Title: Effect of bilateral loss of maxillary posterior teeth on the temporomandibular joint in rats.

Occlusal abnormality may contribute to temporomandibular joint (TMJ) disorder. Biomechanical factors such as occlusal and masticatory dysfunction, loss of posterior teeth, unilateral chewing patterns, and bruxism have been incriminated in the initiation and progression of degenerative TMJ disease by overloading of the joint structures.

**Purpose:** The aim of the work is to study the influence of bilateral maxillary molar extraction on the TMJ, particularly on condylar anatomy.

**Materials and methods:** The molar extractions were performed in 20 Sprague Dawley rats (10 young and 10 adult); another 20 control rats (without extraction) were all sacrificed after 3 weeks of the experiment. The heads were fixed, decalcified, and sectioned following standard histologic methods for light microscopic analysis. Specifically, alterations in condylar anatomy were assessed and the various cartilagenous layers measured. The inflammatory reaction was evaluated through the presence of inflammatory cells. The data were analyzed descriptively, and when applicable, t-tests were performed.

**Results:** No presence of inflammatory cells was noted in the discs and condylar cartilages of the young and adult experimental animals. The proliferative and hypertrophic zones were thicker in the adult control group than in the adult experimental group (p<0.05). **Conclusion:** Overloading of the TMJ and/or loss of occlusal support should not be regarded as a major direct etiological factor for TMJ dysfunction and for abnormal condylar growth.

**Keywords:** Temporomandibular joint, occlusal support, overloading.