

# Physiotherapy and the long distance runner

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## 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.

## Summary

*A physiotherapist explains her rôle in the treatment of injuries in long distance runners, how the duration and recurrence of injury could be reduced.*

**KEYWORDS:** Athletic Injuries; Running; Exercise Therapy; Physical Therapy; Tendon Injuries.

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The first half of the year is an important time for long distance runners, culminating in the Comrades Marathon. Physiotherapy plays an important rôle in the treatment of running injuries, duration and recurrence of injury being reduced.

All injuries have a cause, and treatment may fail if it is not linked with efforts to correct these factors. The lower limb, environment and training techniques should be carefully assessed.

Consider the following:

1. **BIOMECHANICAL ABNORMALITIES** should be checked in standing and running. Note patella alignment, position of subtalar joint, leg-length discrepancies and type of foot *eg* Morton's, cavus or equinus foot).
2. **TRAINING METHODS** — Mileage, gradients, type of surface and camber of the road must be noted.
3. **SHOES** — the type of shoe and the wear of the sole should be checked.
4. **MUSCLE STRENGTH AND FLEXIBILITY IMBALANCES.**
5. **SITE OF INJURY** — deep palpation is used to make a tissue diagnosis.

## MUSCLE TEARS

These occur commonly in the hamstrings, adductors and gastrocnemius.

## TREATMENT

1. Corrections to the running programme are: reducing mileage, speedwork and outstriding; any running should be within pain limit.
2. The flexibility of the posterior muscles of the leg and back should be increased by slow sustained stretch or reciprocal relaxation *ie* isometric contraction of the opposite muscle group followed by relaxation of the muscle in question. The latter method should be used by those who find the conventional method particularly uncomfortable.
3. Deep Friction massage, using the pads of a reinforced finger, is applied transversely to the tear; this encourages fibres to be arranged lengthwise and not

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become matted together. Circulation is improved and pain reduced. Running within the pain limit will prevent adhesions reforming.

4. The use of athermal therapy in the form of pulsed ultrasound, pulsed short-wave diathermy and interferential current means that treatment can begin immediately. This machinery acts at cellular level correcting cell membrane potential imbalances which in turn control cell division and hence healing. Conventional short-wave diathermy is used for chronic tears.

### TENDONS

Tendon injuries are treated in a similar way to muscle injuries but recovery is slower and particular attention must be paid to the cause of the injury. Often anti-inflammatories or cortisone injections will have to be used in conjunction with physiotherapy. The aim will then be to ensure the formation of a strong, mobile scar.

*Physiotherapy plays an important rôle in the Comrades Marathon.*

### ACHILLES TENDON

Initially the peritenon is strained, should this become chronic, adhesions between sheath and tendon occur leading to tendon degeneration. The tendon does not have a good blood supply and it diminishes further with age. Trying to run through this injury will invite disaster, therefore rest is essential.

#### TREATMENT

1. Running shoes should be corrected depending on the type of foot. This should include a rigid heelcounter, a flexible sole and a heel lift of a shock absorbing material. These corrections are made by an orthotist.

2. Flexibility of the calf muscles must be increased; Physiotherapy will be as for muscle injuries. Cortisone injections should be avoided if possible as there is the danger of injecting into the tendon and weakening it. Unsuccessful conservative treatment will necessitate surgical division of the peritenon and exploration of the tendon.

### ILIO TIBIAL BAND FRICTION SYNDROME

This is a result of repetitive friction of the ilio tibial band against the lateral femoral condyle. There is tenderness on palpation over the tubercle while the knee is passively flexed to 30°.

#### TREATMENT

1. Check for wear on the outer sole of the shoe. If the runner has recently begun using orthotics there may be an over-correction of pronation. Leg-length discrepancies and camber of the road may also be contributing factors.

2. Improve flexibility of the ilio tibial band.

*Correct physiotherapy can reduce the recurrence and duration of injury.*

3. Physiotherapy is the same as mentioned previously. Cortisone injections have varying success. Surgical division of the posterior fibres is usually successful. Physiotherapy should begin immediately thereafter, using interferential current, pulsed short-wave diathermy and advising progression of movement so that healing is in the form of a strong mobile scar.

### SHIN SPLINTS

These are caused by repetitive straining of muscles at their attachment to the posteromedial or anterolateral border of the tibia which can lead to periostitis.

#### TREATMENT

1. Shoe corrections include firm heelcounters and more rigid shoes that will control pronation. An equinus foot can be corrected with a heel lift.

2. Avoid hard, cambered surfaces, correcting overstriding and reduce hill and speedwork.

3. Strengthen the dorsiflexors and stretch the calf muscles.

4. Massage of dorsiflexors, friction massage of tender areas along the bone together with conventional or pulsed short-wave diathermy and ultrasound seem to give the best results.

*Sometimes the aim of physiotherapy will be to ensure the formation of a strong, mobile scar.*

Finally, massage and short-wave diathermy may be used to prevent strains when muscles are stiff and fatigued as a result of a heavy training schedule or before an important race.

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