

**Course Name: Bachelor of Physical Education**

**Year: IInd**

**Paper Name: Kinesiology and Physiology of Exercise**

**Paper No. 1**

**Topic No. Sec - D (2)**

**Topic Name: Physical Fitness**

**Lecture No.: 12**

**Lecture Title**  
**Physical Fitness**

Welcome to the fitness world of physical education. Friends in this lecture we will be talking about the fitness, types, its advantages and sources related to fitness

What is Fitness?

Fitness does not only refer to being physically fit, but also refers to a person's mental state as well. If a person is physically fit, but mentally unwell or troubled, he or she will not be able to function optimally. Mental fitness can only be achieved if your body is functioning well. You can help relax your own mind and eliminate stresses by exercising regularly and eating right.

Fitness is defined as the quality or state of being fit. Around 1950, perhaps consistent with the Industrial Revolution and the treatise of World War II, the term "fitness" increased in western vernacular by a factor of ten. Modern definition of fitness describe either a person or machine's ability to perform a specific function or a holistic definition of human adaptability to cope with various situations. This has led to an interrelation of human fitness and attractiveness which has mobilized global fitness and fitness equipment industries. Regarding specific function, fitness is attributed to person who possess significant aerobic or anaerobic ability, i.e. strength or endurance. A well rounded fitness program will improve a person in all aspects of fitness, rather than one, such as only cardio/respiratory endurance or only weight training.

A woman performs plank exercise for strengthening of muscles

A comprehensive fitness program tailored to an individual typically focuses on one or more specific skills and on age-or health-related needs such as bone health. Many sources also cite mental, social and emotional health as an important part of overall fitness. This is often presented in textbooks as a triangle made up of three points, which represent physical, emotional, and mental fitness. Physical fitness can also prevent or treat many chronic health conditions brought on by unhealthy lifestyle or aging. Working out can also help some people sleep better and possibly alleviate some mood disorders in certain individuals.

Definition of Physical Fitness:

So what is Physical Fitness after all?

Physical fitness is defined as the state of general well being, physically sound and healthy, along with mental stability.

Previously fitness was commonly defined as the capacity of the person to meet the physical demands of daily life and carry out the day's activities without undue fatigue.

However, because of increased leisure time, changes in lifestyles rendered this definition insufficient. These days, physical fitness is considered a measure of the body's ability to function efficiently and effectively in work and leisure activities, to be healthy, to resist hypo-kinetic diseases, and to meet emergency situations.

“Physical fitness is not only one of the most important keys to a healthy body, it is the basis of dynamic and creative intellectual activity.”

John F. Kennedy

What is the meaning of physical fitness?

In general, physical fitness refers to one's ability to perform physical tasks, especially as they relate to a sport or occupation; however, because physical fitness encompasses a wide variety of abilities, it means different things to different people. The main categories of physical fitness are aerobic endurance, muscular endurance, strength, speed, power and flexibility.

Each main category of physical fitness covers a broad variety of activities. Aerobic endurance refers to the capability of the heart and lungs to perform at a high level for a long period of time, and activities that make use of aerobic endurance include running, swimming and biking. Muscular endurance and strength are on the same spectrum, yet they refer to distinct abilities. Muscular endurance is the muscles' ability to work for a long time against resistance, and it is most commonly used during high-repetition sets of weight training exercises like cable crunches and pull-ups.

Meanwhile, strength refers to the maximum force muscles can exert against resistance at once. One-repetition maximums for the squat, bench press and deadlift are good examples of strength. Speed is related to strength, and it refers to one's aptitude for moving short distances quickly. Examples of speed include the 40-yard dash and the 100-meter freestyle. Power is what Olympic weightlifters use during the snatch and the clean and jerk. It combines strength and speed, and it refers to the body's ability to exert explosive force over a short span of time. Flexibility is

frequently overlooked, but it is important because it facilitates the other aspects of physical fitness; it refers to the muscles' range of motion at each joint.

Physical fitness is a general state of health and well-being and, more specifically, the ability to perform aspects of sports, occupations and daily activities. Physical fitness is generally achieved through proper nutrition, moderate-vigorous exercise, and sufficient rest.

Before the industrial revolution, fitness was defined as the capacity to carry out the day's activities without undue fatigue. However, with automation and changes in lifestyles physical fitness is now considered a measure of the body's ability to function efficiently and effectively in work and leisure activities, to be healthy, to resist hypokinetic diseases, and to meet emergency situations.

A person who is fit is capable of living life to its fullest extent. Physical and mental fitness play very important roles in your lives and people who are both, physically and mentally fit are less prone to medical conditions as well.

Why is it Important to Be Physically Fit?

People who are physically fit are also healthier, are able to maintain their most optimum weight, and are also not prone to cardiac and other health problems. In order to maintain a relaxed state of mind, a person should be physically active. A person who is fit both physically and mentally is strong enough to face the ups and downs of life, and is not affected by drastic changes if they take place.

How Can You Become More Physically Fit?

Becoming physically fit requires a change in life style as well. You will have to incorporate a regular exercise routine in your life and also eat healthier. By avoiding junk foods, fizzy drinks, bad habits like smoking and alcohol and by getting adequate amount of rest, you will be able to become physically and mentally fit. Just by eliminating all these food substances from your life, no matter how temporarily, you will allow your body to detox and become stronger. Make sure that you spend more time outdoors in the sun, and fresh air and take part in more healthy activities. Fishing, bicycling, swimming, hiking, and even playing foot ball with your kids should be a part of your physically fit lifestyle.

Physical fitness can be classified into following categories:

A. Health related fitness components

B. Skill related components of physical fitness

C. Physiological components of fitness

D. Sports related components of fitness

Health related fitness components:

These are -

1. Body composition
2. Cardiovascular fitness
3. Flexibility
4. Muscular endurance
5. Muscle strength

Health Related Physical Fitness –

What is Physical Fitness or what is Health Related Physical fitness? - It is best defined as activity aimed to improve your health. The goal of health related fitness is prevention of or rehabilitation from disease as well as the development of a high level of functional capacity for daily tasks.

Health related physical fitness is further divided into 5 parts i.e. components of health related physical fitness are -

1. Balanced BODY COMPOSITION –

In other words the ratio of fat to muscle. Minimum of fat and maximum of lean mass is a sign of a healthy and fit body.

2. CARDIOVASCULAR FITNESS or ENDURANCE –

Cardiovascular endurance can be defined as the component which helps to determine if the heart and lungs are working in coordination. It shows the ability of the body to deliver oxygen and nutrients to tissues and to remove wastes.

Cardiovascular exercises or aerobics -walking, running, biking, rowing, treadmills

### 3. FLEXIBILITY -

Flexibility can be defined as the component which checks the ability of the joints in the body to move to their full range of motion.

Flexibility exercises - stretching, yoga, Tai Chi

### 4. MUSCULAR ENDURANCE -

Muscular endurance is defined as the ability of the body to perform repeated exercises without getting tired. If a person can perform more number of repetitions of a particular strength training exercise, then it can be said that he/she has good muscular endurance.

Strength training exercises such as running, jogging, cross-training on an elliptical machine, etc.

### 5. MUSCLE STRENGTH -

Muscle strength can be defined as the capability of the muscles to lift weight. By doing weight training exercises every alternate day increases the muscle mass of the body.

Weight training exercises - pushups, pull ups, biceps curls, pectoral fly, leg extensions, back extension, etc.

Skill related components of physical fitness:

1. Agility
2. Balance
3. Coordination
4. Power
5. Reaction Time
6. Speed

Physiological components of fitness:

1. Metabolic
2. Morphological
3. Bone integrity
4. Other

Sports related components of fitness:

1. Team sport
2. Individual sport

So what is physical fitness? It is a combination of all these fitness components mentioned above.

Physical fitness and wellness is far more attainable than commonly perceived. A good physical fitness and wellness can be described as a condition that helps individuals look, feel and do their best.

Physical fitness is not just about having a thin lean body frame, but it is about having cardiovascular and muscular endurance, strong immunity system, and most importantly, a satisfied, happy and well balanced state of mind.

You should get the full knowledge and information about the importance and benefits of physical fitness.

What Are the Advantages of Being More Active?

By becoming more active you can increase your body's fitness levels and also avoid health problems like diabetes and high blood pressure from developing. Exercise is also good for your joints and makes your body stronger overall.

Training

Specific or task-oriented fitness is a person's ability to perform in a specific activity with a reasonable efficiency: for example, sports or military service. Specific training prepares athletes to perform well in their sports.

Examples are:

- 100 m sprint: in a sprint the athlete must be trained to work anaerobically throughout the race, an example of how to do this would be interval training.
- Middle distance running: athletes require both speed and endurance to gain benefit out of this training. The hard working muscles are at their peak for a longer period of time as they are being used at that level for longer period of time.
- Marathon: in this case the athlete must be trained to work aerobically and their endurance must be built-up to a maximum.
- Many fire fighters and police officers undergo regular fitness testing to determine if they are capable of the physically demanding tasks required of the job.
- Members of armed forces will often be required to pass a formal fitness test – for example soldiers of the US Army must be able to pass the Army Physical Fitness Test (APFT).
- Hill sprints: requires a level of fitness to begin with, the exercise is particularly good for the leg muscles. The army often trains doing mountain climbing and races.
- Plyometric and Isometric Exercises: An excellent way to build strength and increase muscular endurance.
- Sand running creates less strain on leg muscles than running on grass or concrete. This is because sand collapses beneath the foot softening the landing. Sand training is an effective way to lose weight and become fit as its proven you need more effort (one and a half times more) to run on the soft sand than on a hard surface.
- Aquajogging is a form of exercise that decreases strain on joints and bones. The water supplies minimal impact to muscles and bones which is good for those recovering from injury. Furthermore, the resistance of the water as one jogs through it provides an enhanced effect of exercise (the deeper you are the greater the force needed to pull your leg through).



Swimmers perform squats prior to entering the pool in a U.S. military base, 2011

- Swimming: Squatting exercise helps in enhancing a swimmer's start

In order for physical fitness to benefit the health of an individual, an unknown response in the person called a stimulus will be triggered by the exertion. When exercise is performed with the correct amount of intensity, duration and frequency, a significant amount of improvement can occur. The person may overall feel better but the physical effects on the human body take weeks or months to notice and possibly years for full development. For training purposes, exercise must provide a stress or demand on either a function or tissue. To continue improvements, this demand must eventually increase little over an extended period of time. This sort of exercise

training has three basic principles: overload, specificity, and progression. These principles are related to health but also enhancement of physical working capacity.

### High Intensity Interval Training (HIIT)

High Intensity Interval Training consists of repeated, short bursts of exercise, completed at a high level of intensity. These sets of intense activity are followed by a predetermined time of rest or low intensity activity. Studies have shown that exercising at a higher intensity has increased cardiac benefits for humans, compared to when exercising at a low or moderate level. When your workout consists of an HIIT session, your body has to work harder to replace the oxygen it lost. Research into the benefits of HIIT has revealed that it can be very successful for reducing fat, especially around the abdominal region. Furthermore, when compared to continuous moderate exercise, HIIT proves to burn more calories and increase the amount of fat burned post- HIIT session. Lack of time is one of the main reasons stated for not exercising; HIIT is a great alternative for those people because the duration of an HIIT session can be as short as 10 minutes, making it much quicker than conventional workouts.

### Aerobic exercise

Cardio respiratory fitness can be measured using VO<sub>2</sub> max, a measure of the amount of oxygen the body can uptake and utilize. Aerobic exercise, which improves cardio respiratory fitness, involves movement that increases the heart rate to improve the body's oxygen consumption. This form of exercise is an important part of all training regiments ranging from professional athletes to the everyday person. Also, it helps increase stamina.

Examples are:

- Jogging – Running at a steady and gentle pace. This form of exercise is great for maintaining weight.
- Elliptical Training – This is a stationary exercise machine used to perform walking, or running without causing excessive stress on the joints. This form of exercise is perfect for people with achy hips, knees and ankles.
- Walking – Moving at a fairly regular pace for a short, medium or long distance.
- Treadmill training – Many treadmills have programs set up that offers a numerous amount of different workout plans. One effective cardiovascular activity would be to switch between running and walking. Typically warm up first by walking and then switch off between walking for three minutes and running for three minutes.
- Swimming – Using the arms and legs to keep oneself afloat and moving either forwards or backwards. This is a good full body exercise for those who are looking to strengthen their core while improving cardiovascular endurance.
- Cycling – Riding a bicycle typically involves longer distances than walking or jogging. This is another low stress exercise on the joints and is great for improving leg strength.

### Summary



Regular physical activity is one of the most important things you can do for your health. It can help

- Control your weight
- Lower your risk of heart disease
- Lower your risk for type 2 diabetes and metabolic syndrome
- Lower your risk of some cancers
- Strengthen your bones and muscles
- Improve your mental health and mood
- Improve your ability to do daily activities and prevent falls, if you're an older adult
- Increase your chances of living longer

Fitting regular exercise into your daily schedule may seem difficult at first. But even ten minutes at a time is fine. The key is to find the right exercise for you. It should be fun and should match your abilities.