13TH INTERNATIONAL SPORT SCIENCES CONGRESS



PROCEEDINGS BOOK



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RIXOS HOTEL, KONYA / TURKEY

13. ULUSLARARASI SPOR BİLİMLERİ KONGRESİ

13TH INTERNATIONAL SPORT SCIENCES CONGRESS

SELÇUK ÜNİVERSİTESİ

KEYNOTE SPEAKERS

Dr. Håkan WESTERBLAD, SWE
Dr. Hans van der MARS, USA
Dr. Howard HALL, UK
Dr. Mats BÖRJESSON, SWE
Dr. Kenneth ROBERTS, UK

INVITED SPEAKERS

Dr. Atilla ERDEMLİ, TUR
Dr. Ahmet TALİMCİLER, TUR
Dr. Bülent ALTEN, TUR
Dr. Deniz GÖKÇE, TUR
Dr. Dilara ÖZER, TUR
Dr. Erdal ZORBA, TUR
Dr. Haydar A. DEMİREL, TUR
Dr. Hüsrev TURNAGÖL, TUR
Dr. M.Akif ZİYAGİL, TUR
Dr. Sadi KURDAK, TUR
Dr. Susana Gil OROZKO, ESP
Dr. Sadettin KİRAZCI, TUR
Dr. Ming-kai CHIN, USA
Tuğrul AKŞAR, TUR

the swimmers' intragroup hemoglobine, hemotocrite,100 metres sprint and post sprint heart rates, T2000 metres swimming test and post test heart rates. Among the groups, significant improvements have been seen in both genders' hemoglobine, hematocrite, T 2000 swimming parameters depending on the altitude. As a result of this study, while an improvement their athletic performances were seen in hemoglobine and hematocrite, swimming economy and endurance of the elite swimmers depending on the training to be done at the different altitudes, other performance levels increased in all groups were thought to performances because of the positive effects of swimming training.

Keywords: Elite Swimmers, Altitude, Swimming Training, performance

OP. 206 EXERCISE ARTERIAL INDUCED HYPOXEMIA IN ELITE CROSS-COUNTRY AND ALPINE SKIERS DURING MAXIMAL EXERCISE

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Abstract

Exercise-induced arterial hypoxemia (EIAH) is defined as a reduction in the arterial blood oxygen level measured as hemoglobin oxygen saturation (SaO_2) below pre-exercise levels, and can be classified as mild (SaO_2 %93-95), moderate (SaO_2 %88-93) or severe (SaO_2 <%88). Previous research using pulse oximetry indicates that highly trained endurance athletes may exhibit EIAH during maximal exercise. Cross country skiing performance rely heavily on the aerobic capacity. Anaerobic power appears to be better predictors of alpine ski performance. **Aim:** The purpose of this study was to examine and compare the occurrence of exercise-induced hypoxaemia during maximal exercise in elite cross-country and alpine skiers. **Methods**: Twenty-eight male athletes, including 14 cross-country skiers (age 18.1 ± 2.8 years, height 169.7 ± 4.6 cm, body mass 62.2 ± 6.3 kg) and 14 alpine skiers (age 18.5 ± 3.5 years, height 174.8 ± 3.5 cm, body mass 68.4 ± 9 kg), all members of the Turkey national team took part in the study. The maximal oxygen uptake (VO_{2max}) was determined using an incremental maximal exercise test on a treadmill (Cosmed Quark PFT-Ergo, Rome, Italy). Time to exhaustion was recorded as the time from the start of the run until the point of exhaustion. At rest before exercise and during the exercise, oxygen saturation (SaO_2) was measured continuously by pulse oximetry (Spiropalm 6MWT; COSMED). The differences in measures between groups were evaluated by unpaired t-test and p values < 0.05 were accepted as significant. Data are reported as means ± standard deviation (SD). **Results**: Cross-country skiers had significantly higher VO_{2max} (67.4 ± 5.4 and 53.9 ± 6.3, $p < 0.001$) and time to exhaustion (10 ± 1 and 7.9 ± 0.6, $p < 0.001$) than alpine skiers. By comparison there was no difference in resting $\%SaO_2$ between the cross-country skiers (97.9 ± 0.6) and the alpine skiers (97.6 ± 0.7). During exercise test, $\%SaO_2$ (≤ % 91) was reduced in all athletes at the maximum exercise load and was not found significantly different between cross-country skiers (86.7 ± 1.9) and alpine skiers (85.8 ± 4). **Conclusions**: The results of this study suggest that elite athletes who have different aerobic fitness levels may exhibit similar exercise-induced arterial hypoxemia during maximal exercise.

Keywords: Exercise-Induced Hypoxemia, Percent Arterial Oxygen Saturation, Maximal Oxygen Uptake