Chapter 5

Summary, Conclusions and Recommendations
Physical fitness refers to a set of attributes that people have or achieve that relate to the ability to perform physical activity. These attributes include components of fitness that may or may not relate to health-related physical fitness. Health-related fitness relates to those components of fitness that are affected by habitual physical activity and relate to health status. As mentioned above, they include aerobic functioning, body composition, and musculoskeletal functioning. The BPFT includes test items that measure the extent to which these attributes are achieved. Physical activity consists of bodily movement produced by skeletal muscle. The primary role of physical activity is the conditioning benefit it provides in developing health-related physical fitness. Types of activities include exercise, sport, training, dance, and play. (Caspersen, Powell, & Christenson, 1985).

As mentioned earlier, health-related physical fitness tests are developed in response to the health needs of the individual that are affected by physical activity. The health-related needs or concerns associated with the four components of health-related fitness. The first component, aerobic functioning, permits a person to sustain large-muscle, dynamic, moderate-to-high-intensity activity for prolonged periods of time. Acceptable levels of aerobic functioning are associated with a reduced risk of high blood pressure, obesity, coronary heart disease, diabetes, some forms of cancer, the inability to sustain activity, and other health problems in adults. A second component of health-related physical fitness, body composition, refers to the degree of leanness or fatness of the body. Maintaining appropriate body composition is critical in preventing the onset of obesity.
which is associated with increased coronary heart disease, diabetes, and stroke.

The third and fourth component of health-related fitness: muscular strength, and muscular endurance, and flexibility or range or motion. Appropriate levels of these attributes are necessary to maintain good posture, prevent lower back pain, live independently, and participate in leisure activity. For example, in regard to persons with disabilities, the ability to perform activities of daily living and live independently includes the ability to lift and transfer the body from a wheelchair, the ability to propel a wheelchair and overcome architectural barriers, and perform functional tasks requiring flexibility and range of motion. To a great extent, the health-related needs of persons with and without disabilities overlap. However, individuals with disabilities have, at times, unique health-related needs which need to be addressed. (Winnick, J. P. & Short, F.X., 1999).

The purpose of the study was *Health Related Physical Fitness among Rural and Urban School Students of Rajasthan*.

The study had the following objectives:

1. To compare the health related physical fitness status between rural and urban school boys of Rajasthan.
2. To compare the health related physical fitness status between rural and urban school girls of Rajasthan.
3. To evaluate the health related physical fitness status among different age groups of Rajasthan rural school boys.
4. To find out the health related physical fitness status among different age groups of Rajasthan rural school girls.
5. To evaluate the health related physical fitness status among different age groups of Rajasthan urban school boys.
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6. To draw out the health related physical fitness status among different age groups of Rajasthan urban school girls.

7. To prepare norms of health related physical fitness for school students belonging to rural and urban areas of Rajasthan.

On the basis of literature reviewed and scholar’s own understanding of the problem, the following research hypotheses were formulated.

1. There would be no significance difference between rural and urban school boys of Rajasthan on health related physical fitness components.

2. There would be no significance difference between rural and urban school girls of Rajasthan on health related physical fitness components.

3. There would be no significance difference among different age groups of Rajasthan rural school boys on health related physical fitness components.

4. There would be no significance difference among different age groups of Rajasthan rural school girls on health related physical fitness components.

5. There would be no significance difference among different age groups of Rajasthan urban school boys on health related physical fitness components.

6. There would be no significance difference among different age groups of Rajasthan urban school girls on health related physical fitness components.

The study had the following delimitations:

1. The study was delimited to the school students in the age group of 14 to 16 years.
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2. The study was delimited to the rural and urban areas of Rajasthan.

3. The study was confined to the AAHPERD Health Related Physical Fitness Test (1984). This test battery is based on four tests Items namely:
   - 9 minute run and walk test
   - Skin fold measurement
   - Modified sit-ups
   - Sit and reach test

To investigate the significance of mean differences between rural and urban school boys, t test was applied at 0.05 level of confidence.

The necessary data was collected by administrating the tests for the chosen variables. Before the administration of the tests, the subjects were briefed about the objectives and requirements of the various variables that were tested. The tester was demonstrated each test items and also the subjects were given a trial to make familiar with the testing procedure. In order to maintain uniformity in the conduct of the test in the selected schools, a set of instructions as per test procedure was circulated to the teachers who was assisting in this collection of data. The data was collected at the time, which was suitable to the school principals and physical education teachers, so that their normal timetable is not disturbed.

The data was subjected to statistical treatment on computer. Health related physical fitness norms were developed by using percentile scale. Analysis of variance (ANOVA) was applied for the different age groups. To know the direction of the differences the Scheffe’s post-hoc test was applied.

The calculated ‘t’ values in case of rural and urban school boys were 4.25 (cardiorespiratory function), 2.95 (body composition), 6.87 (muscular strength and endurance), 1.31 (flexibility). (p<0.05, t-value being 1.96).
The calculated ‘t’ values in case of rural and urban school girls were 4.94 (cardiorespiratory function), .711 (body composition), 6.69 (muscular strength and endurance), 3.26 (flexibility). (p<0.05, t-value being 1.96).

The calculated mean and SD values in case of rural school boys on cardiorespiratory functions the value obtained were 1672.94, 1807.97, 1923.94 and 300.56, 322.41, 329.53. The calculated mean and SD values in case of rural school girls on cardiorespiratory functions the value obtained were 1354.27, 1359.22, 1423.20 and 249.26, 249.69, 259.70. The calculated mean and SD values in case of urban school boys on cardiorespiratory functions the value obtained were 1677.42, 1712.28, 1826.38 and 354.19, 343.61, 317.69. The calculated mean and SD values in case of urban school girls on cardiorespiratory functions the value obtained were 1312.91, 1316.77, 1344.02and 252.76, 250.83, 244.37.

The calculated mean and SD values in case of rural school boys on body composition the value obtained were 16.99, 15.21, 14.65 and 4.94, 4.06, 4.10. The calculated mean and SD values in case of rural school girls on body composition the value obtained were 20.70, 20.66, 19.66 and 7.19, 7.36, 6.18.

The calculated mean and SD values in case of urban school boys on body composition the value obtained were 17.39, 16.19, 15.46 and 5.75, 4.96, 4.82. The calculated mean and SD values in case of urban school girls on body composition the value obtained were 20.88, 19.76, 19.72 and 7.09, 6.66, 6.82.

The calculated mean and SD values in case of rural school boys on muscular strength and endurance the value obtained 27.67, 27.88, 29.46 and 6.95, 7.28, 6.34. The calculated mean and SD values in case of rural school girls on muscular strength and endurance the value obtained were 20.91,
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21.83, 22.97 and 5.63, 5.63, 5.50. The calculated mean and SD values in case of urban school boys on muscular strength and endurance the value obtained were 28.06, 30.37, 33.41 and 7.94, 8.14, 7.73. The calculated mean and SD values in case of urban school girls on muscular strength and endurance the value obtained were 23.06, 23.74, 24.38 and 6.25, 7.36, 6.59. The calculated mean and SD values in case of rural school boys on flexibility the value obtained 7.11, 7.35, 7.48 and 3.65, 3.40, 3.60. The calculated mean and SD values in case of rural school girls on flexibility the value obtained were 8.08, 8.62, 8.74 and 3.57, 3.67, 3.89.

The calculated mean and SD values in case of urban school boys on flexibility, the value obtained were 7.12, 7.62, 788 and 4.29, 4.46, 4.05. The calculated mean and SD values in case of urban school girls on flexibility the value obtained were 7.34, 7.95, 8.34 and 4.61, 4.53, 4.76.

The calculated F values in case of rural school boys, rural school girls and urban school boys, urban school girls on cardiorespiratory function the value obtained were 54.70, 8.14 and 18.50, 1.61. (p<0.05 F- value being 2.99). The calculated F values in case of rural school boys, rural school girls and urban school boys, urban school girls on body composition the value obtained were 22.49, 2.52 and 12.57, 3.24. (p<0.05 F- value being 2.99).

The calculated F values in case of rural school boys, rural school girls and urban school boys, urban school girls on muscular strength and endurance the value obtained were 7.08, 11.93 and 39.94, 3.36. (P < 0.05 F- value being 2.99).

The calculated F values in case of rural school boys, rural school girls and urban school boys, urban school girls on flexibility the value obtained were .95, 3.10 and 2.86, 4.17 (P < 0.05 F- value being 2.99).
CONCLUSIONS

In the light of the findings and limitations of the present study the following conclusions are drawn:

1. There were significant differences obtained on cardiorespiratory function, body composition and muscular strength and endurance between rural and urban School boys of Rajasthan. There were no significant differences obtained on flexibility between rural and urban School boys of Rajasthan. The urban school boys are performed better than in their body composition and muscular strength and endurance and flexibility. The rural school boys performed better than their cardiorespiratory function.

2. There were significant differences obtained on cardiorespiratory function, muscular strength and endurance and flexibility between rural and urban school girls of Rajasthan. There were no significant differences obtained on body composition between rural and urban School girls of Rajasthan. The rural school girls were superior in their cardiorespiratory function, body composition, flexibility. The urban school girls were superior in their muscular strength and endurance.

3. There was significant difference obtained on cardiorespiratory function among various age groups (14 years to 16 years) of rural school boys of Rajasthan. When the paired mean difference on cardiorespiratory function were found that significant difference existed between 14 years and 15, 14 years and 16 years & 15 years and 16 years of rural school boys. There were significant difference obtained on body composition and muscular strength and endurance among various age groups (14 years to 16 years) of rural school boys
of Rajasthan. When the paired mean difference on body composition and muscular strength and endurance were found that significant difference existed between 14 years and 16 years & 15 years and 16 years of rural school boys. 16 year boys performed better than 15 and 14 year boys on health related physical fitness components.

4. There were significant difference obtained on cardiorespiratory function and muscular strength and endurance among various age groups (14 years to 16 years) of rural school girls of Rajasthan. When the paired mean difference on cardiorespiratory function and muscular strength and endurance were found that significant difference existed between 14 years and 16 years & 15 years and 16 years of rural school girls. There was significant difference obtained on flexibility among various age groups (14 years to 16 years) of rural school girls of Rajasthan. When the paired mean difference on flexibility was found that no significant differences were obtained among various age groups of rural school girls. 16 year girls achieved better than 15 and 14 year girls on health related physical fitness components.

5. There were significant difference obtained on cardiorespiratory function and body composition among various age groups (14 years to 16 years) of urban school boys of Rajasthan. When the paired mean difference on cardiorespiratory function and body composition were found that significant difference existed between 14 years and 16 years & 15 years and 16 years of urban school boys. There was significant difference obtained on muscular strength and endurance among various age groups (14 years to 16 years) of urban school boys of Rajasthan. Further significant difference was obtained between 14 years and 15, 14 years and 16 years & 15 years and 16
years of rural school boys. 16 year boys performed better than 15 and 14 year boys on health related physical fitness components.

6. There was significant difference obtained on body composition among various age groups (14 years to 16 years) of urban school girls of Rajasthan. When the paired mean difference on body composition was found that no significant differences were obtained among various age groups of urban school girls. There were significant difference obtained on muscular strength and endurance and flexibility among various age groups (14 years to 16 years) of urban school girls of Rajasthan. Further significant difference was obtained between 14 years and 16 years of urban school girls. 16 year girls achieved better than 15 and 14 year girls on health related physical fitness components.

7. Percentile norms were developed and found suitable to measure health related physical fitness status of each age group of rural and urban school students separately on all the health related physical fitness items. (cardiorespiratory function, body composition, muscular strength and endurance and flexibility).

**RECOMMENDATIONS**

In the explanation of the findings of the present study the following recommendations can be made to the physical education teachers and coaches regarding selection of layers at a suitable time to start training systematically and scientifically. This will enable to evaluate health related physical fitness status of the students. Following recommendations appear to be adequate for further studies:
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1. Similar studies may be taken to assess the health related physical fitness level of with age group other than those employed in this study.

2. Similar study may be conducted on the boys and girls belonging to different regions of country.

3. Similar study may be conducted for college male and female students of Rajasthan.

4. It is also recommended that physical education teacher can evaluate their health related physical fitness status of school students time to time using the normative scales given in the thesis.

5. Longitudinal studies may be undertaken to arrive at more comprehensive results.