

## LETTERS FROM OUR READERS

To: Editor, *The Angle Orthodontist*

Re: Gidakou IK, et al. Comparison of Skeletal and Dental Morphology in Asymptomatic Volunteers and Symptomatic Patients with Bilateral Degenerative Joint Disease. *Angle Orthod.* 2003;73:71–78.

I read with interest the article published in *The Angle Orthodontist* by Gidakou et al.<sup>1</sup> This is an excellent study demonstrating the possible relationship between degenerative joint disease (DJD) of the temporomandibular joint (TMJ) and skeletal changes within the skull base and the maxillofacial complex. TMJ-related orthodontic research within the last two decades was focused on understanding the relationship between the prevalence of TMJ disk displacement (DD) and DJD in both normal and symptomatic populations and the relationship of DD and DJD to skeletal and morphological changes within the skull base. Although DJD was found in both asymptomatic volunteers and symptomatic patients, many authors reported only casual association and no causality. Gidakou and coworkers have contributed significantly to the understanding of this interrelationship with this study and have demonstrated compelling evidence that these patients are truly retrognathic.

The results of Gidakou and colleagues concur with prior studies<sup>2</sup> and demonstrate that definitive skeletal changes exist in patients with DD and DJD<sup>3,4</sup> and that the mandible actually had a clockwise rotation. Although the 1990 study by Ono<sup>5</sup> seemed to confirm the theory that skeletal changes can be brought about by retrognathic jaw positioning, this has never been further demonstrated.

Although the results from ongoing research might prove that retrognathism is acquired and not developmental, what evidence demonstrates causality that DJD is responsible for retrognathism? It is possible that retrognathism may have initially predisposed an individual for disk displacement and then have been further aggravated by etiological factors such as trauma in early childhood or adolescence.

We have known for a long time that radiographic changes of DJD are noticed commonly in young patients presenting with pain and dysfunction<sup>6</sup> and that the most important component of the TMJ not visualized on plain films or tomograms for appropriate diagnosis of disk displacements is the disk itself. Because magnetic resonance imaging (MRI) by itself suffices for effective evaluation of both hard tissue and soft tissue components of the TMJ, is it time to replace tomography with MRI for nonemergent preorthodontic assessment of the temporomandibular joints?

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### REFERENCES

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### Response from Dr Gidakou and coauthors:

We would like to thank Dr Muralidhar Mupparapu for his kind comments concerning our recent paper, “Comparison of Skeletal and Dental Morphology in Asymptomatic Volunteers and Symptomatic Patients with Bilateral Degenerative Joint Disease” (*Angle Orthod.* 2003;73:71–78). We hope these data contribute to the scientific literature.

We would like to make a few comments. Though there is a clockwise rotation of the mandible, this does not imply that this produces a distal condyle position. In fact, studies that have evaluated disk displacement and condyle position show that there is not a one-to-one relationship with the presence of disk displacement. Subjects with normal disk position, in general, have 35% with anterior position, 40% with concentric position, and 25% with distal position.

When there is disk displacement, 22% will be anterior, 33% will be concentric, and about 45% will be distal.<sup>1</sup> In general, there is about a 20% shift to the distal. Though these data are significant, one can see by the distributions that there is not a one-to-one relationship.

Dr Mupparapu suggests that trauma in early childhood may be a risk factor for the development of disk displacement/TMD. Though there is an increased prevalence of trauma in symptomatic patients compared with controls, there is only a 20% increase in the symptomatic patients.<sup>2</sup> Because disk displacement, with or without pain, is common in children and young adults,<sup>3,4</sup> it is hard to make the correlation with confidence that trauma “caused” disk displacement. There are no data evaluating the relationship.

We would applaud the suggestion that tomography does not give enough information to warrant its use on every patient. We would also like to suggest that even though magnetic resonance imaging (MRI) is an excellent tool for the evaluation of the temporomandibular joint, the diagnosis of an asymptomatic patient with disk displacement should not change the normal, customary care given to a patient presenting for orthodontics, prosthodontics, or other restorative dentistry. To date, there is no study that suggests we can predictably prevent or correct disk displacement with splint therapy or restorative dentistry. Protrusive splint treatment, validated with MRI, does not always maintain disk position.<sup>5</sup> There are also no studies that suggest that we should be changing condyle position.

We would like thank Dr Mupparapu for his kind comments and *The Angle Orthodontist* for publishing this paper.

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