Chapter V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary

The primary purpose of the study was to cross-sectionally examine the selected physiological variables and to study their relationship with motor performance components of boys ten through seventeen years of age; and the secondary purpose of the study was to compare motor performance components of boys across age as considered in this study.

Four hundred school boys falling in ages ten through seventeen years were selected as subjects for the purpose of this study. Each age sample consisted of fifty subjects. These subjects were chosen from the elementary, secondary and higher secondary classes of J.C. Mills School, Gwalior and Miss Hill’s School, Gwalior.

Physiological variables examined across age in this study were pulse rate (heart rate), blood pressure
(pulse pressure), forced ventilatory capacity, breath holding capacity, and body composition (fat percentage) and the motor performance components considered were speed, strength, power, agility, balance and cardio-respiratory endurance.

The data were collected after establishing the reliability of data by administering/employing standard tests and measurement procedures. The data was submitted to analysis of variance and correlation process at .05 level of significance.

The analysis of variance for physiological variables indicated significant differences among boys of ten through seventeen years of age on pulse rate (heart rate) \( F = 104.98 \), blood pressure (pulse pressure) \( F = 73.15 \), forced ventilatory capacity \( F = 498.14 \), breath holding capacity \( F = 98.88 \) and body composition (fat percentage) \( F = 38.35 \). The value of \( F \) ratio required to be significant at .05 level was 2.12.

The analysis of variance for motor performance components indicated significant differences among boys of ten through seventeen years of age on speed ( \( F = \)
562.35), strength (F = 255.24), power (F = 464.08),
agility (F = 187.28), balance (I = 72.92) and cardio-
respiratory endurance (F = 48.57).

Each of the physiological variables correlated
significantly to a few motor components and that to at
only certain ages i.e. pulse rate showed positive rela-
tionship with speed at 13 years (r = .303), and 15 years
(r = .298); with strength at 11 years (r = -.289), 12
years (r = -.351), 13 years (r = -.383), 14 years (r =
-.480), and 15 years (r = -.289); and with power at
11 years (r = -.286), 12 years (r = -.286), 13 years
(r = -.319), 14 years (r = -.310), and 15 years (r =
-.281). Pulse pressure showed positive relationship with
strength at 11 years (r = .286), 12 years (r = .325), and
16 years (r = .346); with agility at 13 years (r = -.381);
and with cardio-respiratory endurance at 10 years (r =
.414) and 16 years (r = .354). Forced ventilatory capa-
city showed positive relationship with balance at 11 years
(r = .354), 12 years (r = .385), 13 years (r = .281) and
14 years (r = .308); and with cardio-respiratory endurance
at 17 years (r = .344). Breath holding capacity showed
positive relationship only with cardio-respiratory
endurance at 16 years (r = .276). And body composition
(fat percentage) showed significant relationship with strength at 13 years \( r = .359 \) and 15 years \( r = - .348 \); and with power at 15 years \( r = - .325 \) and 16 years \( r = - .381 \).

**Conclusions**

On the basis of the findings of this study the following conclusions have been drawn:

1. There was a progressive diminishing of pulse rate, and progressive increase of pulse pressure, forced ventilatory capacity and breath holding capacity for boys ten through seventeen years of age.

2. In body composition the changes were not progressive but varied having higher fat percentage at the age of 10 years then showing reduction in fat percentage for two years and again indicating increase for two years.

3. The changes in case of pulse rate, pulse pressure, forced ventilatory capacity and breath holding capacity did not indicate a definite pattern, but showed significant differences over a block period of two to three years.
4. The physiological variables by an large did contribute positively to performance in some motor performance components of certain ages especially in strength, speed and power.

5. In case of motor performance components in general there was a sequential progressive change in performance from year to year.

**Recommendations**

In the light of the conclusions drawn and within the limitations of the study the following recommendations have been made:

1. The boys at this stage are developing physiologically at a steady and progressive rate and therefore, there is a need to work out suitable programmes of physical activities for boys from the age of 10 years onwards so as to enhance their physiological development to the optimum level.

2. As physiological development and motor performance components like strength, speed and power are related positively, the selection of activities may be
such that both these aspects should be concentrated upon as they are complimentary to each other.

3. From age 10 years onwards there is progressive positive change in motor performance of boys and this fact should be borne in mind for developing programmes of physical education separately for each age in order to take care of individual differences across age.

4. A similar study may be conducted employing a much large samples across more ages.

5. A similar study may be adopted for female students.

6. In as much as the cross sectional study has its own limitations, a similar study may be conducted while employing longitudinal method.