

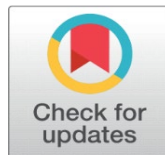
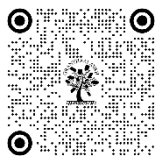
PRINCIPLES OF MANAGEMENT OF SOFT TISSUE INJURIES IN SPORTS

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ABSTRACT

Sports injuries are commonly caused by overuse, direct impact, or the application of force that is greater than the body part can structurally withstand. Soft tissue injuries typically describe damage to muscles, tendons, and ligaments. They may lead to pain, swelling, and restricted mobility and can occur for many reasons. Soft tissue injury may include injury to tendons, ligaments, capsules, synovium, articular cartilage and fascias. Some potential causes include athletes repeatedly overusing their soft tissues and physical trauma. Many people experience soft tissue injuries when they don't let their muscles fully recover from a workout and continue the routine with increased intensity. Resulting from this pattern, the muscles used can experience trauma or strain. Initial treatment includes stopping the activity that caused the fracture, elevation, ice, and anti-inflammatory medicine. Continued treatment includes rest, decreasing weight-bearing on the affected area, shoe inserts or braces, and possibly cast immobilization. This article explores the types, symptoms, causes, and diagnosis of soft tissue injuries and how to treat and prevent them.

Keywords: Soft Tissue Injuries, Acute, Chronic, Management, Rehabilitation, Exercises

1. INTRODUCTION

Soft tissue injuries are the most common injuries in sports. Soft tissue refers to tissues that connect, support or surrounds other structures and organs of the body. Soft tissue includes Muscles, tendons, ligaments, nerve, fibrous tissues, blood vessels and synovial membranes. Soft tissue injury generally involves one or more of the above structures via sprain, strain or direct blows. Injuries may be classified as *Acute and Chronic*; both types of injuries usually involve muscle and bone. Acute Injuries are caused by sudden stress, twist or results from a collision. i.e., sprains, strains, contusions, fracture etc. Chronic Injuries are caused by continuous stress, over a long period of time. i.e., tennis elbow, golfers elbow, shin splints etc.

Injuries may be further classified in to two types, which are "Open or external injuries" and "Closed or Internal Injuries" Open/external injuries: Skin damaged with external bleeding, i.e., cuts, blisters, abrasions etc. Closed/Internal injuries: Skin remains intact, no external bleeding, like strains, sprain, dislocation, bruises, cartilage damage etc.

How to prevent injuries?

Training schedules planned with reference to nutrition, rest, load, intensity, capacity, etc.,

Allowing adequate recovery time between workouts or training sessions.

Use correct equipment and proper clothing.

Under taking training prior to competition to ensure readiness to play.

Both disuse and over use of muscles are dangerous; therefore use muscles proper and adequate.

Management of Soft Tissue Injuries

1. Management during inflammatory phase:

The accepted early management of Soft tissue injuries during first 48 hours i.e., acute inflammatory phase is the R.I.C.E. treatment. The aim of this RICE treatment is to minimize swelling and bleeding in the soft tissues. It is imperative that as soon as possible after injuries the following treatment applied to the injured part.

R – Rest **I** – Ice **C** – Compression **E** - Elevation.

Rest: Injured area Mobility must limited i.e., Rest. Keep the injured area still. Because movement will cause an increase in blood flow to the tissue and May causing further damage, swelling and pain.

Ice: Ice must be applied in the form of a wet towel with crushed ice in it, for 10 minutes every hour for the first 24 hours if possible. This will contract blood vessels and decrease the blood flow to the injured site of the tissues, thus limiting the swelling. (Ice should not be placed directly on the skin as this can cause painful skin burns)

Compression: The injured part should be compressed with a firm crepe bandage. Make sure the bandage is applied firmly from below the injured are. Compression will control the accumulation of fluids, with leak out of the damaged blood vessels in to the tissues of the injured area. It also arrests the further bleeding. The bandage should be left on at all times in the first 48 hours if possible.

Elevation: Its simply means lifting the injured part above the horizontal, to allow a better drainage of fluid back toward the heart. If possible the end of the bed should be elevated on blocks / pillow when sleeping. This procedure should be strictly advice to over the first 48 hours of injured.

Note: Not to consume alcohol in the early stage after injuries. Alcohol dilates the blood vessels and allowing more blood to travel to the affected area. Hence more bleeding and fluid accumulation can occur and increase the extent of injuries.

Heat in the form of hot baths or local heat packs should not be used in the early stage, as this will also aggravate bleeding.

2. Management during repair phase: (Rehabilitation phase)

Once the dangerous period of 48 hours over, management of injuries progresses to the repair phase. Rehabilitation is a type of remedy or treatment given to the injured part to return you to the sports of your choice at a level as close as possible to our pre-injured standard.

Repair phase involves following factors.

Movement: Gentle movement of the injured part can now be commenced. It is important that this movement is initiated by the injured person (active movement) and not by someone else (Passive movement). All the movements should be within the limit of the pain. Movement contract the muscle, which acts as a suction pump to remove unwanted fluid and swelling from around the injuries.

Heat: Heat in the form of a ray lamp or gentle heat rub may now be applied. If a heat lamp is used apply for 10 minutes and ensure the lamp is no closer than 45cms from the injured part. Heat rubs will give some relief of pain but they should not be deeply or vigorously massaged into the injured tissue. Exercise rough massage can cause further bleeding and tissue damage.

Function: Now start to use the injured part, e.g. Begin walking if we have suffered a mild knee injury or ankle sprain and begin using arm for non-stress full daily activities if we have suffered an elbow or shoulder injury.

Note: If injured part is very restricted in function further professional advice should be obtained.

3. Management later repair phase:

Further active phase begins after the injury is 7-14 days old. This phase involves Development of Stretching and Development of Strength.

Development of Stretching: Stretching should be done only within the limits of pain. Stretching may be divided in to two categories self stretching and therapeutic muscle stretching (TMS). Self stretching is utilized in fitness exercises. TMS is specific muscle stretching, performed instructed or supervised by a therapist for patients. TMS and self stretching may supplement each other.

A good method is to stretch just until you feel the muscle get tight, hold for 30 sec then relax for 10 sec and repeat the stretch again. This way we will be teaching the muscle, what it will be required to do when we start playing sports again.

Note: Avoid over stretching, it may cause tearing of the delicate new repair tissue.

Development of Strength: We can now begin some exercise to rebuild the weakened muscles, which will then protect the healing or stretched ligaments. They are several modes of exercise which can be used e.g. thigh quadriceps muscles strengthening exercises, trunk strengthening and mobilizing exercise etc. Strengthening the injured part muscles with *Isometric*, *Isokinetic* or through *Isotonic* strength exercises.

Isometric strength exercises: Contraction of muscles which does not result in movement, such as pushing against an immovable object. The muscle does not change its length, i.e., it does not get shorter or longer. This exercise are best performed by building up the contraction slowly for 2 sec then hold it for 6 sec, then relaxing for 2 sec more. This process is then repeated 10 times in 1 session. These sessions should be done 3 times in a day.

Isokinetic strength exercises: In these exercise we work against a machine which controls the speed of the movement and gives resistance that varies depending on your ability to work the injured part. This can be regulated to that of your sports and its various movements.

Isotonic strength exercises: Contractions involve movement of the leg or arm with a small weight attached to it. This exercise will build up strength more quickly than isometrics. A good session is 3 sets of 10, 3 times a day.

2. CONCLUSION

All sports pose a risk of injury, successful treatment of the patient with Soft Tissue Injuries required regular follow up to ensure proper healing of the wounds. Adequate understanding of vascularity and meticulous execution is the key to success.

Heat should not be applied to a recent injury (within 48 hours) and Massage of muscle injuries should be avoided in the first week following injury. Adequate pain free muscle stretch and strength exercises are vital for a successful return to competition. We can expect full recovery from most soft tissue injuries in one to six weeks. The length of recovery time depends on age, general health and severity of the injury.

Both disuse and over use of muscles are dangerous; therefore use muscles proper and adequate. Physical therapy is a necessary part of soft tissue injury recovery. Therapists can help to regain range of motion and reduce the potential for future trauma around the joint.

CONFLICT OF INTERESTS

None.

ACKNOWLEDGMENTS

None.

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