

**Sports Science For 21st Century****Dr.Hemandri Tikawala**

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Abstract:

Sports performance is a mixture of many ingredients like efficient utilization of sports science coaching along with technical and tactical training. It depends upon the systematic approach in researching not only the performance but also factors such as the athletic training responsible for the performance. Sports sciences play a vital role in the successful sporting performance. Building a foundation of sound sports training is possible only through utilization of relevant sport sciences.

Generally, sports science is relatively a new field in India but is growing very rapidly. Sport is associated with several other disciplines. All the associated disciplines are inter-related and inter-dependent for top level performance. Leonardo da vinci said, "Those who are enamored of practice without science are like a pilot. Who goes into a ship without rudder on compass and has never any certainty of where he is going" (Frank W. Dick,-2006). The quotation clearly indicates the importance of science in any field. Obviously sports sciences also hold utmost importance and play a critical role in the successful sporting performance.

Introduction

Sports performance is a mixture of many ingredients like efficient utilization of sports science coaching along with technical and tactical training. It depends upon the systematic approach in researching not only the performance but also factors such as the athletic training responsible for the performance. Sports sciences play a vital role in the successful sporting performance. Building a foundation of sound sports training is possible only through utilization of relevant sport sciences.

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Sports Physiology

Physiology deals with the function of various organs composing our body. The human body is complex, like a highly technical and sophisticated machine. It operates as a single entity but is made up of a number of operational paths that work inter-dependently. Human body is made of various organs and each organ has its own peculiar function, e.g. heart is the chief organs of circulation, the lungs are the organ of respiration, stomach is for digestion. The efficiency of our body depends upon the efficient working these organs. All organs are interlinked and inter dependent on each other.

Sports Kinesiology

Kinesiology is a science which deals with the movement of human body. It deals about the origin, insertion and contraction of the muscles. The concept of kinetics and kinematics of motion help to teach effective movement and also correct the wrong movements. The anatomical structure of each joint, like joint stability, postural condition and a range of movement in each joint are directly related to our physical activity. The

action of various joints and muscle are highly useful for learning and perfecting the motor skill, prevention of sports injuries and also helpful to develop the physical fitness.

Sports Bio-mechanics

Bio-mechanics has been defined as the study of the movement of living using science of mechanics. It is the study of mechanical laws relating to the movement or structure of human organisms. It is the science concerned with internal and external force acting on the human body and effects produced by the force. Knowledge of Bio-mechanics is helpful to analyze movement and skill performance particularly with respect to laws of motion, anatomical capability and body mechanics. In throwing the performance depends upon the correct angle of release, running depends upon the upsetting and regaining equilibrium, and jumping mainly depends upon the ability to raise the center of gravity. In short, sport performance is the complex mixture of biomechanical function, emotional factors, training and technique. Biomechanics is helpful to analyze and determine appropriate conditioning and treat injuries.

Sports Nutrition

Intake of balanced diet is very essential for optimum growth and development of our body. A balanced diet is defined as that which contains variety of food stuffs in such quantities and proportions that the body is able to get the nutrients and it need to maintain good health. In take of such food is helpful to the better performance.

Second things, lack of certain vitamins and minerals also bring many bodily problems and may lead to decrease in functional capacity of various organs. Knowledge of food content like carbohydrates, proteins, fats minerals, vitamins and caloric value of food is most essential for sportsmen. The connection between the foods we eat and the functional capacity has been the subject of considerable importance and interest for a long time. The coaches must know high and low kilocalorie diet to recommend the players to increase and decrease the body weight and fat. It plays an important role in weight control and body composition. So, sportsman should have healthy & nutritious diet for the high level achievement.

Sports Anthropometry

Anthropometry is the study of the measurement of body of human beings in relation to structure, size, shape and proportion, body composition, maturation and its development.

It is very necessary to determine relationship between body structure and motor performance. Hence systematized measurement of the human body is essential to understand the growth, which will provide background knowledge to give various exercise schedules and thereby increase the performance.

Sports Psychology

Sport psychology is nothing but it's the study of human behaviour in the field of sports. We can say it is the application of psychology in the field of sports. It is the psycho physical unity of man. Knowledge of psychology is essential to coach because he/she can inform the trainees about various stage of development individual difference and more concerned with personality, emotional and motivational aspect of sports and games. Success of any activity depends upon the motivating force and willpower determination, self-discipline, bravery and confidence. The internal force like tension and emotion can create drives that stimulate the organism to act. Sensory drives are necessary for the good performance. The psychological preparation is planned and carried out with the aim of enabling the sportsman to be in an optimum psychic state at the time of competition so that he/she can achieve the maximum possible performance (Mohan J, 2005).

In short, the peak performance can be achieved only when optimum technical and tactical abilities are combined with psychological abilities. Mental and emotional essences are most important to become a sport champion. Sports performance is the mixture of physical and mental integrity.

Sports Training Method

Sports training aims at improving sports performance through physical, physiological, psychological, social, intellectual and morale aspect thus contributing to development of personality of the sports persons. Training may be defined as a systematic process of repetition and progressive exercise or work focused towards learning and familiarization of patterns of play. Training methods are being employed for improving strength, endurance, speed, flexibility, agility, coordinative abilities, technical and tactical efficiency in various sports and games. It is a careful planning and implementation of various exercises. Training methods are the essential aspect of study before we plan the future.

- 0 It should be systematic and based on scientific facts and principles of training.
- 0 In training we talk about in terms of load. The component of load intensity, volume. Frequency, destiny and duration are to be in proper manner.
- 0 During training load should be increased gradually and progressively.
- 0 It should be maintain for a substantial period for the purpose to get adapted to a particular load.
- 0 Improper training can lead to the deterioration of the performance.

Sports Medicine

Sports medicine contributed several techniques for helping the sports person to prepare high level achievement in competition. It deals with the sports injuries, various therapies, rehabilitation, first aid and massage. Injury is a common phenomenon in the field of sports which can convert a Hero to Zero.

Injuries may happen to the sports person due to fear, psychic factors and improper warm up etc. Knowledge of sports medicine helps in tackling these problems immediately and effectively. Sports medicine is rapidly growing dynamic field. The sport medicine knowledge and techniques are not only beneficial for competing athletes but also everyone involved in the sports activities. In order to avoid the injury and high performance the coach must have through knowledge about various sports injuries and its prevention and treatments. The treatment and measurement of sports injuries has become a multi faceted and highly visible aspect of sports science.

Sports Technology

Sports technology is the application of engineering to sports activities. It requires an understanding of biomechanics and the interaction of the body with sporting equipments. It is concerned with the equipment and facilities used in many aspects of sports which play an important role in maximizing the athletic potential. Sports technology is growing continuously as an exciting subject. The computer is being used in data collection, scouting and statistical analysis of sporting talents. Electronic instrumentations are helpful to enable the athlete to perform to their maximum potential. Sports technologists are introducing new technologies, improving the existing products and methods into the design new and innovative equipment. The best use of innovative and creative technological products and using electronic device in the sports field is the need of day.

Science and technology made astonishing steps to transform the world. Technologically innovative sports products provide better results. There is no doubt that technology plays a predominant role in the sports performance. The recent advances in particularly information and communication technology have made a tremendous impact on sports and games.

Conclusion

Professional knowledge and utilization of sports sciences in a proper way will bring excellent sports performance. Sports sciences are one of the most exciting dynamic subjects and it can be adopted to safely enhance the performance of the athlete.

Sports sciences have grown beyond the exclusive application of science towards improving competition or performance to improve health and quality of life.

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