Physiological Effect of Acclimation to Altitude and Related Changes on College Students in Kerala

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ABSTRACT

The motive of the study was once to explore the effect of physiological aspects of acclimation to altitude and related improvements on college students in Kerala state. Study will be delimited to Eighty (n=80) guys from distinct colleges in Kerala had been chosen for the study. To gain the target Independent 't' check is used to assess the extent of the differentiation of physiological variables(heart rate, systolic blood pressure, diastolic blood strain and respiratory rate). The Study will be helpful to pick out how altitude affects sports peoples.

KEYWORDS: Altitude, Physiological Aspects

INTRODUCTION

Air expands as it rises and the fewer gas molecules—including nitrogen, oxygen, and carbon dioxide—have fewer chances to bump into each other. The human body reacts to high altitudes. Decreased air pressure means that less oxygen is available for breathing. The impact of altitude on the human body, particularly in terms of training, is yielding more results than in any other field. The many physical and physiological effects of altitude on the body are being studied far more extensively than in previous studies, especially in athletes and sportsmen who exercise and compete at high altitudes. Along with the physical and biochemical changes that occur in the body as a result of altitude, several experiments on various forms of altitude training have been conducted. Altitude training has been more common in recent decades, and it appears to be gaining traction. Various preparation techniques have been developed in order to evaluate the most appropriate altitude training for athletes and sportspeople. However, if altitude preparation is not performed properly, it can lead to unwelcome consequences like acute mountain sickness. Acute mountain sickness, for example, occurs when the body does not respond well at altitude. Acute mountain sickness will rapidly progress from acute to serious if not treated promptly.

Hypoxia conditioning of the environment causes a number of metabolic and cardio muscle changes in the respiratory system, affecting oxygen delivery and consumption. And if it is obvious that proper acclimation is needed to be born and raised at altitude in order to maintain optimal bodily productivity at altitude, observational records are currently insufficient to confirm feasible outcomes when the level drops to sea level. Despite this, professional athletes tend to spend a lot more time and money on altitude training due to mathematical research and the imperfect results of a large number of uncontrolled studies. The potential effects of altitude acclimation, such as increased blood hemoglobin content, increased buffering efficiency, and changes in the structural and biochemical residences of the skeletal muscles, are also being researched. However, not all facets of altitude acclimatization are beneficial; cardiac and skeletal muscle blood drift reduces, and oxygen loss is linked to immune and oxidative stress-induced tissue damage, at least in the short term. In addition to science, these less prescribed elements of altitude instruction must be focused, which poses a threat to sportspeople's health and safety, just as it does to professional athletes.

METHODOLOGY

For the cause of the study, eighty male students of 17 to 24 years old have been selected as topics for the investigation. Forty (n=40) subjects are chosen below sea level colleges and forty (n=40) are chosen from excessive altitude colleges. The following exams are used to gather the data. Resting Heart Rate, Blood Pressure (Systolic and Diastolic Blood Pressure), Respiratory Rate. Independent 't' test is used to determine the value of the distinction bodily and physiological variables in excessive and low altitude. Based on the requirement on the learn about the level of significance was constant at 0.05.

RESULTS AND DISCUSSION

The data on Resting Heart Rate, Systolic and Diastolic Blood Pressure, Respiratory Rate were collected and statistically analyzed. The details are given below.

Table-1: Descriptive Analysis of the Variables

Variables	Groups	Number	Minimum	Maximum	AM	SD	Range
Resting heart rate	High attitude	40	68	74	70.55	1.46	6
	Sea level	40	63	72	67.17	2.40	9
Systolic BP	High attitude	40	125	135	128.37	3.82	10
	Sea level	40	110	122	114.92	4.07	12
Diastolic BP	High attitude	40	83	92	88.07	2.69	9
	Sea level	40	70	80	73.25	4.01	10
Respiratory rate	High attitude	40	16	22	18.60	1.37	6
	Sea level	40	12	16	13.250	.926	4

The minimum and maximum **Resting heart rate** of the high altitude was 68 and 74with a range of 6. Mean and SD of resting heart rate of the subjects was 70.55 and 1.46respectively.Theminimumandmaximumrestingheartrateofthesealevelwas63and72with a range of 9. Mean and SD of resting heart rate of the subjects was 67.17 and 2.40respectively.

The minimum and maximum **Systolic blood pressure** of the high altitude was 125and135witharangeof10.MeanandSDofsystolicbloodpressureofthesubjectswas 128.37 and 3.82 respectively. The minimum and maximum systolic blood pressure of the sea level was 110 and 122 with a range of 12. Mean and SD of systolic blood pressure ofthesubjectswas114.92and4.07respectively.

The minimum and maximum **Diastolic blood pressure** of the high altitude was 83and92witharangeof9.MeanandSDofDiastolicbloodpressureofthesubjectswas 88.07 and 2.69 respectively. The minimum and maximum Diastolic blood pressure of the sea level was 70 and 80 with a range of 10. Mean and SD of Diastolic blood pressure of the subjects was 73.25 and 4.01 respectively.

The minimum and maximum **Respiratory rate of the high altitude was 16 and 22 with arrange of 6 (Six).** Mean and SD of respiratory rate of the subjects was18.60 and1.37 respectively. The minimum and maximum respiratory rate of the sea level was 12 and 16 with a range of 4. Mean and SD of respiratory rate of the subjects was 13.25 and .926 respectively.

CONCLUSION

This observe changed into undertaken to examine the chosen bodily and physiological additives of high altitude and sea level college students. It had the reason of comparing and studying the facts accrued from each variable between topics from high altitude and sea level regions. In this study the consequences physiological variables suggests that there was a significant difference in heart rate, systolic blood pressure and diastolic blood pressure, respiratory rate among **excessive altitude and sea level college students.**

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