Mid Atlantic Regional Chapter
of the
American College of Sports Medicine

Annual Scientific Meeting, November 5th- 6th, 2021
Conference Proceedings
International Journal of Exercise Science, Issue 9, Volume 10

Ambulatory Arterial Stiffness, Salivary Inflammation, and Physical Activity in Young Adults With and Without COVID-19

Andrew R. Heckel, Danielle M. Arcidiacono, Kailee A. Coonan, Alaina C. Glasgow, Jacob P. DeBlois, Brooks B. Gump, Tiago V. Barreira, FACSM, Joon Young Kim, Kevin S. Heffernan, FACSM.
Syracuse University, Syracuse, NY

COVID-19 illness may cause a dysregulated systemic inflammatory response, leading to cardiovascular damage and an increased risk for cardiovascular disease (CVD). Physical activity (PA) is inversely associated with systemic inflammation and CVD risk and may be a cardioprotective lifestyle factor for individuals recovering from COVID-19. **PURPOSE**: 1) To compare CVD risk, assessed as arterial stiffness and systemic inflammatory levels, between young adults recovering from COVID-19 and uninfected controls, and 2) to explore PA as a mediator for the relationship of COVID-19 infection history with arterial stiffness and systemic inflammation. **METHODS**: Analyses were performed on 23 COVID-19 (15 females, 25.0±8.9 years, 24.1±3.5 kg/m^2) and 32 control participants (18 females, 24.4±6.5 years, 25.1±3.5 kg/m^2). Arterial stiffness was estimated as pulse wave velocity (PWV) during 24-hour ambulatory blood pressure monitoring with an oscillometric blood pressure device. Systemic inflammation was assessed as salivary C-reactive protein (CRP) levels using the passive drool method. PA was objectively measured via accelerometry and assessed as moderate-to-vigorous PA (MVPA). An independent samples *t*-test was used to compare measures of arterial stiffness and systemic inflammation between the COVID-19 and control groups. Mediation analysis was used to determine whether there was a significant indirect effect of COVID-19 infection history through MVPA on arterial stiffness and CRP levels. **RESULTS**: There were no significant differences ($p > 0.05$) between the SARS-CoV-2 and control groups in PWV (5.0±0.5 m/s vs. 5.1±0.5 m/s) or CRP levels (765.4±672.9 pg/mL vs. 526.3±674.8 pg/mL). Mediation analysis did not reveal a significant indirect effect of COVID-19 infection history through MVPA on arterial stiffness (estimate = 0.02, 95% CI = -0.05 – 0.24) or CRP levels (estimate = 0.03, 95% CI = -0.07 – 0.16). **CONCLUSION**: These results suggest there are no differences in arterial stiffness and systemic inflammation between young adults recovering from COVID-19 and uninfected controls, and that MVPA may not significantly mediate the relationship for COVID-19 infection history with arterial stiffness and systemic inflammation. Young adults recovering from COVID-19 may not have a heightened CVD risk compared to controls.