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Termin 3

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Abstract

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1. Introduction

Siebenmann C. et al¹ submitted a paper in March 2011 investigating athletic performance when living at different altitudes.

2. Scientific hypothesis of the paper and justification of the chosen methods

Their hypothesis was that enhanced physical endurance performance as a result of the 'Live high-train low' (LHTL) approach does not come from a mental placebo effect but rather physiological changes.

They conducted a double-blinded and placebo-controlled study in order to minimize the impact of bias from the athletes' as well as people in their environment to interfere with the results. The subjects of the study were put into the control or hypoxia group at random, but after they were split up in regards to sport - thereby avoiding misleading results.

3. Results and conclusions

The results Siebenmann et al. recorded showed that those who lived at simulated high altitudes did not significantly improve in regards to physical performance nor biomarkers linked to ergogenic effects compared to the control group. Biomarkers measured were for example $VO_2\max$ and Hb_{mass} . Siebenmann et al. therefore concluded that LHTL might not have an ergogenic effect on physical endurance performance amongst athletes competing at lower altitudes.

4. Possible weaknesses of the study

Living in a room that produces normobaric hypoxia is convenient for the purpose of conducting a double-blind and placebo-controlled study but it does not reflect the true conditions of living at a higher altitude (hypobaric hypoxia). Furthermore, ergogenic effects

following hypoxia might not benefit elite athletes since they already are at a high level of physical performance.

References

¹ Siebenmann C., Robach P., Jacobs R.A., Rasmussen P., Nordsborg N., Diaz V. et al. “Live high-train low” using normobaric hypoxia: a double-blinded placebo-controlled study. *J Appl Physiol* [Internet]. 2011 Oct [cited 2012 Jan 1st];112(1):106-117. Available from: <https://www.physiology.org/doi/full/10.1152/jappphysiol.00388.2011> DOI: 10.1152/jappphysiol.00388.2011.