

Physiological Effects of Wearing a Surgical Mask During Anaerobic Exercise

DIANA F. COMBS

Exercise Physiology Lab; Department of Kinesiology; Southwestern University;
Georgetown, TX

Category: Undergraduate

Advisor / Mentor: Merritt, Edward (merritte@southwestern.edu)

ABSTRACT

Since the beginning of the SARS-CoV-2 pandemic there has been an increase in the use of surgical face masks worn during exercise. Understanding how the use of a face mask during exercise influences performance is important to individuals and their training goals and may reveal potential areas of concern. **PURPOSE:** To identify how wearing a surgical mask during anaerobic exercise impacts blood lactate levels and other physiological measures when compared to levels during exercise performed with no face covering in healthy adults. **METHODS:** Twelve participants (21.42 ± 0.99 years, 68 ± 4.63 cm, 172.92 ± 35.50 lbs) performed two Wingate Anaerobic Tests at least 48 hours apart while wearing a surgical mask and not wearing a mask. Blood lactate, heart rate, and blood oxygen were measured and recorded prior to, immediately after, and 10 minutes after each test. Rate of perceived exertion, heart rate variability score, anaerobic peak power, anaerobic capacity, and anaerobic fatigue index were also recorded and analyzed. **RESULTS:** This study found that there was a significant increase ($t(9)=6.376$, $p=0.032$) in heart rate variability score while wearing a surgical mask. There was no significant difference in blood lactate and other physiological measures between the conditions. **CONCLUSION:** It is unclear why the mean heart rate variability score increased during the masked condition because the mean score was taken by averaging data from the start of exercise through the end of the 10-minute recovery. Overall, this study suggests that wearing a surgical mask does not impact exercise performance.