

Impact of Mask Wearing on Post Exercise Hemodynamics

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ABSTRACT

As the guidelines regarding COVID-19 regressed, many fitness centers established regulations requiring mask-wearing during exercise. Data suggest that the impact of a mask during exercise has minimal effects on exercise hemodynamics. The post-exercise period has been described as a window of opportunity to lower blood pressure, a phenomenon called post-exercise hypotension. The impact of wearing a mask on post-exercise hemodynamics is unknown. **PURPOSE:** The purpose of this study was to examine the impact of mask-wearing on post-exercise hemodynamics. **METHODS:** Nine total participants aged 18-30 yr were recruited for this experimental cross-over study. This within-subject design involved six randomized conditions; control no mask, no exercise (CON-NE), control-surgical mask, no exercise (CON-SUR), control-exercise, no mask (CON-E), exercise surgical mask (EXS-SUR), exercise N95 mask (EXS-N95), and exercise cloth mask (EXS-CL). The exercise protocol was a HIIT 4 x 4 on a cycle ergometer. Participants exercised at 85% of VO₂max for four minutes, followed by a three-minute rest period, repeated four times. Measurements of cardiac output (Q), stroke volume (SV), heart rate (HR), systemic vascular resistance (SVR), and brachial blood pressure (BP) were measured pre-exercise for 20-min, during exercise, and postexercise for 60-min. **RESULTS:** Post-exercise data revealed no statistical differences in systolic BP or diastolic BP compared to the CON-E condition (both $p > 0.05$). HR was significantly lower (roughly $4-5 \pm 1.8$ bpm $p < 0.01$) in the CON-E group compared to all exercise mask-wearing groups following exercise. Additionally, SV ($p < 0.001$) and Q ($p = 0.002$) were significantly lower in the EXS-N95 group compared to the other exercise groups. **CONCLUSION:** This study is consistent with current literature in suggesting that mask-wearing during exercise, even at high intensity, has no effect physiologically on post-exercise hemodynamics.