

Comparative Study of Biochemical Variables of High and Low Altitude Male Rajput Residents

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Abstract

Aim: To study biochemical variables of high and low altitude male rajput residents. **Method:** Present study was carried out on 400 male rajput residents, residing at High and Low altitudinal areas of Himachal Pradesh. Blood glucose and lipid profile was measured. **Results:** The total cholesterol, triglyceride and HDL was significantly lower in high altitude (HA) than low altitude (LA) in group-1 (p-value < 0.0001). **Conclusion:** It was concluded in terms of biochemical variables triglycerides, blood sugar, total cholesterol, HDL of residents inhabiting high altitude had better level of adaptation due to their healthy life style.

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Introduction

Around the world, millions of people have habituated the altitude as high as 3000 m or above, permanently. At high altitudes, expose to harsh environmental conditions, comprising of mosaic of stresses namely hypoxia, cold, rugged terrain, high solar radiation and limited resources etc. is common (Ward, 2003). While sojourners visiting altitudes for various reasons experience initial discomfort, which sometimes culminates in high-altitude disorders (Hackett et al., 2001), high altitude natives who have occupied the highlands for thousands of years do not suffer from such disorders (Morpurgo et al., 1981; Rupert et al., 2001). The state of Himachal Pradesh is an important and integral part of Union of India, most of which is comprised of hills or high altitude regions. Due to its more diverse nature, more strong economy as compared to other high altitude states, and rich in culture, people of Himachal Pradesh have been the subject of various serological and anthropological studies for decades (Bhasin et al., 1992; Singh et al., 1994; Bhasin and Walter, 2001). However, biochemical and genetics investigations targeting the distribution of various serum protein and erythrocyte enzyme polymorphisms has begun only in early eighties of the century (Papiha et al., 1982). While high level of serum HDL was found in the population living at high altitudes (Sharma, 1990). High HDL, triglycerides and low LDL concentrations are risk factors for cardiovascular diseases (Steinberger et al., 1995; Hokanson and Austin, 1996). Cardiovascular diseases (CVD) are the major cause of illness and death in both developing and developed countries, and the major responsible factors for CVD are the higher levels of low density lipoprotein cholesterol (LDL) and lower levels of the high density lipoprotein cholesterol (HDL) present in blood plasma (Fruchart and Duriez, 2002). Higher HDL levels in plasma impart defense against CVDs (Gordon et al., 1989). Shift in the body measurements like BMI and waist circumference is directly linked with the metabolic conditions e.g., type 2 diabetes,