Chapter 1

Introduction
Humans have always been interested in good life. The physical aspects of the
good life have included positive health (fitness) and the ability to move
efficiently in work, play, and locomotion (performance), the ability to move
well in numerous situations is one of the important objectives of physical
education. Considerable time and effort are spent in attempting to help persons,
especially children and youth, learn how to successfully engage in work, play
and fundamental type of movement requiring general and specific skills.
(AAPHPERD, 1980)

Physical fitness refers to the entire self-motivated physiological condition of
the human being from optimum human performance to serve treatment and
death. The difficulty arise because physical fitness is made up of series of
components, for example, speed agility, strength endurance, flexibility and
coordination each one of which makes some independent, contribution to
whole state as some of these component are related to health related fitness. It
is possible for an athlete to have a great deal of one component and very little
of another.

Although it is usually decided that physical health is a vital element of the
usual development and growth of an adolescent, general explanation about the
particular nature of physical fitness has not been generally established.
Thought study and intellectual inquiry, if each clear that the multidimensional
characteristics of physical fitness be able to be divided into two areas: health
related physical fitness and skill related physical fitness (AAHPERD, 1980.,
Corbin and Lindsey, 1988). This departure from the traditional notion of
fitness has resulted in a clear differentiation between physical fitness related to functional health and well-being and physical performance related primarily to athletic ability. A practitioner must be aware that his definitional distinction has curricular implications. Understanding the distinctive features of health related and skill related fitness and the components of both will help physical educators develop programme goals and performance-based student objectives and measure progress toward those goals.

It is self-evident that the fit citizens are a nation’s best resources and weak ones its liabilities. It is therefore the responsibility of every kingdom to prop up physical fitness of its citizens because physical fitness is the essential requirement for a good number of the farm duties to be under-taken by a human being in his everyday life. If a person’s bodies is under-developed or grow spongy or motionless and if he fails to build up physical ability, he is depression his capacity for thought and for work, which are of vital importance to one’s own life and the general public in a good condition.

The World Health Organization (W.H.O) 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. The International Olympic Committee has signed an agreement with (W.H.O.) for furthering the cause of health for all and sports for all by 2000 AD. This agreement is clearly directed towards attaining total fitness of all individuals by 2000 AD.

As the fitness thought grew at the end of the last century, it became clear that several specific components contribute to an individual overall level of fitness. Physical fitness is classified into health related, skill related and physiologic fitness. Health related fitness is related to the aptitude to perform activities of daily living without too much exhaustion and is conducive to a low risk of premature hypokinetic diseases. The health related fitness components are cardiorespiratory (aerobic) endurance, muscular strength and endurance, muscular flexibility, and body composition. (Williams, 2006)

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Skill related fitness components consist of agility, balance, coordination, reaction time, speed, and power. These components are related primarily to successful sports and motor skill performance and may not be as crucial to better health.

Physiologic fitness is a term used primarily in the field of medicine in reference to biological systems that are affected by physical activity and the role the latter plays in preventing disease. The components of physiologic fitness are metabolic fitness, morphologic fitness, and bone integrity. In terms of general health promotion and wellness, the main emphasis of physical fitness programs should be on the health related components. (Williams, 2006)

Abundant scientific research over the past three decades has established a difference between physical activity and exercise. Physical activity is bodily movement produced by skeletal muscles. It requires energy expenditure and produced progressive health benefits. Physical activity typically requires only a low to moderate intensity of effort. Examples of physical activity include walking to and from work, taking the stairs instead of elevators and escalators, and gardening, doing household chores, dancing and washing the car by hand. Physical inactivity, by contrast, implies a level of activity that is lower than that required to maintain good health.

Exercise is a type of physical activity that is requires planned, structured, and repetitive bodily movement to improve or maintain one or more components of physical fitness. Examples of exercise are walking, running, cycling, aerobics, swimming, and strength training. Exercise is usually viewed as an activity that requires a high-intensity effort.

Surgeon general’s report on physical activity and health:

- A poor health as a result of lack of physical activity is a serious public health problem that we must meet head-on at once. The report started that physical inactivity is more prevalent in
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- Women than men
- African Americans and Hispanic Americans then whites
- Older than younger adults
- Less affluent then more affluent
- Less educated then more educated adults

Furthermore, the number of people who are not physically active is more than twice the number of people who have hypertension, have high cholesterol, or smoke cigarettes. This report became a nationwide call to action. (Landmark 1996)

Importance of Increased Physical Activity

The report by the U.S. surgeon General states that regular moderate physical activity can prevent premature death, unnecessary illness, disability, and provide substantial benefits in health and well-being for the vast majority of people who are not physically active. Individuals who are already moderately active can achieve even greater health benefits by increasing their physical activity.

Among the benefits of regular physical activity and exercise listed in the report and subsequent studies significantly reduced risks for developing or dying from heart disease, stroke, type 2 diabetes, and high blood pressure. Regular physical activity is also important for the health of muscles, bones and joints and it seems to reduce symptoms of depression and anxiety, improve mood, and enhance one’s ability to perform daily tasks throughout life. It also maintains a high quality of life into old age.

Taking part in a regular stretching program increases circulation to the muscles being stretched, prevents low-back and other spinal column problems, improves and maintains good postural alignment, promotes proper and graceful body movement, improves personal appearance and self-image, and helps to develop and maintain motor skill throughout life.
Health Benefits of Exercise

The citizens of the nation are to be made health and fitness conscious and for this purpose scientific programmes and criteria to evaluate fitness are to be formulated to cater to all individuals belonging to both sexes and of all ages.

Throughout the early school years, exercise and sports programmes for girls have been limited, if not excluded from the curriculum. Boys have always been encouraged to exercise, but physical exertion for girls was considered unladylike. It is time for women not to apologize for participating vigorously in physical activities. There is no known medical reason why women should be limited in physical activities. Women respond to vigorous physical training in the same way that men do. In fact, research shows that the responses of the two sexes to vigorous activity are more similar than different. (Hoeger, 2007)

Most people exercise because it improves their personal appearance and makes them feel good about themselves. Although many benefits accrue from participating in a regular fitness and wellness program and active people generally live longer, the greatest benefit of all is that physically fit individuals enjoy a better quality of life. These people live life to its fullest, with fewer health problems than inactive individuals (who also may indulge in other negative lifestyle behaviors). Although compiling an all-inclusive list of the benefits reaped from participating in fitness and wellness program is difficult, the following list summarizes many of them. Fitness and wellness program to improve and strengthens the cardiorespiratory system, maintains better muscle tone, muscular strength, and endurance.

- It improves muscular flexibility.
- Enhance athletic performance.
- Helps maintain recommended body weight.
- Helps preserve lean body tissue.
- Increases resting metabolic rate.
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- Improves the body’s ability to use fat during physical activity.
- Improves posture and physical appearance.
- Improves functioning of the immune system.
- Lowers the risk for chronic diseases and illness (such as cardiovascular diseases and cancer)
- Prevents or delays the development of high blood pressure and lowers blood pressure in people with hypertension.
- Reduces feelings of depression and anxiety.
- Regulates and improves overall body functions.
- Enhances quality of life: people feel better and live a healthier and happier life. (Hoeger, 2007).

The research published by Paffenlbargs and Associates (1984) illustrates the potential impact that regular, vigorous exercise can have on public health. Community-attributable risk estimates reflect the total reduction in heart attacks that can be expected if the risk factor was not present in the population. The calculation considers the prevalence of the risk factor in the population.

The research that changing from a sedentary to active life-style had the greatest potential public health effect of all the risk factor study. If all the college alumni were active, the heart attack rate of this population has the potential to be reduced by nearly 25%. In contrast, if none of the alumni had high blood pressure, only a 10% reduction of heart attacks would be expected. The greater potential effect of physical activity on public health can be traced to the prevalence of each risk factor. The prevalence of hypertension among Harvard alumni was only 9%. Were as, the prevalence of sedentary lifestyle was 61%.

**Life Style as a Health Problem**

The incidence of chronic diseases rose, it became obvious that prevention was and remains the best medicine. According to Dr. David Satcher, former U.S. surgeon general, more than half of the people who die in this country each year die because of what they do. Based on estimates half of disease is life style.
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Related, a fifth is attributed to the environment, and a tenth is influenced by the health care the individual receives. Only 16 percent is related to genetic factor. Thus the individuals control as much as 84 percent of death before age 65 is preventable.

Because of the unhealthy lifestyles that many young adults lead, their bodies may be middle age or older. Healthy choices made today influence health for decades. Many physical education programmes do not emphasize the skills necessary for youth to maintain a high level of fitness and health throughout life. A healthy lifestyle is self-controlled, and you can learn how to be responsible for your own health and fitness. (T.A. Murphy, 1987)

Health Related Physical Fitness

The development of health related physical fitness test represented a major shift away from an athletic emphasis's to promotion of health, these test were developed in response to both growing dissatisfaction with traditional motor fitness batteries and the growing body of evidence supporting the value of regular, vigorous exercise for health promotion. In 1975 a group of exercise physiologist and measurement specialist met at Indiana University to discuss the growing medical evidence supporting the role of fitness and physical activity in health. This meeting led to the development of the term. (Jackson, 1976)

Physical fitness testing, and programs for development of fitness, should emphasize the relationship between health and physical activity. Physical fitness is a multifaceted continuum that is affected by physical activity.

Health-related physical fitness components

The areas of physiological function that are related to positive health are a national concern, and appear to meet the above criteria are the following:

1. Cardio-respiratory function
2. Body composition
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3. Muscular strength and endurance
4. Flexibility

- Cardiorespiratory function: - the ability of the heart, respiratory and circulatory system to supply oxygen and nutrients to, and remove waste products from the coronary muscles.
- Body composition: - the relative proportion of body fat or fat free body tissues (muscles, bone organs) to total body weight.
- Muscular strength: - the ability of the muscles to exert a force to move an object or to develop tension to resist the movement of an object.
- Muscular endurance: - the ability of a muscle to sustain repeated contractions or to maintain a sub maximal contraction.
- Flexibility: - the ability to move a body part fluidly through a complete range of motion about a joint. (AAHPERD, 1988)

Cardiorespiratory Endurance

The single most important component of health related physical fitness is cardiorespiratory endurance. The exception occurs among older adults, for whom muscular strength is particularly important. In any case, people can get by without high level of strength and flexibility, but we cannot do without a good cardiorespiratory system, facilitated by aerobic exercise.

Aerobic exercise is especially important in preventing cardiovascular disease. A poorly conditioned heart, which has to pump more often just to keep a person alive, is subject to more wear and tear than a well conditioned heart. Regular participation in cardiorespiratory endurance activities also helps a person achieve and maintain recommended body weight the fourth health related physical fitness.

Physical activity, unfortunately, is no longer a natural part of our existence. Technological developments have driven most people in developed countries into sedentary lifestyles. For instance, when many people go to a store only a
couple of blocks away, most drive their automobiles and then spend a couple of minutes driving around the parking lot to find a spot 20 yards closer to the stores entrance. Similarly, during a visit to multi-level shopping mall, almost everyone chooses to take the escalator instead of the stairs (which tend to be inaccessible). Automobiles, elevators, telephones, intercoms, remote control electric garage door openers—all are modern-day commodities that minimize the amount of movement and effort required of the human body.

One of the most harmful effects of modern-day technology is an increase in chronic conditions related to a lack of physical activity. These hypokinetic diseases indulge hypertension, heart disease chronic low back pain, and obesity. Lack of adequate physical fitness is a fact of modern life that most people can avoid no longer. To enjoy modern-day conveniences and still expect to live life to its fullest, however, one has to make a personalized lifetime exercise program a part of daily living. (Hoeger, 2007)

Benefits of Cardiorespiratory Functions

Everyone who participates in a cardiorespiratory or aerobic exercise program can expect a number of beneficial physiological adaptations from training. Among them are the following.

- A higher maximal oxygen uptake (VO). The amount of oxygen the body to use during exercise increases significantly. This allows the individual to exercise longer and more intensely before becoming fatigued. Depending on the initial fitness level, the increases in VO average 15 to 20 percent, although increases greater than 50 percent have been reported people who have very low initial levels of fitness or who were significantly overweight prior to starting the aerobic exercise program.

- An increase in the oxygen-carrying capacity of the blood. As a result of training, the red blood cell count goes up. Red blood cells contain hemoglobin, which transports oxygen in the blood.
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• A decrease in resting heart rate and an increase in cardiac muscle strength. During resting conditions, the heart ejects between 5 and 6 liters of blood per minute (a liter is slightly larger than a quart). This amount of blood, also referred to as cardiac output, meets the body’s energy demands in the resting state.

Like any other muscle, the heart responds to training by increasing in strength and size. As the heart gets stronger, this helps the heart to eject more blood with each beat. This stroke volume yields a lower heart to rest longer between beats. Average resting and maximal cardiac outputs, stroke volumes, and heart rates for sedentary, trained, and highly trained males.

• A lower heart rate at given workloads, when compared with untrained individuals, a trained person has a lower heart rate response to a given task because of greater efficiency of the cardiorespiratory system.

• An increase in the number and size of the mitochondria. All energy necessary for cell function is produced in the mitochondria. (Hoeger, 2007)

Body Composition

To understand the concept of body composition, we must recognize that the human body consists of fat and non-fat components. The fat components are called fat mass or percent body fat. The non-fat component is termed lean body mass. To determine recommended body weight, we need to find out what percent of total body weight is fat and what amount is lean tissue-in other words, assess body composition. Body composition should be assessed by a well trained technician who understands the procedure being used.

Once the fat percentage is known, recommended body weight can be calculated from recommended body fat. Recommended body weight, also called “healthy weight,” implies the absence of any medical condition that
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would improve with weight loss and a fat distribution pattern that is not associated with higher risk for illness.

The best way to determine whether people are truly overweight or falsely at recommended body weight, is through assessment of body composition. Obesity is an excess of body fat. If body weight is the only criterion, an individual might easily appear to be overweight according to height/weight charts, yet not have too much body fat. Typical examples are football players, body builders, weight lifters, and other athletes with large muscle size, some athletes who appear to be 20 or 30 pounds overweight really have little body fat.

Muscular Strength and Endurance

Strength is the sum of power a muscle can apply. One requires strength to increase the capacity to perform work, disease changes of injury, prevent low back pain, improve posture, and curb the one set of diseases that result from a secondary life style.

Endurance is the capacity of the muscles to work for extended periods of time without too much tiredness. Muscular endurance prevents unwanted fatigue from daily routines and enhances opportunities for success and enjoyment in sport and recreational activities. Muscular strength and endurance are important for good health.

Some people think that strength is necessary only for highly trained athletes, fitness enthusiasts, and individuals who have jobs that require heavy muscular work. In fact, a well-planned strength training program leads to increase muscle strength and endurance, muscle tone, tendon and ligament strength, and bone density- all of which help to improve functional physical capacity.

Benefits of Muscular Strength and Endurance

Strength is a basic health related fitness component and is an important wellness component for optimal performance in daily activities such as sitting,
walking, and running, lifting and carrying objects, doing housework, and enjoying recreational activities. Strength also is of great value in improving posture, personal appearance, and self-image; in developing sports skills; in promoting stability of joints and in meeting certain emergencies in life.

From a health standpoint, increasing strength helps to increase or maintain muscle and a higher resting metabolic rate, encourages weight loss and maintenance, lessens the risk for injury, prevents, reduces chronic low-back pain, and also may help to lower the risk of high blood pressure and diabetes.

With time, the heart rate and blood pressure response to lifting a heavy resistance decreases. This adaptation reduces the demands on the cardiovascular system when performing activities such as carrying a child, the groceries, or a suitcase.

Regular strength training also can help control blood sugar. Much of the blood glucose from food consumption goes to the muscles, where it is stored as glycogen. When muscles are not used, muscle cells become insulin resistant and glucose cannot enter the cells, thereby increasing the risk for diabetes. (Hoeger, 2007)

**Flexibility**

Flexibility is the fourth important component of health related physical fitness. Flexibility is a measure of the range of motion available at a joint or group of joints. Individuals who can, without stiffness freely move the joints of the ankles, knees, hips, wrists, elbows, and shoulders are said to have good flexibility. People with good flexibility can move better and enjoy their activities more.

In the past flexibility has been the most ignored component of health-related physical fitness. Recently, however, there has been a resurgence of interest in exercise and physical activity designed to promote and develop flexibility. Research has demonstrated that low back posterior thigh flexibility is key for
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the avoidance and treatment of low-back disorders. And as we already know, low back pain muscular tensions are significant health problems for the American population (AAHPERD, 1984). In fact, it has been estimated that 25 to 30 million American, or approximately 16% of the population, have suffered from low back pain syndrome and that nearly 8 out of 10 person have at one time or another suffered from back-ache (Corbin and Lindsey, 1989., Vitale, 1973). According to the American middles association, in 1983, 7 million American were undergoing treatment for chronic back problems. It has been estimated that 2 million people have been added to his list yearly (Shaw, 1983). In financial terms, low back pain has cost the American work place over one billion dollars in lost productivity per year (AAHPERD, 1984).

Kraus and Raab (1961) maintained that a degree of flexibility in the back and hamstring muscle groups is essential for the prevention of lower back disorders. Kraus and Hirschland (1954) have published a battery of minimum muscular fitness test, the Kraus-Weber Test, development in a poster clinic for the diagnosis and treatment of patients with low-back pain. When these ten tests were administered to several thousand European and American school children, the American failure rate was considerably higher than the European rate. The test, scored on a pass-fail basis.

Most people who exercise don’t take the time to stretch, and many who do stretch don’t stretch properly. When joints are not regularly moved through their normal range of motion, muscles and ligaments shorten in time and flexibility decreases. Most fitness participants underestimate and overlook the contribution of good muscular flexibility to overall fitness and preventive health care.

Flexibility refers to the achievable range of motion at a joint or group of joints without causing injury. Some muscular/skeletal problems and injuries are related to a lack of flexibility. A decline in flexibility can cause poor posture and subsequent aches and pains that lead to limited and painful joint
movement. Approximately 80 percent of all low-back problems in the United States stem from improper alignment of the vertebral column and pelvic girdle, a direct result of inflexible and weak muscles.

**Benefits of Good Flexibility**

Improving and maintaining good range of motion in the joints enhances the quality of life. Good flexibility promotes healthy muscles and joints. Improving elasticity of muscles and connective tissue around joints enables greater freedom of movement and the individual’s ability to participate many types of sports and recreational activities. Adequate flexibility also makes activities of daily living such as turning, lifting, and bending much easier to perform. A person must take care, however, not to overstretch joints. Too much flexibility leads to unstable and loose joints, which may increase injury rate, including joint dislocation and subluxation.

The component of health fitness that apply to everybody and that each person should achieve and maintain certain levels of health fitness in order to stay as healthy as possible throughout a lifetime and to improve the quality of life. Motor performance fitness on the other hand, is more functional and specific. Health fitness is not, in its most important sense related to shooting baskets more accurately or to jumping farther. It is related to living better to being more resistance to disease, and even perhaps to living longer. (Siedentop, 1994)

The clear importance of health fitness then is that it can help to present, and in some cases help to remediate, degenerative diseases. People who engage in the appropriate duration, intensity and frequency of specific kind of exercise, particularly aerobic exercise, can move easily control their weight, reduce their percentage of body fat, improve their circulatory function, reduce their blood pressure, control their blood glucose levels, and improve their insulin sensitivity. (Blair et al. 1987)
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There is no doubt that a major national problem related to health to health-fitness is the cost, both social and economic of inadequate health-fitness levels in the general population. There costs now total a substantial portion of the yearly gross national product and a significant percentage of the national deficit. (Pritchard & potter, 1990)

Although fitness and health are most often seen as individual issues, the economic and social costs of inadequate. Fitness and health affect the nations as whole. The statistics on public costs related to health-fitness problems are staggering.

❖ Absenteeism among less fit employees is typically twice that of fit employees.
❖ Seriously overweight employees are 48 percent more likely to have claims exceeding $5,000 in a 1-year period then are those at normal weights.
❖ Sedentary employees have 30 percent more days in the hospital than do those who exercise regularly.
❖ General motor spends more on employee health costs than it does to purchase steed. There health costs add more than $300 to the cost of every car and truck manufactured.
❖ From 1965 to 1990 there was a heavy 1,500 percent increase in health expenditure.
❖ A one-pack -per day smoker is estimated to cost his or her employer more than $800 per year in otherwise avoidable costs.

The point is that lack of adequate health fitness among students and workers is not simply an individual issue. The problem has economic and social implications that affect us all directly in the pocketbook. The cost of health insurance goes up. Disbursement from public funds increase, productivity goes down. We all pay for those, regardless of whether we are fit or unfit. (Vileneuve, 1983; Tague 1983; Pritchard 1990; Edington, 1993).
STATEMENT OF THE PROBLEM

The title of the problem has been stated as “Health Related Physical Fitness among Rural and Urban School Students of Rajasthan”.

OBJECTIVES OF THE STUDY

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.
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.

HYPOTHESES OF THE STUDY

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.
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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.

DELIMITATIONS OF THE STUDY

The study had the following delimitations:

1. The study was delimited to the school students in the age group of 14 to 16 years.

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

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LIMITATIONS OF THE STUDY

1. The subjects belonging to different socio-economic and cultural background which cannot be controlled.

2. The investigator cannot control the other factors like home environment, daily routine and training schedule of the subjects.

3. No special technique was used to motivate the subjects during the administration of the tests.

DEFINITION AND EXPLANATION OF THE TERMS

Physical Fitness

Physical Fitness is that condition of the body which will primitive younger to continue good health, respond positively to physical effort and physical stress, enjoy the feeling of his/her own body and function at an optimal mental and physical fitness.

(Lorin, 1978)

Physical fitness refers to the natural capacity of the individual to perform the normal task of daily living without undue tiredness or fatigue having reserve of strength and energy available to meet satisfactorily any emergency demands suddenly placed upon him.

(Nixon, 2010)

Health Related Physical Fitness

Health related fitness refers to the condition of physical and physiological characteristics that identify the risk levels for the premature development of diseases or morbid conditions presenting a relationship with a sedentary mode of life.

(Bourchard and Shepard, 1993)

Muscular Strength

Refers to the amount of force a muscle can provide with a single maximal effort. Size of muscle cells and the ability of nerves to activate them are related to muscle strength.

(Scott, 2008)
Muscular strength is the most energy that a muscles group can apply over a brief period. Muscular strength can be calculated with an utmost static contraction, isometric strength, or maximal dynamic contractions that comprise isotonic and Isokinetic strength. In addition it has been exposed that total endurance is highly connected with strength. 

(De Vris 1980)

Muscular Endurance

Muscular endurance is the aptitude of a muscle or group of muscle to maintain frequent contraction against a resistance for an extended period of time.

(Quinn, 2011)

Cardiovascular Endurance

Cardio-vascular endurance is the capacity of the circulatory and respiratory systems to regulate to and recover from the effect of exercise or work.

(Johnson and Nelson, 1982)

Cardiorespiratory endurance is defined as the body's aptitude to deliver oxygen and additional nutrients to tissue and to take away waste products over a constant period of time. Improving cardiorespiratory endurance through aerobic exercise can help decrease the risk of heart disease, some types of cancer and can help in weight control and weight maintenance. Walking, swimming, cycling and running are examples of exercises that can improve cardio-respiratory endurance.

(President’s Council on Physical Fitness and Sports, 2011)

Flexibility

It is the capacity of an individual to go the joints through an utmost range of movement with-out excessive damage.

(Miller & Allen, 1982)

Body Composition

Refers to the amount of fat and fat free mass in the body. Those with a higher proportion of fat free mass to a lower proportion of body fat have a healthy body composition.

(Scott, 2008)
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Norms
A norm is a standard to which an obtained score may be compared. Test that have an accompanying set of norms are much more useful than those that do not. (Mathews, 1978)

Test Battery
According Test battery is a group of several tests standardized on the same population so that results on the several tests are comparable; some time loosely applied to any group of tests administered together even through not standardized on the same subjects. (Barrow and McGee, 1979)

Rural
The villages which come under the village panchayats and own out of the jurisdiction of urban authorities are considered as rural areas.

Urban
For the present study all the cities which come under municipal corporation, municipal committees considered as urban areas.

SIGNIFICANCE OF THE STUDY
Each child differs from the other in numerous ways. The main duty of the physical education teacher is to understand the physical needs of each child in order to give him suitable guidance and also to adopt a programme to meet his requirements. It will help to evaluate the level of the health related physical fitness of the students in the age group of 14-16 years. The study will also provide the norms of health related physical fitness for school students of Rajasthan. Further the study will provide impetus to research in physical training method for school students.