Chapter V

SUMMARY CONCLUSIONS AND RECOMMENDATIONS

The main purpose of the study was to investigate somatotyping factors as predictors of performance in motor fitness components of male professional students of Rajasthan University.

The sub problem of the study was to compare performances in different motor fitness components among various dominated somatotype components groups of male professional students.

The subjects for the study were male professional students of Rajasthan University and affiliated colleges. Two hundred male subjects selected. The age of the subjects was ranging from 17 to 25 years. The investigator checked the health records maintained by the department/college administration to ensure that subjects selected were physically and mentally sound to under go motor fitness test chosen for this study.

Prior to the testing in different motor fitness components and anthropometric measurements for rating somatotype components, a meeting of all the subjects for this study with their head/principal was convened in which the purpose of the study, requirements of testing
procedure, demonstration of various motor fitness test items were explained to them in details to make them aware of the actually requirements of the research study. All the subjects agreed voluntarily to cooperate with the scholar in the study and the testing procedure as explained to them. The head/principal of concerned departments/colleges also exhorted them to put in their best efforts in the interest of the scientific investigation.

The rating for three somatotype components, were selected as dependent variables i.e. endomorphy, mesomorphy and ectomorphy. The motor fitness variables were selected as independent variables i.e. strength (shoulder strength, explosive leg strength, abdominal strength) cardio respiratory endurance, speed, dynamic balance, agility, flexibility and two hand coordination.

The reliability of data was ensured by establishing the instruments reliability, tester reliability, reliability of tests and subjects reliability.

The relationship of each somatotype components viz endomorphy, mesomorphy and ectomorphy, to performance in different motor fitness components was established by computing Product Moment Correlation in order to find the combined effect of various somatotype components, multiple correlation method was applied. To find at the significant
differences between three different somatotype component. The analysis of variance (ANOVA) was applied at 0.5 level of significance.

Further a regression equation was developed to predict somatotype components i.e. endomorphy, mesomorphy and ectomorphy separately on the bases of motor fitness components.

For testing the hypothesis, the level of significance was set at .05.

**Endomorphy**

The analysis of data in the case of endomorphy, revealed that significant relationship of endomorphy to speed ($r = .272$), explosive leg strength ($r = -.294$), agility ($r = .231$) and low back/hamstring flexibility. The relationship was statically significant as the obtained coefficient being much higher than the tabulated value needed for significance.

The relationship of endomorphy to shoulder strength ($r = .119$), abdominal strength ($r = -.133$), cardio-respiratory endurance ($r = -.094$), dynamic balance ($r = -.088$) and two hand coordination ($r = .076$) were not statistically significant as the value obtained were much less than the tabulated value of .139 required for the coefficient of correlation to be significant at .05 level with 198 degree of freedom.
The multiple correlation applied in the case of motor fitness variables indicated that explosive leg strength (4), speed (1) and low back/hamstring flexibility (7) taken together correlated significantly to endomorphy (c) as the computed value of .652 was found to be significant at .05 level of confidence. The multiple regression equation was developed in case of motor fitness variables as given below.

\[
\text{Endomorphy: } X_c = 0.0215 X_4 + 0.1434 X_1 - 0.0256 X_7 + 4.97
\]

The analyses of data in case of mesomorphy, revealed that significant relationship of mesomorphy to speed \((r = -.318)\), shoulder strength \((r = .157)\), abdominal strength \((r = .195)\), explosive leg strength \((r = .371)\), cardio-respiratory endurance \((r = .167)\) and agility \((r = -.220)\). The relationship was statistically significant as the obtained coefficients being much higher than the tabulated value needed for significance.

The relationship of mesomorphy to low back/hamstring flexibility \((r = .091)\), dynamic balance \((r = .107)\) and two hand coordination \((r = -.077)\) were not statistically significant as the value obtained were much less than the tabulated value of .139 required for the coefficient of correlation to be significant at .05 level with 198 degree of freedom.
The multiple correlation applied in the case of motor fitness variables indicated that explosive leg strength (4), speed (1) and agility (6) taken together correlated significantly to mesomorphy (c) as the computed value of 0.40 was found to be significant at .05 level of confidence. The multiple regression equation was developed in case of motor fitness variables as given below.

\[
\text{Mesomorphy: } X_c = 0.031 X_4 + 0.162 X_1 - 0.048 X_6 + 4.47
\]

The analysis of data in case of ectomorphy, revealed that significant relationship of ectomorphy to speed \((r = -.215)\), explosive leg strength \((r = .353)\), cardio respiratory endurance \((r = .139)\), agility \((r = 160)\) and low back/hamstring flexibility \((r = .169)\). The relationship was statistically significant as the obtained coefficients being much higher than the tabulated value needed for significance.

The relationship of ectomorphy to shoulder strength \((r = .023)\), abdominal strength \((r = .118)\), dynamic balance \((r = .103)\) and two hand coordination \((r = -.068)\) were not statistically significant as the value obtained were much less than the tabulated value of .138 required for the coefficient of correlation to be significant at .05 level with 198 degree of freedom.
The multiple correlation applied in the case of motor fitness variables indicated that explosive leg strength (4), speed (1) and low back/hamstring flexibility (7) taken together correlated significantly to ectomorphy (c) as the computed value of 0.488 was found to be significant at .05 level of confidence. The multiple regression equation was developed in case of motor fitness variables as given below.

**Mesomorphy:** \( X_c = 0.040 X_4 - 0.054 X_1 + 0.010 X_7 + 1.587 \)

**Conclusions**

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

1. Significant relationship was found between, endomorphy with (.272) speed, (.294) explosive leg strength, (.231) agility and (.248) low back/hamstring flexibility.

2. Insignificant relationship was found between endomorphy with (.119) shoulder strength, (.133) abdominal strength, (.094) cardiorespiratory endurance, (.088) and dynamic balance and (.076) two-hand coordination.

3. Significant relationship was found between mesomorphy with (.318) speed, (.157) shoulder strength, (.195) abdominal strength,
(.371) explosive leg strength, (.167) cardio-respiratory endurance and (.220) agility.

4. Insignificant relationship was found between mesomorphy with (.091) low back/hamstring flexibility, (.107) dynamic balance and (.077) two-hand coordination.

5. Significant relationship was found between ectomorphy with (-.215) speed, (.353) explosive leg strength, (.139) cardio-respiratory endurance, (-.160) agility and (.0169) low back/hamstring flexibility.

6. Insignificant relationship was found between ectomorphy with (.023) shoulder strength, (.118) abdominal strength, (.103) dynamic balance, and (-.068) two-hand coordination.

7. Among the motor fitness variables namely explosive leg strength, speed and low back/hamstring flexibility (0.652) contributes most significant to endomorphy.

8. Among the motor fitness variables namely explosive leg strength, speed and agility (0.40) contributed most significant to mesomorphy.

9. Among the motor fitness variables namely explosive leg strength, speed, and low back/hamstring flexibility (0.488) contribute most significant to ectomorphy.
10. Significant difference was found between different somatotype components in relation to speed (18.17).

11. The sequence of performance in three somatotype groups related to speed was (8.31) mesomorphy > (8.54) ectomorphy > (10.01) endomorphy.

12. Significant difference was found between different somatotype components in relation to shoulder strength (12.65).

13. The sequence of performance in three somatotype groups related to shoulder strength was (17.78) mesomorphy > (14.66) ectomorphy > (10.61) endomorphy.

14. Significant difference was found between different somatotype components in relation to abdominal strength (6.186).

15. The sequence of performance in three somatotype groups related to abdominal strength was (30.7) mesomorphy > (28.79) ectomorphy > (22.78) endomorphy.

16. Significant difference was found between different somatotype components in relation to explosive leg strength (22.95).

17. The sequence of performance in three somatotype groups related to explosive leg strength was (92.40) mesomorphy > (90.60) ectomorphy > (77.26) endomorphy.

18. Significant difference was found between different somatotype components in relation to cardio-respiratory endurance (5.224).
19. The sequence of performance in three somatotype groups related to cardio-respiratory endurance was (1526.76) ectomorphy > (1506) mesomorphy > (1292.97) endomorphy.

20. Significant difference was found between different somatotype components in relation to agility (6.921).

21. The sequence of performance in three somatotype groups related to agility was (11.2) mesomorphy > (11.52) ectomorphy > (12) endomorphy.

22. Significant difference was found between different somatotype components in relation to low back/hamstring flexibility (7.642).

23. The sequence of performance in three somatotype groups related to low back/hamstring flexibility was (32.97) ectomorphy > (31.7) mesomorphy > (26) endomorphy.

24. Insignificant difference was found between different somatotype components in relation to dynamic balance (1.52).

25. The sequence of performance in three somatotype groups was not related to dynamic balance.

26. Insignificant difference was found between different somatotype components in relation to two-hand coordination (1.026).

27. The sequence of performance in three somatotype groups was not related to two-hand coordination.
Recommendations

In the light of conclusions drawn the following recommendation were made:

1. It is recommended that norms for various motor fitness tests may be constructed which allow for differences in body build. It may not be logical to except person with excessive endomorphy component to achieve the same level of success in motor fitness tests like mesomorphy.

2. It is recommended to conduct a similar study by using various age levels among males and females.

3. A similar study may be conducted in which the performance in different games of the subjects may be compared after classifying them purely on the basis of predominantly somatotype component.

4. Same study may be repeated by employing a large sample of subjects.

5. It is recommended that similar study may be conducted to assess relationship between somatotype components and blood groups.