Chapter V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

SUMMARY

The main purpose of this investigation was to study cross-sectional analysis of health related physical fitness and growth pattern among girls of 5 to 15 years of age of Madhya Pradesh. The subordinate purpose was to construct health related physical fitness norms for girls of 5 to 15 years of age of Madhya Pradesh. The another subordinate purpose was to construct norms on growth patterns of girls of 5 to 15 years of age of Madhya Pradesh.

The subjects were 1100 female students of 5 to 15 years of age undergoing school education in various urban cities of Madhya Pradesh namely: Raipur, Durg, Bilaspur, Jabalpur, Gwalior, Indore, Ujjain, Reewa, Bhopal and Sagar. The subjects were selected randomly by using random number table for each age group i.e. 5 to 15 years of age.

AAPHRED health related physical fitness test was applied. The selected variables for the test were - 12 mile run, flexed knee sit ups, modified pull ups, sit and reach test and body composition. The different growth variable i.e. height, weight, skinfolds of biceps, triceps, calf, subscapular, suprailliac, bone diameters of femur and humerus and biceps girth and calf girth were measured.

The reliability of data was ensured by establishing the instrumentation reliability, tester reliability, subject reliability and reliability of test.

The data was compiled and tabulated for each age group separately. The statistical analysis of data was done by using ANOVA. The percentile scale was used to prepare norms on the health related fitness and growth variables for girls of 5 to 15 years of age of Madhya Pradesh. Somatotype rating was calculated by Heath and Carter method.

In health related physical fitness tests it was observed that with increasing age there is general improvement in all the variables. The
improvement was however interrupted at some stages. In case of ½ mile run of cardiovascular endurance it revealed that the higher age groups have shown significantly higher performance than the lower age groups which may be due to physical and physiological maturity. Significant difference was found in different age groups. The age groups 14, 15 and 8 have performed better in comparison with other age groups. In case of flexed knee sit ups for muscular endurance best performance was recorded in the age group 8 and followed by 14, 15 and 7. The decrease in performance was recorded in the age group 5. The performance was almost same in case of age groups 11 and 12. For muscular strength test of modified pull ups age group 8 and 9 have shown better performance where as the decrease in performance was recorded in the age group 5 and 6. In modified pull ups the performance of age group 12 and 15 were same. In case of hip and back flexibility, best performance was recorded in the age group 12 where as girls of 5, 7 and 9 years have shown decrease in performance. In sit and reach test no performance difference was recorded between age group 5 and 7. For sum of skinfold it was found that girls of 5 and 6 years have shown more measurement than the girls of 7 and 8 years. Increasing trend was seen with advancement of age. Maximum difference between two successive years was recorded in age group 13 and 14. (4.40 mm)

Comparative analysis revealed that significant differences were found in all the health related physical fitness variables of girls of 5 to 15 years of age. In health related physical fitness test it was observed that the rate of increase in performance was not uniform in all the age groups.

Analysis of various growth variables revealed that mean values of different body measurements were representing more or less increasing trend with advancement in age. In height and weight gradual increase was recorded from 5 to 15 years of age with maximum height and weight at the age of 15. In skinfold measurement age group 7 and 8 have shown less measurement than age group 5 and 6. In all other age groups significant increase was noted with maximum skinfold being recorded at the age of 14. In case of bone diameter also significant improvement was
recorded with maximum diameter recorded at the age of 14. In case of biceps girth maximum measurement was recorded at the age of 14 and for calf girth maximum measurement was recorded at the age of 13. In all other age groups gradual increase was seen with advancement of age.

Comparative analysis (ANOVA) revealed that significant difference were found in the age groups 5 to 15 and in all the variables of growth. Comparison of yearly development rate noted significant difference between all the age groups. It was also observed from the growth gradient values of various measures that major part of total growth took place by 13 and 14 years except height and weight.

From the result of somatotype rating it was found that in the age group 5, 6, 10, 11, 12, 13, 14 and 15 ectomorphy components were predominant followed by mesomorphy components and were lower in the endomorphy component, where as girls of age group 6, 7, and 9 were predominant in mesomorphy component followed by ectomorphy component and were lower in endomorphy component.

CONCLUSION

Within the limitation of the present study, the following conclusions were drawn –

1. In cardio vascular endurance performance of ½ mile run, girls of age group 14 and 15 have performed significantly well.
2. In muscular endurance performance of sit ups girls of age group 8 and 9 were better as compared to other age groups.
3. Girls of 12 years of age performed significantly well in sit and reach test of flexibility.
4. It is also concluded that in body composition girls of 14 and 15 years of age were better than the other age groups.
5. Significant increase was recorded in height and weight with maximum height and weight recorded at the age of 15.
6. In skinfolds of biceps, triceps, subscapular, and suprailliac gradual increase was recorded from 8 to 15 years of age. Decrease in measurement was recorded in the age group 6 and 7 as compared to age group 5.

7. In bone diameter of femur and humerus increasing trend was noted with advancement of age. In case of humerus biepicondylar diameter the measurement of 7 and 8 years of girls were almost same. In case of femur biepicondylar diameter the measurement of 6 and 8 years of girls was same.

8. Increasing trend was noted from 5 to 14 years of age of girls in case of biceps and calf girth with maximum measurement was noted in the age of 14 in case of biceps girth and age 13 in case of calf girth.

9. In somatotype rating age groups 5, 8, 10, 11, 12, 13, 14 and 15 were predominant in ectomorph component followed by mesomorphy component and poorest in endomorphy component. Age groups 6, 7, 9 were predominant in mesomorphy followed by ectomorphy and are poorest in endomorphy component.

In the light of the result of this study it is recommended that

1. Assessment of various tests of health related physical fitness should be effectively utilised to gain a better understanding of health and fitness level of girls.

2. Assessment of body dimension should be effectively utilised to gain better understanding of growth patterns.

3. It is recommended that the school girls should be regularly monitored to observe the development trend.

4. In order to get better results from school physical education programme the physical education experts should be educated in growth and development pattern of girls.

5. To conduct a similar study for boys of different age groups.
6. Similar study may be undertaken by using more sophisticated criteria with more number of subjects from all over India.

7. Similar studies may be conducted on different ethnic groups.

8. Different percentile norms can be constructed for school going boys.

9. Somatotype rating may be used for the purpose of classifying students into different groups.