Chapter V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary

The purpose of the study was to establish the relationship of anthropometric and physiological variables to motor fitness of tribal and non-tribal students at different age levels and sex.

The subjects of this study were 180 tribal and non-tribal students from the following schools of Bastar District, Madhya Pradesh; (1) Government Higher Secondary School, (2) Government Model Higher Secondary School and (3) Government Girls Middle School. First the school records of the students of the three schools were screened to find out the three age groups for both sexes and racial groups. Out of the total screened population fifteen students for each age, sex and racial groups were randomly selected.

The following anthropometric and physiological measurements were made on the subjects.

Weight of the subjects recorded to half a kilogram using a standard weighing machine.
Standing height was recorded to the nearest centimeter with the help of a scale fixed on a wall.

Sitting height was recorded to the nearest centimeter by making the student sit on a table kept close to the marked wall.

The Chest girth, Upper Arm Girth, Fore Arm girth, Calf girth, Thigh girth, Leg length, Thigh length, Fore Leg length and Arm length were recorded to the nearest centimeter using a flexible steel tape.

Vital capacity was recorded in 100 ml. unit by using a Dry Spirometer.

Air Flow Rate was recorded in litres/minute by using an Air Flow Meter.

Peak Flow Rate was recorded in liter/minute by using a Mini Wright Peak Flow Meter.

Resting Heart Rate was recorded in numbers by counting the pulse on radial artery for one minute.

Blood Pressure (Systolic and Diastolic) was recorded in millimeters of mercury (mm/Hg) by using a Spigmomanometer.

Percentage of body fat was obtained by measuring Skin fold measurement of four selected sites of the body by using a Skinfold Caliper. Thus body fat weight was.
calculated from the subject's Body Weight.

Haemoglobin content of the blood was assessed by using Sahil's Haemometer and recorded gm/100 ml. of blood.

From the absolute anthropometric measurements the following indices were derived.

Ponderal Index was computed by using the formula -

\[
\frac{\text{Standing Height}}{\sqrt{\text{Weight}}}
\]

Crural Index was computed by using the formula -

\[
\frac{\text{Fore Leg Length}}{\text{Thigh Length}}
\]

Motor fitness of the students were assessed by administering J.C.R. Motor Fitness Test. The data collected on the three test items were converted into standard 'Z' scores and then added up to get a composite score for motor fitness.

Zero order correlations were found out between motor fitness scores and each of the anthropometric and physiological variables separately for age, sex and racial groups.
In order to find out the actual contributory variables out of the physiological and anthropometric variables, Multiple Correlations were computed for each age, sex and racial groups using the Wherry - Doolittle Method of test selection.

The following findings were observed among age, sex and racial groups.

1. Vital Capacity, Crural Index, Ponderal Index and Calf girth together contributed to the motor fitness of eleven year old tribal boys.

2. Vital capacity, Resting heart rate, Upper arm girth and Standing height combinedly contributed to the motor fitness of eleven year old non-tribal boys.

3. Only Air flow rate and Haemoglobin content were selected as the contributory variables of motor fitness in thirteen year old tribal boys.

4. Peak flow rate, Leg length, Vital capacity and Calf girth were selected as the contributory variables of motor fitness in thirteen year old non-tribal boys.

5. Air flow rate, Sitting height, Thigh length and Standing height were in the order of contribution to the motor fitness of fifteen year old tribal boys.
6. Haemoglobin content, Peak flow rate, Calf girth and Body Surface area combinedly contributed to the motor fitness of fifteen year old non-tribal boys.

7. Vital capacity, Body Surface area and Arm length were selected as the contributory variables to the motor fitness of eleven year old tribal girls.

8. On non-tribal girls of eleven years age, Haemoglobin content of blood, Resting heart rate, and Arm length stood as contributory variables to their motor fitness.

9. Vital capacity, Sitting height and Arm length were identified as the contributory variables of motor fitness of tribal girls of thirteen years old.

10. Vital capacity, Body weight and the fore leg length combinedly contributed to the motor fitness of non-tribal girls of thirteen years old.

11. Standing height, Crural Index, Diastolic Blood Pressure and Haemoglobin content were identified as the contributory variables of motor fitness of tribal fifteen year old girls.

12. Vital capacity, Sitting height and Ponderal Index were the contributory variables of motor fitness of fifteen year old non-tribal girls.
A Two Way analysis of variance was used to compare the motor fitness of tribal and non-tribal and also the age groups.

Significant 'F' ratio's were obtained at .05 level of confidence, between the motor fitness scores of tribal and non-tribal boys as well as their age groups.

Sheffe's Post Hoc Test was used to find out the significance of the difference of paired means of motor fitness scores of race and age groups.

The findings showed that the motor fitness of tribal boys were significantly higher than the non-tribal boys. Among their age groups the fifteen year old boys showed significantly higher motor fitness than the thirteen and eleven year age groups.

Between thirteen and eleven years age groups of boys showed no significant difference in their motor fitness.

The 'F' ratios for racial groups and age groups in girls showed no significant difference in the means of their motor fitness scores.

But the mean of the motor fitness scores of tribal girls was certainly higher than their non-tribal
counter parts. Among age groups the means of motor fitness scores showed definite advancement as the age increased.

Conclusions

On the basis of the results of the study the following conclusions were drawn:

1. The major correlates of motor fitness of eleven and fifteen years of age are anthropometric variables for both racial and sex groups.

2. In the age of thirteen, contribution by the physiological and anthropometric variables are equal in developing the motor fitness of both the sex and race groups.

3. Physiological variables are dominant in developing motor fitness of tribals and non-tribals.

4. Tribal boys are better in motor fitness as compared to non-tribal boys.

5. As far as the motor fitness is concerned the drastic development is at the age of fifteen in boys.

6. In girls the development of motor fitness is steady from eleven to fifteen years.
7. Tribal girls are equally good to the non-tribal girls in motor fitness.

**Recommendations**

1. Tribal Welfare Departments may under take or sponsor similar projects to assess and upgrade the physical fitness status of school children under their department.

2. Similar studies may be undertaken with accurate and sophisticated measuring instruments.

3. Studies may be conducted to compare athletic potentiality of different tribal groups of India.

4. Similar studies can be conducted by analysing the psychological parameters of tribals and non-tribals.

5. Study can be repeated by using skill tests of different games.

6. Study can be conducted to assess the posture and nutritional status of tribal students.