Chapter V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary
5.2 Conclusions
5.3 Recommendations
5.1 SUMMARY

The splendiferous advancement in science and technology have bring about a change in the daily life style followed by a compulsory lack of physical activity supported by an electrical and electronical automation. The little kids, the adolescent school students, the youths have lost their playfulness and joyfulness character and surrendered themselves to a sedentary life, with some playing gadgets or watching Television in a close room situation. Their physical, physiological, intellectual and social development continuously facing a problem barrier.

Physical movements can bring the proper growth and development of different body parts with physical beauty, relief from boredom, development of social values, development of creative abilities. After birth growth, development, maturation and readiness comes one after another in a mixing way through a complex manner. Physical movements add the potentialities and act as booster in this growth and development pattern.

The degree of intensity and the quality of movements depends upon the different genetic factors such as the different anthropometric measures, internal physiological functioning of the body etc. in the childhood and then gradually directed and diverted to an elevated position through some training. Generally the normal health status such as the resistance power to protect disease, ability to work through long time, physical and mental well being, social adjustment are controlled by the Genetic quality inherited from parents.

The purpose of this study was to find out this health related physical fitness status and its relation to some selected anthropometric measures of school going boys of age 11 and 12 years, studying in class VI and VII.

The review of related literature relating to present study was made mostly through internet. Besides this from Kalyani University Central Library, departmental library of Physical Education Department, K.U., human performance laboratory, department of Physical Education and Bose Institute, Kolkata several literature relating to research work were collected and considered.
To conduct this study 366 students of class VI and 365 students of class VII were considered from the 17 schools among 450 (approx.) jr. high, high and higher secondary schools in the district Bankura.

To find out the status of five health related physical fitness factors, the Presidents Challenge Physical Fitness Programme packet, U.S.A., 1999-2000, were considered. Anthropometric measures were abdomen circumference, chest circumference, thigh circumference, standing height, sitting height, lower limb length and the weight. The physical fitness tests were curl ups, push ups, 1 mile run/walk, V-sit and reach, and the measurement of BMI corresponds to the fitness variables abdominal strength endurance, upper body strength endurance, cardio-respiratory endurance, flexibility and body composition respectively.

Data collected by following standard procedures and were analysed statistically through computer software to arrive in to definite conclusions. ‘t’ test were computed to compare different means. Co-efficient of co-rrelations were computed to find out the relationship among the different factors and Lastly factor analysis to identify the responsible factors for proper anthropometric stature with sound athletic ability.

In chapter IV results have been presented and satisfactorily discussed. Specific conclusions are drawn on the basis of different findings and presented in this chapter (5.2). In brief the results are presented here.

In case of anthropometric measures the subjects of both the \( S_N \) (Class VI of 11 years) and \( S_X \) (class VII of 12 years) groups were almost identical. Out of seven (7) measures the weight, standing height, sitting height, lower limb length and the thigh circumference of \( S_X \) group were significantly higher than that of \( S_N \) group. Only in case of chest circumference and abdomen circumference, there were no significant differences. In case of health related physical fitness variables the cardiorespiratory endurance and the abdominal strength endurance of \( S_X \) group were better than that of \( S_N \) group. For flexibility, upper body strength endurance and the B.M.I. differences were insignificant.

To establish the relationship between different independent and dependent factors the co-efficient of co-rrelations were determined. The cardio-respiratory endurance positively and significantly co-rrelated with the thigh, chest and
abdomen circumference for SN group only and weight, thigh circumference for Sx group only. The flexibility positively and significantly correlated with sitting height and chest circumference only for SN group and to weight, standing height, sitting height, thigh circumference, chest circumference for Sx group. Abdomen strength endurance positively and significantly co-related with all the anthropometric measures for both the group SN and Sx. Upper body strength endurance positively and significantly co-related with all the anthropometric measures except the lower limb length and the abdomen circumference for SN group and with weight, sitting height, thigh circumference and chest circumference of group Sx only. Body composition positively and significantly correlated with all the anthropometric measures for the SN and Sx group both.

From the relationship between different dependent variables it was found that the cardio-respiratory endurance were correlated negatively and significantly with flexibility and upper body strength endurance for SN group and upper body strength endurance and body composition BMI for Sx group. Flexibility for SN group was positively and significantly correlated with upper body strength endurance and for Sx group it was positively and significantly correlated with abdominal strength endurance, upper body strength endurance and the body composition. Abdominal strength endurance were related significantly and positively with upper body strength endurance and body composition for both the SN and Sx group and upper body strength endurance again significantly correlated with the body composition for both SN and Sx group.

Finally for identifying the responsible factors, the factor analysis were computed. There were seven (7) anthropometric measures and five (5) fitness variables. For SN group all the anthropometric measures and abdominal strength endurance, upper body strength endurance, body composition and Cardio-respiratory endurance were the responsible factors for the health related physical fitness. For Sx group also almost all the anthropometric measures were responsible factors and abdominal strength endurance, cardio-respiratory endurance, flexibility and the body composition were the responsible factors for the health related physical fitness.
If we consider the combined effect of anthropometric measures and the fitness variables, we see that for $S_N$ group except lower limb length all other anthropometric measures and the upper body strength endurance of the fitness variables were the responsible factors for the healthy adolescents with sound athletic ability. For the $S_X$ groups except the abdominal circumference and lower limb length all other anthropometric measures and only BMI of the fitness variables were the responsible factors for determining the healthy adolescents with proper physical stature. Curl up, push up and V-sit for $S_X$ group closely related to the responsible factors.

5.2 Conclusions

After statistical analysis and discussions of the data collected, of the present study the following conclusions may be taken into consideration.

5.2.1 On anthropometric measures
i) Body weight of class VII students (age 12 year) were significantly higher than that of students of class VI (age 11 years).
ii) Height (standing and sitting both) and lower limb length of class VII students were significantly higher than that of class VI students.
iii) Thigh circumferences of class VII students were significantly higher than that of class VI students.
iv) There were no significant difference between the class VI & VII students in case of chest and abdomen circumference.

5.2.2 On health related physical fitness variables
i. The cardiorespiratory endurance of class VII students were significantly better than the students of class VI.
ii. The abdominal strength endurance of class VII students were significantly better than the students of class VI.
iii. In case of flexibility, upper body strength endurance and body composition the students class VII were better than that of class VI but the difference were insignificant.
5.2.3 On co-efficient of co-rrelations of dependent and independent factors

i. The cardio-respiratory endurance was positively and significantly co-rrelated with thigh, chest and abdomen circumference for class VI students and with weight, thigh circumference for class VII students.

ii. The flexibility was positively and significantly co-rrelated with sitting height and chest circumference for class VI students and with weight, standing height, sitting height, thigh and chest circumference for class VII students.

iii. The abdomen strength endurance and body composition were positively and significantly co-rrelated with all the anthropometric measures for both class VI and VII students.

iv. The upper body strength endurance was positively and significantly co-rrelated with weight, sitting height, thigh and chest circumference for class VI students and with weight, sitting height, thigh circumference and chest circumference for the students of class VII.

5.2.4 On co-efficient of co-rrelations of dependent variables

i. Cardio-respiratory endurance was negatively and significantly co-rrelated with flexibility, upper body strength endurance for class VI students and upper body strength endurance for class VII students and positively and significantly with body composition for class VII students also.

ii. Flexibility was positively and significantly co-rrelated with upper body strength endurance for class VI students and with abdomen strength endurance, upper body strength endurance and body composition for class VII students.

iii. Abdominal strength endurance was positively and significantly co-rrelated with upper body strength endurance and body composition both for class VI students and VII students.

iv. Upper body strength endurance was positively and significantly co-rrelated with body composition both for class VI students and VII students.
5.2.5 On factor analysis

5.2.5.1 Anthropometric measures and fitness variables separately

i. All the seven (7) anthropometric measures were identified as responsible factors for determining the total anthropometric measurement status of the students of both class VI and VII, except abdomen circumference for class VII.

ii. Abdominal strength endurance, upper body strength endurance and cardiorespiratory endurance were the responsible factors for potential healthy adolescents with strong athletic ability of the students of class VI.

iii. For class VII students abdominal strength endurance, cardiorespiratory endurance and flexibility were identified as the responsible factors for potential healthy adolescence with strong athletic ability.

5.2.5.2 Considering the combined effect of anthropometric measures and fitness variables

i. Chest circumference, abdomen circumference, sitting height, standing height, weight, thigh circumference and upper body strength endurance were the responsible factors for determining the potential healthy adolescents with strong athletic ability having proper anthropometric stature of the students of class VI.

ii. Chest circumference, sitting height, standing height, weight, thigh circumference, body composition, flexibility and the upper body strength endurance were the responsible factors for determining the potential healthy adolescents with strong athletic ability having proper anthropometric stature of the students of class VII.

5.2.5.3 Considering the combined effect of anthropometric measures and fitness variables for the $S_N$ and $S_X$ groups as a whole

Except abdomen circumference and lower limb length all the anthropometric measures, upper body strength endurance and body composition were the responsible factors for determining the potential healthy adolescents with strong athletic ability for the students of class VI and class VII as a whole.
5.3 Recommendations

It was an attempt that has been made by the researcher in his present study to find out the status of health related physical fitness of school going boys of class VI and VII. In addition to that, he has made an attempt also, that whether there is any relation of that physical fitness with the inherited anthropometric measures. The present study has many limitations. However, on the basis of these findings an interested researcher may conduct further study on the following aspects:

i) The study may be conducted on a further large sample in different other schools in different other districts.

ii) The study may be conducted on different other classes of several other age groups, also for the girls students.

iii) Different other anthropometric measures can be taken into consideration.

iv) Besides anthropometric measures several other body composition variables, physiological variables etc. can be taken into consideration.

v) To measure the health related physical fitness other standard physical fitness tests may be taken.

vi) Different psychological parameters may taken to find a new way to establish other type of relations.

vii) The study may be conducted in specific sport or game events.