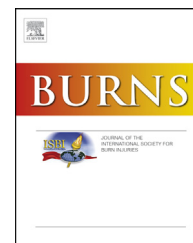


Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

ScienceDirect

journal homepage: [www.elsevier.com/locate/burns](http://www.elsevier.com/locate/burns)

# The application of matrix rhythm therapy as a new clinical modality in burn physiotherapy programmes

Zübeyir Sarı<sup>a,\*</sup>, Mine Gül den Polat<sup>a</sup>, Bahar Özgül<sup>a</sup>, Onur Aydoğdu<sup>a</sup>,  
Burcu Camcıoğlu<sup>a</sup>, Ahmet Hakan Acar<sup>b</sup>, Saadet Ufuk Yurdalan<sup>a</sup>

<sup>a</sup> Marmara University, Health Sciences Faculty, Physiotherapy and Rehabilitation Department, Istanbul, Turkey

<sup>b</sup> Dr. Lütfi Kırdar Kartal Education and Research Hospital, Burn and Wound Treatment Department, Istanbul, Turkey

## ARTICLE INFO

### Article history:

Accepted 18 November 2013

### Keywords:

Matrix Rhythm Therapy

Burns

Physiotherapy and rehabilitation

## ABSTRACT

**Purpose:** The aim of the present study was to investigate the use of matrix rhythm therapy (MRT) as one of the electrotherapeutic modalities in clinics.

**Methods:** This study was carried out in the Burn and Wound Treatment Department of Dr. Lütfi Kırdar Kartal Education and Research Hospital in Istanbul between October 2010 and August 2011. A treatment protocol including whirlpool, MRT and exercise was applied to a group of patients who had burn injury of upper extremity. The evaluation of each patient included assessment of pain, range of motion, muscle strength, skin flexibility and sensory function at pre- and post-treatment.

**Results:** There was no significant difference in values of pain, muscle strength and flexibility between pre- and post-treatment assessments ( $p > 0.05$ ). A significant increase was found in the range of motion and sensory function at pre-treatment according to post-treatment ( $p < 0.01$ ).

**Conclusion:** The usage of MRT in order to maintain and improve the range of motion and to minimise the development of scar tissue was investigated in this study. We suggest conducting randomised controlled studies that carry out a comparison of the MRT with other treatment modalities with more cases and investigate the long-term effects of MRT.

© 2013 Elsevier Ltd and ISBI. All rights reserved.

Burn injuries that are caused by hot liquids, flame, electricity and corrosives such as acid are very common [1]. Unprecedented survival rates in burn injuries derived from advances in the medical and surgical management and produced an ever-increasing number of burn survivors with more complex rehabilitation needs [2]. Rehabilitation is a comprehensive process requiring multiple team members who strive to optimise a patient's recovery of their physical and psychosocial skills needed to return to their families, daily lives and community [2].

Burn injuries bring about long-term health problems in burn rehabilitation. General physical symptoms after a burn

injury are pain, sensory dysfunction, pruritus and loss of strength [3]. Additionally, hypertrophic burn scar remains a problematic challenge for burn survivors and providers [2]. Burn scars are treated by means of pressure therapy, application of physical agent modalities, massage and exercise [4]. One of the therapeutic modalities used in burn rehabilitation is matrix rhythm therapy (MRT). A treatment device that activates and rebalances specific physiological vibrations of skeletal muscles and nervous system was improved by Dr. Ulrich Georg Randall [5] and settles on the fact that cells rhythmically oscillate as long as they are alive [6]. Hence, characteristics of oscillation, frequency and

\* Corresponding author. Tel.: +90 5322146114; fax: +90 2163996242.

E-mail address: [fztzubeyir@yahoo.com](mailto:fztzubeyir@yahoo.com) (Z. Sarı).

0305-4179/\$36.00 © 2013 Elsevier Ltd and ISBI. All rights reserved.

<http://dx.doi.org/10.1016/j.burns.2013.11.009>



**Fig. 1 – The application of Matrix Rhythm Therapy.**

amplitude spectrum of 8–12 Hz are used therapeutically [6]. It has been proposed that the MRT device rebalances the cellular micro-processes depending on entire cellular regeneration and healing acting on the basis of cell biology by way of rhythmic micro-stretching [7]. The application of MRT is shown in Fig. 1. The overall goals of burn rehabilitation when it comes to scar management are to depress the scar's height, which is attempted by exerting pressure on the scar, and to maintain scar pliability, which in turn contributes to maintaining the patient's mobility and range of motion [4].

The practices of physical therapy vary widely among institutions. 'Best practice' or 'standard of care' for physiotherapy and rehabilitation evaluation and treatment for

patients who have burn injuries have still been uncertain [2]. Therefore, the lack of burn rehabilitation guidelines forces the burn therapists to select therapy modalities in the process of rehabilitation and causes them to form their own treatment plans. Holavanahalli et al. [8] stated that 97% of burn therapists who were administered a survey in four countries reported formulating their own treatment plans, whereas only 3% reported taking directions from someone [8,9].

The aim of the present study was to investigate the use of MRT as one of the electrotherapeutic modalities in clinics.

## 1. Methods

This study was carried out in the Burn and Wound Treatment Department of Dr. Lütfi Kırdar Kartal Education and Research Hospital in Istanbul between October 2010 and August 2011. Patients who were included in this study were those with second- and third-degree burns and in the period between 1 and 3 months post burn trauma. The distribution of burned areas and status of skin grafting of burn-injured patients is shown in Table 1.

When the trauma histories of cases are examined, there were four flame burns, six scald burns, one electrical burn and one hot surface burn of 12 total cases, which were different types of burns. All subjects had been using pressure garments throughout the treatment.

A treatment protocol was applied to a group of patients who had burns of the upper extremity and registered in the hospital during this period. The treatment protocol included whirlpool, MRT and exercise therapy. The details of the physiotherapy treatment programme are shown in Table 2.

The treatment protocol was initiated with whirlpool (WhirlpoolBath, Carci, São Paulo, Brazil) application. After whirlpool application, MRT (MaRhyThe® Applikator&Steuergerat, MaRhyThe® Systems GmbH, Gröbenzell, Germany) was performed by the physiotherapists who participated in the training programme on MRT and were certificated. A new therapeutic and clinical modality, matrix rhythm treatment, which activates and rebalances specific physiological vibrations of skeletal muscles and nervous system, was improved by Dr. Ulrich Georg Randoll [5]. It is applied by an electrically powered oscillator (resonator) comprising an asymmetric

**Table 1 – The distribution of burned areas of burn injured patients.**

| Subjects | Age (year) | Skin grafting | Burn area  |           |               |              |           |          |
|----------|------------|---------------|------------|-----------|---------------|--------------|-----------|----------|
|          |            |               | Right hand | Left hand | Right forearm | Left forearm | Right arm | Left arm |
| 1        | 39         | +             | +          | +         | +             | +            | +         | +        |
| 2        | 39         | +             | +          | +         | +             | +            | +         | +        |
| 3        | 41         | +             | –          | +         | –             | –            | –         | –        |
| 4        | 24         | –             | +          | +         | –             | –            | –         | –        |
| 5        | 39         | +             | –          | –         | –             | –            | +         | –        |
| 6        | 36         | +             | +          | –         | +             | –            | +         | –        |
| 7        | 45         | +             | +          | –         | +             | –            | –         | –        |
| 8        | 40         | +             | +          | –         | +             | –            | +         | –        |
| 9        | 60         | +             | –          | +         | –             | +            | –         | +        |
| 10       | 50         | +             | +          | –         | –             | –            | –         | –        |
| 11       | 55         | +             | +          | –         | +             | –            | –         | –        |
| 12       | 35         | +             | +          | –         | +             | –            | –         | –        |

Download English Version:

<https://daneshyari.com/en/article/3104582>

Download Persian Version:

<https://daneshyari.com/article/3104582>

[Daneshyari.com](https://daneshyari.com)