Concept of Designing Fitness Training

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Abstract

Fitness in the general sense is the ability to do something. Fitness in the broadest sense means the ability to maintain a biological existence and lead a healthy and normal life. This includes the physical, mental and social capabilities of the individual. So it is assumed that capability is an overall concept. The able-bodied person is able to maintain physical well-being as well as mental well-being, emotional balance and social relationships. The ability to carry out everyday task with vigour and alertness, without undue fatigue and with ample energy to enjoy leisure time pursuits and to meet unforeseen emergencies. When a student / person acquire physical fitness, he / she will get accustomed to a healthy life by overcoming all the adversities of daily life. Therefore, various training schedules and methods for acquiring skills are discussed here.

Keywords: training, fitness, physical fitness

Introduction

Different people have different ideas about physical fitness. In general, a healthy person is said to be considered as fit. However, the concept of fitness can be different as if a person is able to do the assigned job properly without being fatigue then he is fit for that job. Physical fitness affects health. So health and physical fitness is considered as an integral part of life. Fitness is recognized as an invaluable asset not only to the players but also to people of any age. Especially Students in college, have a special need for fitness to maintain their physical and mental well-being and wellness. Because it is not possible to concentrate on daily activities and studies without physical and mental fitness. Besides, the present generation is dependent on technology and science. As a result, the amount of physical activity is constantly increasing and people are suffering from a variety of hypo-kinetic diseases such as diabetes, obesity, heart disease, etc. Special emphasis needs to be placed on physical fitness at present in maintaining social and physical health. When a person is physically fit, his mental fitness comes without difficulty, so the topic is highlighted on physical fitness.

Conception for designing the fitness program

We need to know about various aspects of our abilities and capabilities before preparing a schedule of competency training. Fitness is the ability of a person to be physically and mentally healthy and to perform daily activities normally. Fitness training can be different for different ages, and certain rules and regulations have to be followed to prepare this training schedule.

1. Assessing the level of fitness:

The current state of fitness of those for whom the training schedule will be prepared should be assessed first. Measurements of anaerobic and muscle capacity, flexibility, body composition, pulse rate, etc. should be done before and after exercise. The most common ways to do this are-

- To measure the pulse rate after walking one kilometre
- How many push-ups can be done
- To record the time taken for crossing that distance.
- How far he/she can reach forward while seated on the floor with his/her legs in front of them.

2. **Fitness Index Preparation Matters**:

Talking about exercising every day is as difficult as it is in practice. There are some guidelines to execute the whole training method. For example-

- Setting fitness goals
- developing a consistent program
- Focusing on what kind of fitness needs to be improved.
- Combining different types of exercise in physical activity.
- Schedule intensity, volume and interval according to sex, age and capacity
- Periodically observe fitness improvement

3. **Assembling the necessary training equipments**: Arranging the various necessary equipments for training at the right time such as running shoes, jogger shoes, treadmill, twister, stop watch, proper uniform etc.

4. **Adherence to training principles:** In order to reach the aim of training, certain principles have to be followed.

i. Principles of interval
ii. Principles of overload
iii. Principles of continuity
iv. Principles of cyclicity
v. Principles of recovery
vi. Principles of individuality
vii. Principles of progression
viii. Principles of variety
ix. Principles of clarity
x. Principles of active participation
xi. Principles of specificity
xii. Principles of scientific load

You can easily remember the basic principles of exercise if you bring to mind the **P-R-O-V-RB-S** acronym:

P- Progression—the intensity and duration of exercise must gradually increase to improve your fitness level. A good guideline for improvement is a 10 percent gain at specified intervals.

R-Regularity—to achieve effective training you should schedule workouts in each of the first four fitness components at least three times a week. Regularity is also key in resting, sleeping, and following a good diet.

O- Overload—the workload of each exercise session must exceed the normal demands placed on your body to bring about a training effect. You've often heard this expressed as "No pain, no gain." A fitness trainer can help you learn to tell the difference between pain that results from an optimum level of overload and pain that indicates potential injury.

V- Variety—altering activities reduces the boredom and increases your motivation to progress.

R- Recovery—you should follow a tough day of training for a given component of fitness by an easier training or rest day for that component. This helps your body recover. Another way to promote recovery is to alternate the muscle groups you exercise every other day, especially when training for strength and muscle endurance.

B- Balance—to be effective, a fitness program should address all the fitness components, since over emphasizing any one of them may detract from the others.

S -Specificity—you must things training toward specific goals. For example, Soldiers become better runners if their training emphasizes running drills and techniques. Although swimming is great exercise, it will not improve a two-mile-run time as much as a coordinated running program does.

5. Safety issues:

i. Use a suitable field for training

ii. Warm up at the beginning of the exercises and cooling down exercises at the end should be performed.

iii. Stretching exercises would not be painful.

iv. Hypo kinetic patients should be kept under special observation.

v. Breathing should be normal.

vi. Creating a positive environment for ongoing training etc.

6. Hydration:

Adequate healthy drinking at the right time should be arranged considering the factors due to the severity of the training.

7. Food and Nutrition:

Food and nutrition play a big role as well as practice in fitness training. The students' diet list needs to be published according to their body weight, volume of work, sex, age. Proper nutrition helps to increase and maintain the fitness.

8. Benefits of Physical Fitness

- Increased energy levels
- Increased self-esteem and confidence
- Stronger and more efficient heart
- Increased capacity to do physical work, including sport performance
- Injuries are less frequent, less severe, and recovery time is shorter
- Improved appearance

- Improved emotional control
- Sleep better (therefore you have more energy during the day)
- Body fat stays within normal healthy range
- Increased life expectancy/enjoy more healthy years
- Improves overall health

Five Health Related Fitness Components: The following are lifelong fitness components necessary to ensure the body can perform normal daily tasks.

1. **Cardiovascular Endurance:** the ability of the heart, blood vessels, and lungs to supply oxygen to the working muscles. Cardiovascular endurance can be tested by completing the mile run, 1.5 mile run, step test, PACER, 12 minute cycle, or the 12 minute swim.

2. **Muscular Strength:** the ability of the muscles to exert a force. The maximum amount of force that a muscle can generate in a single effort. Muscular strength in the upper body is tested by the maximum bench press and the lower body by the maximum leg press.

3. **Muscular Endurance:** the ability to efficiently use muscles over a longer period of time. The ability of a muscle to repeatedly contract or sustain continuous contraction involving less than maximum force. Muscular endurance can be tested by performing the one minute sit-up test or push-up test.

4. **Flexibility:** the ability to move at the joints through a full range of motion. The range of motion through which the body's joints are able to move. Flexibility is evaluated with a sit and reach test, arm and shoulder flexibility test, and prone trunk test.

5. **Body Composition**: the amount of body weight that is fat compared to muscle, bones, and other body tissues. Body fat percentage can be estimated by four different testing protocols: skinfolds, hydrostatic weighing, bioimpedence analysis, and BMI (Body Mass Index).

Skill Related Fitness Components: The following components are related to sport/athletic performance and they can be argued to be improved by one's training (inherent to or improved by training).

1. Speed: also referred to as movement time, the ability to move the body or parts of it very quickly. (40 yd. Dash/20 yd. Dash)

2. Power: the ability to exert muscular strength quickly, strength and speed combined.(standing long jump, vertical jump)

3. Agility: the ability to start, stop and change direction quickly and with precision. (shuttle run, jingle jangle, 3 cone drill)

4. Balance: the ability to maintain a certain posture or to move without falling. (balance beam activities)

a. Static balance: maintain equilibrium in a stationary position.

b. Dynamic balance: maintain equilibrium when moving the body.

5. Reaction Time: also referred to as quickness, the period from when a stimulus is perceived to when movement begins. (Starting a race, tennis ball drop)

6. Coordination: the ability to use your senses together with your body parts; ability to use two or more body parts at the same time (hitting a tennis ball, hand-eye coordination/timing)

Cardiovascular Endurance

Cardiovascular endurance is the ability of the heart, lungs, and circulatory system to supply oxygen and nutrients to working muscles efficiently. It allows activities that involve large muscle groups (walking, running, swimming, biking, etc.) to be performed over long periods of time. From a health standpoint, cardiovascular or aerobic fitness is generally considered to be the most important of the fitness components.

Benefits of Cardiovascular exercise activities

- Reduce your risk of heart disease
- Stronger and more efficient heart (increase stroke volume)
- Lower heart rate at rest, during exercise and recovery
- Lower blood pressure at rest, during exercise, and recovery
- Lower cholesterol (lower total, raise HDL)
- Improved body composition, burn fat
- Help you look and feel better
- Improved ability to perform work, faster recovery
- Maintenance of a healthy heart and cardiovascular system
- Increase circulation and improve performance of your heart and lungs

Characteristics of Cardiovascular Activity

- Large Muscle Groups – the larger the muscle mass involved, the better the activity.
- Rhythmic – you can regulate the pacing of the activity (slow down or speed up) and still perform the exact task.
- Continuous – the activity is sustained over time.
- Aerobic – the nature of the activity is dependent upon the strength and efficiency of the heart supplying oxygen.

FITT PRINCPLES: A well-designed personal physical activity plan will outline how often (frequency), how long (time), and how rigorous (intensity) a person practices and what type of exercise (type) is chosen. The frequency, intensity, timing and type of exercise (FITT principle) are the key element of any fitness plan or routine. Fitness training programs should be prepared following this principle for cardiovascular fitness.

F=FREQUENCY- 5days in a week.

I= INTENSITY- The maximum heart rate is 60% - 80% (In Your Target Heart Rate Zone)

T= Time-At least 30 Minutes

T= Type- Practicing aerobic exercises through large muscles.

Things to keep in mind: MHR= MAXMUM HEART RATE

THR= TARGET HEART RATE

MHR=220-AGE,

For 60% Intensity, THR= MHR X .6

For 85% Intensity, THR= MHR X .85

This table shows target heart rate zones for different ages. Your maximum heart rate is about 220 minus your age.

In the age category closest to yours, read across to find your target heart rates. Target heart rate during moderate intensity activities is about 50-70% of maximum heart rate, while during vigorous physical activity it's about 70-85% of maximum.

The figures are averages, so use them as a general guide.

Age	Target HR Zone 50-85%	Average Maximum Heart Rate, 100%
20 years	100-170 bpm	200 bpm
30 years	95-162 bpm	190 bpm
35 years	93-157 bpm	185 bpm
40 years	90-153 bpm	180 bpm
45 years	88-149 bpm	175 bpm
50 years	85-145 bpm	170 bpm
55 years	83-140 bpm	165 bpm
60 years	80-136 bpm	160 bpm
65 years	78-132 bpm	155 bpm
70 years	75-128 bpm	150 bpm

9. Fitness Training Schedule:

In order to increase or maintain fitness, it is generally necessary to improve the health related components of physical fitness. Health-related physical fitness components are cardio-respiratory endurance, muscle strength, muscle endurance, flexibility and body composition. However, for the overall development of fitness, it is necessary to improve the skill related components of physical fitness. In general, health-related components can be improved through anaerobic exercises and skill-related components can be improved through aerobic exercises. However, there are exceptions to this, meaning that it is possible to improve both types of fitness through continuous anaerobic and aerobic exercises.

The Exercise Program

A good total exercise program has 6 components. Programs should be individualized to meet your personal needs. Your needs may not be the same as another person due to age, physical build, physical and medical condition. An exercise program should consist of:

1. Warm-up and stretching activities (3-4 times per week)
2. Endurance training (3-5 times per week)

3. Flexibility training (best when done after endurance training)
4. Recreational activities (for enjoyment and relaxation)
5. Resistance training (2-3 days per week)
6. Cool-down and stretching activities (3-4 times per week)

Level of Exertion/Intensity:

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Amount of Effort				**Exertion Description**
Rate of Perceived Exertion (RPE) Scale (Modified Borg Scale)	**Intensity Descriptor**	**Heart-Rate Range* (Age Based) Maximum Heart Rate (MHR)**	**Exertion Descriptor**	
1	LIGHT	50% – 65% of MHR	Resting	You are breathing normally. It is very easy to talk.
2			Somewhat Light	Your rate of breathing increases slightly, but it is still easy to talk.
3			Light	You notice your breathing. You can still talk fairly easily.
4	MODERATE	65% – 80% of MHR	Medium	You are breathing more heavily, but you do not hear yourself breathe.
5			Somewhat Hard	You can hear yourself breathe, but can still talk.
6			Medium Hard	It is getting difficult to talk.
7	VIGOROUS	80% – 100% of MHR	Hard	You are breathing heavily. It is difficult to talk.
8			Very Hard	Your breathing is laboured. It is very difficult to talk.
9			Gruelling	It is almost impossible to talk.
10			Maximum	You are breathing very heavily. You cannot talk.You may feel pain.

* The heart-rate range may vary, depending on the source of reference, age, physical abilities, individual fitness levels, and so on.

Routines for Resistance Training:

Participant	**State of change**	**Resistance Training Recommendations**	**Muscular Endurance and Strength Training**
<u>Beginner</u> Less or no previous experience	Pre-contemplation Contemplation Preparation/Decision	1 exercise per body part 1 set per body part	Endurance training for first six weeks
<u>Average</u> limited experience But is active inside past three months	Action	1 or 2 exercises per body part 1 or 2 sets per body part (As one becomes more experienced with resistance training, one will need to increase the sets and exercises to create overload and to challenge the body.)	Endurance and strength training
Advanced **Previous experience and active last six months**	continuation	1 to 3 exercises per body part 1 to 3 sets per body part (As one becomes more experienced with resistance training, one will need to increase the sets and exercises to create overload and to challenge the body.)	Endurance and strength training

For the beginners: Fitness training

Health related fitness	Variables			
Components	**Frequency**	**Intensity**	**Time**	**Type**
cardio-respiratory endurance	3-5 times/week	Moderate to high 60%-80 %(of Max. HR)	20 min.	Jogging, Cycling Stretching, Cross-country Skipping, Cooling down
muscle strength	2-3 times/week	High resistance sets to maximum capability	minimum of 20 minutes per session 1 to 3 sets of 6 to 10 repetitions	free weights, gym, tubing body weight
muscle endurance	2 or 3 times per week, with rest days in between bouts	low to moderate resistance	minimum of 20 minutes per session 3 sets of 16 to 20 repetitions	free weights, universal gym, tubing, body weight
flexibility	Daily	slow and controlled movement	10 to 12 minutes	static
body composition	5 to 7 times per Week	combination of intensities	dependent on intensity	aerobic anaerobic resistance
Anaerobic Exercises	alternate days 2 or 3 times per week	90% of maximum heart rate	2 to 3 minutes per bout	sprinting jumping
Active Daily Living / Health	Daily	low to moderate intensity	30 to 60 minutes	gardening walking bowling

Conclusion

Physical activity or exercise can improve your health and fitness. Physical activity and exercise can have immediate and long-term health benefits and also help to build up the fitness level. Most importantly, regular activity can improve your quality of life. The mentioned guidelines and procedures may help to prepare a design of fitness schedule. Exercise is essential for physical fitness. It is never possible to gain physical fitness without exercise. That's why people of all ages need to do certain exercises according to the rules.

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