

# DEPARTMENT OF PHYSICAL EDUCATION, G.G.V. BILASPUR (C.G.)

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- Subject:- Sports Medicine
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# SPORTS MEDICINE

Sports medicine is a branch of medicine that deals with Physical Fitness, treatment and prevention of injuries related to sports and exercise

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Sports medicine is the area which creates a positive environment, so an athlete converts his all genetic potentialities into phenotypic realities.-----Dr. P.K Pandey.

# Sports Medicine

- Sports medicine represents the efforts of medical science and arts theoretically and practically to analyze the influence of the movement, training and sports as well as hyper or hypo kinesea i.e on healthy, sick and handicapped human beings of all age groups. The findings are useful for preventive, therapeutic and rehabilitative purposes..... Dr. Alok Gosh

# CONCEPT OF SPORTS MEDICINE:-

Sports medicine is a broad and very inclusive term that involves a verity of medical as well as paramedical personnel including exercise physiologists, kinesiologists, athlete trainers, physical therapists, physical educators and many more as they are involved with various aspects of physical activities and athletes.

# Scope of Sports Medicine:-

- 1. In the play fields.
- 2. In the laboratories
- 3. Gymnasium
- 4. Schools, Colleges & Universities.
- 5. Clubs & swimming pools.
- 6. Car rallies.

## Scope of Sports Medicine, continued.....

- 7.Recreational activities.
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- 8. Combative Sports.
- 9. Adventure Sports.
- 10.Competitive Sports.
- 11. Sports training.
- 12.Daily life activities.

# Need / Importance / Role of Sports medicine

- 1. Talent Identification.
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- 2. Formation & Evaluation of Physical Education Program.
- 3. Development of field and laboratory tests ( Fat %, lung capacity, heart volumes etc ).
- 4. Prevention of accidents & injuries.
- 5. Provides sound principles for sports training.
- 6. Treatment of sports injuries.

7. Provides guidelines on drugs and doping
8. Detection of drug use in sport
9. Provides guidelines and principles of exercise for different age groups.
10. Tells about the right food, nutrition and supplements.
11. Effect of environment
12. Warming and cooling principles
13. Sports kit, guards and protector



# Objectives of Sports Medicine:-

- The main objective of sports medicine is to prevent the damage to the human system caused mostly by inactivity i.e lack of movement or hypokinesia due to sedentary habits of modern world with various push button facilities, automation and lack of physical exercise or the damage caused to the sportsmen because of excessive training and load in the competitive world.

# The other objectives are:-

## 2. Prophylactic health care-

- a). Maintenance of fitness.
- b). Detection of disorders.
- c). Functional evaluation.
- d). Delaying of ageing.
- e). Health education for sports persons.

# The other objectives, Continued.....

2. Scientific promotion of games and sports-
  - a). Planning of training programs.
  - b).Evaluation of training programs.
  - c).Injury prevention.
  - d). Psychological counseling and guidance.

# The other objectives, Continued.....

- 3. Sports Medical services-

Sports medicine services may also be extended to --  
prevention of obesity, cardiac illness, cardiac rehabilitation,  
prevention and control of diabetes.

## Aim / Goal of sports medicine

- The goal / aim of sports medicine is to maintain, sustain, and at times to regain peak physical fitness i.e adaptability to stress---- physical and mental.

## Functions of Sports medicine

- Main functions of sports medicine are promotive, educative, formative, recreative, competitive, therapeutic and rehabilitative in nature.

# History of Sports Medicine

- Sports Medicine is not a new concept or a subject, rather it is very old and was practiced from years. The evidence of this are available in our Vedas and epics like Ramanayana, Mahabhartar and other sacred literatures.

## History of Sports Medicine .....

- In the Ayurveda --- the medical manuscripts of Ancient India dating between 800 and 100 BC, Exercise as massage were recommended for chronic pains in joints, muscles and tissues.
- Though games and sports were part and parcel of human civilization and many exercises and treatments were available at that time but the written documental proof is only available in Ayurveda.



## History of Sports Medicine .....

- 480 BC--- An ancient Greek writer and Gymnast Hirodicus recommended exercises for sick people, but his exercise were so vigorous that he was criticized by his contemporary Hippocrates in many ways.
- 460 BC---Hippocrates himself made many references of to the value of exercise, and he even recommended exercises for mental diseases.

## History of Sports Medicine .....

- 120 BC to 117 AD--- In Greece the exercise and other related things like diet, massage, walking, running etc were recommended for better health and even care through theses were for those suffering from tuberculosis, heart diseases and mental disorders .
- #130-201 AD---A Greek Physician did the systemic description of the human body, explained that the muscles are meant for contraction. He also explained about the connections and functions of the arteries and veins. With this Galen is considered as the first team Physician.

## History of Sports Medicine .....

- 5<sup>th</sup> Century AD--- Medical rehabilitations were done through hydrotherapy, and the use of weights and pulleys.
- 10th century Greek Surgeon Galen developed the first surgery to successfully remove arrows from the body. Galen also taught trainers and developed techniques to improve athletes strength. Galen was also the first Physician to treat the injured Gladiators.

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## History of Sports Medicine .....

- #10<sup>th</sup> Century--- In the 10th century, the Arabic physicians translated the work of Greeks and the Romans Physicians and added their own observations and recommendations.
- # 14<sup>th</sup> to 15<sup>th</sup> Century---Interest was intensified in medical gymnastics in Europe during the Renaissance by the rediscovery of the original Greek contributions.

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## History of Sports Medicine .....

- 1553 Ad ---The first printed book on exercise by a physician Dr. Christobal Mendez of Spain was published. He advocated exercise for older persons and also for those who were crippled.
- 1530- 1608 AD--- A landmark of sixteen century was publication of six books in Europe on the art of gymnastics--- the preventive and therapeutic form.
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## History of Sports Medicine .....

- # Beginning of 19<sup>th</sup> Century---With the beginning of the 19<sup>th</sup> century under the influence of P.H Ling from Sweden and others from European countries the true concept of Physical education was born. Ling introduced about the semi-active, semi-passive and resistance exercises, which became very popular in later years.

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## History of Sports Medicine .....

- 1898--- The first English publication on sports medicine came out as a section on first aid in the encyclopaedia of sports, describing practical measures of emergency, treatment of wounds, insect bites, injuries sustain in cricket, boxing, football etc.

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## History of Sports Medicine .....

- #1911 AD--- Dr. Siegfried Weissben from Germany produced two volumes work that he called "Hygiene de Sports", which is probably the first book dealing comprehensively with what we today call as sports medicine.



## History of Sports Medicine .....

- 1928 AD--- At the second winter Olympics in St. Moritz Switzerland The International Federation of Sports Medicine / Fédération Internationale de Médecine du Sport (FIMS) was established in 1928, shortly after the start of the modern Olympic Games.
- Physicians from 11 countries founded this “Association and the First President was : Wilhelm Knoll from Switzerland.

## History of Sports Medicine .....

- FIMS is a structured and well-organised association, strongly committed to the promotion of the study and development of sports medicine throughout the world. FIMS is made up of continental and national sports medicine associations, as well as multinational groups and individual members.

## History of Sports Medicine .....

- FIMS' educational function is strongly promoted through its courses (Team Physician's Course), international congresses etc. held regularly, and the publication of scientific information related to sports medicine (Position Statements, International SportMed Journal).

## History of Sports Medicine .....

- The aim of FIMS is to assist athletes in achieving optimal performance by maximising their genetic potential, health, nutrition, and high-quality medical care and training.

## History of Sports Medicine .....

- # 1928 AD—The congress of Sports Medicine again met at the Amsterdam Olympics in Holland in the same year, where 281 physicians representing 20 countries were present and they all included three principle purposes in the constitution:-

# Purpose of FIMS.....

- (1). To inaugurate scientific research in biology, psychology and sociology in relation to sports .
  - (2). To promote the study of medical problems encountered in physical exercises in sports in collaboration with various sports federations.
  - (3). To organize international congress on sports medicine at the venue of each Olympics.
- 1932 first meeting of international congress on sports medicine was supposed to held at Los Angeles but could not take place because of unknown reasons.
  - After this the international congress on sports medicine became a regular feature.

# Sports Medicine in India:-

- Indian Association of Sports Medicine was established in 1971 at National Institute of Sports (NIS) Patiala, the headquarter of IASM is situated at J.N Stadium, New Delhi.
- The IASM got the affiliation from International Sports Medicine Federation in 1972 at Munich Olympic games.

## Sports Medicine in India .....

- The Indian Association of Sports Medicine meets every year, organizes seminars, publishes a journal and other objectives of the association are as follows:-
- To guide and assist in the promotion of physical fitness among people.
- To provide scientific guidance and assistance to the sports fraternity, regarding the medical health aspects of training in sports.



## Sports Medicine in India .....

- To conduct research in the field of sports medicine.
- To print and publish articles, periodicals and pamphlets on topic related to sports medicine & allied Science.
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- To provide assistance in establishment a National Institute of Sports Medicine at the of the IASM, and assist the state units to establish sports medicine centres or institute within their jurisdiction.

- To organize seminars, symposiums and workshops in the Sports Medicine & allied Sciences.
- To organize and cause to organize state units and to get them affiliated as members of IASM.
- To do all such other acts congenial and conducive to attain the objectives of the IASM, and for promotion of sports in the country on a sound scientific basis.

- Sports Medicine has come a long way as a discipline offering valuable service in understanding, and influencing human behaviour in physical activity and sports.
- Sports Medicine specialists are serving as consultants, counsellors, performance enhancers or educators to provide scientific input to the elite budding sports persons.
- Sports scientists are involved in sports psychology, sports nutrition, sports biomechanics, training methods, rehabilitation and research.

## Sports Medicine in India .....

- Indian Association of Sports Medicine is a professional body, which encapsulates professionals from the diverse fields of sports sciences.
- The aim of IASM is to have a better interaction between different categories of sports scientists.

## CARE OF AND PROBLEMS OF SPORTSMEN; BEFORE AND AFTER COMPETITION

- To give the best performance at the peak time is the main aim of a professional athletes taking training and pain.
- The responsibilities of the trainers and coaches also becomes very important before and after the competitions, so that athletes enjoy the training and gives their best without any harm to their body and the opponents.

Care before and after competition in the following areas require more attention:-

- Proper diet and Nutrition.
- Proper warming and cooling down
- Use of proper protective gears
- Proper understanding of rules
- Knowledge of Medicine / drugs
- Anxiety management
- Stress management

Care before and after competition in the following areas require more attention continued.....

- Just as we use training to improve technique, proper nutrition can help the athlete gain the most out of athletics. Nutrition provides the athletes with the energy reserves needed to compete. A pre competition meal provides the calories, nutrients, and liquids an athlete need to complete an athletic/ sports competition.

Care before and after competition in the following areas require more attention continued.....

- The pre & post competition meals should provide them the energy they need to perform and prevent hunger during the competition and after the competition. It also provides them with the extra liquids they need to avoid dehydration.



Care before and after competition in the following areas require more attention continued.....

- The athletes should eat a large meal at least 3 to 4 hours before a competition to give their body time to digest the food.
- If they cannot eat a meal 3 to 4 hours before the competition, they should eat a light meal or snack.

Care before and after competition in the following areas require more attention continued.....

- The time it takes for their body to digest food is as follows:
  - 3 to 4 hours to digest a larger meal
  - 2 to 3 hours to digest a small meal
  - 1 to 2 hours to digest a blended or liquid food
- Less than 1 hour to digest a small snack

Care before and after competition in the following areas require more attention continued.....

- The athletes / sportsmen can eat food that they like and that they usually eat. New foods may cause stomach problems, such as diarrhoea or stomach cramps.
- Normally the pre competition meal should be high in carbohydrates and fluids. Carbohydrates include chappati, rice, rice & flour products, bread, and some vegetables, such as potatoes.

Care before and after competition in the following areas require more attention continued.....

- The pre competition meal should be low in protein and fat because as it takes longer to digest and athletes feel heavy during competition.
- High fibre diets should be avoided before competition because they may cause gas and stomach discomfort during competition.

Care before and after competition in the following areas require more attention continued.....

- The athletes / sportsmen should also take enough water, sports drinks, or juice before 3 to 4 hours of competitions.
- During the competition also they should drink water and sports drinks. For competitions / events that lasts more than 1 hour, make sure to drink liquids that contain carbohydrates, such as sports drinks.

- Care before and after competition in the following areas require more attention continued.....
- Care should be taken that athletes do not consume alcohol before competition, as it dehydrates the body, impairs reaction time and mental acuity for up to several days after consumption; increased risk of injury.
- Alcohol also increases body fat because of excess calories in it & decreases performance. It is also a central nervous system depressant, can lead to injuries. It has a detrimental effect on both the quality of sleep and on daytime attention.

- Care before and after competition in the following areas require more attention continued.....
- Care should be taken to check the disordered eating concerns, especially in female athletes:-
- A spectrum of harmful and ineffective methods of weight control including ---Eating Issues & Body Image, Voluntary starvation/fasting, self-induced vomiting, Use of diet pills, laxatives or diuretics, Excessive exercise (above and beyond practice).

- Care before and after competition in the following areas require more attention continued.....
- Anxiety is one of the important experiences which most of the athletes faces before the competitions.
- Anxiety is an unpleasant state of inner turmoil, often accompanied by nervous behaviour.
- It is a feeling of fear, worry, and uneasiness, usually generalized and unfocused as an overreaction to a situation that is only subjectively seen as menacing.



- Care before and after competition in the following areas require more attention continued.....
- It is often accompanied by restlessness, fatigue, problems in concentration, fear, panic, frustration, anger, disappointment, excessive sweating, dizziness, stomach ache and muscular tension.
- If the anxiety is not within the controllable limits it leads to forced errors, unwanted movements and deterioration in the performance level of the athletes.

## Techniques to help athletes to control competition anxiety:-

1. Establishing their 'winning feeling'----- Try to inculcate winning feelings and keep on thinking on how the last time you were performing at the top of your game.
2. Centering / Focusing-----In this technique, the athletes are asked to remain calm & cool, concentrate or focus on the area just behind their navel during the breaks or the time outs. This technique has a calming & controlling effect, provides a simple but effective way to counteract the negative effects of anxiety.

## Techniques to help athletes to control competition anxiety.....

3. Long Breath techniques----The anxiety can be controlled through breathing techniques also. The athletes are advised to take five to six deep breaths just before the competition or in between whenever they feel tense.

The deep breaths should be taken by nose and released through the mouth, the neck and the body should be fully relaxed.

## Techniques to help athletes to control competition anxiety:-

4. Thought stopping----- A lot of negative thoughts come to the minds of the athletes while facing stronger opponents or those who have defeated them earlier.

The best way to tackle this situation is to either block the negative thoughts or counter it by on saying to self, that, I will defeat him this time.

# Stress

- Stress can be defined as a physical, mental or emotional demand, which tends to disturb the homeostasis of the body. Used rather loosely, the term may relate to any kind of pressure. During stress an alteration in the hormone level takes place which causes changes as increased heart rate and blood pressure, faster breathing, muscle tension, dilated pupils, dry mouth and increased blood sugar.

# Stress continued.....

- Up to a certain point stress is beneficial. The athlete perform with greater energy and increased awareness with the influx of excitatory hormones that release immediate energy but when the level of stress increases beyond a certain it act in a negative direction.

# Coping Stress

- Relaxation, visualization/imagery, self-talk, goal setting, motivation, and video review are all examples of systems that can be used by athletes .