

Objective: COVID-19 caused a worldwide restructuring of daily life, necessitating a sharp increase in social distancing, telecommunication, and adherence to rapidly changing public health recommendations. Coping, a response to stressors, is a protective mechanism to increase resiliency against uncertainty and decreased social connectedness. This disruption of daily life has prompted unanticipated and unique research opportunities and allowed researchers to consider whether individuals' primary coping style with the pandemic is associated with cognition. Previous research has found that problem coping, or action-oriented approaches to a stressor, is the most adaptive coping strategy. Emotion-based coping, like venting or humor, varies and depends on the stressor. Avoidant coping, like denial or ignoring the stressor, is generally considered maladaptive (Carver, 1977), which may lead to increased psychosocial disturbance. Executive functioning, responsible for planning, organizing, inhibition, and self-management are theorized to be most impacted by the social and psychological effects of COVID-19 (Pollizi et al., 2021). While some research has examined this question in working parent and older adult populations, we seek to understand this relationship in emerging adults, whose frontal lobes, responsible for executive functioning, are still developing. The present study seeks to examine the association between coping with the COVID-19 pandemic and executive functioning.

Participants and Methods: College students (N=440; M=19.30 years old, SD=1.42, 76% female) across seven US universities completed self-report questionnaires on SONA, which included Barkley's Deficits in Executive Functioning, Short Form (BDEFS-SF; Barkley, 2011) and the Brief Coping Orientation to Problems Experienced Inventory adapted for coping with the COVID-19 pandemic (Brief COPE; Carver 1989). Items on the BDEFS-SF were summed to create a global executive functioning score. Items on the Brief COPE were combined to create three factors: emotional,, avoidant,, and problem-focused (Dias et al., 2012).

Results: Stepwise linear regression was used to assess whether coping style predicted executive functioning. Results indicate that the use of emotional coping ($\beta = 0.19, p < .001$) and avoidant coping ($\beta = 0.33, p < .001$) predicted higher scores on the BDEFS (greater deficits in executive functioning). Additionally, the use of

problem coping ($\beta = -0.27, p < .001$) predicted lower BDEFS scores (better executive functioning), with this overall model explaining 16.37% of the variance.

Conclusions: Results from this study confirm that COVID-19 coping styles are associated with decreased executive functioning. Specifically, emotional coping and avoidant coping predicted decreased executive functioning, which has been supported in non-pandemic samples. The use of problem-focused coping predicted increased executive functioning, indicating that this may be a protective form of coping with the pandemic. Because tasks necessary for daily life, such as planning, organizing, and judgment, rely on executive functioning, maladaptive coping with COVID-19 may impede college students' daily functioning necessary for successful engagement in schoolwork, emotion regulation, and activities of daily living. This research begins to address the gap in knowledge regarding the relationship between coping with the COVID-19 pandemic and executive functioning. This knowledge can be used in future crises in order to promote the use of problem-focused coping and mitigate the self-observed deficits in executive functioning demonstrated in this population.

Categories: Executive Functions/Frontal Lobes

Keyword 1: executive functions

Keyword 2: everyday functioning

Keyword 3: self-report

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87 The Cumulative and Unique Effect of Competitive Youth Participation in the United States' Most Popular Sports on Executive Function

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Objective: Engagement in sporting activities has shown improvement in executive function among youth (Contreras-Osorio et al., 2021). Additionally, participation in specific sports such as soccer has been shown to enhance executive function in youth athletes compared to same-aged non-athletes (Yongtawee et al., 2021). The

present study aimed to examine the effects of competitive participation in the United States' four most popular sports on executive function among youth athletes. The most popular sports, as defined by viewership, revenue, and youth participation in the U.S. are American football, basketball, baseball, and soccer (Injai, 2022; Aspen Institute, 2020).

Participants and Methods: Data from the following three executive functioning subtests were analyzed in a sample of youth athletes ($n=76$), aged 8-18 years (mean age=11.94): Delis-Kaplan Executive Function System Trail Making Letter-Number Sequencing (cognitive flexibility), Wechsler Intelligence Scale for Children Fourth Edition Working Memory Index, and Golden Stroop Color-Word Inhibition. Participants completed these measures as part of a larger neuropsychological baseline assessment. Multivariate General Linear Model (GLM) regression was used to examine the influence of total cumulative years playing in one or more of the four most popular sports on executive functioning. A multivariate GLM regression also investigated the unique contributions of total years playing soccer ($n=40$; mean age=12.40) and total years playing American football ($n=32$; mean age=12.03) on subtest performance. The unique contributions of basketball ($n=14$) and baseball ($n=21$) were not analyzed due to small sample size.

Results: Total cumulative years playing \geq one of the four most popular sports significantly predicted cognitive flexibility ($p=.007$) and working memory ($p=.002$), but not inhibition ($p=0.639$). Total years playing soccer also significantly predicted cognitive flexibility ($p=.029$) and working memory ($p=0.05$), but not inhibition ($p=.310$). Total years playing American football did not significantly predict performance on tasks requiring cognitive flexibility ($p=.186$), working memory ($p=0.150$), or inhibition ($p=0.277$).

Conclusions: In congruence with previous research, sports participation predicted enhanced cognitive flexibility and working memory on certain executive tasks. Among youth athletes, prolonged competitive participation in one or more of the four most popular sports in the U.S. predicted better performance on measures of cognitive flexibility and working memory. Furthermore, protracted participation in soccer predicted enhanced performance on measures of cognitive flexibility and working memory, whereas extended participation in American football did not. Future

research should examine this effect in larger samples within all four sports. Examining the cumulative length of competitive participation in these popular sports on executive function could present a favorable developmental outcome of youth participation if competitive participation is sustained. Additionally, the present data on executive function performance between lasting soccer participation and lasting American football participation suggests that executive function development and performance may be influenced by the sport played. The direction of this possible influence is unclear. More research is needed to establish this observed difference, and to better understand its existence and directionality.

Categories: Executive Functions/Frontal Lobes

Keyword 1: executive functions

Keyword 2: sports-related neuropsychology

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88 Light and Vigorous Bouts of Acute Aerobic Exercise Positively Impact Sustained Attention and Inhibition but not Pattern Separation in Young Adults

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Objective: The current study had two primary objectives: 1) To assess the dose-response relationship between acute bouts of aerobic exercise intensity and performance in multiple cognitive domains (episodic memory, attention, and executive function) and 2) To replicate and extend the literature by examining the dose-response relationship between aerobic exercise intensity and pattern separation.

Participants and Methods: 18 young adults (mean age = 21.6, $sd = 2.6$; mean education = 13.9, $sd = 3.4$; 50% female) were recruited from The Ohio State University and surrounding area