

# A Review of Some Ultrasonics Treatments at the Johannesburg General Hospital.

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**I**N recent years most physiotherapists have become acquainted with ultrasonics. Some are enthusiastic and others still sceptical. A large amount of literature has been published, a lot of which appears to be contradictory.

We do not presume to add to this literature but merely to give a review of some cases treated at the Johannesburg General Hospital.

The dosages used, ranged from 3 watts/sq. centimetre—1 watt/sq. centimetre of head. Time varied from 3—10 minutes except in large areas which were divided into two, three or four sections, with a maximum time of not more than 20 minutes. The frequency of treatments was three times a week, or daily in acute cases.

One of the essentials of efficient treatment is to maintain good contact between the head and the surface treated. On most areas this was possible with liberal application of olive oil or liquid paraffin on the head and the area. In the case of small bony areas, i.e. hands and feet, good contact was impossible and these areas were therefore treated under water at  $\frac{1}{2}$ "—1" distance. Care was taken to remove air bubbles from the head and the surface to be treated as these deflect the ultrasonic waves. Varicose ulcers were also treated under water.

In a number of cases paravertebral treatment was used as well as local treatment. The time was then about one and a half times as long as the local treatment. Paravertebral treatment is done over the roots of the nerves supplying the painful area.

Spot treatment over isolated areas such as an obstinate fibrositic nodule, was sometimes given as well as local treatment. In these cases a very low wattage was used e.g. 2 watts/sq. cm. for about 30 seconds.

## INDICATIONS

### 1. Soft Tissue Injuries:

Varicose ulcers, post-mastectomy oedema, Dupuytren's contracture, scars, tenosynovitis, sprains, strains, fibrositis, haematoma, bursitis.

### 2. Joint Conditions:

Osteo-arthritis, rheumatoid arthritis, prolapsed intervertebral discs.

### Contra-indications:

These are few but include—tumours, pregnant uterus, the eyes, thrombo-phlebitis and heart disease when treatment is over the stellate ganglion.

## SOFT TISSUE INJURIES.

### Varicose Ulcers.

Reports of ultrasonic treatments for varicose ulcers are very good compared with other more conservative methods. We treated only two in the department, one of which was completely cured and the other very much better, when the patient unfortunately developed flu and did not return for treatment.

### Post-mastectomy Oedema.

These cases on the whole improved immediately after treatment when the arm felt softer and moved more freely, but the oedema in most cases, returned within a day or two. The most satisfactory results were obtained with daily treatment. One patient treated four months ago was very much improved and the oedema has not yet returned.

### Dupuytren's contracture.

Of the two cases treated—one, in the early stages improved and the other of fourteen years' standing remained static.

These cases were treated locally but they can be treated paravertebrally (C5-7).

### Scars.

Success has been proved in these cases. Scars with resultant pain responded very well and adherent scars became soft and pliable. One patient however with a scar after removal of an exostosis calcaneus was treated in direct contact over the heel. The result was an increase in pain, possibly due to treatment over superficial bone, where under water technique would have been preferable.

### Tenosynovitis.

Ultra-sonics appears to have as much effect on tenosynovitis as other accepted forms of treatment and is certainly less painful than cross-frictions.

### Sprains and Strains.

With the cases treated the results were satisfactory though not dramatic. Of the cases treated by us, two of six patients were completely cured, after other forms of treatment had failed.

Fibrositis is often attributed to psychological causes, in which case ultra-sonics being new, stream-lined and much publicised is of great value. Where the spasm was acute it definitely had a sedative effect. Chronic fibrositis in patients that were treated by infra-red and massage and were better but static were sometimes completely cured after a few treatments of ultra-sonics.

**Asthma** with attendant psychological factors has been treated with success but there have been none in the department.

### Haematoma.

One case only has been treated but this showed a remarkably quick recovery. Other reports have confirmed this.

### Pre-patellar Bursitis.

This patient was treated with ultra-sonics in conjunction with short-wave diathermy and after twelve treatments the patient was cured and discharged.

## JOINT CONDITIONS.

### Osteo-arthritis.

Great success has been claimed for these cases, but we have on the whole found the results disappointing. This may have been due to incorrect technique and we will be glad to hear details of successful cases.

### Rheumatoid arthritis.

Two cases were treated, one elbow and one foot. Both reported increase of pain after treatment and never showed any improvement.

### Prolapsed Intervertebral Discs.

These have been successfully treated but any improvement can only be due to relief of spasm and the sedative effect, as ultra-sonics can have no effect on the actual disc.

### Conclusion.

Much has still to be learnt about the most beneficial techniques for the different conditions, and this can only be done by experiment and exchange of ideas. The use of ultra-sonics went through a period of disrepute when higher dosages were given with unsatisfactory results. The tendency now is to give low doses for a short time and any ill-effects are thus minimised. Pain should never be felt from ultra-sonics provided that the head is kept moving over the area being treated.

CONDITION.	Number cases treated.	Average No. of treatments given.	Cured.	Better.	I.S.Q.	Worse.
Varicose Ulcers	2	17	1	1	—	—
Post-mastectomy oedema	12	12	—	7	4	1
Dupytrens contracture	2	9	—	1	1	—
Scars	6	7	1	4	—	1
Tenosynovitis	5	8	2	1	2	—
Sprains and Strains	6	5	2	2	2	—
Fibrositis	9	8	2	6	1	—
Haemotoma	1	6	1	—	—	—
Bursitis	1	12	1	—	—	—
Osteo-arthritis	19	8	1	8	8	2
Rheumatoid arthritis	2	7	—	—	—	2
Prolapsed intervertebral discs.....	5	7	—	2	3	—

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