

A Scenario of Sports Facilities & Their Role in Preventing Injuries in Sports

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ABSTRACT

The present study has been design to investigate the role of sports facilities in prevention of sports injuries. The main purpose of the study was to highlight the importance of protective gears using in sports. Almost every sports person knows about the protective gears but they do not use them during practice or competition. Poor sports facilities increase the chance of injury. An injury can cause many serious defects for a sportsperson such as decrease in performance, not able to resume game again, physical disability and death in some cases. So, it is very important for a coach as well as players to make awareness about these serious hazards. For accomplish the study the researchers studied related literature and scan many journal and thesis to find out the important facts related to this study. In the end the researchers conclude that the sport facilities have a great role in prevention of sports injuries. The player who use better facilities have low injuries rate then who do not use them.

Key Words- Sports Injuries

INTRODUCTION

Sports has, in fact come to play an increasingly important role in modern society, though its origin date back to the dawn of man. Throughout human history, man's ability to survive has depended upon his physical capabilities. The speed, skill and strength early man needed for survival were transformed into games of skill during times of peace and as civilization progressed. As contests became more organized, more highly trained and skilled athletes competed in teams. Maintaining fitness and recovering from injuries became more important as the sophistication and popularity of athletic events grew. The need for physicians, coaches and therapists knowledgeable in the care and rehabilitation of athletes grew simultaneously.

Sports has in fact become a vast realm of experiments, experimentation and discoveries, the significance of which, going far beyond the world of sports, often has implications which may affect the whole of mankind. In sports, as elsewhere, the uses of which science is put depend of the integrity and honesty of those whose job is to delve into its secrets. One of the major difficulties in this respect lies in the extraordinary isolation of the practitioner, sometimes submerged beneath a nerve-ending flood of information without agreement moment to sift through it, sometimes, at the other extreme, cut off from access to any worthwhile source of new ideas.

The use of therapeutic exercise (medical gymnastics) was recorded as early as 800 to 100 B.C. in the Atharva-Veda, a medical manuscript from India. The first sports physician was Herodicus, who during the Fifth Century B.C. treated the athletes and other injured patients in Athens with therapeutic exercises and diet. His colleagues considered his approach harsh and radical. Yet, his fame spread, and other physician came to observe and evaluate his techniques. In the Second Century A.D., Galan was appointed physician to the gladiators and thus became the first physician known to occupy a position analogous to the team physician today. He did not believe in excessive exercise, he did recommended exercise in moderation for health and to help cure many diseases. In the Fifth Century A.D., the physician Aurelianus first recommended exercise from convalescence from surgery, prescribing hydrotherapy and the use of weights and pulleys.

Sports Facilities

Sports facilities are the methodologies which provide to the sportsperson/coaches to create a positive training environment and the main aim these facilities are to improve in sports performance and prevention from undesired injuries in sports.

From an open space for free play to a highly sophisticated gymnasium or a swimming pool, the physical education and sports infrastructure, generally known as facilities in common parlance, come a great variety- outdoor play fields, indoor gymnasiums with play courts for such activities as badminton, basketball, table tennis, handball, and volleyball; arenas of gymnastics, wrestling, judo etc. used for instruction, participation and competition. From the fiscal viewpoint two important things should be uppermost in the mind of the sports and physical education administration: (1) infrastructural facilities are developed as a result of programme needs, and (2) well-coordinated comprehensive and cooperative planning is essential to avoid common mistakes and prevent wasteful expenditure, both on construction and maintenance of the facilities. Planning, construction and maintenance of infrastructure for sport and physical activity necessarily require a broad vision, a progressive outlook, a flexible attitude and a dynamic approach, thus taking care of such important factors as objectives, programmes, resources, needs, standards, structural and functional requirements etc., and above all finances.

Play fields: A play ground is not simply a plain, level turfed open piece of land; it is laboratory of sport and a temple of skill learning. Sport is played and physical activity performed on the play grounds, not in vacuum. Being a material cause of the activity programme, the play fields are of vital importance to exercisers, sportspersons and their trainers. The preparation, lay-out and upkeep of playfields require scientific and realistic approach.

- **Location:** in educational institutions, play fields should preferably be located within the boundaries of the institution or at a walking distance from it. They should neither be laid across the road nor adjacent to the polluted surroundings, open drains, garbage dumps, factories discharging smoke and chemical and noisy railway yards. Their proximity to swampy buildings and class rooms disturbance to either side.
- **Fencing:** play grounds must be fenced with suitable medium-woven wire (10'high), a hedge or a wall. Fencing protect property, provide privacy, reduce supervisory problems check unauthorized entry and keeps balls and other playing material from rolling or being sent out of bounds
- **Lay-out:** functionality, utility, economy in care and maintenance, and rules of specifications are major consideration in playfields lay-outs.
- **Surface:** playfield surface come in natural, grassy and synthetic form. The usage, health and sanitation, non-abrasiveness, durability, resilience, pleasing appearance, low initial and maintenance cost etc., may decide what kind of surface to have. A good surface should facilitate learning and better performance and reduce the chance of injury.

Gymnasium: A gymnasium by its modern definition is a complex multipurpose sophisticated hall where it is possible to hold practice and competition of such activities and sports as badminton, basketball, handball, table tennis, gymnastics, wrestling, judo, yogic asana, tumbling etc., on simultaneous or makeshift basis. A gymnasium has a sanctity of a temple of learning, human activity and competition. Important guidelines for its construction and technical standard are enumerated below:

- A gymnasium floor should be elastic and shock absorbing. Wooden or synthetic flooring provide desired cushioning effect.
- The wall of the gymnasium should be smooth, strong with no projections. They should be painted light cream or washed white. Permanent hooks should be provided for stretching wires, making temporary partitions, fixing climbing ropes, Roman rings (5.50-5.80 m) etc.
- **Size:** no hard and fast rules govern gymnasium dimensions. The size of gymnasium depends upon user's strength and their needs, objectives of the programmes, type of institution etc. A school gymnasium ought to be 20x12x7 m, in size, a standard gymnasium 36x24x10 m, and a large gymnasium which can accommodate several courts ought to be 50x30x12.5m in size so as to be facilitate conduct of international indoor competitions.

COMMON INJURIES IN SPORTS

Injury means physical harm to a living being. A person who is prone to get injury, for example one who is easily injured or often injured. The most popular procedures for developing a definition of injury are accurate medical diagnosis and time lost by the individual participation. Of the various possible methods of categorizing injuries, one of the most logical is according to cause. Most of the athletic injuries can be classified into two broad groups.

1. INTRINSIC- as case of ruptured muscle fibers.
2. EXTRINSIC- caused by external agents like balls, sticks or by an action of the opponent.

Injury occurring in sports may be simple to grievous and many deaths have occurred so far. Hence the athlete and the coaches concerned with him should have the knowledge of injuries. Prevention is better than cure. The majority of injuries in sports are **intrinsic** caused by over use, abuse, misuse or disuse of the body. If the individual have an awareness of the mechanism of sports injuries this will lead to its reduction.

Table 1 Common Mechanisms of Injury

Mechanism	Injury
Direct blow	Contusions, sprains, dislocation, fractures
Binding force	Fracture, epiphyseal separations
Stretching force	Sprains, strains
Twisting force	Sprain, fractures
Muscular in coordination	Strains, sprains
Overuse	Tendinites, bursitis, strains, sprains, shin splints, stress fracture

Sports injuries are generally categorized into soft tissue injuries, bones injuries and joint injuries and grouped into two major classes: (a) exposed injuries, and unexposed injuries or concealed injuries.

Soft Tissue Injuries

The body's soft tissues are the skin, blood vessels, nerves, muscles, tendons, ligaments, glands, and linings and coverings of the organs. The soft tissue injuries- both exposed and unexposed- occur to the connective tissues (muscle, tendons and ligaments) generally during vigorous practice or competition. These are in form of (a) minor injuries like a abrasion, laceration, incision etc., and (b) major ones such as muscle tear or muscle rupture, muscular haematoma, muscle strain, etc. All of these traumatic injuries cause damage to the cells that make up the soft tissues. The dead and damaged cells release chemicals, which initiate inflammatory responses. Small blood vessels are damaged and opened up, producing bleeding within the tissue. In the body normal reaction, a small blood clot is formed in order to stop this bleeding and form this clot special cells (called fibroblasts) begin the healing process by laying down scar tissue.

Bone Injuries

Bone injuries are chiefly fractures. In common language, broken bones are called fractured bones. The application of force to a joint or bone may give rise to bone injury, either at the point impact or some distance away. Fractures account for 5-6 % of all sports injuries. The bones of the arm and legs most apt to be broken. Sports activities rarely involve fractures of the spine or skull.

Joint Injuries

Sprain, strain and fractures also occur to the joint as they do to the muscles, ligaments and bones but most common injuries to the joints come in the form of dislocation, tenosynovitis (inflammation of the synovium surrounding a tendon), bursitis (inflammation within bursa), and synovial hernia.

Overuse Injuries

Overused injuries are common in athletes who have focused their efforts on one sport. These injuries are caused by the cumulative effects of very low level of stress, such as the repetitive action or running; in other words, stress fractures occur due mostly to ill- devised and unscrupulous training programme carrying repetitive overstraining of bones due to weight training or forceful contraction. Chronic muscle strains, stress fractures, tendinites (overuse/over-load fatigue within tendon), snapping hip (iliopsoas tendon snapping over the head of the femur), and bursitis (inflammation and thickening of the bursa wall) are example of overuse injuries. Most commonly affected bones are tibia, metatarsals, fibula, navicular, femur and pelvis. Stress fractures also occur in non-weight bearing bones such as humerus in basketball pitcher, ribs in rowers, epiphyseal plate of radius in gymnast's etc. Stress fractures of the pelvis occur most often in runners and dancers. Stress fracture of the femur usually occurs in runners.

Role of the Sports Facilities in Prevention of Injuries

Protective Equipments

When a hazard cannot be eliminated, protective equipment is needed to decrease the chance or severity of injury. The effectiveness of equipment is greatly reduced if it is of poor quality, improperly fitted, or in a state of disrepair. Even if you have an equipment manager, the ultimate responsibility for the quality of protective equipment is yours. In certain sports, there is reluctance on the part of some coaches to require all protective equipment that is needed. For example, there are ice hockey coaches who believe that protective headgear is an optional piece of equipment. This approach is hard to justify since studies have shown the importance of such protection, especially for the child athlete.

Unfortunately, there are times when the proper protective equipment is available but is not worn. You must discuss equipment and its use with your athletes. Be sure to review the importance of each piece of protective equipment and why it must be properly fitted and kept in good order. Show your athlete how to use and care for the equipment and how to make quick inspections for defects or wear before and after each use.

Most coaches are familiar with the protective equipment demands of their particular sports. Table 2 lists the basic protective equipment needs for some popular sports. Notice that athlete shoes, protective eyewear and mouth guards are used in almost every sport. These items will be discussed in greater details.

Table 2 Protective Equipment-Basic Needs

Sport	Protective equipment
Badminton	Court shoes
Baseball/softball	Baseball gloves, baseball or soccer shoes or shoes with appropriate spikes for the skill level, batting helmets with ear protectors, long socks, long pants, sliding pads, athletic supporter for male athlete; for catcher: chest protector, shin guards, face masks with neck (throat) protector, cup supporter for male athlete
Basketball	High-top basketball shoes, knee pads, mouth guards, eyeglasses guards, athlete supporter for male athlete
Field hockey	Shin guards, long socks, mouth guards; for goalie: helmet with face mask, padded gloves, leg pads, and kickers
Football	Soccer shoes, knee pads, hip pads, thigh pads, shoulder pads, helmet with face mask, mouth guard, tight pants and jersey, cup supporter for male athlete
Gymnastics	Gymnastics slippers, hand grips, hip pads (when appropriate)
Handball	Court shoes, eye protector, padded gloves
Jogging/running	Training shoes, socks
Roller skating	Heavy socks, knee pads, elbow pads, helmet, gloves
Swimming	Goggles
Tennis/racquetball	Court shoes, eye protector, glove
Volleyball	Court shoes, knee pads, long-sleeved jersey, athlete supporter for male athlete
Wrestling	Wrestling shoes, knee pads, elbow pads, headgear, mouth guard, athletic supporter for male athlete

With the increase in number of people engaging in sporting activities, the number of injuries has surged. Constant exercise is beneficial for health and although there are always risks involved, the benefits far outweigh them. Through usage of protective equipments when engaging in sporting activities can help reduce injuries and make the sports much safer. However, it is important to use the correct protective equipment meant for the particular sporting activity. Using a pair of soccer boots help to protect the ankle from ankle injuries as the studs help to provide a firm grip. However, using the same pair of boots for running will cause serious injuries.

Helmets

Helmets are basic protective equipment and many people tend to not use them due to the fact that most are bulky and feels uncomfortable. However, helmets are important if you are engaging in sports such as inline skating, skiing, cycling, hockey and baseball. Make sure that the helmet you are wearing is meant for the particular sporting activity. Do not use a cycling helmet for hockey as they are not meant for it. The helmet must also meet their respective safety standards such as the

CPSC standard. Make sure that the helmet fits snugly on your head as an ill fitting helmet can cause more harm than good in the event of an accident.

Eyewear

Eyewear is also essential protection equipment that is often neglected by people. Most eyewear is made of polycarbonate which provides good impact protection for the eyes. Activities such as ice hockey and baseball require adequate eye protection. It is important to use eyewear that is certified as non certified ones will shatter upon impact and the shrapnel will injure the eyes. If you wear glasses, make sure you purchase one that has prescription lenses.

Mouthpieces

Mouthpieces are important if you are playing contact sports. Mouthpieces covers your teeth and gums and prevent injuries to them. If you are intending to participate in sporting activities such as football, hockey, boxing and wrestling, you should invest in a good quality custom moulded mouthpiece.

Footwear

Different sporting activities require the use of different footwear mainly due to different demands and playing surfaces of the activity. For example, although soccer and rugby are played on the same surface, they require different boots to be worn mainly due to the different demands and rules. Rugby boots require bigger studs to allow better gripping of the surface. Using the correct protective equipment for the right sport is important. Not only that, the protective equipment needs to be well fitted. Using the right ones will greatly reduce your risk of injury and make the game more enjoyable.

DISCUSSION

After studied the above facts it has proved that sports facilities play an important role in prevention of sports injury. Most important is awareness of injuries, because prevention is better than diagnosis. It is a coach/trainer duty that he/she have to aware their trainees towards the methods of preventing injuries and it is the duty of sports authorities and concern bodies to provide good facilities such as ground facilities, first-add , better equipment and their use etc. Most of the sports injuries are overuse type. So, here are the coaches responsibility that he/she aware his players about the injuries. Sportsperson needs medical check-up before and after the competition or practice. A better technique helps in reducing injuries. So, if we want to achieve our aims in sports than we have to be aware about the sports injuries.

REFERENCES

- [1] Jennifer L. Minigh. SPORTS MEDICINE health and medical issue today. Publication- Greenwood Press Today, Westport, Connecticut London, ISBN--13: 978-0-313-33894-6 page-30-36
- [2] Dr. N. Govindarajulu, head dept of Physical Education and Sports Pondicherry University. Sports Medicine, friends publication India ISBN—81-7216-184-0, 2006
- [3] j. David Bergeron, Med, Holly Wilson Greene, Phd, ATC, PRT, COACH GUIDE TO SPORTS INJURIES, human kinetics books, champaign, Illinois, IBSN-0-931250-37-4, 1989
- [4] delorme.T. L., & Watkins, W. L. (1995). Progressive resistance exercise. New York; Appleton –century-crofts.
- [5] Nygaard, G., & Boone, T.H. (1985) Coach Guide to Sports Law. Champaign, IL: Human Kinetics.
- [6] Sharkey. B.J. (1986) Coach guide to sports physiology. Champaign, IL: Human Kinetics Barboka C. H., “relationship between vitamin between-complex intake and workout in trained subject” sports medicine journal vol. 3 (19943)
- [7] Evans, “effects of nutrition of Physical Activity and on Metabolism of Muscle” sports Medicine Journal vol.6 (1989)