Physiological Change Through Aerobic Exercise Under Hypoxic Conditions With An Elevation Mask

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KINE 3325 – Undergraduate Research Methods (Dr. Caçola)

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INTRODUCTION: Athletes have found a new way to train an edge over their competitors and that is in an environment where oxygen is lacking. With a lower supply of oxygen, the body produces the hormone erythropoietin, which stimulates the bone marrow to create more red blood cells to form more hemoglobin. Hemoglobin are proteins inside red blood cells that carries oxygen to the tissues while bring carbon dioxide back to the lungs. During training, the placebo group wore the same mask, but the settings were placed to simulate an altitude of 3000 feet above sea level. The control group wore the mask with no hypoxic conditions. The experimental group wore the actual elevation training mask with the setting of 3000 feet above sea level. The heart rate of the subjects were measured before each session and recorded after each mile run on an elliptical. The control group wore a placebo elevation training mask and the experimental group wore the actual elevation training mask with the setting of 3000 feet above sea level. The heart rate of the subjects were measured before each session and recorded after each mile run on an elliptical.

METHODS: Six participants aged range from 18-35 were randomly split evenly into two groups, placebo and experimental, for the study. Their height, weight, resting heart rate, and timed mile run on the elliptical machine were measured before the test had begun. Subjects were told to finish a timed mile run on the elliptical machine for a total of 10 sessions in 3 weeks of study. The post-test mile run would be after the nine sessions and consist of no masks and was used to measure any improvement in performance. During training, the placebo group wore a placebo elevation training mask and the experimental group wore the actual elevation training mask with the setting of 3000 feet above sea level. The heart rate of the subjects were measured before each session and also after each session. The mile time were recorded after each session.

RESULTS: The pre-test mean HR for the control group was at 72.67 ± 2.9 bpm. For the experimental group, the pre-test mean HR was at 68.33 ± 16.56 bpm. Meanwhile, the post-test HR for the control group was at 71.33 ± 1.55 bpm. For the experimental group, the pre-test HR was 69.00 ± 14.933 bpm. The statistical values that was done for the pre-test and post-test comparisons was an F = 0.045, p = 0.842. This means that there was no statistical significance between the two groups when comparing the effects of the elevation mask. The statistical value that was done for the post-test comparisons was an F = 0.045, p = 0.842. This means that there was no statistical significance between the two groups when comparing the effects of the elevation mask.

CONCLUSION: Training in an hypoxic environment may improve aerobic performance, as seen with the decrease in average mile time, but it did not affect the subjects' resting heart rate at all.

REFERENCES