

# PHYSICAL EDUCATION

## CHAPTER 10: TRAINING IN SPORTS



## TRAINING IN SPORTS

Sports training is a process of preparation of sportsperson based on scientific principles, which aimed at improving and maintaining higher performance capacity in different sports activities.

It is a special type of training designed to improve fitness and performance in a given sport. Sports training is focused on optimal performance in a particular sport.

Its main aim is to develop the performance of a sportsperson so that they achieve the highest possible result.

Training programs are developed in different stages viz. quarterly, half-yearly and annually, which is performed progressively through macro-cycle (months workout plan), mesocycle (weeks workout plan), and micro-cycle (days workout plan).

### Principles of Sports Training

- **Principle of continuity:** The training programme should be followed regularly without a long break.
- **Principle of training Load:** Training load should be gradually increased after the adaptation of previous work or load.
- **Planned and Systematic Training:** To achieve a high level of sports performance in competitions, the training must be well planned and conducted systematically for better results.
- **General and specific training:** General training creates the base and specific training helps to achieve high performance.
- **Principle of Cyclicity:** The training can be organized in three different cycles: Macrocycle: having a duration of 3–12 months; Mesocycle of 3–6 weeks; and Micro cycle of 5–10 days.
- **Ensuring results:** Sports training is planned to achieve the expected results in small and major competitions or tournaments.
- **Principle of Adaptability:** The adaptability to the training load should be in proper proportion between the load and recovery.
- **Uniformity:** Time and duration of the activity should be maintained.
- **Principle of individual difference:** No two individuals are alike. The load may vary as per the capacity of the individual sportsperson. Training must be planned as per the needs of the individual age, health condition, individual capacity, recovery pace and physique of the sportsperson.
- **Feasibility:** Training of the sportsperson should be planned and conducted to draw the maximum benefit.

## Warming Up & Limbering Down

### Warming up:

Warming up is the process of heating the body muscles through certain exercise before the main activity.

It is a set-up of exercise and movements which are performed before the activities, by doing this the body is prepared psychologically and physiologically to bear the stress of activity.

It raises the body temperature slightly higher because of which there are more accurate responses as neuromuscular coordination improves.

### Warming up can be done in two ways

**Passive:** In this system the player warms up his body through external sources, like a hot bath, Sauna bath, steam bath, massage, etc.

**Active:** In this, the player warms up his body through actual participation in physical activities. It improves the efficiency of the body and tones up the muscles.

#### This should be done in two parts:

- **General Warming up:** It is general and can be performed for every activity in a similar way. It consists of simple Jogging, stretching, jumping, striding, etc.
- **Specific Warming up:** It is specific. It warms up the related Muscles which are used in that particular activity. It raises the mobility of joints. For example, shuttle running, dribbling, shooting for basketball, ball kicking, heading for football, etc.

Warming up reduces the chances of injuries, increases energy level and helps to get fast and efficient responses.

### Limbering Down

Limbering down is also known as cooling down. It is a setup of exercises which are performed after the competition or activity. It is done at the end of the activity.

Limbering down consists of very simple exercises at a slow pace like slow jogging, slow stretching exercise and deep breathing exercise at the end. By cooling down, the body temperature is slowly brought to normal which is raised during activity.

Limbering down reduces fatigue level, relaxes the body and reduces pain.

### Skill, Technique & Style

**Skill:** It is the ability to perform certain physical tasks effectively. Skills are actions or movements

commonly used in games and sports. A skill is the ability to act with determined results with good execution.

**Technique:** It is the ability to perform a physical task scientifically. The technique is the efficient use of skill to bring perfection. It can be a combination of various movements or skills.

**Style:** It is performing a technique in a particular way during a game situation. Style is proper use of the technique in a certain way during play.

## Concept & Classification of Doping

Doping is the use of performance-enhancing drugs in sports to improve performance of athletes. It is using prohibited substances or methods to improve sports performance.

The use of drugs to enhance performance is considered unethical and banned by the International Olympic Committee.

IOC wants dope free clean sports for all. Reasons for the ban are mainly due to health risk and equal opportunity for athletes to compete.

Doping methods harm the health of athletes which might be fatal. Doping in sports is taken during training or competition day.

## Classification of Doping

- **Stimulants:** Amphetamines, caffeine
- **Narcotics:** Morphine, Opium, Heroin, Cocaine
- **Steroids:** Anabolic steroids, estradiol, Testosterone, Anti-inflammatory
- **Growth Hormone:** Somatotropin, Peptide hormone
- **Beta-Blocker:** Beta-adrenergic, Beta-antagonist
- **Diuretics:** Acetazolamide, Aspirin

**Drug Administration:** There are various types of drugs that can be used by athletes to enhance performance.

**Blood Doping:** It is the process of increasing Red Blood Cell by the administration of blood transfusion. Increasing the amount of RBC helps in strength and endurance activities.

**Gene Doping:** It is the modification of genes to enhance performance. It is altering the individual human DNA index.

## Prohibited Substances & Their Side Effects

### Stimulants:

Stimulants are chemicals which have a direct effect over the central nervous system. These drugs improve work output by reducing the feeling of fatigue and increasing alertness.

Examples of these drugs are caffeine, amphetamines, and ephedrine.

### Narcotics:

Narcotics are good pain killers; these substances are used to treat moderate to severe pain. They are used during training periods to remove the feeling of restlessness and tiredness. Examples are Morphine, Opium, Heroin, cocaine, etc.

### Steroids:

Steroids promote growth and healing processes. They increase the heart rate, body temperature, muscle mass, blood circulation, etc. Examples are anabolic steroids, estradiol, testosterone, etc.

### Growth Hormone:

These are usually animal hormones used for increasing the muscle mass, height, and size of the body. Examples are somatotropin, peptic hormone, etc.

### Beta-blockers:

These are anxiety-reducing agents which are used in games that involve concentration and risk. They reduce anxiety, lower the heart rate, reduce body temperature, reduce stress, relax Muscles, etc. Examples are beta-adrenergic, beta-antagonist.

### Diuretics:

These drugs eliminate fluid from the body. The person reduces body weight in a very short period. These are generally used by wrestlers, boxing players, etc. Examples are acetazolamide, aspirin.

## Side Effects of Prohibited Substances

- **Addictive effects:** Most of these prohibited substances have addictive effects, thus creating physical and psychological dependence.
- **Cardiac Problems:** Doping has adverse effects on the heart and causes many types of cardiac problems.
- **Affects Kidney and liver:** Doping substances have strong chemicals, which adversely

affect the Kidney and liver.

- **Unbalanced Psychological behavior:** These substances lead to unbalanced Psychological behavior like aggression, loss of concentration, dizziness, headache, etc.
- **Musculature body:** These substances affect the feminine look of females, loss of hair, male voice, Causes beard or mustaches, etc.
- **Impotence:** Doping Causes impotence in male, i.e. shrinking of testicles, reduction of sperm production. In females it causes infertility.
- **Digestive problems:** Most of these substances cause digestive problems like loss of appetite, varied sugar level, hormonal variations, constipation, etc
- **Dehydration:** Doping Causes great loss of water from the body, thus it leads to dehydration.
- **Respiratory problems:** Many Doping substances cause respiratory disorders like coughing, bronchitis, asthma, etc.

## Dealing With Alcohol and Substance Abuse

Substance abuse refers to using an illegal substance. People who are involved with alcohol addiction frequently may use other substances such as prescription drugs, over-the-counter drugs, or illicit street drugs. When many substances are combined, it results in adverse side effects.

Alcohol and substance abuse are often referred to as poly drug abuse or poly substance abuse.

The doctor may recommend one or more of the following treatment options:

### Detoxification:

Detoxification programs help to break the body's physical addiction to alcohol. It takes one week to complete.

### Behavior modification:

People who are addicted to the act of drinking may need to learn skills and coping mechanisms to help avoid alcohol.

### Counseling:

One-on-one or group counseling is very effective. Support groups are very helpful during treatment for alcohol addiction.

A support group can help addicted people to connect with other people who are facing similar challenges. They can help answer questions and provide encouragement.

**Medications:**

Medications are also used to treat alcohol addiction.

**They include**

**Disulfiram:** It is an alcohol-sensitizing drug that may lower your desire to drink by making an addicted person sick when you consume alcohol.

**Acamprosate:** It helps to combat alcohol cravings by restoring the balance of certain chemicals in your brain.

**Naltrexone:** It blocks the feel-good effects that alcohol has on your brain.

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