



SPORTS PHYSIOTHERAPY AND REHABILITATION

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ABSTRACT :

Sports Physiotherapy is the specialised branch of physiotherapy which deals with injuries and issues related to sports people. Sports injuries do differ to everyday injuries. Athletes normally require high level performance and demand placed upon their body, which stresses their muscles, joints and bones to the limit. Sports physiotherapists help athletes recover from sporting injuries, and provide education and resources to prevent problems. Each sports physiotherapist usually has sport-specific knowledge that addresses acute, chronic and overuse injuries. Their services are generally available to sports men and women of all ages engaged in sports at any level of competition.



KEYWORDS : *Sports Physiotherapy , high level performance and demand placed.*

INTRODUCTION

The basic function of Physiotherapist in Sport is the application of treatment by physical means: electrical, thermal, mechanical, hydraulic, and manual therapeutic exercises with special techniques. Based on the definition of the WCPT on Physiotherapy in Sport, this is the set of methods, techniques and performances, which through the use and application of physical agents prevent, recover and readjust to persons with locomotors, produced by sport or exercise at different levels. These levels are none other than the basic sports, sports fan and sports elite both leisure and competition.

FUNCTIONS OF PHYSIOTHERAPIST:

- **OUTREACH IN SPORT** Physiotherapist will advise the sports people and professionals linked to it and perform any actions that help improve the conditions of avoidance of injury to the athlete.
- **PREVENTION** The Physiotherapist in Sport should be alert to avoid as far as possible all those factors that might bring up injuries by sports in general and of each particular sport, associated injuries and / or consequences of injury primary, and its possible recurrence.
- **RECOVERY** The Physiotherapist in Sport should regain the functionality of the athlete as quickly as possible, accelerating the biological processes of recovery from injury, limiting his training as little as possible and ensure that they are reinstated with the greatest prospects for success.
- **REHABILITATION** The Physiotherapist in Sport, after recovering from injury, put all his knowledge on making the athlete begins his sport in the physical conditions more appropriate, and as similar as possible to those presented before the injury.

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REHABILITATION

The purpose of rehabilitation is to restore some or all of the patient's physical, sensory, and mental capabilities that were lost due to injury, illness, or disease. Rehabilitation includes assisting the patient to compensate for deficits that cannot be reversed medically. It is prescribed after many types of injury, illness, or disease, including amputations, arthritis, cancer, cardiac disease, neurological problems, orthopedic injuries, spinal cord injuries, stroke, and traumatic brain injuries.

Rehabilitation should be carried out only by qualified therapists. Exercises and other physical interventions must take into account the patient's deficit. An example of a deficit is the loss of a limb.

DESCRIPTION

A proper and adequate rehabilitation program can reverse many disabling conditions or can help patients cope with deficits that cannot be reversed by medical care. Rehabilitation addresses the patient's physical, psychological, and environmental needs. It is achieved by restoring the patient's physical functions and/or modifying the patient's physical and social environment. The main types of rehabilitation are physical, occupational, and speech therapy.

Each rehabilitation program is tailored to the individual patient's needs and can include one or more types of therapy. The patient's physician usually coordinates the efforts of the rehabilitation team, which can include physical, occupational, speech, or other therapists; nurses; engineers; physiatrists (physical medicine); psychologists; orthotists (makes devices such as braces to straighten out curved or poorly shaped bones); prosthetists (a therapist who makes artificial limbs or prostheses); and vocational counselors. Family members are often actively involved in the patient's rehabilitation program.

DIFFERENT TYPES OF REHABILITATION

Rehabilitation is a process used to give a healing touch to the patients who are suffering from physical and mental disorders, addiction, etc. Rehabilitation program helps the patient to get back to his/her normal life and earn a livelihood. Rehabilitation plays an important role in the lives of addicts and persons who have suffered from diseases or accidents. Rehabilitation plays a key role in the lives of people who have suffered from a trauma. This program is given to patients based on their needs. Every person's requirements vary so the program is subjective. Personal attention is given to each patient and his or her development is monitored on regular basis. According to the needs, the rehabilitation programs are divided in various types.

OCCUPATIONAL REHABILITATION:

This particular type of Rehabilitation is for those victims who do have lost some important skills after they have met with a paralytic stroke or any unfortunate major accident. We have to perform these skills everyday in our life, without which it is impossible to survive. Skills like writing, reading, cooking food etc. We lose this skill if our brain is injured; therefore victims lose interest in communicating with other people. For this type of patients, doctor advises to visit occupational therapist. This particular therapist helps you to do regular physical exercises, meditation to make your muscle strong. The patient is given special care by their counsellor and psychologist.



PHYSICAL REHABILITATION:

This sort of rehabilitation is used for patients who have suffered from bone and muscle injuries. The physiotherapist helps a lot in giving the right exercise regime to strengthen the muscles of back neck,

shoulder, etc. This injury can happen due to accidents, sports, etc. A lot of treatment and technology is available in physical rehabilitation. The recovery time differs from person to person and so does the type of injury. The patients have to follow religiously the given exercise patterns.

AQUATIC REHABILITATION:

This is a new trend in rehabilitation yet it is a successful in treating problems in joints. The therapists treat the patients by giving various water exercises like swimming, water aerobics, etc. This helps in giving strength, flexibility and mobility to the muscles of legs. Many patients with arthritis, joint pain, and paralytic stroke are treated with help of this rehabilitation. The program is customized according to an individual's needs and he or she is treated to recover from the injury so that he or she has a normal life.

COGNITIVE REHABILITATION:

This type of rehabilitation is given to patients who have suffered from brain injury. To help them to get back to routine activities, they are treated with the help of neuropsychological approach. In this program, the patients are given counselling and mental exercises. This program looks at cognitive, social, moral and emotional aspects of the brain injury that has made the patient dependent. This rehabilitation helps to support a patient to get back to his normal life prior to injury. The person can go back to his or her studies or job after recovering fully.

CRYO-THERAPY:

Cryo therapy is the use of cooling to treat injuries. The effect of cooling on damaged soft tissues has been researched and although the benefits are accepted, there are varying opinions on the duration of the cooling process in order to gain maximum benefit.

USE OF ICE:

When applying ice never apply directly onto the skin as this may result in ice burns to the skin, instead wrap the ice in a damp cloth (a dry cloth will not transmit cold effectively). There is ongoing debate over how long to apply ice. Current research suggests that during the first 24-48 hours after injury ice should be applied for 10 minutes and repeated every 2 hours.

If the ice pack is left on for more than 10 minutes, a reflex reaction occurs (Hunting effect) where the blood vessels dilate and blood is again pumped into the injured area, causing further bleeding and swelling. Ice will have an analgesic effect on the injured part by limiting the pain and swelling, muscle spasm may also be reduced. Whilst this has obvious benefits, be cautious about reducing the pain, as this may mask the seriousness of the injury.

During the first 24 to 72 hours after an injury be sure to avoid any form of heat at the injury site (e.g. heat lamps, heat creams, spa's, Jacuzzi's and sauna's), avoid movement and do not massage the injured area as these will increase the bleeding, swelling and pain. After the initial healing period of up to 72 hours (depending on the severity of the injury), ice massage may be incorporated into treatments. By applying stroking movements with an ice pack, the blood vessels will dilate and constrict alternately bringing an increased supply of blood and nutrients to the area, and so increasing the rate of healing. This may be done for more than 10 minutes to increase circulation.

ICE BATHS:

Ice baths have become popular in contact sports like rugby and American Football and with endurance athletes. For contact sports whole body ice baths can be considered and for sports that predominantly stress the legs, such as football, field hockey, running etc. immersion of the lower limbs only can be considered. Initially start with one minute sessions and progressing to a maximum of 10 minutes over a period of 10 weeks.

CONTRA INDICATIONS OF USING ICE

- Check a person's general sensitivity to ice - some people find the application of cold immediately painful
- Do not use ice on injuries in the chest region as in some instances this may cause a reaction in the muscles, bringing about angina pain, possibly from the constriction of coronary arteries
- Always check skin sensitivity before applying ice - if a person cannot feel touch before applying ice it may indicate other problems such as nerve impingement. In such instances ice would only serve to mask this and complicate the problem
- Do not apply cold to someone with high blood pressure as vasoconstriction will increase the pressure within the vessels

THERMOTHERAPY:

It is important to understand a little bit about how the body heals to understand how and when heat should be used to treat injuries. There are three recognized phases to the healing process.

The damage to the blood vessels causes fluids to build up in the injured area causing the swelling that is typically seen in a new injury. To help reduce the flow of fluid into the area and thereby reduce swelling, **cryotherapy** (cold applications) is the best modality to use right after an injury. Cold modalities can help slow down and decrease the circulation to the area thereby reducing swelling.

Heat applied during this phase is contraindicated because heat increases blood flow into the injured area significantly increasing the amount of swelling. Increased swelling prolongs the rehabilitation process because it takes time to reverse the process and remove the extracellular fluid.

This first phase of the healing process can last for several days depending on the amount of tissue damage. For most injuries, two days is the most common time frame for phase one and is when ice should ONLY be applied to injuries.

The second phase of the healing process is known as the proliferation phase and is characterized by the laying down of new tissue and the formation of scar tissue. Again, depending on the amount of damage to the injured area, this phase can begin on post-injury day three and last for several weeks.

To heat deep tissue (up to 1 ½ inches deep), the modality most commonly utilized in the therapeutic setting is **ultrasound**. Although ultrasound has different settings and can be used for different purposes, continuous ultrasound can effectively heat deep tissue.

Ultrasound works on the principle of sound waves. The sound waves enter the tissue and are transferred into heat energy under the surface. Ultrasound is a very effective modality for increasing the tissue temperature of localized injuries to facilitate the heating process (see above list). Injuries that are commonly treated with ultrasound include **rotator cuff strains**, quadriceps strains, hamstring strains, and all types of sprains. The deep heat created by the ultrasound facilitates healing in tissues that cannot be reached by superficial heat modalities. Unfortunately, although they are effective, ultrasound units are expensive and treatment needs to be administered by a trained sports medicine professional. Specific techniques must be utilized to ensure that the sound head continues to be in motion to protect the patient from possible burns.

INJURIES TREATED BY HEAT:

One of the most common injuries treated by heat is muscle spasms in the back area associated with muscular back strains. Because the back muscles have the unique ability to "splint" themselves to protect the injured area, initial treatment needs to focus on reducing the muscle spasms. Heat has been found to be effective at reducing the pain associated with muscle spasms by providing an analgesic effect and relaxation effect for tight muscles. For small muscle spasms, moist or dry heat packs can be effective. Larger areas can be treated by full-body immersion in a hot whirlpool or Jacuzzi.

Heat therapy is also effective in increasing the range of motion of joints after injury. Once the swelling from the original injury begins to subside, the injured area can be heated using a warm whirlpool or

hot pack for 10 -15 minutes. Because tissue becomes more extensible after it has been warmed up, range of motion exercises can be performed after heating to improve joint motions. The goal is to gradually increase the range of motion of the joint and restore it to pre-injury levels. However, care must be taken to not push a joint through pain as this can actually reinjure the tissue. Joint injuries that can benefit from superficial heating to increase joint movement after injury include sprained ankles, turf toe, knee sprains, elbow and wrist sprains, and thumb and finger sprains. Superficial muscle strains can also benefit from superficial heating techniques based on the same principle as above. When muscle tissue is heated, it becomes more extensible and better able to stretch. Heat modalities should be used prior to stretching for 10 – 15 minutes. After heating, a gradual and progressive pain-free stretch can be applied to the area.

Dry hot packs are commonly used in the home setting. Dry hot packs sold on the market today are either electric (supply a steady source of heat) or may be placed in a microwave for quick heating. However, care must be taken that these hot packs are not overheated because this may cause a superficial burn to the skin.

Generally hot packs are applied to the injured area for 15 – 20 minutes. If the pack becomes uncomfortable to the skin, a towel can be placed between the skin and hot pack. Hot pack treatments can be given several times throughout the day.

Whirlpool therapy is a popular modality because it combines heat with the additional massage effect of the turbines. This type of modality can also help facilitate an increase in range of motion in an injured joint because the buoyancy of the water assists in the ease of movement.

Paraffin bath is another popular heat therapy and is used primarily for injured fingers, hands, toes, and feet. This type of heat is effective for heating bony extremities. Paraffin wax and oil are heated in a containment unit and kept at a constant temperature ensuring that the paraffin and oil remain in a liquid state. After the injured area is washed with soap and water, the area is repeatedly dipped into the paraffin wax until a base of wax is obtained. This type of therapy is used to treat patients with rheumatoid arthritis for the purpose of relieving joint stiffness and increasing range of motion. It can also be used to treat athletes recovering from finger injuries (sprains and fractures).

CONTRAINDICATIONS:

In general, superficial heat modalities are safe therapies for treating athletes. However, there are some precautions and contraindications for the use of heat including:

- Do not apply heat to an area when there is loss of sensation
- Do not apply heat immediately after an acute injury
- Do not apply heat when there is impaired or poor circulation
- Do not apply heat to the eyes or genitalia
- Do not apply heat to the abdomen during pregnancy
- Do not apply heat to an injured area that exhibits signs of acute inflammation (red, swollen, hot)

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