

to stop completely. There is no pain after a night's rest but it soon returns after resuming the tasks of a daily routine which involved a great deal of walking and standing. The patient's normal walking pace was very quick.

There was a positive arterial zone over both buttocks, more pronounced on the left.

Treatment:

1. Forward lying basic section, two thighs as far as the popliteal space, including the two heads of gastrocnemius. A slight cutting reaction over the buttocks could only be obtained after stimulation of the trigonum lumborum. First stroke reaction was only "tickling". After the treatment the patient reported that he felt fine and the legs much more alive.
2. Patient reported that he felt fine and had mowed the lawn for 1½ hours without ill effects.

Treatment:

Basic section and both legs including the feet. The stroke reaction was much sharper except over the feet which only gave a "tickling" reaction. The lower legs were only treated with short strokes. General relaxation taught.

3. Patient reported he was walking with much greater ease. The same areas were treated. A much better erythema was obtained, the short strokes along the medial and lateral border of the feet were felt as very sharp.
4. Felt very well after the last treatment for two days when some discomfort was felt in the right ilio-tibial tract and the right calf. Treatment of back extended to T7 in the forward lying position. The two legs were treated in the lying position and treatment specially concentrated with short strokes on the ilio-tibial tracts and the popliteal space.

These four treatments were carried out at 3-4 days interval. A necessary journey caused interruption in the course of treatment for one month.

5. The patient could carry out all necessary walking without having to stop, discomfort in the calves, however, after quick walking necessitated sometimes slowing down of pace.

Treatment:

Back to T7, both lower extremities. Cutting reaction obtained everywhere.

6. Patient reports that he can do everything, only slight discomfort in calves on quick walking.

Fourteen further treatments were given at weekly intervals. The walking pace could gradually be increased. The patient went for a three-week holiday. During the holiday he had a slight flareup of his gastric ulcer. After long walks he felt tired but had no acute pain.

26/11/1964. The treatment was resumed. Areas treated were the back to T7, latissimus dorsi and both legs including the feet. After the first treatment the gastric ulcer gave no further trouble. Seven more treatments were given to the same areas at weekly intervals. The patient only experienced discomfort in the calves on quick uphill walking and the left hallux felt less alive than the rest of the foot. During this period the patient had a great deal of work which involved walking and standing and this could be carried out without discomfort.

After my return from South Africa I saw the patient again on April 21st 1965. During the period of 3½ months without treatment the patient had no ulcer trouble and no leg discomfort except on quick uphill walking.

Literature: *Connective Tissue Massage, Theory and Therapeutic Application*. Maria Ebner, 1962. E. and S. Livingstone Ltd., Edinburgh.

SOFT TISSUE INJURIES OF ANKLE AND CALF

By MARIA EBNER, M.C.S.P.
(Teacher's Certificate).

(Lecture-Demonstration given to Physiotherapy Students)

These injuries are often considered trivial but may incapacitate the patient for a long time. If the treatment is not planned on physiological lines, these injuries may recur again at frequent intervals and eventually force the patient to discontinue with athletic activities. I have chosen for illustration of the underlying principles of treatment two frequently-occurring injuries, i.e., "sprained ankle" and "partial tear of gastrocnemius fibres".

The cause of these injuries is always the use of tissue beyond physiological limits, resulting in a tear or stretch of formed or unformed connective tissue. As a result of the tear, blood vessels are injured, haemorrhage occurs, exudation of tissue fluid takes place and a haematoma forms. The haematoma gradually becomes organised into scar tissue which has a tendency to contract and shorten, very often including some nerve fibres into the scar tissue. If the scar tissue is part of a muscular structure a different coefficient of expansion is present between the muscle fibres and the scar tissue. Future functional use of the muscle will often cause pain due to the caught nerve fibres and future tears will often result due to the different coefficient of expansion between the two tissues.

A physiological approach to these problems will have to follow the principles of tissue repair and assist them with physiotherapeutic measures as far as possible.

The first principle of treatment in these injuries is therefore to limit the amount of haemorrhage and exudation and encourage absorption as far as possible in order to limit the amount of unavoidable scar tissue. Static hyperaemia as a result of the injury must therefore be changed into active hyperaemia so that inflammatory products can be carried away in the blood and lymphstream.

The second principle of treatment applies to the normal use of the part within physiological limits in order to avoid alienation occurring in the cortical pathway.

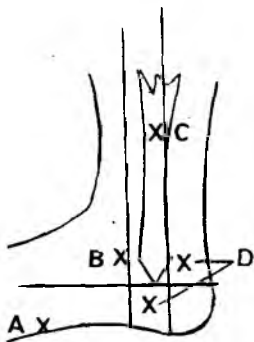
The two examples chosen may help to illustrate the above-mentioned principles.

Sprained Ankle

It is commonly taught that a sprained ankle is a lesion of the lateral ligament of the ankle joint due to an inversion strain. This explanation assumes that a ligament is the first line of defence if unphysiological force is applied to a joint. This is incorrect. Ligaments as well as muscles possess as part of their structure stretch receptors which record applied stretching strains beyond their physiological stretching ability. As a result of this stretch stimulus muscles reflexly contract to protect structures such as capsules and ligaments which have very little extensibility. If the applied force is too great, inextensible structures such as the periosteal attachments of muscles or fibres at the junction of tendon and muscle or ligaments passing over a joint or forming part of the joint capsule, will tear. If the inversion strain is too suddenly or too forcefully applied and injury occurs, it is therefore reasonable to look for injury in the above-mentioned structures. The muscles affected in an inversion strain which is not strong enough to produce a fracture will be the evertors, i.e., peroneus longus, peroneus brevis and peroneus tertius. If it is accepted that the weakness and pain after a sprained ankle is due to a muscle lesion rather than a ligamentous lesion the common sites of pain and swelling can easily be explained.

Pain is often present at the base of the fifth metatarsal which represents the insertion of peroneus brevis which is torn off partially from its insertion. Pain and swelling in front of the lateral malleolus represents an injury to peroneus

tertius. Bruising which is often present approximately three inches above the lateral malleolus coincides with the origin of peroneus brevis. Sometimes pain is not only present over various points of the lateral aspect of the ankle joint but also over an area of the medial longitudinal arch which corresponds to the base of the first metatarsal and represents the tendinous insertion of Peroneus longus. It is reasonable to assume that a force which has been strong enough to cause injury to muscle-tendon junctions or to periosteal attachments of muscles will also produce injury to the synovial sheath of muscles. Swelling behind the lateral malleolus and slightly below it will often be due to injury of the peroneal synovial sheath.



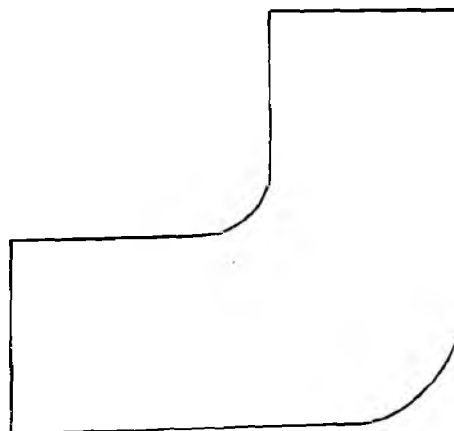
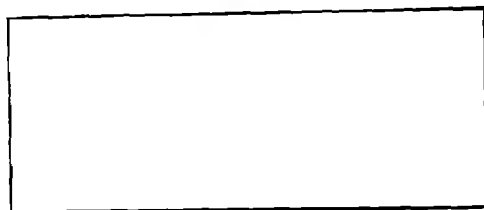
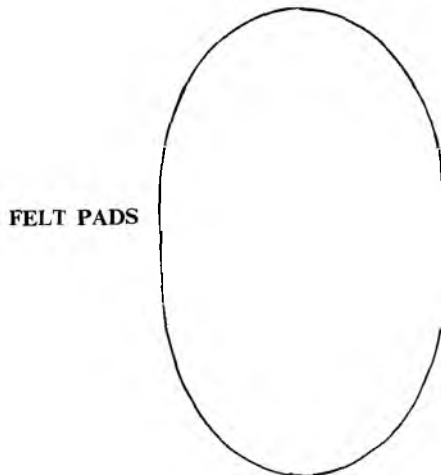
ANKLE CHART

- A Insertion Peroneus Brevis.
- B Peroneus Tertius.
- C Origin Peroneus Brevis.
- D Peroneal Synovial Sheath.

Treatment:

Following the first principle of treatment, previously mentioned, it will be necessary to get rid of the swelling as quickly as possible in order to prevent widespread formation of adhesions. This is done by a form of compression bandage, contrast bathing and muscle contractions. Gamgee-tissue is cut into four-inch-wide bandages and applied as a figure of eight bandage round the ankle, carefully covering all swollen and painful areas. With the foot at right angles the gamgee-padding is strapped firmly round the ankle with non-elastic strapping, taking care that $\frac{1}{2}$ inch of tissue protrudes round the edges above the ankle and round the foot in order not to interfere with the blood supply. The patient is instructed to carry out contrast bathing at four-hourly intervals at home with the bandage *in situ*. He is supplied with an instruction sheet reminding him that the water must be kept as hot and as cold as possible. The first immersion in hot water should last five minutes to warm the foot thoroughly through, followed by a cold immersion of one minute's duration. After the first immersion the foot is kept for two minutes in hot and one minute in cold water, finishing with hot water. Altogether four hot immersions and three cold immersions are carried out. The patient is also instructed to dorsiflex the foot fully with simultaneous plantar-flexion of the toes. This exercise is to be carried out six times successively at hourly intervals. The patient is allowed to weight bear at home in order to attend to his own needs. The patient is reviewed the next day by the doctor, who decides if the condition demands another application of the pressure strapping with another day's routine as previously described. In many cases the re-application of the strapping is not necessary and the ankle is charted by the doctor, recording the tender areas and small areas of residual swelling. A diagram of the chart illustrates the most frequently present areas. The examination is carried out with the foot in dorsiflexion. To carry out the second principle of treatment, support is given to the

torn structures and the patient is referred for treatment to the gymnasium where correct active movements are encouraged. For support, $\frac{1}{8}$ -inch chiropodist's felt pads are used which are strapped with elastoplast two inches wide in the form of a figure-of-eight round the ankle, taking care that all the pads are firmly covered. In order to avoid skin reaction which occurs in a number of patients, the skin is painted with gentian violet before applying the strapping. Anterior areas are covered by oblong strips of felt, the area corresponding to the peroneus brevis sheath is covered by a boomerang-shaped felt pad.



The aims of the exercise treatment at this stage (Grade II) are as follows:

1. To stabilize the ankle joint by strengthening the muscles of the foot and ankle, especially the evertors.
2. To re-educate walking and improve functional use of the foot by encouraging heel-toe walking without a limp and with equal weight-bearing.

The patient attends daily at a class in the gymnasium for one week and is instructed in simple home exercises which are to be practised at frequent intervals during the day. The patient is also encouraged to wear sensible shoes which give good support. The adequacy of the strapping is checked every day. It should control swelling, completely cover any pads and should not produce skin irritation. The latter point is particularly important in hot weather.

Should the patient be unable to attend daily for treatment because of his work, he is carefully instructed in the relevant exercises for home practice and is asked to return weekly to be reviewed by the doctor.

After one week's attendance in the gymnasium the patient is reviewed by the doctor and re-assessed. If satisfactory progress has been made and most of the tenderness has disappeared the patient is re-assessed as Grade III. These patients can walk and step normally, but have not full confidence to use the ankle joint under varying conditions. These patients may or may not wear pads and strapping. Exercises requiring balance, agility and strength are now introduced, in particular the patient must learn to hop, skip and jump and carry out simple vaults if they are of a suitable age. It is very important to learn to walk unhesitatingly over uneven and unstable surfaces which demand quick adaptation of all the long and short muscles of the leg and foot. Suitable apparatus can easily be improvised by using mattresses draped over forms or wooden blocks or skittles.

It is often found that support given to ankle injuries as described above is applied with the foot in eversion in order to protect ligamentous injuries on the lateral aspect of the ankle joint. This procedure causes all connective tissue lesions in the various structures on the outside of the ankle joint to heal in a shortened position and therefore puts the evertors out of action. A normal functional use of the foot

is therefore impossible and future recurrent injury is more likely to occur. Analysis of approximately 2,000 records has shown that the average time of full functional restoration is approximately two weeks. (Ellis—see Literature.)

Gastrocnemus Tear

The treatment which is described under this heading refers to the tear of some muscle fibres in gastrocnemus. The patient usually reports that at the moment the injury occurred, it felt as if he had been suddenly hit at the back of his leg, while performing some activity such as dancing, leaping or playing tennis. The rupture of some muscle fibres usually occurs in the lowest fibres of the muscle at the point of their insertion into the soleus tendon. The immediate treatment is again to check effusion or if this has taken place to help to disperse it as soon as possible in order to prevent organisation into extensive granulation tissue. This entails even pressure applied to the site of the injury and as far as possible normal functional use of the muscle involved. The patient is placed in forward lying with the knee in slight flexion, produced by a pillow under the lower leg. This position removes tension from the gastrocnemus and the actual site of the lesion can be palpated. In this position a small localised painful area will indicate the site of the tear. The pressure is applied by the application of an oval chiropody felt pad approximately 2½ inches long and 1½ inches wide which is placed over the centre of the painful area. Two-inch-wide non-elastic adhesive strapping is then cut into strips approximately six inches long, the actual length depending on the circumference of the lower leg. These strips are then applied in a crossed pattern, starting with the first cross approximately two inches below the felt pad, continuing upwards to approximately two inches beyond the felt pad. It is essential to provide a gap free of strapping about three inches wide on the anterior aspect of the lower leg in order

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not to interfere with the circulation. The edges of the felt pad should be bevelled to allow the strapping to pass smoothly over it. Sensible shoes which give good support must be worn by the patient for re-education of walking. It is important that the patient should not walk with a limp, so that smooth muscle contraction will act on the circulation. Should the patient find walking very painful in the beginning, a heel wedge of chiropody felt inserted in the shoe will help to ease the discomfort. The patient should be reviewed after two days when it will be found that in most cases normal walking is no longer painful. As long as pain persists it is important to continue with the felt pad under the strapping. The strapping should be continued for at least another week after all discomfort has disappeared in order to prevent recurrence of the injury on resumed activity.

Literature: *Soft Tissue Injuries of Ankle and Shoulder*. Maurice Ellis, M.B., F.R.C.S., *Physiotherapy*, August, 1955.

GENERAL

SOUTH AFRICAN SOCIETY OF PHYSIOTHERAPY FIFTH MEETING OF THE ANNUAL COUNCIL HELD IN WELKOM, 30th MAY, 1965

The Fifth Meeting of the Annual Council of the Society was held on the 30th May, 1965, at the Ernest Oppenheimer Hospital in Welkom.

Miss Jean Blair, the National Chairman took the Chair, ably supported by the Vice-Chairman, Mr. A. Rothberg, and all the Office Bearers with the exception of the General Treasurer, Miss Benford, who was unable to attend. Twenty-three delegates from the Branches were present.

The meeting was officially opened by Dr. I. Potgieter, Acting Medical Superintendent of the Ernest Oppenheimer Hospital, who gave a brief resumé of the phenomenal growth of the Goldfields, outlining the medical facilities available with particular reference to Physiotherapy and Rehabilitation.

The President's address was read by the Chairman of the Goldfields Branch, Mr. W. G. J. Moot. Professor Dart praised the work done by the Executive Committee during the past year, paying special tribute to the valuable contribution made by Miss Blair to physiotherapy at world level when she attended the Executive Committee Meeting of the World Confederation for Physical Therapy in Israel, in April. He also made an earnest appeal for younger members to come forward and assist in the administration of the Society.

In her address, the Chairman outlined the tasks undertaken by the Executive Committee during the past year and the events that had taken place, special mention being made of the training for non-White physiotherapists launched at the King Edward VIII Hospital, Durban, and the training for blind physiotherapists started at the Pretoria Physiotherapy College. Reference was also made to the successful visits of Miss M. J. Neilson, Secretary-General of the World Confederation for Physical Therapy, and Miss Maria Ebner, M.C.S.P. It is the intention of the Society to sponsor further visits of experts in various fields of physiotherapy.

In an amendment to the Constitution, the name of the Executive Committee was changed to the National Executive Committee. It was also agreed to re-establish the principle of having Honorary Vice-Presidents.

One of the main decisions taken, arising out of the deliberations on the resolutions, was to establish a Secretariat with office facilities. This led to a lengthy discussion on the financial position of the Society which the Council felt would have to be made more secure in order to achieve this. The general feeling of the meeting, however, was against a raise in subscriptions, but it was agreed that the Branch

capitation fee to Headquarters should be increased and the incoming Executive Committee was empowered to find ways and means of improving the financial position.

Other matters discussed included a drive for membership, encouragement of the students to participate in Society affairs and to join the ranks on qualification, and the re-organisation of the Society and Branch records. The Council also urged that further attempts be made to gain realistic salary scales, recognition being given for every year of full-time experience, and that in drawing up the non-White physiotherapist salary scale, cognisance be taken of their identical training.

An Honorary Life Membership was bestowed on Miss Marjorie Douglas, M.C.S.P., and an Honorary Associate Membership on Mrs. Freda Muller for their valuable services to Physiotherapy.

The following Office Bearers were unanimously elected:

<i>Chairman:</i>	Miss J. Blair
<i>Vice-Chairman:</i>	Mr. A. Rothberg
<i>General Secretary:</i>	Mrs. K. M. Levy
<i>General Treasurer:</i>	Miss H. M. Benford
<i>Registrar:</i>	Miss A. Savin
<i>Journal Editor:</i>	Miss E. Botting

The following members were elected to serve on the National Executive Committee:

The Misses Blackie, Ellwood, Emslie, Irwin-Carruthers, Tucker, Winter and Mr. Stockton.

Mr. C. B. Sroka was elected Private Practitioners' Representative.

The next meeting of the Council will be held in September, 1966, in Pretoria.

Post Registration Course

A one-day course on Rehabilitation in Industry was arranged by the Goldfields Branch on the day prior to the Council Meeting. This was a most interesting course and was followed by a Civic reception by the Mayor and Mayoress of Welkom.

Our sincere thanks and congratulations are extended to all the members of the Goldfields Branch. This Council Meeting will long be remembered as one of the most successful in the history of the Society.

TO PRIVATE PRACTITIONERS OF S.A.S.P.

Present Medical Benefit Fees

On 18th June, 1965, the S.A.S.P. was informed by the Advisory Council that as from 1st July, 1965, the fees would be increased 10 per cent as follows:

1. Treatment in Rooms—R1.90.
2. Portable Fees—R0.55.
3. An increase by 10 per cent on all other procedures.

On 21st June, the S.A.S.P. was advised by the National Council that *NO increase* would be granted. An interview was obtained on 24th June with Mr. Ewing of this Council; he asked that a memorandum be submitted. This has been done and we trust that this body will also grant an increase of 10 per cent in due course.

Therefore as from 1st July, 1965, *ALL* Medical Benefit fees will be increased 10 per cent as shown above.

Mileage fees will remain as at present, but note that the Portable Fee is increased to 55c.

Private Fees should be at least 15 per cent higher than Medical Aid Society fees.

These increases are for an interim period and will be reviewed again later.

All enquiries should be addressed to Mr. C. B. Sroka (Private Practitioner's Representative, S.A.S.P.), 504, African City, Eloff Street, Johannesburg.