Chapter I

INTRODUCTION

1.1. Need and Background of the study

It is self evident that the fit citizens are a nation’s best assets and weak ones its liabilities. It is therefore the responsibility of every country to promote physical fitness of its citizens because physical fitness is the basic requirement for most of the tasks to be undertaken by an individual in his daily life.\textsuperscript{1} The World Health Organization defines health as: “Health is physical, mental, social and spiritual well being, not merely the absence of disease and infirmity.” The World Health Organization (WHO) has set a target that every person in the world should become health conscious by 2000 AD and it is a right step in the attainment of health for all.\textsuperscript{2} Today fitness is needed for two reasons. Firstly, it is needed for taking part in competitive sports participations and secondly it is required for maintaining the health in a good condition. Pate writes that health-related physical fitness is relevant to all children. Many health leaders feel that foundation for life time fitness can be laid through youth programmers.\textsuperscript{3}

Scientists and doctors have known for years that substantial benefits can be gained from regular physical activity (Manley, 1996). Today there are strong evidence suggesting that regular physical activity provides clear and substantial health gains. Physical activity is also directly related to preventing disease and premature death and to maintaining a high quality of life that its importance must be understood at all levels.

Regular physical activity is an essential adjunct to normal growth and development. Through physical activity children become fitter and healthier. The programme of physical education is intended not only to achieve physical fitness but also optimum organic health, emotional stability, social adaptability to take proper decisions and

\begin{itemize}
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develop skills that will enable a child to participate in various activities.\textsuperscript{4} In India, children become far less active as they move through adolescence and it is found that obesity is increasing among children.

All these findings indicate that current physical education programs are inadequate to promote lifetime physical fitness. These findings have made physical educators realize that a change in curriculum is needed which would lead to development of attitude towards lifelong exercise behavior with special emphasis on health related fitness.

1.1.1. Concept of Physical Fitness

Fitness concepts in elementary physical education center on children’s understanding of fitness as good health, and a working knowledge of activities that promote a healthy level of fitness.\textsuperscript{5}

The World Health Organization (WHO) has defined fitness as “the ability to perform muscular work satisfactorily.” The United States of America, centers for Disease Control and Prevention defined fitness thus: “the five health-related components of physical fitness are more important to public health than are the components related to athletic ability. Operational definition of physical fitness varies with the interest and need of the investigators.”\textsuperscript{6}

Fitness: The definition of physical fitness might vary by individually but most experts agree that there are five basic components of physical fitness which involve your heart, lungs, strength, endurance, and agility or flexibility.\textsuperscript{7}

Happy child is nation’s pride. Children are the world’s greatest resources. Investment in child’s development is an investment in the near future of a nation. Today’s children will be tomorrow’s leaders and citizens. Although children are the future and the most precious resources the quality of tomorrow’s world, perhaps even its survival, will be determined by the well-being, safety and development of today’s


\textsuperscript{5} George Graham, Shirley Ann Holt/Hale, Melissa Parker, (2001). \textit{Children moving A reflective approach to teaching physical education}, (5\textsuperscript{th} edition). California, Mayfield publishing company, Mountain View, P. 38-39

\textsuperscript{6} American College of Sports & Medicine (ACSM), (2005). \textit{Health related physical fitness assessment manual}. Baltimore: Lippincott Williams & Wilkins, P. 3

children. A great need is felt to educate the society about physical fitness and to bring awareness among the individuals. The benefits of regular exercise on psychological health have been clearly documented. Patients with anxiety and depression do better if exercise training is combined with other treatment. More importantly, the vast majority of individuals who take up regular exercise report an improved sense of general well-being and an enhanced self-image.\textsuperscript{8}

1.1.2. Effects of Activity and Fitness on Children’s Health

The most important contribution children’s physical activity can make is to influence their life-time exercise pattern positively. Exercise and health interrelationships across the life-span are illustrated in Figure No. 1.1.

If childhood exercise, however, can increase the likelihood that a person will maintain physical activity into and through adulthood, significant health benefits are possible.\cite{8}

\begin{center}
\begin{tikzpicture}
    \node (child_exercise) at (0,0) {CHILDHOOD EXERCISE};
    \node (child_health) at (0,2) {CHILDHOOD HEALTH};
    \node (adult_exercise) at (2,0) {ADULT EXERCISE};
    \node (adult_health) at (2,2) {ADULT HEALTH};
    \draw[->] (child_exercise) -- (adult_exercise);
    \draw[->] (child_health) -- (adult_health);
    \draw[->] (adult_exercise) -- (child_exercise);
    \draw[->] (adult_health) -- (child_health);
\end{tikzpicture}
\end{center}

Figure No. 1.1

Conceptual Exercise Model (adapted from Pate R. R & Hohn R. C)

Many studies strongly support the hypothesis that sedentary habits increase the risk of premature death, primarily due to so higher rates of cardiovascular diseases (Blair & Meredith, 1994).

Physical activity influences can be categorized as biological, psychological, social, and environmental. All of these factors are associated with children’s physical activity, so

\textsuperscript{8} Ibid. p.15
effective interventions must operate on multiple levels. No single approach is likely to be effective, and children’s needs change with age.

Determinants are variables that are correlated with physical activity and they may have casual effects. The most promising models hypothesize that behavior is influenced by intrapersonal, social and physical environmental variables.

Important modifiable determinants for young people include self-efficacy, enjoyment, social support from family and friends, and for young children, time spent outdoors, Physical Education, sports teams and activity classes can provide substantial amount of physical activity for young people⁹.

1.1.3. Health Related Physical Fitness
It is termed “health related” because there is an implied relationship between one’s level of fitness and one’s health status. Research has demonstrated that individuals with high levels of physical fitness also possess good health.¹⁰ To improve overall fitness, an individual has to participate in specific programs to develop each one of the five basic components, Cardiovascular Endurance, Muscular Strength and Endurance, Flexibility, Body Composition

1.1.4. Physical Fitness Components
Physical fitness has many components, some related to general health and others related more specifically to particular sports or activities. The five components of fitness most important for health are cardio respiratory endurance, muscular strength, muscular endurance, flexibility and body composition.

Cardiovascular Endurance
Cardio respiratory endurance is the ability to perform prolonged, large- muscle, dynamic exercise at moderate to high levels of intensity. It depends on such factors as the ability of the lungs to deliver oxygen from the environment to the bloodstream, the heart’s capacity to pump blood, the ability of the nervous system and blood vessels to regulate

blood flow, and the capability of the body’s chemical systems to use oxygen and process fuels for exercise.11

Cardiovascular efficiency is the body’s ability to undergo vigorous exercise for a long time.12

**Muscular Strength**
The amount of external force a muscle or muscle group can exert.13
The ability to exert maximum force. It is possible to have greater muscular strength in one area, than another.14

**Muscular Endurance**
Muscular endurance is the ability to sustain a given level of muscle tension that is, to hold a muscle contraction for a long period of time or to contract a muscle over and over again. Muscular endurance is important for good posture and for injury prevention. Muscular endurance helps people cope with the physical demands of everyday life and enhances performance in sports and work. It is also important for most leisure and fitness activities.15
The ability of a muscle to generate force over and over again.16

**Flexibility**
Flexibility is the ability to move the joints through their full range of motion. Stretching exercise can help ensure a healthy range of motion for all major joints.17
The ability to move joints freely through their full range of motion.18

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Body composition

Body composition refers to the proportion of fat and fat free mass (muscle, bone, water) in the body. Healthy body composition involves a high proportion of fat free mass and an acceptably low level of body fat, adjusted for age and gender.\textsuperscript{19}
The relative percentage of fat, muscle and bone that up body weight.\textsuperscript{20}

1.2. Relevance of the study

Physical Education is an established component of schooling. Most students receive instructions from a trained Physical Education teacher. Many colleges and Universities offer specialized Curricula for preparation of teachers of Physical Education. In this 21\textsuperscript{st} century it seems certain that society has made a major commitment to the delivery of school based Physical Education programs.

In many schools, administrators have neglected the subject or have used these periods for other school subjects. The State support for Physical Education has been gradually eroded and financial restrictions have been imposed. The great concern for academic achievement has made administrators and parents see Physical Education as a low priority, potentially expendable program.

It is the opinion of American College of Sports Medicine that Physical Fitness Programs for children be developed with the primary goal of encouraging the adoption of appropriate lifelong exercise behavior in order to develop and maintain sufficient Physical Fitness for adequate functional capacity and health enhancement.\textsuperscript{21}

School Physical Education Programs are an important part of the overall Education process and should give increased emphasis to the development and maintenance of lifelong exercise habits and provide instructions about how to attain and maintain appropriate physical fitness. Physical Education classes typically devote instructional time to physical fitness activities, but class time is generally insufficient to develop and maintain optimal physical fitness. However, achievement of health related physical


\textsuperscript{19} Thomas Fahey, Paul Insel, Wailton Roth, (2001). *Fit& well Core Concepts and labs in Physical fitness and Wellness*, (4\textsuperscript{th} edition). California: Mayfield publishing company Mountain View, P.24


fitness of the students at mass level can not be ignored. This aspect should be specially looked upon by systematic implementation of school physical education and evaluate the achievement in one’s health related physical fitness, proper norms are essential and this research project, therefore, has been undertaken.

1.3. Statement of the Problem

India is basically a rural country with agricultural bias and hence about 65% and 10% of the population lives in Rural and Tribal while only about 25% in urban areas. The educational system does not differentiate between these three strata. However, there is a distinct difference in lifestyles of the Urban, Tribal and Rural parts in India. The Urban children have greater exposure than Rural and Tribal children with regard to physical education. The facilities and infrastructure in schools is also inadequate in the Rural and Tribal sector.

It, thus, becomes necessary to study the real status of health related physical fitness (HRFT) and to compare whether a significant difference exists in the fitness level between Rural, Tribal and urban school going boys. This would help in giving a status report of the existing HRPF factors so as to further analyze and recommend interventions and suggest an appropriate curriculum. With a view to achieve the purpose, it was thought desirable to undertake this investigation entitled, “A Study on Health Related Physical Fitness of school students in Nasik District.”

1.4. Significance of the Study

- The research has significance as it studies the health related physical fitness of the students from high schools comparatively by conducting various tests.
- There has been an increase in number of researcher in sports and physical education. The research will be helpful to the researchers studying various new components regarding fitness in sports.
- Comparing the various morphological (body height and body weight) and health related physical fitness components of school going boys it may help to prescribe suitable curriculum and means of evaluation.
- The study will be useful for motivating the students to achieve better level performance.
• The study provides an opportunity and encouragement to the sports talents in school level.
• The study will provide standard norms in favor of selection, assessment and evaluation of selected performance variables of school level going boys in Nasik district.
• The norms will help to discriminate the students of schools having excellent potential and talent.

1.5. Objectives of the Study
• To measure the health-related physical fitness components of 11 to 13 years old school going boys from Rural, Tribal, and Urban school in Nashik District.
• To prepare the appropriate norms of health related physical fitness components (Body Height, C.V. Endurance, Muscular Strength & Endurance, and Flexibility) of 11 to 13 years old school going boys.
• To compare (age, Rural, Tribal and Urban) performance of the subjects in health-related physical fitness components.

1.6. Hypothesis
• HO: There is no significant difference in the health related physical fitness components of boys of each age group (11 to 13 years) from the Rural, Tribal, and Urban schools in Nashik District.
• HO1: There is no significant difference in the cardiovascular fitness of boys of each age group (11–13) from Rural, Tribal, and Urban schools in Nashik District.
• HO2: There is no significant difference in the muscular strength and endurance of boys of each age group (11 – 13) from Tribal, Rural and Urban schools in Nashik district.
• HO3: There is no significant difference in the flexibility of boys of each age group (11 – 13) from Rural, Tribal, and Urban schools in Nashik District.
• HO4: There is no significant difference in the body composition (BMI, & % Body Fat) of boys of each age group (11-13) from Rural, Tribal, and Urban schools in Nashik District.
1.7. Assumptions
Since the researcher intended to collect research data by attending school going student then, following assumptions were made.

- Tests to be administered should be standardized and justified for the age group.
- The sample mean represents the population mean.
- Students will give favorable response to the tests conducted.
- In experiment study, the physical activity program will be conducted regularly.
- Student would respond appropriately to the physical activity program.

1.8. Delimitations of the Study
The investigator proposed to study the Health related physical fitness measures of the boys from Urban, Rural and Tribal schools in Nasik district of Maharashtra.

- The study was to be carried out in the eleven Talukas of Nasik district. The boundaries of which are defined by revenue department of Maharashtra.
- The study was delimited to age group 11 to 13 years’ old boys.
- This study is delimited by the selected Health related physical fitness variables like Cardiovascular Endurance, Muscular strength and endurance, Flexibility. Body height measured only for norm purpose.
- This study is delimited by the selected tests (9minute Run or Walk, 1minute Push-ups, 1min Bent knee Sit-ups and Sit & Reach) for measurement of HRPF factors.

1.9. Limitations of the Study
While conducting this study, the investigator could note down some drawbacks, which could not be controlled in due courses are as follows:

- While doing the research the factors like diet, economic condition of the student, environment etc. had not been taken into consideration.
- Since the test items were many, the researcher would not be in a position to control all measurements single handed. Therefore He was dependent upon some professionally qualified assistants.
- Physical conditions and Mental State of the subject during the test are considered as the limitation for the study.
- Test was taken as per the time table of the school. The environmental conditions during the test are considered as the limitation for the study.
1.10. Definitions

District Nasik

Locations: Nashik District is located between 18.33 degree and 20.53 degree North latitude and between 73.16 degree and 75.16 degree East Longitude at Northwest part of the Maharashtra state, at 565 meters above mean sea level. It consists of 15 Talukas as defined by the Revenue Department.²² (As shown in Figure 1.2)

Figure 1.2

Talukawise Location of Nasik

Operational Definitions

Physical fitness components
The physical fitness considered for this study is limited to selected physical fitness factors viz. Cardiovascular Endurance, Muscular Strength and Muscular Endurance, Flexibility and Body Composition.

Cardiovascular Endurance
In this study the respiratory Endurance means maximum distant running or walking in particular time limit and the performance of 11 to 13 years school going boys measured through 9 minute Run or Walk test.

Muscular Strength and Muscular Endurance
Muscular Strength and Endurance in this study means the arms and shoulder muscle strength and endurance performance of 11 to 13 years school going boys measured through Push-ups.

Muscular Endurance
Muscular Endurance in this study means the abdominal muscle endurance performance of 11 to 13 years school going boys measured through one minute Sit-ups.

Flexibility
Flexibility in this study means the flexibility of lower back and hamstring muscle performance of 11 to 13 years school going boys measured through sit and reach test.

Body Height
Height in this study means the maximum height of the individual when standing erect.

Body Weight
Weight in this study means the maximum weight of the individual when measured through electronic weighing scale.

Body Composition
The body composition in this study means Body Mass Index and % Body Fat of boys.

School going Boys
The School going boys who are of age 11 years, 12 years and 13 years. For the academic year 2007-08, student’s birth date after 1 Jan.1994 was considered for the present study.

Rural Schools
The schools that come under the jurisdiction of Zilla Parishads in Nasik District.
**Urban Schools**
Schools under the Municipal Corporation, which are aided and unaided in Nasik city area.

**Tribal schools**
The Schools of remote area / places that are regulated by Zilla Parishad. Especially for Tribes in Nashik district.