

# Implications of Temporomandibular Disorders in Restorative Dentistry and Orthodontics

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## DESCRIPTION

Temporomandibular disorder (TMD) is commonly defined as a group of clinical problems involving the masticatory muscles, the temporomandibular joint (TMJ), and the associated structures, and is the most common clinical entity affecting the masticatory apparatus. It is classified as a musculoskeletal disorder in this regard. TMD, on the other hand, is the leading cause of non-dental pain in the oro-facial region, which includes the head, face, and related structures. A temporomandibular causative agent is widely accepted to be multifactorial, with numerous direct and indirect causal factors. Among these, occlusion is frequently cited as a major etiological factor contributing to TMD.

The etiological and therapeutic theories are based on this assumed association, and have justified the use of a variety of therapeutic approaches such as occlusal appliance therapy, anterior repositioning appliances, anterior teeth adjustment, restorative procedures, prosthodontic, and orthognathic treatment are all available. The potential link between orthodontic therapy and TMD signs and symptoms is still being debated among orthodontists, the dental community, and dental patients. The effects of an acute occlusal interference on habitual muscle activity and TMD symptoms and manifestations in the natural surroundings.

It was carried out in a double-blind crossover design, with each subject serving as his or her own control and being monitored for 6 weeks in four different conditions: interference-free before any interference was applied, active interference condition, dummy interference condition, and interference-free after the interferences were removed. The intercuspal position was disturbed by placing a strip of gold foil on the lower first molar on the occlusal contact. The strip was placed on the vestibular surface without interfering with the intercuspal position to create the dummy interference. The activity of the masseter muscle ipsilateral to the interference side was recorded in the natural

environment for eight hours using a portable EMG (Electromyogram) recorder.

This analysis revealed that the masticatory system's response to active occlusal interference was a decrease in daytime habitual masseter muscle activity. The link between orthodontics and TMD arose as a consequence of legal cases in which patients accused orthodontists of causing TMD symptoms during or after orthodontic treatment. It is always recommended to perform a screening examination for the presence of TMD before beginning orthodontic treatment. Any findings, including TMJ sounds, deviation during mandibular movements, or pain, should be recorded and updated at 6-month intervals for medico-legal reasons, and the patient's informed consent should be signed.

The first step is to diagnose TMD if the patient exhibits signs or symptoms prior to beginning orthodontic treatment. When the patient's primary complaint is pain, a differential diagnosis must be made to determine whether the pain is due to TMD, a musculoskeletal condition, or another disease. The second step is to treat the pain conservatively, which may include pharmacotherapy, counseling, behavior interventions, home exercises, physical therapy, and/or occlusal appliances. As a general rule, orthodontic treatment should not be initiated while a patient is experiencing facial pain. Induced pain in masticatory muscles has been shown to cause significant anterior and transverse displacement of the Gothic arch apex, as well as changes in the orientation and magnitude of lateral movements.

These effects were reversible and vanished once the subjects were no longer in pain. The third step is to consider orthodontic treatment after the pain has been relieved and the condition has been stable for a reasonable period of time. The treatment plan should always be tailored to the patient's problem list, evidence-based dentistry principles, and common sense, taking into accounts the characteristics of the individual patient and the reason why the patient is seeking treatment.

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