

Therapeutic approach to Sports Injuries

Linda Exelby



Curriculum Vitae

Mrs Linda Exelby obtained the BSc Phys at UCT in 1978. She rowed for UCT and was a long-distance runner. From 1979-1981 she worked at Groote Schuur Hospital with knee injuries and running injuries. Since 1981 she has been working in private practice in Durban.

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Summary

The drawbacks of a long lay-off period and the danger of re-injury are greatly reduced by early, active, intensive physiotherapy. Benefits and aims of physiotherapy are mentioned. Modalities are becoming more specific, therefore time must be spent locating the exact site of the lesion. The basic principles of the modalities used to achieve the aims are discussed: Hands (massage, friction massage, maitland mobilisations) and Machines (new machinery, eg Interferential Current and Trans Cutaneous Nerve Stimulation). Balanced strengthening of muscles, and the use of Isokinetic machinery and preventative measures are all discussed.

Therapeutic approach

Increasing numbers of people are finding that quality of life and effectiveness as human beings improves with being physically fit. For many sport is an important part of life. We as doctors and physiotherapists should remember that an injury can be just as important to a casual sportsman/woman as it is to a successful player. No matter how minor the injury, if it decreases the efficiency of the player it must be treated. A widespread prescription of total rest with the concomitant drawback of loss of fitness, strength and agility is usually totally unnecessary. These drawbacks and the danger of re-injury are usually greatly reduced by initiation of active, intensive physiotherapy immediately. A balance between rest and gentle exercise may be graded according to the severity of the injury.

AIMS OF PHYSIOTHERAPY

1. Reduce swelling and pain
2. Aid healing
3. Balanced muscle strengthening
4. Flexibility and agility
5. Preventative measures

Let us look at how we achieve these aims.

ASSESSMENT

Our modalities, as you will later see, are becoming increasingly specific therefore time must be spent initially in

- locating the exact site of injury, and
- the cause of injury.

Here the sport technique must be studied to ascertain any incorrect pattern of movement that could be placing strain on a structure. No physio can be familiar with all sports and the coaches' observations and ideas are invaluable.

Being physically fit improves the quality of life and the effectiveness as human beings.

Modalities we use:

A. HANDS

Massage

In sport massage may be used as a form of preventing strains when muscles are stiff and fatigued as a result of a heavy training schedule or before an important event.

Friction massage

In a non-specific inflammation of moving parts the formation of a strong, mobile scar will reduce the incidence of re-injury. Deep massage applied across the muscle encourages fibres in the scar to be arranged lengthwise and not matted together. Deep massage may also be applied to ligaments and tendons.

Maitland mobilisations

These are movements applied to a joint during muscular inactivity. The range of movement may vary from a Grade I at the beginning of the range, through to

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The signs and symptoms are

reduced mobility ●
stiffness ● PAIN ●
tenderness and
joint enlargement

*Rx For pain
Stopayne.*

One name that stops pain



Osteo-arthritis

Therapeutic approach

a Grade 4 at the end of the range of movement. Joint pain and stiffness can be treated very effectively using different grades.

B. MACHINERY

There has been a shift of emphasis from heat to athermal therapy. Certain tissues have a poor circulation, eg disc, ligament, tendon and cartilage. Under such conditions it is not the thermal but rather the biological effect of treatment that is important.

The electrical potential across all cell membranes has to be maintained at a characteristic level for normal cell functioning to occur. With cell damage this is disturbed.

The machinery to be mentioned acts at cellular level and aids in returning the cell membrane potential to its resting level. It has been proposed that cell membrane potential is involved in control of cell division and therefore in healing.

An injury to a casual sportsman can be just as important to him as it is to the more successful one.

Two new machines have recently become popular:

Interferential current

Here a system using two medium frequency currents generates a low beat frequency at the cross-over point of the two circuits. The cross-over point must be positioned through the lesion to be of any value. Frequencies may be selected, high frequencies being used for pain relief, and lower frequencies for reduction of inflammation and healing.

Pulsed shortwave

Here high energy pulses with a rest interval are passed through the lesion. During the interval of no current the thermal effect is dispersed by the blood, while the biological effect which lasts longer, is able to increase by summation.

Conventional shortwave, if used in the first 48 hours after injury may cause increased vasodilation and hence swelling owing to its heating effect. The advantage of Interferential Current and Pulsed Short Wave Diathermy is that they are athermal and may be used at this early stage. I would like to emphasize that Short Wave Diathermy still has a part to play especially in the treatment of tissue with a good blood supply, eg muscles, and in more chronic lesions.

Full muscle and joint extensibility is essential.

C. EXERCISES

No player, however acute the injury, should leave a physiotherapist without exercise. Initially they may only

be isometric contractions and a modified, specially adapted training programme that will maintain his level of fitness.

The physiotherapist, coach and player should work closely on a progressive rehabilitative programme.

No matter how acute the injury, no patient should leave the physiotherapist without exercise.

This programme should include in its more advanced stage:

1. Cardio Pulmonary Fitness

If this has been maintained through the injury period a lot of time will be saved.

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2. Balanced Strength

Strength should be built from endurance. I feel that physiotherapists should play a more active role in the implementation of progressive strengthening programmes. Firstly, slow speed strengthening using weights should be undertaken. An initial load suitable for the individual should be determined; this would be progressively increased.

Points to remember when weight training:

- i Repetitions must be performed in a slow, smooth manner for even distribution of force throughout the movement.
- ii Eccentric (negative work) is more effective in building muscle strength, so lowering the weight must be done slowly.
- iii Strengthening muscles through their full range of movement ensures good flexibility. Long distance runners have tight hamstrings because these muscles are only exercised in a part of their range.
- iv All muscles have an opposing muscle group that should be proportionately strong.

Because muscle action in sport is at high speed, it is necessary that the muscles should also be trained at SPEED to be efficient. A relatively new and efficient way of doing this is the use of Isokinetic machinery.

Training should encompass total movement patterns and not only individual muscle strengthening.

Here the players work at a preset, fixed SPEED against a variable, accommodating resistance, so that the muscle is loaded to its maximum at every point in the range. This should be introduced later in the rehabilitative programme and should not replace other forms of training.

Therapeutic approach

Training should encompass total movement patterns and not only individual muscle strengthening. Cycling is a partial weight bearing exercise and can be introduced early in the rehabilitation. In the final stages running at different speeds and with changes of direction is introduced.

Cycling can be introduced early in the rehabilitation.

3. Flexibility

Full muscle and joint extensibility is essential. This can be attained through full range strengthening and stretching exercises.

4. Practise of techniques

Skilled patterns of movement must be reinforced until automatic. We often hear that 'Practice makes Perfect', but this is only achieved **IF** one practices PERFECTLY!

5. Warm up and down

A few exercises should be undertaken before and after both practices and matches to loosen up joints and muscles.

Strength should be built from endurance.

Lastly prevention is better than cure. General preventative measures applicable to all sports are: flexibility, balanced strengthening, practice of techniques, warm up and warm down. Here full co-operation from the coach and the player is essential.

In conclusion then, I have mentioned a few modalities physiotherapists have to offer in the treatment of sports injuries. These benefit the player by reducing both duration and recurrence of injury.

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PAIN • tenderness •
local muscle spasm

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