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### Orthodontist ‘Healer’ or ‘Precipitator’ of TMD

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#### Abstract

Orthodontists have been repeatedly bought under the hammer for causing TMD in their patients. There have been various studies to show the effect of orthodontic treatment on TMD. In this paper I aim to gather the information from various publications to show the effect of orthodontic treatment on TMD.

**Keywords:** Dental implant, alveolar preservation, alveolar ridge

#### Introduction

Temporomandibular joint disorders are an “in” complaint of the 90’s. Patients discuss their TMJ problem over bridge and while waiting for the elevator. It is not idle chatter for they have professionals from every quarter to confirm their “dysfunctions” and prescribe cures. The frequency of TMJ complaints has multiplied in the last few years. This may have been brought about by the increased stresses of our fast paced world, or at least we now recognize that there is a stress strain tension release syndrome that often manifests itself with nocturnal Para functional activity.

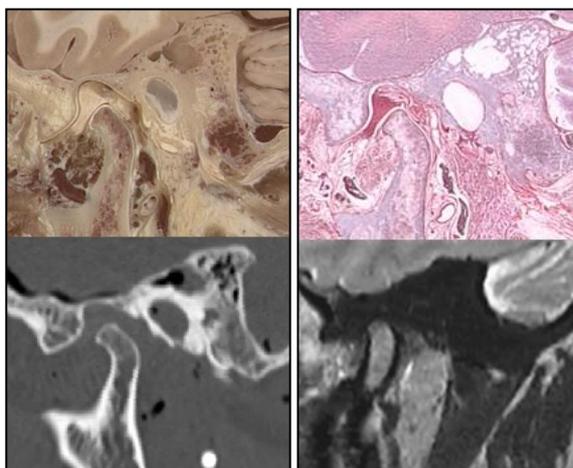
The attention of the orthodontic community regarding TMD however was heightened in the late 1980s after litigation involving the allegations that orthodontic treatment was the proximal cause of TMD in orthodontic patients. The famous ‘Michigan orthodontic / TMJ’ law suit was announced. This litigation turned on the argument that a form of orthodontic treatment had been the cause of the patient’s TMD; the six member juries were in favor of the patient. Ultimately the matter was settled by a payment of a large sum of money to the patient.

The orthodontists since then have repeatedly been accused of causing TMJ disorder.

In this paper I will be discussing various studies which are done relating the effect of the various orthodontic procedures on TMJ

#### Temporomandibular Joint

The craniomandibular articulation is a complex synovial system, composed of Temporomandibular joint together with its articular ligaments and masticatory muscles



Anatomicaly

Histologically

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### Definition

- Temporomandibular disorder, in the broad sense are to be considered a cluster of joint and muscle disorders in the orofacial area, characterized primarily by pain, joint sounds and irregular or deviating jaw function.
- According to “American Academy of Orofacial Pain” – Temporomandibular disorder is a collective term embracing a number of clinical problems that involve the masticatory musculature, temporomandibular joint and associated structures or both.

### Etiology of Temporo-Mandibular Disorder

The etiology of TMD remains mired in controversy. It is generally agreed that the etiology of symptoms of TMD is multifactorial. That is several different factors acting alone, or in varying combinations may be responsible.

The etiological factors sometimes are called as contributing factors that can be defined as factors that initiate, perpetuate or result in a disorder.

- Predisposing factor – factors that increase the risk of TMD or orofacial pain developing.  
E.g. Systematic factors, Psychological factors, Structural factors, Genetic factors.
- Initiating factors – factors that cause the onset of disorder. E.g. Trauma, Para functional habits.
- Perpetuating factors – factors that interfere with healing and complicate management.  
E.g. Mechanical and Muscular stress, metabolic problems.

### Symptoms and Signs

- Pain
- Joint Sounds
- Limitation of Mandibular Movement
- Dislocation
- Ear Symptoms
- Recurrent headache

**Table 1:** Review of Literature

S. No.	Authors	Journals	Year	No. of cases	Orthodontics and TMD
<b>1966 to 1988</b>					
1.	Larson and Ronnerman	Eur j orthod	1981	23 experimental	++
2.	Janson and Hasund	Eur j. orthod.	1981	60 experimental 30 control	++
3.	Sadowsky and BeGole	Am j orthod	1980	75 experimental 75 control	--
4.	Sodowsky and Polsen	Am j orthod	1984	207 experimental 214 control	--
5.	Pancherz	Am j orthod	1985	20 experimental	--
6.	Dibbets and van der weele	Am j orthod dentofac orthop	1987	63 functional fixed 72	--
7.	Lieberman <i>et al.</i>	J oral rehab	1985	<369	--
<b>1988 to 2000</b>					
8.	Dahl <i>et al.</i>	Acta odont scand	1988	51 experimental 47 control	--
9.	Smith and Freer	Aust dent j	1989	87 experimental 28 control	--
10.	Loft <i>et al.</i>	Am j orthod dentofac orthop	1989	219 experimental	--
11.	Nielsen <i>et al.</i>	Eur j orthod	1990	295 experimental 388 control	--
12.	Egermark-- eriksson <i>et al.</i>	Eur j orthod	1990	35 experimental 203 control	--
13.	Klaus KeB <i>et al.</i>	Eur j orthod	1991	54	--
14.	Dibbets and van der Weele	Am j orthod dentofac orthop	1991	103 experimental	--
15.	Sadowsky <i>et al.</i>	Am j orthod dentofac orthop	1991	160 experimental	--
16.	Kremanak <i>et al.</i>	Am j orthod dentofac orthop	1992	26 without extraction 25 four premolar extraction 14 two upper premolar extraction	--
17.	Kremanak <i>et al.</i>	Am j orthod dentofac orthop	1992	109	--
18.	Maria T. O’Rielly <i>et al.</i>	Am j orthod dentofac orthop	1993	34 maxillary two premolars extraction 12 four premolar extraction 60 control	--
19.	Paul Major, Lorne Kamelchuk	Am j orthod dentofac	1997	22 extraction 13 extraction	--

It can be seen from the works of above renowned clinicians and academicians that the orthodontic treatment does not have any deleterious effect on the TMJ.

### Conclusion

The debate about orthodontic treatment as a risk factor for Temporomandibular Disorders (TMD) led to this paper. Although the concern about orthodontics as a possible etiologic factor for TMD is lessening, there is still debate. The debate is driven by a continuing lack of sufficient information of the kind most readily obtained from systematic, prospective, longitudinal studies.

The overwhelming evidence supports the conclusion that orthodontic treatment performed on children and adolescents is generally not a risk for the development of TMD years later. This conclusion should not be surprising for two obvious reasons: first, the multiplicity of factors that may be responsible for producing or exacerbating a TMD in general, and second, that orthodontic mechanotherapy produces gradual changes in an environment that is generally quite adaptive.

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