*‘Hyperoxic training increases work capacity after maximal training at moderate altitude’*

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Athletes’ capacity can be altered through training density, frequency, intensity, and volume. The authors claim that intensity is the most important due to the premise that as intensity increases, training capacity should as well. Increased intensity will induce fatigue and desaturation of oxygen which is even more prevalent in those training at altitude. Ultimately, this article aims to see whether or not hyperoxic gas breathing of a 70% gas mixture will improve athletes’ maximal performance at altitude of 1600m. Dozens of people began this protocol but few actually completed it due to injury and other personal reasons. The subjects underwent a baseline training protocol that consisted of cycle training on ergometers with a session consisting of eight 5-minute sets of 2 minutes at 50% maximal and 3 minutes at 85% maximal until their true capacity plateau was found. Then the hyperoxic training protocol tested the subjects’ capacity through eight 5 minute sets at 95% maximal workload. Here a hyperoxic condition was made by pumping a 70% oxygen gas mixture through a face mask. The determinations of their capacity was found based off of baseline testing. The results of this experiment showed that high intensity workouts aided by hyperoxic breathing significantly increases the maximal performance. This is backed by the idea that breathing in more oxygen increases saturation and the amount of oxygen in the blood present for energy production.

This article was chosen due to its overlapping of our studies in athletes and human acclimation to environments of increased altitudes. Training and preparing for competition at increased of decreased altitudes is a tricky process and must be done to ensure the best performance possible and many ideas have risen (ex. “Live High, Train Low”) to help one get an edge. Some methods included hypobaric chambers, hypobaric apartments, and more ways to acclimate. This article caught my eye because it was a shortcut to increasing endurance and physiological capacity that we hadn’t covered. Personally I like the idea of training in hypoxic conditions to become more efficient in using oxygen, but in this article they aimed to train with more oxygen rich air to better performance which presented an opportunity that I had not even imagined. The hyperoxic gas allows us to take in more oxygen and increase our endurance by creating more energy and increasing V02 max.

Personally, as I got farther and farther into the article the less and less I liked the idea of hyperoxic training. I understand that it in fact increases performance but I don’t see where anyone would seek this type of training. If one is going to compete in hyperoxic conditions, its good for them because there is an abundance for their usage. It will help them perform longer as well. Someone can use this training but they will have to compete in an environment that has less oxygen whereas now the body is used to having more. We will not get 70% oxygen gas in our environment. This may help if we compete immediately after hyperoxic training and oxygen saturation is increased. What will really help is training in hypoxic conditions and becoming a more efficient user of the oxygen present. That way an athlete is prepared for any environment. In my opinion this type of training is pointless. The experiment and testing were designed properly, that’s a positive. Most of this article would be understandable to the general public but people with knowledge of physiology would benefit from the literature the most. For example, terms such as VO2 max and ergometer most likely wouldn’t be known by the average person. To fully understand this article they would have to brush up on their knowledge of terms in the physiology field. Overall, I think it was a decent article and I completely understand why such a study was completed. Just as training can be improved in hypoxic conditions, it can also be increased in hyperoxic as well but I feel that based off of my knowledge gained in our class that training in hypoxic or high altitude conditions will benefit an athlete greater in the long run.

Citation and Link

Chick, T. W., Stark, D. M., & Murata, G. H. (1993, December). Hyperoxic training increases work capacity after maximal training at moderate altitude. *Chest*, *104*(6), 1759+. Retrieved from <http://go.galegroup.com/ps/i.do?p=HRCA&sw=w&u=txshracd2511&v=2.1&it=r&id=GALE%7CA14707310&asid=cb53b5679122b00647871e1c02e0fa49>