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THE ROLE OF THE BIOKINETICIST IN THE REHABILITATION OF THE INJURED ATHLETE AND SOLDIER

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AIM

The aim of this lecture is to present to you the aspects involved in rehabilitating the injured athlete and the soldier.

DISCUSSION

The high rate of injuries among the sportsmen and military recruits and the severity of these injuries are a matter of concern to healthcare specialists.

B.H. Jones, 1994, stated, recent reviews indicate that on a yearly basis 40% - 50% of competitive runners experience injuries severe enough to cause reduction or cessation of training. 17% of these seek medical attention.

A.W.F.WATSON,1933 and Requa etal reported an incidence of 2.1 and 2.3 injuries per athlete per year respectively.

B.H.JONES, also reported that injuries among army recruits for which medical attention is sought, is consistent between 20 - 30% per month for men and between 40 - 60% per month for women.

The rate of injuries among army recruits appear to be the same or a little higher than for endurance athletes but it is still considerably lower than for contact sports participants.

TYPE OF INJURIES EXPERIENCED BY SPORTSMEN

1. OVERUSE INJURIES

Structures involved in order of frequency:

- Ligament to bone
  - Runners knee
  - Miotibial band friction syndrome
  - Plantor fasciitis
- Bones
  - "Shinsplints"
  - Stress fractures
- Muscles
  - Acute and chronic tears
  - Delayed muscle soreness
  - Muscle cramps
- Tendons
  - Tendinitis
- Bursae
- Blood vessels
  - Compartment syndrome
- Nerves

2. TRAUMA ACUTE INJURIES

Structures involved:

- Knee
  - Meniscal injuries
  - Anterior cruciate injuries
  - Patellar tendon rupture
- Shoulder
  - Dislocations
- Ankle
  - Lateral ligament strains
  - Peroneal tendons dislocations
- Hip and pelvis
- Back and neck
- Elbow and wrist

Overuse injuries are common among runners and military recruits while trauma injuries are more associated with contact sports.

The injuries to sportsmen differs little from that seen in the general public. The rehabilitation is also based on the same principles as that of any patient with musculoskeletal problems. There is however certain amount of specificity that should be kept in mind.

One of the making challenging aspects of the sports medicine is to return the athlete within the shortest possible time to pre-injury activity and to know when the athlete is ready to start training with the team.

This implies making available high level of orthopaedic services, excellent equipment and facilities and highly educated medical personnel specialized in sports.

The multi-disciplinary approach to rehabilitation of sportsmen is very important.

The multi-disciplinary team:

1. Medical officer
2. Physiotherapist
3. Biokineticist
4. Psychologist

On co-operative basis:

5. Dietician
6. Orthotist/Prosthetist

The rehabilitation of injured athletes and soldiers is divided into 3 phases.

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Phases of the rehabilitation Process

Phase 1: Pre-operative phase
Phase 2: Initial/acute phase
Phase 3: Final phase

Pre-surgery phase

It is very important that rehabilitation measures for athletes are applied almost immediately after trauma. If surgical intervention is needed the patient should start immediately on the pre-surgery phase or Phase 1.

During the pre-operative period the patient is started on a general conditioning programme.

The second important aspect of this phase is to start training the injured body-part if possible. Pre-operative training of the injured limb will speed up the rehabilitation process and will limit muscle atrophy.

We concentrate on strength and endurance training and flexibility exercises of the muscles surrounding the injury.

Initial/Acute phase

Phase 2, the initial phase is often referred to as the acute phase of rehabilitation. The Medical Officer and physiotherapist are actively involved in this phase. The acute injury is treated to reduce swelling and pain and to regain active range of motion.

The role of the biokineticist in this phase doesn't involve rehabilitation. It involves a general conditioning programme to train all the unaffected body-parts and only the area involved is excluded.

This general conditioning programme is based on general athletic training principles. The training programme requires all-out efforts and the intensity should be equal to that of the pre-injury training programme.

The general conditioning programme should be continued throughout the rehabilitation process to assure that the athlete will be able to immediately integrate into the normal training process once he has undergone medical rehabilitation. The patient should not lack behind in general fitness once rehabilitation is ended.

Final phase

During the final phase (third phase) of rehabilitation the major part of the process is played by the biokineticist.

ASSESSMENT

Assessment of the patient is done before starting the treatment. This includes a consultation and ergological evaluation to determine the nature of the injury.

It might also involve a biomechanical evaluation and running analysis to determine biomechanical abnormalities and the possible cause of the injury.

We might also have to do a Cybex extremely test on the injured limb to evaluate the patients muscle

strength, muscle endurance, explosive muscle power and active range of motion. Any imbalance might be the cause of injury and should be rectified during rehabilitation.

REHABILITATION STAGES

The rehabilitation of orthopaedic injuries is a complex issue and is therefore usually divided into stages depending on the injury.

The different stages will involve different flexibility exercises to improve range of motion. Strength training and muscle endurance training is very important.

Exercises to improve coordination and proprioception will also be incorporated into the process.

Muscle power exercises are important in certain sporting activities and will then form a part of the rehabilitation process.

The biokineticist monitors the rehabilitation process closely to ensure adequate progression.

The rehabilitation process starts with very basic training - through the complete gymnasium strength training stages up to training on very expensive and sophisticated equipment.

RE-EVALUATION

Re-evaluation of the patient is very important, and is done throughout the rehabilitation process. It helps us to determine if the patient is ready to progress to the next stage or to be discharged. It also gives us an idea of the progress the patient is making.

SPORT SPECIFIC REHABILITATION TRAINING

Sport specific rehabilitation training is the last stage of the rehabilitation process for athletes and soldiers. It is done to improve coordination and proprioception. It involves activities which relate closely to that of the specific sport of the athlete. For e.g.sprinting, side step activities, jumping etc..It also acts as a form of evaluation of the athletes recovery.

GENERAL CONDITIONING

General conditioning programmes started even before surgical intervention and it continues up to the end of rehabilitation.

THE MAINTENANCE PROGRAMME

It is important for coaches and athletes to remember that rehabilitation never ends. When the patient is discharged he will receive a maintenance programme to ensure that the necessary training will continue to prevent the re-occurrence of the injury after a while.

Hopefully the athlete will return to his sport as soon as possible with the necessary confidence and the least chance of re-injury.

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