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**Title; Bite Force Assessment in the Temporomandibular Disorders**  
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## **FINDING**

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Dental and maxillofacial surgeons have a historic role in resolving acute pain and restoring normal oral function. When physicians encounter patients, who appear to be suffering from ambiguous pain and functional jaw problems, they are less comfortable handling these situations. Despite many studies being conducted on TMJ issues, Temporomandibular Joint Disorders (TMD) are among the most frequently misdiagnosed and mistreated diseases in the medical field.

Origin of TMD is multifactorial and part of the misunderstanding comes from the inability to point out exact etiology. It is therefore very necessary for the clinician to learn to distinguish between many types of TMJ dysfunction and also between other etiological agents which mimic TMJ problems.

Over the years, it has been discovered that there are several treatments for TMD symptoms, including over-the-counter drugs, non-steroidal anti-inflammatory drugs, and the application of moist heat or cold to the affected area. Additionally, helpful in reducing discomfort and motions include soft diet, minimizing abrupt jaw movements, and adequate rest. TMJ disorders can be treated in part by anti-anxiety drugs, night guards, and splints. Numerous studies have demonstrated the effectiveness of acupuncture, low-intensity laser therapy, and ultrasound in the treatment of TMJ issues.

Bite force is exerted by jaw elevator muscles and regulated by the nervous musculature, skeletal and dental system and measurement of the maximum bite force is an attempt to quantify the total force of the jaw elevator muscles. Patients with pain or functional disturbance from masticatory muscles or TMJ have been reported to have lower bite force than healthy subjects. Bite force has often been used as to evaluate masticatory function. Most of the authors have proven that bite force is affected by temporomandibular disorders but few authors have failed to find an association between TMD with bite force also.

In this study, bite force was recorded in healthy individuals, selected from the outpatient Department of Jamia Millia Islamia. Also, bite force was recorded in Temporomandibular patients before and after the treatment. Stressed has been made on prognostic criteria for the management of TMDs by different methods. Prognostic criteria included pain, mouth opening, and bite force. Our study focused on the management of TMJ pain by different methods like the use of normal saline for

arthrocentesis in group 1, normal saline and Platelet Rich Plasma (PRP) in group 2, and Low-Level Laser Therapy (LLLT) for TMD in group 3. Different parameters like mouth opening, bite force, pain, and TMJ sounds have been used to assess the outcome of the treatment.

Consequent to intervention in Group 1 and Group 2, bite force and mouth opening decreased initially but fifth day onwards up to six months there was an increase in bite force and mouth opening. In group 3 there was an increase in bite force and mouth opening from day 1 onwards up to the last recorded reading i.e. six months. Improvement in mouth opening from day one to six months is 39.6 %, 42.8 %, and 39% for Group 1, Group 2, and Group 3 respectively. There is an increase in bite force value after six months by 68.7%, 70.8%, and 54.3 % for Group 1, Group 2, and Group 3 respectively. For improvement in pain intensity VAS scale has been used and there is a reduction in pain by 90.8%, 94%, and 90.3% for Group 1, Group 2, and Group 3 respectively.

All three treatment modalities have reasonable outcomes, with the best results after six months for mouth opening, pain, and bite force demonstrated in group 2, and the least effective for these parameters after six months is LLLT. Comparison of results of these parameters helps in the assessment of the severity of the disease and also in deciding the role of different treatment modalities in the outcome.

*Keywords: Temporomandibular Joint, Temporomandibular Disorders, Platelet Rich Plasma, Arthrocentesis, Bite Force, Mouth Opening, Visual Analog Scale, Low Level Laser Therapy, Normal Saline, Temporomandibular Joint Sounds, Centrifugatio*

