CHAPTER VII

SUMMARY
The present study describes somatotype patterns of 509 Pnar boys ranging in age from 11 to 18 years. Data for the present study has been collected from 8 schools located in rural area and 2 schools from urban area of the Jaintia Hills District of Meghalaya. Anthropometric measurements on each subject followed the techniques described by Weiner & Lourie (1981). The data were entered into the Heath-Carter Somatotype Rating Proforma (Heath & Carter, 1967; Carter, 1975), and the somatotype analysis was performed according to the methods given by Carter et al. (1983) and Carter & Heath (1990). Findings of the present are summarized as follows:

Urban Pnar boys are ecto-mesomorphic from age 11 to 18, and therefore show high musculo-skeletal development with relatively less fat in their physique. From 11 to 18 years the urban boys show a change in mean values of all the components of somatotype, but mesomorphy remains highest and endomorphy lowest at all ages. Somatotypes of majority or urban subjects fall within the range of 1.0 to 2.0 for endomorphy, 3.0 to 5.0 for mesomorphy, and 2.0 to 4.0 for ectomorphy. At all ages mean somatoplots for urban boys are
placed between upper mesomorphy and upper endomorphy axes. Out of the 13 generalized categories of somatotypes, the sample for urban boys is distributed into 6 categories.

Rural Pnar boys, like their urban counterparts, are also ecto-mesomorphic from age 11 to 18 years, and hence show relatively greater musculo-skeletal development in their body. Though at all ages mesomorphy dominates over other two components, a gradual change in mean values of the three components is observed from 11 to 18 years among the rural boys. Most boys of rural sample show somatotypes within the range of 1.0 to 2.0, 3.0 to 5.0, 2.0 to 4.0, for endomorphy, mesomorphy, ectomorphy, respectively. Mean somatoplots for age groups 11 to 17 years are located between upper mesomorphy and upper endomorphy axes, while that for age 18 lies on the upper mesomorphy axis. According to component dominance, the total sample of rural boys is distributed into 8 somatotype categories.

Age changes in mean values for different components of somatotypes are found between some of the successive age group comparisons for urban as well as rural boys. Considering a 7 year interval from age 11 to 18 statistically significant age changes are observed in all components of physique in the two samples. The distribution of somato-
types into categories does not reveal statistically significant age changes in both urban and rural boys.

Urban-rural somatotype differences assume statistical significance for one or the other component only at age 11, 12, 13, while mean somatotypes of both samples are almost similar from age 14 up to 18 years. Overall distribution of somatotypes into various categories is also more or less similar between urban and rural samples. Almost all distributions of the two samples are more or less circular in shape and are lying above the ectomorphy axis in ectomesomorphy region. Somatoplot distributions reveal an overlap of a minimum 53.12% (age 11) and maximum 85.29% (age 14) between the urban and rural samples. The area of overlap shows a tendency to shift from upper axis of endomorphy towards upper axis of mesomorphy.

In order to provide further information descriptive statistics for age, height, weight and HWR is presented. Mean age for all age groups lies almost at completed years in both urban and rural samples. Age group-wise mean height and weight reveal almost a similar picture in the two samples, i.e., urban boys being relatively taller and heavier than their rural counterparts, greatest increase in height as
well as weight occurring between 12 and 13 years' age. Mean HWR value ranges between 42.63 to 44.03 in urban sample, and between 42.45 to 43.12 in rural sample, for various age groups considered. All four anthropometric parameters show very low intra-sample variability at different age groups of both urban and rural samples.

On the whole, since urban-rural differences in somatotype are not great, the two samples are pooled. Mean somatotypes of pooled sample of 509 Pnar boys show that from age 11 through 18 years they remain ecto-mesomorphic. Among the three components mean values for mesomorphy dominates and that of endomorphy remains lowest at all ages. Somatotypes at different ages do not differ in dispersion about their means. From 11 to 18 years an overall increase of 0.87 units in endomorphy, 0.45 unit increase in mesomorphy, and 0.75 unit decrease in ectomorphy ratings is observed. Somatotypes of pooled sample are distributed among 8 out of a total of 13 categories.

Mean mesomorphy does not show any significant age changes between successive age group comparisons, while statistically significant change is observed only in a few age group comparisons for endomorphy and ectomorphy. However, mean somatotypes of 11 year old are significantly different
from the 18 year old boys. The mean somatotype of Pnar boys at all age groups lies in ectomorphy-mesomorphy region, above the upper axis of endomorphy. General pathway of mean somatoplots from age 11 to 18 years indicate a shift from near upper axis of endomorphy towards near upper axis of mesomorphy, i.e., the shift takes place in the north-west direction parallel to ectomorphy axis. Mean somatoplots of age group 11, 12, 13 and 14 years tend to form one cluster, while those of age 15, 16, 17, 18 show a tendency to form another cluster.

Various studies across the world have discussed regarding age changes in somatotypes or somatotype stability, and have shown that somatotypes of children are subject to significant changes during adolescence, while some studies have also shown that somatotypes of some children are fairly stable over some periods of growth. Generally speaking, the present study reveals a fair stability of somatotypes in Pnar boys from the period 11 to 13 years and 15 to 18 years, while significant changes are seen between 13 and 15 years. Findings of present study are in agreement with other studies in that towards late adolescence the mean somatotypes of boys are toward ecto-mesomorphy; the only difference being that Pnar boys are ecto-mesomorphic even during early adolescence.
Comparisons with other Indian populations indicate that though at younger ages the somatotypes of Pnar boys may have some similarity with some other populations, but by the age of 18 years Pnar boys show a somatotype (balanced mesomorph) different from that reported on other populations (mesomorph-ectomorph, or mesomorphic-ectomorph, or balanced ectomorph). Comparisons with populations outside India the sample on Hungarian boys show similarities in mean somatotypes with the Pnar boys of present study.

Somatotypes of eighteen year old Pnar boys are compared with data on State, National and International level sportsmen, and it is found that somatotype of Pnar boys closely resemble those of athletes of various sports. It is known that in most sports top level athletes are more mesomorphic and less endomorphic (which is the case in Pnar boys) than the non-athlete reference groups (the present sample of Pnar boys is a 'non-athlete' group!).