



Exercise Training for Performance in Sports: A Conceptual Study

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Abstract: *Sports training is the methodical process of getting athletes or teams ready to compete successfully in sports. Athletes or teams get methodical training based on scientific ideas in this. Training a sportsperson or team to reach their maximum potential and compete at their best is the aim of sports training. The purpose of this research is to investigate the objectives of sports training exercises, to know about the basic principles of exercise training and to examine the functions of exercise training. Since this is a conceptual study the required information has been gathered for different related journals, books etc. To conclude it can be stated that Sports' training is not a simple play or recreational activity but it is a serious activity which helps to attain high performance in a competition.*

Keywords: *Athletes, Performance, Training, Exercise.*

Introduction:

Exercise training is the methodical process of becoming ready for a certain physical objective. While achieving objectives for health-related fitness may also be accomplished via exercise training, this aim was once thought to be associated with peak physical performance. In an effort to lower the risk of heart disease, adult-onset diabetes, obesity, and hypertension, regular physical exercise is becoming more and more important as society changes and becomes more sedentary (Dollman et. al. 2005). In fact, some criteria have been developed for the prescription of exercise in relation to certain disorders (American College of Sports Medicine 1998).

Early civilizations used exercise training to enhance their performance (Kontor 1988). Weightlifting and other strength-related exercises are shown on the tomb of the Egyptian Prince Baghti, providing evidence for strength training and competitions as early as 2040 BC (Stone et. al. 2006). Stories from folklore depict other kinds of instruction. One such tale is that of Milo the Greek wrestler, who began competing in the Olympic Games in 540 BC and went on to win six championships.

Although the term “training” is often employed in human language, it may also refer to a systematic, organized learning process that aims to increase a person’s potential for mental, physical, and psychological performance. In sports, athletes, coaches, and scientists all use the term “training” interchangeably. However, there is some debate among coaches and scientists as to what exactly constitutes “sports training.” Sports medicine experts believe that sports training are just physical exercise, while other experts define it as interval training, strength training, technical training, and tactical training.

Objectives of the study: The study has some certain objectives which are as follows-

- To study the aims of training exercise in sports.
- To know about the basic principles of exercise training.
- To examine the functions of exercise training.

Significance of the Study: Based on scientific knowledge, sports training is a pedagogical process of sports perfection that strives to guide athletes to the maximum possible performance via a methodical influence on psycho-physical performance capacity and performance preparedness. In this regard the present study will be very significant for the sports persons and the coaches and all others concerned to this field.

Aims of Sports Training: The main aim of sports training is to prepare a sportsman for a highest possible performance in a main competition in a particular sport / event. Besides this following should be considered as the aims of sports training:- i. Improvement of physical fitness. ii. Acquisition of motor skills. iii. Improvement of tactical efficiency. iv. Education and improvement of mental capabilities.

Improvement of physical fitness: - Enhancing different aspects of physical fitness or motor skills is the main goal of sports training as athletes' success in sports is often based on their level of physical fitness. Every sport requires a certain level of physical fitness, however according to this theory; physical fitness should be developed as particular fitness relies on general fitness.

Acquisition of motor skills: - Every sporting activity requires a certain movement pattern to complete a job; this pattern is referred to as a technique, and if a method is mastered, it is referred to be a talent. The goal of technical training for athletes is to develop abilities specific to their sport. As an example, gymnastics and diving need more technical training than track events, which require relatively little technique learning. Technique training varies depending on the discipline.

Improvement of tactical efficiency: - During a sporting competition, tactical training enables athletes to use their talents and take advantage of all available resources to both outperform their rivals and reach a higher performance level. Enhancing tactical efficiency is seen to be a key goal of sports training as tactical training encompasses technical training, rule knowledge, and tactical skills.

Biologic process of training: Training for exercise may be described by the concepts of biologic adaptability. This hypothesis states that a physiologic stress is imposed with every training session (Brooks et al. 2005). There is a homeostatic response, just as in the case of any physiological stress. This causes brief physiologic and metabolic alterations that, after the exercise session, revert to their pre-exercise resting values (Coyle, 2000). The following are some instances of these fleeting modifications (Brooks et al. 2005):

- Modified blood flow to the muscles that are in use;
- An elevated heart rate;
- A faster pace of breathing;
- A rise in the amount of oxygen used;
- A higher sweating rate;
- A rise in body temperature;
- The release of stress hormones including catecholamines, cortisol, and Adreno-Corticotrophic hormone (ACTH);
- increased tic flow of glycol; and

- Modified muscular recruitment.

Basic principles of training: In planning a training program there are some basic principles that need to be considered. They are discussed under the following headings.

Overload: To induce training adaptations, an athlete must be subjected to overload stimuli on a regular basis. It is possible to modify an overload stimulus by altering the kind, length, frequency, intensity, and recovery interval between training sessions (Bompa, 1999). It is also possible to produce an overload training stimulus before to a training session by changing the intracellular environment and diet. For instance, an athlete may begin a training session with low muscle glycogen concentration to simulate the metabolic load experienced by the muscles at the finish of a marathon. Reducing carbohydrate consumption around 24 hours before to the workout session may help accomplish this. The athlete's liver and muscles have less glycogen in them than normal before the training session starts. The training run's metabolic flow will resemble the last stages of a marathon after around 20 to 30 km. One benefit of this approach is that it allows for the imposition of a metabolic overload without causing the same kind of mechanical muscle strain and injury that happens at the finish of a marathon.

Frequency: The amount of training sessions in a certain time frame is referred to as training frequency. For instance, depending on the sport, the athlete's performance level, and the time of the training cycle, the number of training sessions may range from five to fourteen per week (Smith, 2003).

Duration: This is a reference to the duration or volume of the workout. This is sometimes mistaken with training volume, which combines frequency and duration to quantify training across time (Smith 2003). International competitors need their athletes to train for around a thousand hours a year (Bompa, 1999).

Intensity: Exercise intensity is a metric that relates to power production and asks, "How hard is the exercise?" The maximal effort, which corresponds with the activity's maximum oxygen consumption, and rest (basal metabolic rate) are the two extremes of the exercise intensity continuum. Sub maximal oxygen consumption (Daniels 1985), heart rate, blood lactate, the weight lifted during the exercise, or the impression of effort may all be used to measure the intensity of an exercise programme. The main training stimulus that affects performance and adaptability is training intensity. It is recommended that athletes add high-intensity training to their regimens only once they have built up a strong enough foundation (Laursen & Jenkins 2002). An athlete runs the danger of experiencing tiredness related to overreaching and overtraining if they engage in excessive high-intensity training. They also run the chance of suffering an injury.

Periodization: Periodization is the methodical process of organizing training programme, both short- and long-term, by adjusting training loads and ensuring proper rest and recuperation. The athlete and coach may use the plan as a template. Plan development is crucial, but daily execution should be flexible enough to accommodate the athlete's symptoms rather than inflexible. Traditionally, periodized training has been approached by differentiating between high volumes, low intensity training that is intended to build aerobic capacity, often in the early part of the season, and high intensity training that is intended to improve performance-related traits, as the season goes on. This kind of training lowers the possibility of overtraining and increases the likelihood that the athlete will peak at a predictable period, often just before a big competition.

Training for Skill Acquisition: Athletes need exceptional physical qualities like strength, power, endurance, and flexibility in addition to mastery of motor skills to succeed in sports. In fact, superior athletes often vary more in their capacity to execute abilities with high degrees of consistency, accuracy, and fluidity than they do in terms of strength, power, or speed. Coaches are left perplexed regarding the most effective training techniques to use since, despite the significance of skill execution in determining athletic success, research into the fields of motor learning and a skill training has often produced contradictory findings. The definitions of talent and skill development are one challenge for researchers. For instance, since talent is

more of a construct than a physical ability, it is much harder to describe than physical qualities like strength or endurance. In summarizing this matter, Leonard (1998) pointed out that the word “skill” does not refer to a single thing, but rather to the integration of sensory processing, motor learning and control, muscle synchronization, control adaptation under different circumstances, and retention of learned abilities. Crucially, the process of acquiring new skills is interdisciplinary as well, including fields like psychology, biomechanics, and neuromuscular physiology. The objective of training for skill acquisition is to enable the athlete to execute skills with quality, certainty, and economy of movement, so saving energy and lowering the risk of injury, despite the difficulties in defining and classifying skill acquisition. To achieve this, the coach has to understand the mechanics underlying movement, the functioning of the neuromuscular system, and the conditions that either promote or impede the learning of new skills.

Functions of Training: An individual’s performance is dependent on their ability to perform as a sports person; this ability is complicated and relies on a number of different characteristics, including strength, speed, endurance, flexibility, and coordination. Taking into consideration the body, which is also genetic and cannot be taught, other aspects of the body may be somewhat trained. The following sports training tasks need to be taken into consideration in order to be completed:

Development of Sports Personality:- A sportsman’s habit, behaviour, and attitude towards the need of training for competitive sports or events are indicators of their personality. It’s obvious that taking up the work at hand has an impact on one’s personality. Therefore, with methodical and rational supervision throughout frequent involvement in athletic activities, the personality of the athlete may be developed. It is important for athletes to develop their social, mental, and physical aspects in order to guarantee progress and excellent performance levels. It is necessary for athletes to acquire certain psychological traits. The unique personality traits that are more suited to achieving high levels of success in a certain sport.

Performance Efficiency: - The quantity of practice and competition has a major impact on how quickly athletes enhance their performance efficiency. It significantly affects how well performance ability and efficiency are improved. The quantity of training load administered during sports training affects performance efficiency as well. However, the effectiveness of the training program’s organization will also be essential for converting high load into greater performance capability.

Physical Training:- Sportsmen’s physical training focuses on developing their coordination, strength, endurance, flexibility, and speed. Any sport requires these attributes as a performance requirement. Sports differ in the requirements for these attributes as some call for a single skill while others demand a mix of the two. Sportsmen should regularly engage in the general, specialized, and competitive sports activities required for a certain sport in order to enhance these talents.

Technical Training:- Athletes that get technical instruction are better equipped to use their physical prowess during competition. Technical training aids in the development of a certain sport’s talent, which is closely tied to athletic performance since performance increases with technical skill level. Regular participation in technical training is necessary to learn a talent since it guarantees skill excellence, which enhances performance in competitive sports. Technical proficiency in the skill also guarantees the appropriate use of motor skills, which lowers the effort and energy used during competition.

Tactical Training:- Athletes may optimize their physical and psychological potential by using effective strategies. Understanding an opponent’s strengths and weaknesses as well as developing the capacity to overcome these kinds of circumstances during competition are two benefits of tactical training. Athletes may win elite competitions at the national and international levels by gradually improving their tactical effectiveness. Keeping all of these things in mind, training should be used to develop all kinds of talents and abilities that are often used to win any sports or events. Thus, it is important to acknowledge that tactical training is a crucial component of sports training.

Mental Training/Intellectual Training:- A sportsman's mental faculties are subjected to greater demands, which is known as intellectual training. When athletes prepare for competitive sports, they should be encouraged to learn the most recent tactical and technical elements of the sport and how to hone these skills using contemporary training techniques. Additionally, it is important to cultivate virtuous behaviours, an optimistic outlook, and creative, tactical ideas that aid in the development of new techniques as well as the planning and analysis of daily schedules. Sportsmen who do this consistently hone their mental faculties, which advance the theoretical understanding of sports training. Therefore, it is believed that mental training is a crucial component of athletic training.

Basic errors in training: Customizing a training programme is possible by following the training principles. Any infraction of these rules or improper implementation of them might have detrimental effects on performance. The following are typical training mistakes that prevent people from reaching their best results (Smith 2003):

- Overly rapid demands are placed on the athletes; • Recuperation is ignored;
- High volume of maximal and sub maximal training; • Too much intense training overall when the athlete is preparing for endurance events; • Too much time spent on technical or mental aspects without sufficient recovery; • Too many competitions, which include frequent disruptions of daily routine and insufficient training time that follows competitions; • Training methodology bias; and • The athlete lacks trust in the coach as a result of inaccurate goal setting.

Conclusion:

Achieving the best performance in any sporting event and maintaining it for an extended length of time is a crucial aspect of sports training. Even the most gifted athletes can no longer afford to train to compete at a high level in a variety of sports. Sport training is a serious activity that aids in achieving peak performance in a competition, not just a play or fun activity.

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