MODERATE ALTITUDE: POTENTIAL AND OPPORTUNITIES FOR STRATEGIC APPROACH TO ALTERNATIVE HYPOXIA EXPOSURE TRAINING IN MALAYSIA

Asna binti Mahmud

Fakulti Sains Sukan dan Kejurulatihan
Universiti Pendidikan Sultan Idris
Tanjung Malim, Perak

asna@iab.edu.my

Keywords: moderate altitude, hypoxia exposure, alternative training, natural altitude house

ABSTRACT

This study aimed to identify strategic venues as potential locations to be used as moderate-altitude training centre as an alternative training for local athletes. In addition, this study was performed to identify the effect of moderate-altitude on the pattern of change in hematological parameters, cardiovascular endurance and physical performance of athletes through the three phases of the study. Phase I: Identifying the impact of moderate-altitude on hemoglobin (Hb) and red blood cells (RBC). Phase II: Aimed to identify the effects of moderate-altitude on maximum oxygen consumption $(\dot{V}O_2max)$and performance of athletes through a specific training method. Phase III: Compared the fitness level of cardiovascular endurance among the local residents living at moderate-altitude and local residents living at the lower altitudes. Quantitative analysis using the pure experimental method was used in the study. Subjects (n=138) involving recreational athletes and local residents were recruited for all the three phases of studies, where phase I (n=6); phase II (n=12) and phase III (n=120) respectively. One-way ANOVA with repeated measures, paired samples t-test and independent samples t-test were used to analyse the respective data. Results: The phase I study showed a mean score of the test parameters of Hb profile for the athletes group was not significant [$F(1.06, 2.11) = 16.43$, $p > .05$] between the pretest, day 12 and day 21 after altitude acclimatization. While the non-athlete group was found significant [$F(2.00, 4.00) = 56.92$, $p < .05$] between the three tests. However, the RBC parameters profile test for both the athletes and non-athletes showed significant difference [$F(1.50, 3.01) = 49.68$, $p < .05$; $F(1.58, 3.16) = 60.23$, $p < .05$ respectively]. Likewise, significant difference was also found in maximum oxygen consumption $(\dot{V}O_2max)$predicted values**,** after using LHTL training method for 21 days in Phase II, ($t = 6.865$, $df = 5$, $p < .05$) however the results for 1500 m and 800 m among the two groups showed a slightly improved time in the test group. In Phase III, data analysed showed that the level of cardiovascular fitness endurance among local residents living at moderate-altitude was found significant and much better, than the local residents living at lower altitudes. Based on the findings, it was concluded that natural setting of the location in study demonstrated high potential to benefit athletes and be used as an alternative training ground, also known as the **'natural altitude house'** under hypoxia exposure. This may give local athletes the edge in alternative training approach as compared to either the traditional or contemporary methods of training.