flow during a post-exercise cognitive task. Therefore, it may be beneficial for those who engage in any cognitive related activity to perform a brief bout of low intensity exercise prior to the task. This may include people who participate in academic-based testing, cognitive behavioral therapy, or motor training.

2039 Board #195 May 30 2:00 PM - 3:30 PM
Exploring The Relationships Between Personality And High-intensity Exercise-affect In Men And Women
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In general, men are more likely to meet physical activity guidelines in comparison to women, and tend to report exercising at higher-intensities. However, less is understood in regards to how men and women differ in feeling states (e.g., core affect) during a high-intensity exercise bout.

PURPOSE: Determine whether sex differences exist in personality traits and high-intensity exercise-affect.

METHODS: Male (N=63) and female (N=101) undergraduates (n=164, 20.4±2yrs, 24±4 body mass index (BMI), 62% female, 82% regular exercisers) completed several personality surveys along with a 15-minute high-intensity circuit (HIC). Core affect (via Feeling Scale & Felt Arousal Scale) was assessed prior to, every 3-minutes during, and 20-minutes post (P20) condition. RESULTS: Multivariate ANOVA revealed significant differences (P<0.05) in the personality traits extraversion (F=46.2, M=42.2, d=0.94), neuroticism (F=47.4, M=45.1, d=0.64), openness (F=14.5, M=15.6, d=0.49), interneference (F=26.4, M=29.0, d=0.53) and intensity-tolerance (F=25.2, M=28.4, d=0.65). No sex differences (P>0.05) were observed for exercise-affect prior to, during, and following the HIC.

CONCLUSIONS: Although sex differences exist in various personality traits, these differences did not influence how one felt prior to, during, and following a HIC. These findings support the notion that men and women respond similarly to exercise stimuli. More research is needed to understand why women exercise less and at lower-intensities in comparison to men.