



## Role of Transcutaneous Electrical Nerve Stimulation in the Management of TMJ Disorder

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### Abstract

Transcutaneous electrical nerve stimulation therapy is non pharmacological, non invasive method of pain reduction or alleviation of pain in patient with temporomandibular joint disorders. Also widely used in orofacial pain as a treatment modalities and in combination with other techniques. It is used as anaesthesia for treatment of post operative analgesia, post operative nausea and vomiting.

**Keywords:** Orofacial Pain; Pain; Transcutaneous Electrical Nerve Stimulation

### Introduction

Temporomandibular disorders are the most common chronic orofacial pain conditions confronting dentists and other health care provider. Temporomandibular joint disorder (TMD) constitute group of diseases which mainly affects masticatory system, tmj and other related structures [1,2].

TMD are mainly evolved due to hyperactivity, trauma, emotional stress and malocclusion along with predisposing factors.

The most common symptoms and signs of TMD are orofacial pain and TMJ tenderness; decreased mandibular range of motion; clicking, hard grating or crepitus; tense, stiffness, pain or fatigue in facial muscles; ear symptoms like tinnitus, fullness, vertigo; sensation of variable bite changes. Patients with chronic TMD have also reported to present with signs and symptoms of depression, insomnia and low self-confidence. Various therapies proposed for TMD are orthopedic stabilization, intraoral appliances, behavioral

therapy, placebo and pharmacotherapy with analgesics, muscle relaxants and antidepressants.

There are various treatment modalities for relieving pain and for normal masticatory functions in which TENS is the widely used physical therapy.

TENS in which electric stimulation is transmitted to area having pain through surface electrodes. TENS is fastest, non invasive and highly effective method of relieving pain.

### History of tens therapy

The use of TENS in dentistry was first described in 1967 by Shane and Kessler.

Melzack and Wall in 1965 published their book named "Pain Mechanisms: A New Theory" where they have mentioned about reduction in pain to a great extent by passing an electrical current [3].

### Techniques of tens

- Conventional or high frequency TENS
- Acupuncture or low frequency TENS
- Brief intense TENS
- Burst mode TENS
- Modulated TENS

Transcutaneous electric nerve stimulation device have 2 different frequency; high frequency (>50 hz) and low frequency (<10 hz). TENS therapy is useful mainly in dentistry for TMDs other than this we use TENS in pediatric patients who have fear of needles. As well as it is useful therapy for regulating auriculotemporal nerve stimulation in xerostomia.

Electrodes are placed which are silicon based or gel application or self adhesives are used. They are placed at area having highest pain or to most close area where pain is triggered the most. They are also placed at peripheral nerve to reduce the pain [4].

Many other therapies are used as combination with TENS one of this is occlusal splint therapy. it is defined as the art and science of establishing neuromuscular harmony in the masticatory system by creating a mechanical disadvantage for parafunctional forces with removable appliances. The common goal of using this therapy is to protect TMJ disc from dysfunctional forces that may lead to perforations or permanent displacement, jaw function. They are also known as stabilization splints.

### Advantages of tens [5,6]

- It is faster and most effective in pain relief.
- Can be administered by subject itself
- Dosage can be modified according to the need.
- Inexpensive
- No drug to drug interactions.

### Disadvantage of tens [5,6]

- TENS cannot be used in patient with pregnancy, cardiac diseases patients, epileptic, Venous or arterial thrombophlebitis patients.
- It also causes slight irritation to skin.

### Conclusion

TENS therapy has vast potential and use in medical as well as dental field. TENS is cost effective, faster, easy modality for head and neck region. It is best pain relieving therapy for maxillofacial and oral region and also to find many facial pain syndromes. As it has no side effects of drugs included, most of the part of use of TENS relies on the clinical experience of health professionals.

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