

## BRIEF COMMUNICATIONS

**A Study of Anthropometric Parameters and Lung Functions in  
Kashmiri Muslim Adults of Jammu and Kashmir, India—  
A Comparison with the Other Population Groups of the State**

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**KEY WORDS** Kashmir. Muslim. Anthropometry. Lung Functions. Jammu and Kashmir.

**ABSTRACT** A group of forty six Kashmiri Muslims belonging to the Sunni sect of Islam living in the Jammu and Kashmir state was studied for their body morphology in 1989. In comparison with other groups of the state, they are the heaviest, the tallest and have bigger body dimensions than the other groups. Their lung capacities however are lower than the high altitude inhabitants of the Ladakh division of the state. Kashmiri Muslims have 'balanced somatotype' physique as per their anthropometric somatotype ratings.

## INTRODUCTION

A reasearch project was undertaken to study the people of Jammu and Kashmir state for their interaction with and adaptation to their surrounding environment. Earlier commun-ications (Bhasin and Singh 1991 a, b, 1992 a, b, c, d) reported various other populations of the state for their anthropometric and physiological makeup, body proportions, body composition, anthropometric somatotype and varied growth patterns among Ladakhi Bodhs, Shia Baltis, Brokpas, Changthang Bodhs and Tibetans of Ladakh division, Dogras and Guj-jars of Jammu region of Jammu and Kashmir state of India. The present communication reports body morphology and respiratory status of the Kashmiri Muslims of the state.

## MATERIAL AND METHODS

A sample of 46 male Sunni Muslims belong-  
ing to Kashmir valley was studied during the  
year 1989. The subjects selected for the in-  
vestigation were male healthy adults, unrelated  
and were drawn at random. They were studied

for 23 anthropometric measurements and 3 lung functions—Forced Vital Capacity, Forced Expiratory Volume and Peak Expiratory Flow. The standard methodology specified by Weiner and Lourie (1981) and Singh and Bhasin (1989) were employed while taking body measurements. The lung functions were studied using Morgan's portable spirometer.

## RESULTS AND DISCUSSION

The results of the present study are presented in table 1. The Kashmiri Muslim adults are the heaviest amongst all other groups of the state. They are followed by the Gujjars, Dogras Tibetan and various other Ladakhi groups (Bhasin and Singh, 1991, 1992). For the projec-tive height measurements *i.e.*, height vertex and sitting height also Kashmiri Muslim adults are the tallest group among the other population groups of the Jammu and Kashmir state. For the body diameters studied, in general Kashmiri Muslim adults show higher value than most of the groups of the state but with a few ex-ceptions, for antero-posterior diameter of the chest the Tibetans have higher value than the

Kashmiri Muslim groups. Gujjars for example have the same value for humerus bicondylar diameter and higher value for wrist diameter than the their Kashmiri Muslim counterparts. For chest girths with exception of Tibetans for the expired level chest girth, the Kashmiri Muslims have higher values at normal, inspired and expired levels when compared to other population groups of the state.

For upper arm girth in the relaxed state, Gujjars have higher value than the Kashmiri Muslims which in turn have higher values than various other groups of the state. Whereas for upper arm girth at contracted state and for calf girth Gujjars, Dogra Brahmans and Dogra Rajputs have higher values than the Kashmiri Muslims which have higher values than rest of the groups of the state. Dogras and Tibetans

Table 1: Anthropometric and physiological variables in Kashmiri Muslims of Jammu and Kashmir, India

S.No.	Name of the Variable	Mean Value	S.D.
<b>A. Anthropometric Variables:</b>			
1.	Body weight (kg.)	61.88	8.50
2.	Height vertex (cm.)	171.16	6.41
3.	Sitting height vertex (cm.)	87.22	4.19
4.	Biacromial diameter (cm.)	40.19	2.35
5.	Bicristal diameter (cm.)	29.78	1.97
6.	Transverse diameter of chest (cm.)	27.10	2.03
7.	Antero-posterior diameter of chest (cm.)	21.14	1.83
8.	Humerus bicondylar diameter (cm.)	6.65	0.31
9.	Humerus bicondylar diameter (cm.)	9.19	0.38
10.	Wrist diameter (cm.)	5.41	0.35
11.	Ankle diameter (cm.)	6.99	0.38
12.	Chest circumference at maximum inspiration (cm.)	96.16	5.39
13.	Chest circumference at normal level (cm.)	92.04	5.25
14.	Chest circumference at maximum expiration (cm.)	89.42	5.25
15.	Arm girth-relaxed (cm.)	24.15	1.93
16.	Arm girth-contracted (cm.)	27.32	2.31
17.	Calf girth (cm.)	32.62	2.95
18.	Biceps skinfold (mm.)	4.15	1.73
19.	Triceps skinfold (mm.)	7.36	2.55
20.	Subscapular skinfold (mm.)	9.90	2.88
21.	Suprailiac skinfold (mm.)	7.00	2.90
22.	Calf skinfold (mm.)	5.77	2.52
23.	Forearm skinfold (mm.)	4.00	1.39
<b>B. Physiological Variables:</b>			
24.	Forced vital capacity FVC-lit.	3.78	0.71
25.	Forced expiratory volume FEV-lit.	3.21	0.69
26.	Peak expiratory flow PEF-ml/sec.	348.92	100.04

have higher biceps skinfolds than the Kashmiri Muslims—who have higher biceps skinfold than various Ladakhi groups. For triceps skinfolds Dogra Rajputs, Dogra Brahmans and Tibetans have higher triceps than the Kashmiri Muslims. For trunk skinfolds again Dogra Rajputs have higher skinfolds value than the Kashmiri group under study.

Kashmiri Muslims have higher forced vital capacity than Dogras, Tibetans and Baltis whereas Ladakhi Bodhs, Bodhs of Changthang, Dards of Batalik region of Ladakh and Gujjars show higher vital capacity than the Kashmiri Group under study. For forced expiratory volume and peak expiratory flow, all high altitude groups of Ladakh except Tibetans show higher values than the Kashmiri Muslims - which show higher value than various Dogra groups. Gujjars - A transhumant tribe - which migrates from lower ranges of Jammu division to the higher ranges of the Ladakh division via Kashmir annually have higher peak expiratory flow but lower forced expiratory volume than Kashmiri Muslims.

Kashmiri Muslims have anthropometric somatotype ratings of 3.37-3.46-3.53- which comes under the category of *Balanced Somatotype* with dominance of neither of the three components. They have higher rating of endomorphy and mesomorphy than the other population groups of the Jammu and Kashmir state but ectomorphic rating of other population groups are higher than the Kashmiri group under study.

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