

Physiological Variation Between Two Populations of Punjab

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INTRODUCTION

The association of blood pressure with weight and body mass index has been reported by many authors (Miller, 1985; Garn et al., 1988; Koyama et al., 1988; Troisi et al., 1990; Sethi et al., 1996). Recently some studies have been conducted in India on the epidemiological profiles of blood pressure among some socio-culturally distinguishable urban and rural populations inhabiting areas of the plains (Mukherjee et al., 1988; Majumdar et al., 1990, 1994). Several studies have revealed that the blood pressure level of a population is influenced by a variety of biological, behavioural and socio-cultural factors. (McGarney and Schendel, 1986; Dressler et al., 1987, 1992; Fleming-Moran et al., 1991). Traditional societies exhibit little or no increase in adult blood pressure (Maddocks, 1961; Day et al., 1979). The levels of blood pressure gets affected by climate, degree of urbanization, work schedule, activity pattern and varied dietary behaviour (Halberstein, 1983; Bassey, 1992).

In the present paper an attempt has been made to bring out differences, if any between various physiological parameters in two endogamous groups of Punjabi females so that the effect of different types of life styles adopted by them can be highlighted.

MATERIAL AND METHOD

The material of the present study was based

on a cross-sectional data collected on 300 females in the age range of 20-25 years (150 each for Jat Sikh and Bania girls) drawn from Patiala and adjoining areas during the months of September to December, 1997. Blood pressure was determined using sphygmomanometer with standard cuff and the stethoscope. Same instrument was used for measuring maximum expiratory pressure. Pulse rate was measured by palpation of the radial artery at the wrist, the number of beats occurring in half a minute being counted and doubled to give the rate per minute. Grip strength and vital capacity values were recorded using dynamometer and spirometer, respectively.

RESULTS AND DISCUSSION

Mean values alongwith Standard Deviation, Standard Error of Mean and t-value for both group of females for all physiological measurements is given in the table 1. All the measurements except blood pressure, maximum breath holding time and audio-visual reaction time exhibit statistically significant differences, with Jat Sikh females showing higher values for all the physiological parameters, when compared with their Bania counterparts.

The stimuli-response coupling in the two groups studied with the help of Audio-Visual reaction timer, was similar in both the groups. Same was the case with maximum breath holding time (MBHT) and blood pressure. The vital capacity on the other hand is significantly more in Jat Sikh

Table 1: Mean, S.D. and S.E.M. of various physiological parameters of Jat Sikh and Bania females in 20-25 years age group.

Parameters	Jat Sikh (N=150)			Bania (N=150)			t-value
	Mean	S.D.	S.E.M.	Mean	S.D.	S.E.M.	
Systolic blood pressure (Hg/mm)	117.96	3.53	0.28	117.80	4.26	0.35	0.36
Systolic blood pressure (Hg/mm)	78.62	2.42	0.20	79.09	2.99	0.24	1.50
Pulse rate (beats/min.)	74.46	3.14	0.26	73.07	2.96	0.24	3.86*
Max. expi. pressure (Hg/mm)	55.72	9.47	0.77	48.67	10.58	0.86	6.13*
Grip strength (kg)	28.76	6.55	0.53	25.93	7.46	0.61	3.49*
Max. breath holding time (sec.)	23.44	6.66	0.54	22.00	6.47	0.52	1.92
Visual reaction time (Centi. sec.)	23.13	4.81	0.39	23.96	4.22	0.34	1.60
Audio reaction Time (Centi. sec.)	20.94	4.42	0.36	21.55	4.78	0.39	1.15
Vital Capacity (c.c.)	2684.33	363.67	29.69	2236.66	231.69	18.92	12.72*

* p < 0.05

females associated with maximum expiratory pressure (MEP) and grip strength. This reinforces the view point that Jat Sikh girls have been participating in vigorous work schedule due to which oxygen consumption is more, thus making them better physically fit.

Grip strength is the direct indicator of muscular index. The Jat Sikh females have significantly greater grip strength which can be attributed to greater muscular power in them. Greater physical activity means that the person is doing more exhaustive work and hence more of the calories are burned resulting in greater oxygen intake and hence the vital capacity also increases. Thus, this seems to be the most plausible reason for greater grip strength and vital capacity in Jat Sikh females as compared to Bania females.

KEY WORDS Punjabi Female. Blood Pressure. Pulse Rate. Vital Capacity. Reaction Time.

ABSTRACT This paper presents variation in various physiological parameters between two endogamous groups of Punjabi females i.e. the Jat Sikh and the Bania. A total sample of 300 females ((150 each for both the groups) in the age range of 20-25 years was subjected to various physiological observations. When compared, the Jat Sikh have shown a higher value for pulse rate, maximum expiratory pressure, grip strength and vital capacity than their Bania counterparts.

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