

Effect of an Acute Bout of Exercise using an Altitude Training Mask Simulating 12,000 ft on Physiological and Perceptual Variables

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Category: Masters

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ABSTRACT

The use of altitude training masks by the average person has increased in recent years with numerous endorsements by famous athletes, yet few studies can be found on the acute effects during exercise while wearing an altitude training mask (ATM). **PURPOSE:** To examine the acute physiological and perceptual effects of wearing an altitude training mask during exercise. **METHODS:** Fifteen participants (age=24.5±3.5 yrs., height=169.1±10.9 cm, weight=75.6±22.31 kg, BMI=26.0±4.92 kg/m²) completed two trials either wearing an ATM simulating 12,000 ft (~3,600 m) or not. Trial order was counterbalanced and randomized with the second trial exactly one week later. Participants were asked to not ingest a heavy meal or caffeine 3 hours prior to testing as well as complete a Physical Activity Readiness Form (PAR-Q) and consent form before testing. Variables tested were heart rate, blood pressure, blood oxygen concentration (SPO₂), blood lactate and rate of perceived exertion (RPE). Measurements were taken when the participant first entered (baseline), after a 10 minute sit (seated without movement), after a four-minute walk (3.0 mph at level incline), after a four-minute run (5.0 mph at level incline), and after a three-minute recovery (standing in place). A 2 (trial) x 5 (time) factorial ANOVA, with repeated measures on both factors, was used to determine the differences with the alpha set at 0.05. **RESULTS:** There were no significant differences between trials for heart rate, blood pressure, SPO₂, blood lactate and RPE at any of the time points. **CONCLUSION:** The effect of the mask is not great enough to elicit significant changes in perceptual or physiological variables during acute exercise.