

To Compare the Effect of Muscle Energy Technique and Ultrasound on Jaw Range of Motion in Subjects with Temporomandibular Joint Dysfunction

Dr Jaspinder Kaur, Dr Shilpy Jetly

Assistant Professor, DAV Institute of Physiotherapy and Rehabilitation, Jalandhar, Punjab, India

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1. INTRODUCTION

Temporomandibular joint is a horse shaped bone that articulates with the temporomandibular bone. Each temporomandibular joint contains disc that separates the joint into upper and lower articulations.¹

When TM joint is not working properly, the condition is known as temporomandibular joint dysfunction joint (or disorder). The TMJ are positioned Right in front of ear canals.¹

Temporomandibular disorder (TMD) refers to the causes responsible for the impaired function of temporomandibular joints (TMJ) and the associated Neuro- musculature system, which may provoke TMD related pain. TMD are a group of dysfunction and disorder related to impaired function of the temporomandibular joints and associated muscles therefore they may lead to the painful impairment in stomatognathic system functioning. The TMJ is used 1500- 2000 times a day, which shows how great discomfort is carried by the pathologies in jaw movements.²

The Journal of Headache and Pain Mieszko Wieckiewicz, Klaus Boening, Piotr Wiland, Yuh-Yuan Shiau, Anna

ABSTRACT

Introduction- Temporomandibular joint is a horse shaped bone that articulates with the temporomandibular bone. When TM joint is not working properly, the condition is known as temporomandibular joint dysfunction joint. The TMJ is positioned Right in front of ear canals.

Objective- The aim and objective of this study was to compare the effectiveness of Muscle Energy Technique (MET) and Ultrasound in patient with Temporomandibular Joint Dysfunction.

Methods- 20 subjects with Temporomandibular Joint Dysfunction were divided conveniently into two groups: Group A was receiving Muscle Energy Technique (MET) and Group B was receiving Ultrasound. The treatment was continued for 5 days and readings were taken 1st and 5th day.

Result- The study showed non-significant improvements in R.O.M following 5 sessions of treatment within both groups.

Conclusion- Muscle Energy Technique (MET) and Ultrasound both are effective in Temporomandibular Joint Dysfunction.

Keywords: Temporomandibular Joint Dysfunction, Muscle Energy Technique (MET), Ultrasound

Paradowska-Stolarz Published on Dec 7, 2015 The most commonly reported conservative treatment are massage therapy and individually fabricated occlusal splints. In addition to massage, other methods include manual therapy (Muscle Energy Technique) and tapping, warming/cooling of aching joint and light and laser therapy. Drugs are also commonly used. In the most severe cases of the temporomandibular joint degeneration, surgical restoration of the joint is some time applied.³

Physical Therapy, Marega S Medlicott, Susan R Harris Volume 86, Issue 7, 1 July 2006, Pages 995-973 Published: 1 July 2006 This systemic review analyzed studies examining the effectiveness of various physical therapy and electrotherapy for the temporomandibular joint dysfunction. This study showed result that manual mobilization and active exercises may be effective in combination with electrotherapy modalities including laser therapy, biofeedback and therapeutic ultrasound.⁴

Methodology: This study was experimental and comparative in nature.

Inclusion Criteria: Individuals having stage 1 temporomandibular joint dysfunction (both unilateral and bilateral), both males and females, cooperative and mentally fit patients were included in the study.

Exclusion Criteria: Patients having caries, braces (which cause limited movement of TM joint), extraction of wisdom tooth causing spasm of facial muscles were excluded from the study.

Protocol: A written consent was obtained from all subjects. Subjects who met the inclusion criteria were included in the study and required assessment of every subject was done. Minimum 20 subjects were allocated in two groups- Group A & Group B.

In group A, the choice of treatment was:

- Muscle Energy Technique (MET)

In group B, the choice of treatment was:

- Ultrasound

Total 5 treatment sessions were given to each group within a week.

2. Data analysis & Results

Data was analyzed using SPSS VERSION 20.0. All the data was measured using descriptive statistics.

COMPARISON BETWEEN THE GROUP A AND GROUP B

Fig. 1 showed comparison of Opening of Mouth between group A and group B. The fig. 1 highlights the (mean ± standard deviation) P values between the sessions of Day 1 (pre) was 33.00±2.449 in group A and 32.00±1.155 of group B and Day 5 (post) was 37.20±4.417 in group A and 35.60±2.797 in group B respectively. The result for this Fig. 1 was non-significant.

Fig. 2 showed comparison of protrusion between group A and group B. The fig. 2 highlights the (mean ± standard deviation) P values between the sessions of Day 1 (pre) was 5.30±1.059 in group A and 6.50±1.650 of group B and Day 5 (post) was 7.50±1.269 in group A and 8.40±1.578 in group B respectively. The result for Fig. 2 was non-significant.

Fig. 3 showed comparison of lateral deviation (right side) between group A and group B. The Fig 3 highlights the (mean ± standard deviation) P values between the sessions of Day 1 (pre) was 7.30±2.983 in group A and 7.60±1.955 of group B and Day 5 (post) was 9.50±1.581 in group A and 9.10±1.101 in group B respectively. The result for Fig. 3 was non-significant.

Fig. 4 showed comparison of lateral deviation (left side) between group A and group B. The Fig. 3 highlights the (mean ± standard deviation) P values between the sessions of Day 1 (pre) was 6.40±2.319 in group A and 6.80±1.033 of group B and Day 5 (post) was 9.00±1.886 in group A and 9.20±0.789 in group B respectively. The result for Fig. 3 was non-significant

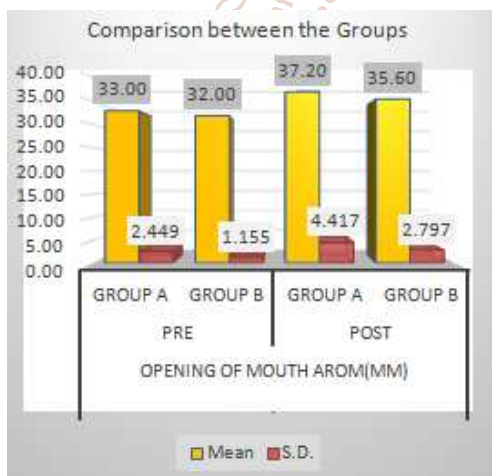


Fig. 1

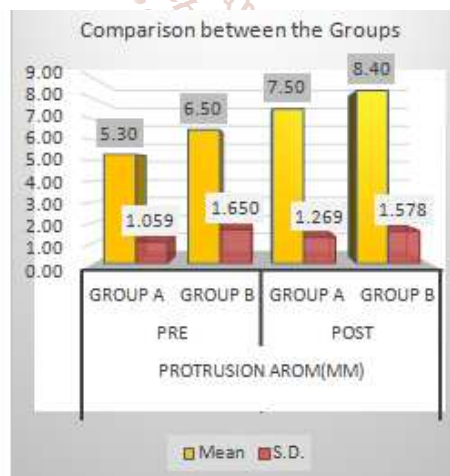


Fig. 2

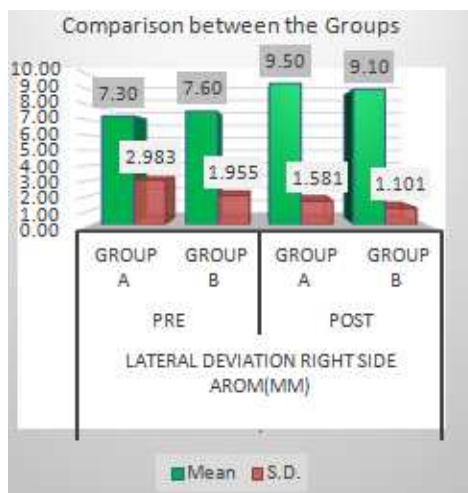


Fig.3

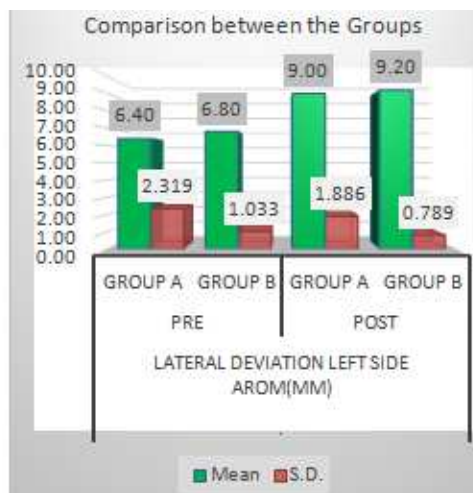


Fig.4

The aim of the study was to compare the effect of Muscle Energy Technique and Ultrasound on Jaw range of motion in subjects with Temporomandibular Joint Dysfunction.

Both the groups showed significant improvement within the groups. But the study supported H_0 hypothesis i.e. non-significant difference when compared with each other.

In manipulative therapy the Muscle Energy Technique (MET) is a revolution involving a movement away from high velocity or low velocity amplitude thrusts towards gentle methods which takes far more accounts of soft tissue component.⁵

The active contraction of a muscle results in reflexively relaxation of its antagonistic. Opening of mouth against resistance is inclined to relax contracted elevator muscle for opening muscles.⁶

Ultrasound therapy is one of the most widely used deep heating modality in physiotherapy departments. "Ultrasound therapy is electro physical agent based on the application of mechanical energy produced by sound waves of high frequencies between 85 KHz and 3KHz and delivered at intensities between 0 and 3 W/cm²". Therapeutic frequencies of ultrasound therapy are 1MHz or 3MHz.⁷ Ultrasound therapy is one of the efficacious method for reduction of pain, ROM, muscular tonus and improving function of the muscles.⁸

Conclusion

The study concluded that Muscle Energy Technique (MET) and ultrasound both are effective in temporomandibular joint dysfunction to increase ROM of jaw.

Limitation and future scope of study

- The sample size for the study was too small.
- Duration of the study was not adequate to study the long term effects of the treatment.
- The study was limited to 5 sessions only and there was no follow up after that.

- External factors affecting the progression cannot be calculated.
- The study can be performed with a large sample size.
- Long term follow up studies can be done to see the long term effects.

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