CHAPTER-V
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS
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SUMMARY

The purpose of this study was to test the hypothesis that quality physical fitness programme could significantly improve measures of health-related physical fitness in low-fit school children.

The study was conducted at Kendriya Vidhyalaya Naval Base No. II and Kendriya Vidhyalaya No. I. As the primary screening AAHPERD Health Related Physical Fitness Test was administered to male students of 7th, 8th and 9th standards. Ages of the tested students were between 12 years to 14 years ($M = SD \pm$) and total of 341 students were tested. Out of 341 students tested only 274 students performed all the tests. The raw data on four selected test items were compared to find out corresponding normative scores according to AAHPERD HRPFT Manual.
As per the AAHPERD HRPF Test Manual, score below 25th percentile on any of the fitness test items is considered as low-fit and recommended to undergo a remedial individualised fitness programme (AAHPERD Test Manual).

Out of the 244 students found in the low-fit group, 235 students volunteered to be the programme participants. Among this, 70 students from each standard were randomly selected and divided into control and experimental groups. Although no attempt was made to control the physical activity habits of the participants beyond what the programme participants received in the fitness programme. None of the children reported being involved in any outside school physical activity programme. Prior consent was also obtained from the parents before implementing the programme.

After reviewing the various test batteries of similar nature, AAHPERD Health Related Physical Fitness Test was selected as a tool to scientifically evaluate health related physical fitness status of students. The test battery includes One Mile Run, Sit-up, Sit and Reach and Sum of Skinfolds. The test items chosen as criterion measures were found most reliable and are widely used all over the world for assessing health related physical
fitness of school children. These tests appear to provide adequate procedure for determining the level of health related physical fitness status and could be used for identifying the students who need special consideration in Physical Education classes.

Random group design was used to conduct the study. 42 and 35 students from standard 7th, 37 and 42 students from standard 8th and 51 and 37 students from standard 9th of K.V. Naval Base II and K.V. Naval Base I respectively were identified as low-fit children. From the total 244 students, 235 students volunteered to be the programme participants. Among this 70 students from each standard were randomly selected and divided into control and experimental groups, were A1 and A2 for standard VII, B1 and B2 for standard VIII, C1 and C2 for standard IX. A1, B1 and C1 were treated as control groups and A2, B2 and C2 were treated as experimental groups. No attempt was made to equate the group in any manner.

The reliability of data was ensured by establishing instrumentation reliability, tester reliability, reliability of selected tests and subjects reliability.
Through the review of literature and promising practices in the field, and also with the help of instructional resource materials and as per the guidance in the AAHPERD Test Manual the investigator developed a draft of 12 weeks quality physical fitness programme. The developed programme was initially examined by three experts and on the basis of their suggestions, and recommendations, the necessary and desirable changes and modifications were made. Once again the revised programme was sent to the experts for their final approval and comments. On the basis of feedback received, the programme was finalised and administered on experimental groups.

The quality physical fitness programme was implemented for a period of 12 weeks excluding the period utilized for initial and final testing of criterion variables. The physical fitness programme was conducted one hour per day, three days per week for twelve weeks.

Analysis of Covariance was computed for each variable to determine the effect of 12-week quality physical fitness programme on health related physical fitness of low-fit children from classes 7, 8 and 9. The data were analysed by using the
computer software, SPSS for Windows Release 10.0.1. (SPSS, 1999).

The level of significance to check the "F" ratio obtained by Analysis of Covariance was set at 0.05 level because the process adopted did not involve highly sophisticated instruments demanding the application of more stringent levels of significance. In using Analysis of Covariance (ANCOVA), the value of 3.99 was required for significance at 0.05 level of confidence for 67 degrees of freedom for the low-fit children.

As much as only two groups were employed in the experiment, the F-ratio was adequate as the test of significance between finally adjusted means (Clarke, 1972); consequently an application of one of the post hoc test was not applied.

The results of ANCOVA indicate that there were significant effects of 12-week quality physical fitness programme on experimental group on abdominal strength & endurance of class 7, class 8 and class 9 children. Since obtained value of F ratio for class 7 (48.56), class 8 (34.46) and class 9 (19.29) were greater than the "F" table value of 3.99 required to be significant at 0.05 level with 1,67 degrees of freedom. On flexibility of class
Further, Analysis of Covariance on cardio-respiratory endurance also indicates that there were significant effects of treatment on experimental group of class 7 (10.73), class 8 (9.27) and class 9 (4.12) children. An examination on body composition undoubtedly point out that there were significant effects of 12-week quality physical education programme on experimental group of class 7 (20.67), class 8 (5.56) and class 9 (7.10) children, since the obtained F ratio were greater than the “F” table value of 3.99 required to be significant at 0.05 level with 1,67 degrees of freedom.

A primary finding of this study was that participants in 12-week quality physical education programme showed considerable improvements in all the selected health related physical fitness variables after the training period. There was a significant improvement between the pre test and post test performance of the experimental group subjects in the one mile run, sit-up, sit and reach and sum of skinfolds, which comprehensively covering the components of health related fitness components namely, cardio respiratory endurance,
abdominal strength and endurance, flexibility and body composition.

The change in body fatness, expressed as sum of skinfolds, is surprising. Other studies that have assessed the body fat changes in children because of endurance training (Lussier & Buskirk, 1977), resistance training (Ramsey et al., 1990), and an in-school fitness programme (Gillian & Freedson, 1980) have reported contradictory results. Reasons for the change in body fatness in this study may be result of several factors. These would include the overall duration (number of weeks) of the quality physical fitness programme, the precision with which skinfolds measurements can detect alterations in body fatness (Lohman, 1992), and dietary factors that were not examined in this study.

**CONCLUSIONS**

Based on the findings of the study the following conclusions were drawn:

1. The 12-week quality physical fitness programme was successful in improving the cardiorespiratory endurance, abdominal strength and endurance, flexibility and low-
back musculoskeletal function of the experimental group low-fit children.

2. The 12-week quality physical fitness programme brought favourable changes in body composition of the experimental group low-fit children.

3. It can also be concluded that the improvement in flexibility was comparatively higher than the improvement shown on other selected variables of the experimental group low-fit children.
RECOMMENDATIONS

Based on the conclusions drawn from the study the following recommendations are made by the research scholar:

1. A similar study can be done on girl students and a comparison can be made with boys.

2. A different age group can be selected and studied.

3. The effect of the training programme on certain physiological and psychological parameters can be researched upon.

4. A suitable training programme based on the results can be developed for the school boys to improve their physical fitness.

5. Similar study can be done on a larger population with an extended training period.

6. A comparative study on urban and rural school boys and girls can be taken up as a study.