

Abstract

Title: The effect of voluntary hypoventilation on physical performance and selected parameters of physiological function in athletes – a systematic review

Objectives: The aim of this thesis is to summarize the results of selected studies dealing with voluntary hypoventilation technique and from the obtained data determine the possibility and extent of using this technique to improve sports performance.

Methods: The bachelor thesis was conducted in the form of a systematic review, according to the recommendations of the PRISMA statement. Relevant scientific articles and studies were retrieved using four internet databases, namely Web of Science, Pub Med, Scopus and EBSCOhost, followed by literature research of the retrieved publications.

Results: A total of 129 potential studies were retrieved from which 16 relevant publications were selected and included in the systematic review. In all cases, these were cohort studies, seven of them focused on investigating the acute response of hypoventilation training and nine on its long-term effect. Together, these studies collected data from 270 actively exercising probands.

Conclusions: The results of selected scientific studies over the last twenty years suggest that hypoventilation training could be a beneficial and affordable training method to improve athletic performance and induce similar effects, to those caused by exposure to hypoxic environments, at sea level.

Keywords: sport performance; breath hold; normobaric hypoxia; hypoventilation training; reduced breathing frequency