A COMPARATIVE STUDY OF ANTHROPOMETRIC PROFILE AND MOTOR PERFORMANCE OF STUDENTS AT DIFFERENT ALTITUDE

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BY

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ABSTRACT

Human beings have unlike shape and size at different places as because the need and demands are different for different places. They have developed according to their habitat and demand of their livelihood. The development of their body and body parts depends mostly on their daily activity. As we know that there are a lot of advantages of altitude as far as training and competition is concerned yet having all these advantages still, Darjeeling hill cannot produce a standard number of players in national and international scenario except few players in football and archery. Having shorter leg and greater stability hill cannot produce a single weight lifter, Gymnasts etc. are few reasons to push towards anthropometric research.

The subjects of the present study were 418 (four hundred eighteen) adolescent school going male students aged from 13 to 16 years from four different altitudes which are approximately 430 feet, 3000 feet, 6700 feet and 7200 feet respectively. Criteria measured of the study were Anthropometric measurements and Motor performance.

Linear measurements in this research include Sitting height, Foot Length, Acromiale-Radiale, Radiale-Stylion Radiale, Midstylion-Dactylion, Trochanterion-Tibiae Laterale, Tibiale Laterale Height, Tibiale Mediale-Sphyrion Tibiale similarly Bone breadths include Biacromial, Biiliocristal, Biepicondylar Humerus and Biepicondylar Femur and Circumference includes head, neck, arm relax, flex arm, forearm, wrist, waist, gluteal, calf and ankle and the body compositions includes the skinfold measurements of triceps, biceps, sub scapular, iliac creast, supra spinale, abdominal and medial calf.
In the same way motor variables include shuttle run, 50 mt. run, standing broad jump and sit ups. And correlations of these motor variables with anthropometric variables.

Present study illustrates the following findings;

a) With progression of age, height and weight increases and Group-A (Altitude-7200 ft.) was tallest than remaining groups in age group 13, 15 and 16 but in case of 14 years Group-D (Altitude-4300 ft.) shows higher mean height. In case of weight Group-D (Altitude-4300 ft.) was heavier in age group 13, 14 and jointly heavier with Group-A in age group 16 but Group-C (Altitude-3000 ft.) was heavier in age group 15.

b) In case of linear measurements, length of bone increases gradually with increase in age. In sitting height, Group-A (Altitude-7200 ft.) in case of 13 and 16 years and Group-C (Altitude-3000 ft.) in case of 14 and 15 years had taller sitting height. Maximum foot length was noticed in Group-D (Altitude-4300 ft.) among all age groups.

c) In case of acromiale radiale, Group-D (Altitude-4300 ft.) was observed to have maximum length in all age groups and in radiale stylion radiale, Group-A (Altitude-7200 ft.) in case of 13 and 16, Group-B (Altitude-6700 ft.) in case of 15 and Group-D (Altitude-4300 ft.) in case of 14 years had maximum length.

d) In case of midstylion-dactylion, Group-B (Altitude-6700 ft.) had maximum length an all age groups and in trochanterion-tibiale laterale, Group-C (Altitude-3000 ft.) in case of 13, 14 and 16 and Group-D (Altitude-4300 ft.) in case of 15 years had maximum length.

e) In tibiae laterale height, Group-A (Altitude-7200 ft.) in case of 15 and 16 while Group-D (Altitude-4300 ft.) in case 13 and 14 years had maximum height. In tibiae mediale-sphyrion tibiae, Group-A (Altitude-7200 ft.) in case of 15 and 16, Group-B in case of 13 and Group-D (Altitude-4300 ft.) in case of 14 years had maximum length.

f) Bone breadth was widened with increase in age. In biacromial group-A (Altitude-7200 ft.) in case of 13 and 16, Group-B (Altitude-6700 ft.) in case of 15 and Group-D (Altitude-4300 ft.) in case of 14 years had wider breadth. In biiliocristal, Group-A (Altitude-7200 ft.) in
case of 16, Group-B (Altitude-6700 ft.) in case of 13 and 14 and Group-C in case of 15 years had wider breadth.

g) In biepicondylar humerus, Group-B (Altitude-6700 ft.) in case of 15 and 16 and Group-D (Altitude-4300 ft.) in case of 13 and 14 years had wider breadth. In biepicondylar femur, Group-B (Altitude-6700 ft.) in case of 14, 15 and 16 and Group-C (Altitude-3000 ft.) in case of 13 years had wider breadth.

h) Enlarge in Circumference was observed with increase in age. In case of head, Group-C had maximum circumference in all age groups however in neck, Group-A (Altitude-7200 ft.) in case of 13 and 16 and Group-C (Altitude-3000 ft.) in case of 14 and 15 had maximum circumference.

i) In relax arm, Group-A (Altitude-7200 ft.) in case of 15 and group B (Altitude-6700 ft.) in case of remaining age group shows maximum circumference. In flex arm, Group-A (Altitude-7200 ft.) in case of 16 and Group-B in case of 13 and 14 and Group-C (Altitude-3000 ft.) in case of 15 years had maximum circumference.


k) In waist, Group-C (Altitude-3000 ft.) in case of 15 and 16 and Group D in case of 15 and 16 had maximum circumference. In gluteal, Group-B (Altitude-6700 ft.) in case of 13 and 16 and Group-C (Altitude-3000 ft.) in remaining age group shows maximum circumference.


m) In case of skinfold thickness, in some sites it was observed that with increase in age skinfold thickness decrease but in some some sites fluctuation occurs. In triceps skinfolds,
Group-C in case of 13 years and Group-B (Altitude-6700 ft.) in remaining age group was observed to have maximum thickness.

n) In biceps, Group-C (Altitude-3000 ft.) in case of 13 and Group-B (Altitude-6700 ft.) in case of remaining age groups had thickest skinfolds. In case of subscapular skinfolds, Group-B (Altitude-6700 ft.) in case of 14, 16 and jointly with Group-C (Altitude-3000 ft.) in case of 13 and Group-C (Altitude-3000 ft.) in case of 15 years was observed to have thickest skinfolds.

o) In iliac crest, Group-B (Altitude-6700 ft.) in case of 14 and 16 and Group-C (Altitude-3000 ft.) in case of 13 and 15 years had maximum thickness. In supra spinale, Group-B (Altitude-6700 ft.) in case of 14 and 16, Group-C (Altitude-3000 ft.) in case of 13 and Group-D (Altitude-4300 ft.) in case of 15 years had maximum thickness.


q) Motor fitness better performance in speed, explosive strength and strength endurance was observed with increase in age but in case of agility disparity in performance was observed. In case of shuttle run, Group-C (Altitude-3000 ft.) shows superior performance among all age groups. In 50 Mt. dash, Group-A (Altitude-7200 ft.) in case of 15, 16 and jointly with Group-B and Group-C (Altitude-3000 ft.) in case of 14 years had maximum speed.

r) In standing broad jump, Group-A (Altitude-7200 ft.) in case of 15, Group-B (Altitude-6700 ft.) in case of 13 and 14 and Group-D (Altitude-4300 ft.) in case of 16 years shows maximum explosive strength. In case of sit ups, Group-D (Altitude-4300 ft.) shows superior performance in all age groups.

s) Correlation coefficient “r” value between dependent variables (Motor performance) with independent variables (Anthropometric measurements) of 4 different age groups of Group-A (7200 feet) shows 42 significant correlations.
t) In 13, 14, 15 and 16 years students of Group-B (6700feet) show 25 significant correlations.

u) In 13, 14, 15 and 16 years students of Group-C (3000feet) show 32 significant correlations.

v) In 13, 14, 15 and 16 years students of Group-D (430feet) show 33 significant correlations.