CHAPTER I

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Physical fitness has been considered as one of the most important aspects of human existence. A sound body and an active mind are interrelated. This relationship has given respectability to physical education. No education is complete without good physical health as it makes a person efficient and fit to work in any area of human activity.

Kamlesh and Sangral (1980) quoted Greek philosopher Aristotle as saying, "the body is the temple of the soul, and to reach harmony of body, mind and spirit, the body must be physically fit." Yogic exercises also emphasise physical well being besides mental and spiritual attainments.

Barrow (1933) described that many earlier civilisations of the world such as Spartan Greek, early Athenian Greek, and early Roman, laid great stress upon the physical fitness of their educational programmes. Many countries developed strong nationalistic systems of education in the 19th and 20th centuries, such as Germany where Nazis gave great importance to the physical fitness of their countrymen. The U.S.A., during and after the world wars I and II, had introduced an organised physical training programme for the physical fitness of the youth which continues even today.

Throughout history, philosophers, statesmen, and educators have emphasised the need for promoting physical
health of people. Peter V. Karpovich (1961) speaking about the responsibility of the American College of Sports Medicine and similar organizations stated, "Our primary task is the pursuit of physical fitness. This is such an important function that it should have been included in the Constitution of the United States, although it probably is implied in the 'pursuit of happiness'.

The development of physical education in India started in the beginning of the 20th century. The Young Mens Christian Association (YMCA) was set up at Calcutta in 1903. At that time the Indian society had constricted views about women's participation in sports. In the field of physical fitness, women have faced a number of obstacles. It took a long time to establish a broad perspective about this field. However, the number of women participating in physical fitness programmes has been rapidly increasing in recent years.

Realising the significance of physical development and fitness, the Government of India took a number of steps in this direction after 1947. New schemes were introduced to boost up the standard of sports and health of people.

Physical fitness crystallised into action after the Delhi Asiad (1982). The Sports Authority of India, launched a massive nation-wide fitness blitz which includes run-for-fun, pay-and-play schemes and interest free loans to anyone wanting to set-up a small gymnasium. The SAI plans to spread its message in the country with a lavish government grant. Major
O.P. Bhatia of the SAI says, "By 1990 the dent will be seen."*

The Sports Authority of India recently launched a massive fitness programme called Bhartiyaam that promises to carry the message across the country.*

On the Republic day (1988) for the first time, 200 children jogged with the parade to spread the message that exercise and sports are as important as tanks and guns for the defence of the motherland. After reviewing the above discussion one can say that physical fitness is very important for health and well being of all individuals. Physically fit people lead longer lives, have better performance records and participate fully in life.

There is a tremendous upsurge during the past decade to promote physical fitness. Barrett (1974) aptly cites the reason when he states, "The problem existing today is that ordinary tasks of daily living no longer provide enough vigorous exercise to develop and maintain good muscle tone or cardiovascular and respiratory fitness." He further states, "Today's youth are fundamentally healthier than the youth of any previous generation, but the majority have not developed strong agile bodies. The softening process of our civilization continues to carry on its present erosion."

Physical activity has important implications for the health and well being of all individuals. Easy life has negatively influenced the development and maintenance of physical fitness. Barrett (1974) reported, "Evidence is
mounting that physically fit persons lead longer lives, have better performance records, and participate more fully in life than those who are unfit."

History shows that most sports and games are originally designed for men. Later on adaptations were made through for women. Boslooper (1974) stated rightly in his fine study of "The image of women in classical antiquity," that there is ample evidence to demonstrate that before 1000 B.C. women in general, were active outdoor. They went for running, and swimming, hunting and participated against men in various sports. They were experts at handling horses. By the time of the golden age of Greece, men had excluded women from outside life and athletic activity. This is symbolized most dramatically in the exclusion of women from the Olympic games."

The modern girl is not satisfied with the traditional role of women in the Indian social set up. She is prepared to undertake social responsibilities to show her merit and capability. She has become competitive with man on equal terms. In order that she performs successfully her changed role which is wider and more demanding, she has to equip herself with physical and mental fitness.

The demands made on girls and women for increased physical and mental endurance have been universal. Whether occupied as students, employees, workers in industry or agriculture, mothers and housewives or engaged with the armed forces, females have had to meet new physical demands. Today they need increased strength and exercise of basic physical skills.
Brain Sharkly (1978) stated that women were disadvantaged in occupations where high level of muscular fitness was required. When 9,890 applicants were tested for firefighting jobs in Chicago, no women featured in the top 3,000. This disadvantage will persist until high school and college physical education programmes are provided to help all students meet the demands of the job market.

School girls belonging to the ages 12, 13, 14 and 15 years undergo rapid changes both mentally and physically. Some abilities develop faster in childhood and adolescence. Stemmer (1977) and Walls (1984) stated that adolescence in girls starts from the onset of puberty to the age of maturity (generally 11 to 17 years). During adolescence, physical growth and development reaches its peak and human body takes its final shape. Boys and girls develop the features characteristic of their respective sexes. In this period, physical strength, flexibility, speed, muscular endurance and agility are also improved.

The degree of development of physical fitness varies among the girls in the age group of 12 to 15 years. Studies conducted by Shephard (1978) and Martin (1980) indicate that there is an ample improvement in motor reflexes during adolescence. This study may reveal the degree of development in such abilities.

A number of standardised test batteries to measure physical fitness have been developed by numerous individuals as well as organisations. There is however no consensus on
the most suitable method of measuring general fitness. How to determine it and what standardised tools should be used for using it?

Researchers have tried to measure physical fitness in a number of ways. Physical fitness index test was developed by Rogers (1925) to measure general health or physical capacity. Measurement of height and weight are also incorporated into the physical fitness index. Test items include height, weight, lung capacity, grip strength, back lift, push ups and pull ups.

The American Association for Health, Physical Education and Recreation (AAHPER) has proposed a physical fitness test battery (1957). These tests have been widely used to evaluate physical fitness of school children. The battery included pull ups, sit ups, 50 yard dash, shuttle run, 600 yard run-walk, standing broad jump, and a soft ball throw.

A battery of physical performance tests was selected by Fleishman (1964) on the basis of the factors isolated from much larger batteries of tests. The factors identified in the two separate studies were combined into one test battery called the Basic Fitness Test Battery. Ten basic fitness test items which form this test battery are, extent, flexibility, dynamic flexibility, shuttle run, soft ball throw, hand grip, pull-ups, leg-lifts, cable jump, balance, 600 yard run-walk.

The Canadian Association of Health, Physical Education
and Recreation; Youth Fitness Programme was started in 1964. The battery consisted of six items for boys and girls, age groups 7 to 17 years. The items were (1) one minute speed sit-ups, (2) standing broad jump, (3) shuttle run, (4) the flexed arm hang, (5) 50 yard run, and (6) 300 yard run (1966).

Johnson and Nelson (1982) developed three physical fitness test batteries for different categories. First is the Elementary School Physical Fitness Test, second is the Junior High School Physical Fitness, and third is the High School and College Students Physical Fitness Test. These batteries covered five components of physical fitness test. The Elementary School Physical Fitness Test items are overhead pull test, modified push-ups, modified sit-and-reach and 600-yard run walk. The Junior High School physical fitness has spring scale press test for boys and two hand push-ups for girls, chin-up for boys and flexed arm hang for girls, modified sit-and-reach and 600-yard run-walk. The High School and College students physical fitness test items are two hand push up, modified sit-and-reach, chin-up for men and flexed arm hang test for women and 12 minute run-walk test.

Indian researchers have been using the above mentioned standardised batteries on Indian population in the absence of local norms. For example, Juteja (1978) administered the AAHPER Youth Fitness Test to 100 rural and 100 urban male
school students in Delhi. Similarly, Roy (1977) compared the physical fitness of tribal and urban students in Tripura. He administered the AAHPERD Youth Fitness Test to 60 tribal and 60 urban students studying at M.B.B. College, Agartala.

In different parts of India preparation of norms based on Indian conditions has been gaining a lot of interest. The norms for physical efficiency tests were decided under a national plan of physical education and recreation (1956). In some states these norms are being carried out.

With reference to the local population of Chandigarh and Punjab the norms were prepared by H. Singh (1986) and A. Singh (1986) specifically for the male population.

H. Singh (1986) prepared physical fitness norms for high school boys of Punjab State. Data were collected on five thousand subjects from the various schools in the state. The test administered consisted of eight items, i.e. standing broad jump, sit and reach test, agility run, sit-ups bent knee, 50 metres dash, push-ups (chairs), cricket ball throw, and 600 meter run-walk. The percentile norms for physical fitness tests were found to be valid and suitable to assess the physical fitness level of high school boys aging 12 to 15 years.

A. Singh (1986) undertook a study to prepare norms for college students of Panjab University, Chandigarh. Data were collected on four thousand students. Fleishman's test battery was used on 17 to 22 years old students. In conclusion he found that physical fitness improved linearly according to age,
and the students belonging to the rural areas were significantly superior in their performance on different items. The percentile norms for physical fitness test were valid and suitable to assess the physical fitness level of college students. However, physical fitness of Punjabi girls in the age group of 12 to 15 years has not been studied so far.

There is a dire need to improve the physical fitness level of Indian girls and raise their standard in games and sports. Our overall performance at international level competitions are very poor. The major cause of our failure seems to be lack of fitness among our youth. Our educational institutions should follow systematic and scientific methods to improve the fitness of our youth. Assessment of physical fitness of our school students is a basic requirement to help physical education teachers and coaches to select students for different games and sports and design conditioning programmes based on the individual requirements of students and the sports they select. Unfortunately in India very few research studies have been undertaken in this regard. Test batteries such as Fleishman, AAPHER are being used in the absence of norms developed on local populations. To overcome this drawback, efforts are now being made to adapt the test to local conditions and to prepare norms on local populations. This study is an attempt in this direction to facilitate the norms for the Punjabi girls and provide useful information with regard to the physical fitness status of high school
girls in this region of the country. The study also aims at finding out the differences based on age and residence (urban and rural).

**Statement of the Problem**

The purpose of the study was to assess the physical fitness of high school girls of Punjab. In order to make the assessment the study would evolve physical fitness norms for high school students, and apply those norms against the variable of age. The study was focussed on finding out differences across age and residence and would facilitate interaction effects of residence and age. The study is titled:

"ASSESSMENT OF PHYSICAL FITNESS OF HIGH SCHOOL GIRLS OF PUNJAB."

**Objectives**

The study was undertaken to achieve the following objectives:

1. To prepare the norms of physical fitness items as listed in Fleishman's physical fitness test battery on high school girls of Punjab.

2. To determine physical fitness status of high school girls of Punjab.

3. To compare the physical fitness index of the urban high school girls with that of the rural high school girls of Punjab.
4. To compare the physical fitness of high school girls according to age groups of 12, 13, 14 and 15 years on various components of physical fitness.

5. To enable the teachers of physical education to develop physical fitness programmes for those girls who do not possess the required standard of physical fitness.

Hypotheses

The hypotheses formulated for the study were as follows:

1. There would be significant differences between urban and rural high school girls with regard to the following variables:
   i) Extent flexibility,
   ii) Dynamic flexibility,
   iii) Speed of change of direction,
   iv) Arm and shoulder strength,
   v) Explosive leg strength,
   vi) Arm hand and shoulder strength,
   vii) Endurance level of arms and shoulder,
   viii) Trunk strength,
   ix) Coordinate ability,
   x) Gross body equilibrium,
   xi) Cardiovascular endurance,
   xii) Speed of running.

2. There would be significant differences in the four groups of high school girls belonging to the age 12, 13, 14 and 15 years in terms of the following study variables:
i) Extent flexibility,
ii) Dynamic flexibility,
iii) Speed of change of direction,
iv) Arm and shoulder strength,
v) Explosive leg strength,
vi) Arm, hand and shoulder strength,
vii) Endurance level of arms and shoulder,
viii) Trunk strength,
ix) Coordinative ability,
x) Gross body equilibrium,
xi) Cardiovascular endurance,
xii) Speed of running,

3. There would be significant independent effects of residence, age and residence x age on all the variables.

Delimitations

1. The study was restricted to the high school girls only.

2. The girls belonging to the age group of 12 to 15 years were selected.

3. The schools were selected from the state of Punjab only.

6. The study has been confined to the following components:
   i) Flexibility
   ii) Agility
iii) Speed
iv) Muscular power
v) Strength
vi) Co-ordination
vii) Muscular Endurance
viii) Cardiovascular Endurance
ix) Balance

Limitations

1. No special motivation technique was used during the test.
2. The test could not be conducted on the same week days and hours.
3. Effort was made to standardise the testing procedures, yet variations may have occurred because the help of various individuals, was taken. This may be another limitation of the study.
4. Other variables such as diet, daily routine and existence of sports facilities could not be controlled.

Operational Definitions of terms:

Physical Fitness

Clarke (1967) has defined physical fitness as "... the ability to carry out daily tasks with vigour and alertness,
without undue fatigue, and with ample energy to enjoy leisure
time pursuits and meet unforeseen emergencies."

Clarke (1973) further indicated that, ".... Physical
fitness is the ability to last, to bear up and to perseve
under difficult circumstances where an unfit person would
give up. It is the opposite to being fatigued from ordinary
efforts, to lacking the energy to enter zestfully into life's
activities, and to becoming exhausted from unexpected, demanding
physical exertion.

**Norms**

Johnson and Nelson (1982) have stated that norms, "... are
values considered to be representative of a specified population."

**Flexibility**

Fleishman (1964) has defined it as "... the ability to make
repeated, rapid, movements which involve muscular ligament
flexibility."

**Agility**

Fleishman (1964) defined agility as ".... the ability
of an individual to change the direction of movement of the
body, or parts, either abruptly or in a continuous fashion."

**Speed**

Johnson and Nelson (1982) stated the speed as "... the
rate at which a person can propel his body, or parts of his
body through space."
Muscular Power

According to Johnson and Nelson (1982) power is "... the ability to release maximum force in the fastest possible time."

Strength

Fleishman's (1964) definition of strength is "... the ability to mobilize one's energy effectively in making single or repeated movements requiring a maximum expenditure of force."

Co-ordination

Fleishman (1964) stated that co-ordination is "... the ability to co-ordinate the simultaneous actions of different parts of the body while making gross body movements."

Muscular Endurance

Johnson and Nelson (1982) has defined it as "... the ability of a muscle to repeat identical movements or pressures, or to maintain a certain degree of tension over a period of time."

Cardiovascular Endurance

Fleishman (1964) stated it as "... the ability to continue effort, requiring prolonged exertion over time."

Balance

Fleishman (1964) has defined balance as "... the ability of an individual to maintain his equilibrium, despite forces pulling him off balance, where he has to depend mainly on non-visual (e.g., vestibular and kinesthetic) cues."
Significance

The study provides the norms of physical fitness for high school girls of Punjab. It also helps in evaluating the present level of physical fitness of girls in the age group of 12 to 15 years. Further this study unfolds the phenomena of physical fitness development among girls in the age group of 12 to 15 years. The study will provide impetus to research in physical training methods for girls.

This study may help physical education teachers and coaches to select physically fit girls for different sports and games and design conditioning programmes based on the individual requirements of the students and the sports they select.

The study has revealed the degree of effectiveness of physical education programmes in high schools of Punjab.