



## Effects of training for preventing injuries in sports

Dr. Sanjay Choudhary

Assistant Professor, Department of Physical Education, Satyawati College, University of Delhi, Phase III, Ashok Vihar, Delhi, India

DOI: <https://doi.org/10.33545/26647249.2021.v3.i1a.104>

### Abstract

This paper tries to explain the importance of training in the performance of an athlete. The significance of sports/games is recognized all over the world, as they make the individuals physically and psychologically fit, and release the stress and strain and keep them healthy. Many studies reveal that stress and strain and sedentary life are the root cause for many diseases. Hence sports/games must be included in every one's life. Unless these sports/games are practiced under the supervision of trained professionals, the players may become victims of injuries. Certain injuries may even cause serious damages which are irreversible, and spoil the sports career of an athlete. Sometimes the damage may be so serious that it may cause physical disability also. Hence it is highly essential for every sports person to be trained to start an event.

**Keywords:** Training, preventing, injuries, recognized, root

### Introduction

Training is a systematic and organized procedure, by which people learn knowledge skill and ability for a definite purpose. Training improves, changes, moulds the individuals knowledge skill, behaviour and attitude of an individual towards the requirements to perform an event /to achieve a goal. Training gives confidence and enables the individuals to take right decisions at right time and in the right direction. Injury rates could be reduced by 25% if athletes took appropriate preventative action. The major outcome of training is learning. A trainee learns new habits, refined skills, and useful knowledge during the training that helps him/her improve performance.

There are two types of imparting training on the field and off the field.

Under the first method, an individual learns the do's n don'ts of a particular game while playing the game and accordingly mould him/her for the game. In the second method there are separate training centres for imparting training before they perform. It refers to training that occurs away from the event setting in the gym where the athlete improves on strength, speed, agility, power, balance, and cardiovascular conditioning which then translates to improved performance during competition.

1. **Circuit Training:** Combining resistance training and high-intensity aerobics to enhance strength and muscular endurance through a series of prescribed exercises completed in rapid succession with short rest intervals.
2. **Conditioning:** Regular training that reshapes the body for specific physical activities, resulting in stronger/faster muscle movements and improved bone density.
3. **Endurance:** Developing the ability to sustain muscle contractile force over time, essential for athletes in all disciplines, achieved through activities like circuit

training, weight training, hill running, and harness running.

4. **Flexibility:** The capacity to move freely without restriction from tight muscles and joints, influenced by lifestyle and body composition.
5. **Overtraining:** Occurs when exercise volume and intensity exceed the body's recovery capacity, leading to stagnation or decline in performance and potential loss of strength and fitness.
6. **Plyometric Training:** Exercises designed to enhance fast, powerful movements by leveraging muscle strength, elasticity, and nervous system function, commonly used to improve sports performance.
7. **Proprioceptive Training:** Enhancing the body's automatic sensitivity mechanism through the central nervous system, aiding in efficient everyday movements and unconscious coordination.
8. **Speed Training:** Focuses on maximizing athletes' speed potential through targeted techniques and training methods, crucial for improving sprinting performance.
9. **Strength Training:** Utilizes resistance to muscular contraction to build anaerobic endurance and muscle size, employing various methods like gravity or elastic/hydraulic forces.
10. **Technique:** Refers to the manner and proficiency with which technical skills are applied in a specific field or activity, emphasizing the specialized procedures and methods used for optimal performance.
11. **Warm-up:** Preparatory activities before exercise or sports performance to increase muscle temperature, blood flow, metabolic activity, neural pathways efficiency, and psychological readiness, reducing the risk of injury.
12. **Weight Training:** Strengthening specific muscle groups to enhance performance in various sports,

focusing on susceptible areas and tailoring programs to individual needs and sport requirements.

In the dynamic and competitive world of sports, the importance of training goes beyond enhancing performance; it is also crucial in preventing injuries. Athletes, regardless of their level of expertise, are prone to various injuries due to the physical demands of their sports. These injuries can range from minor strains to severe conditions that may end careers. Effective training programs play a vital role in mitigating these risks and ensuring athletes maintain optimal health and performance.

### **The Importance of Proper Training**

Training is a multifaceted process that involves physical conditioning, technical skill development, and mental preparation. Proper training regimes are designed to improve an athlete's strength, flexibility, endurance, and agility, all of which are essential for peak performance and injury prevention. The structured nature of training allows athletes to progressively build their physical capabilities, reducing the likelihood of overexertion and acute injuries.

One key aspect of training is the emphasis on proper technique. Coaches and trainers focus on teaching athletes the correct form and execution of movements specific to their sport. This attention to detail helps prevent injuries that commonly occur due to poor technique, such as joint dislocations, muscle strains, and ligament tears. For instance, in sports like weightlifting, incorrect lifting techniques can lead to severe back injuries. Through rigorous training, athletes learn to lift correctly, thereby minimizing the risk of such injuries.

### **Physical Conditioning and Injury Prevention**

Physical conditioning is a cornerstone of training programs aimed at injury prevention. Conditioning exercises strengthen muscles, enhance joint stability, and improve overall body coordination. Strong muscles act as shock absorbers, reducing the impact on bones and joints during physical activities. For example, strengthening the quadriceps and hamstrings can significantly reduce the risk of knee injuries, which are prevalent in sports like soccer and basketball.

Flexibility training is equally important. Stretching exercises enhance the elasticity of muscles and tendons, allowing for a greater range of motion. This increased flexibility helps prevent muscle strains and sprains, which are common injuries in sports that require sudden changes in direction or speed, such as tennis and gymnastics. Incorporating dynamic and static stretching routines in training programs can effectively reduce the incidence of these injuries.

Endurance training, which includes cardiovascular exercises, also plays a vital role in injury prevention. High levels of endurance enable athletes to maintain proper technique and form throughout their activities, even when fatigued. Fatigue is a significant risk factor for injuries, as tired muscles are less capable of supporting joints and maintaining coordination. By improving cardiovascular endurance, athletes can sustain their performance levels and reduce the likelihood of injuries caused by fatigue.

### **Specific Training Techniques for Injury Prevention**

Several specific training techniques are particularly effective in preventing injuries. Plyometric training, which

involves explosive movements like jumping and sprinting, helps improve muscle power and coordination. This type of training is beneficial for sports that require quick bursts of energy, such as basketball and volleyball. By enhancing the neuromuscular coordination, plyometric exercises reduce the risk of injuries associated with sudden, explosive movements.

Balance and proprioception training are also crucial components of injury prevention. Proprioception refers to the body's ability to sense its position and movement in space. Exercises that improve balance and proprioception, such as stability ball workouts and single-leg stands, enhance the body's awareness and control. This improved control helps prevent falls and injuries caused by loss of balance, which are common in sports like skiing and surfing.

Core stability training focuses on strengthening the muscles of the abdomen, lower back, and pelvis. A strong core provides a solid foundation for all athletic movements, reducing the risk of injuries to the lower back and other areas. Core exercises, such as planks and medicine ball twists, are integral parts of training programs for athletes in sports ranging from gymnastics to rowing.

### **The Role of Recovery in Injury Prevention**

Recovery is an often-overlooked aspect of training that is essential for injury prevention. Adequate rest and recovery periods allow the body to repair and strengthen itself after intense physical activities. Overtraining, on the other hand, can lead to fatigue, decreased performance, and a higher risk of injuries. Training programs should include scheduled rest days and incorporate techniques like active recovery, where light exercises are performed to promote blood flow and muscle relaxation.

Proper nutrition and hydration also play critical roles in recovery and injury prevention. Nutrients such as protein, vitamins, and minerals are necessary for muscle repair and overall health. Staying hydrated helps maintain joint lubrication and prevents muscle cramps. Athletes should follow balanced diets and ensure they consume adequate amounts of fluids before, during, and after training sessions.

### **Psychological Aspects of Injury Prevention**

Mental training and psychological readiness are integral components of a comprehensive training program. Stress, anxiety, and lack of focus can contribute to injuries, as they affect an athlete's ability to perform optimally. Techniques such as visualization, goal setting, and mindfulness can help athletes maintain concentration and reduce the mental stress that may lead to injuries. A positive mindset and strong mental resilience enable athletes to handle the pressures of competition and training more effectively, further reducing injury risks.

### **Individualized Training Programs**

One-size-fits-all training programs are often ineffective in preventing injuries because each athlete has unique physical attributes, strengths, weaknesses, and injury histories. Individualized training programs, tailored to the specific needs of each athlete, are more effective in addressing these unique factors. Personalized assessments can identify areas of vulnerability and guide the development of targeted exercises to strengthen those areas. For instance, an athlete with a history of ankle sprains might benefit from a program

that includes specific exercises to enhance ankle stability and proprioception. Similarly, an athlete recovering from a shoulder injury would need a different set of exercises focusing on shoulder mobility and strength. By addressing individual needs, personalized training programs can significantly reduce the risk of re-injury and promote long-term athletic health.

### Technological Advancements in Training

Advancements in technology have also contributed to more effective injury prevention strategies in sports training. Wearable devices, such as fitness trackers and smart watches, provide real-time data on an athlete's performance, including heart rate, movement patterns, and fatigue levels. This data can be used to adjust training intensity and volume, ensuring athletes do not overexert themselves and remain within safe limits.

### Conclusion

Additionally, motion capture technology and biomechanical analysis allow for detailed assessments of an athlete's movements. By identifying inefficiencies and risky movement patterns, coaches can provide corrective feedback to improve technique and reduce injury risks. Virtual reality (VR) training is another innovative approach that offers immersive environments for practicing specific skills and scenarios, enhancing both physical and mental preparedness. Training is important in learning the methods of performance increasing in training increasing the abilities in performance, Do's and Don'ts of the event, avoiding and preventing the accidents or injuries. Many studies were conducted by the researchers and advised that should be matched with increases in resting, avoid training when tired, stop your training, if you experience pain when training, and stay away from infectious areas when training or competing very hard. There must be sports man spirit in players and healthy competition among the players which is lacking in many competitors now days. Sports competitions should not create stress in the minds of players. Instead they should relieve them from the stress. I wish all the sports men/women a very good luck in their future endeavours. The effects of training on preventing injuries in sports are profound and multifaceted. A well-designed training program that incorporates physical conditioning, technique refinement, recovery strategies, and psychological readiness can significantly reduce the risk of injuries. By understanding and implementing these principles, athletes can achieve peak performance while maintaining their health and longevity in their chosen sports. As sports continue to evolve, the integration of individualized training programs and technological advancements will further enhance the ability to prevent injuries and support the well-being of athletes at all levels.

### References

1. Anderson MB, Williams JM. A model of stress and Sport Person injury: prediction and prevention. *J Sport Exerc Psychol.* 1988;10:294-306.
2. Anshel MH. Qualitative validation of a model for coping with acute stress in sport. *J Sport Behav.* 2001;24(3):223-246.
3. Bramwell ST, Masuda M, Wagner NN, Holmes TH. Psychological factors in Sport Person injuries: development and application of the Social and Sport

- Person Readjustment Rating Scale. *J Hum Stress.* 1974;1:6-20.
4. Anshel MH, Russell KG. Effect of aerobic and strength training on pain tolerance, pain appraisal and mood of unfit males as a function of pain location. *J Sport Sci.* 1994;12:535-547.
5. Coyle EF. Integration of the physiological factors determining endurance performance ability. *Exerc Sport Sci. Rev.* 1995;23:25-64.
6. Crossman J. Psychological rehabilitation from sports injuries. *Sports Med.* 1997;23:333-339.
7. Egan S. Acute pain tolerance among Sport Persons. *Can J Sport Sci.* 1987;12:175-178.
8. Goreman K. The use of talent-predictive factors in the selection of track and field Sport Persons. In: Gambetta V, ed. *The Sport Person Congress's Track and Field Coaching Manual.* Champaign, IL: Leisure Press; c1989. p. 31-36.
9. Hergenroeder AC, Klish WJ. Body composition in adolescent Sport Persons. *Pediatr Clin North Am.* 1990, 37.
10. Iso-Ahola SE, Hatfield B. Psychological characteristics and pain tolerance of successful Sport Persons. In: Iso-Ahola SE, Hatfield B, eds. *Psychology of Sports.* Dubuque, IA: William C. Brown; c1986. p. 151-176.