

## **Abstract**

**Title:** Condylar degeneration in patients with dental open bite versus skeletal open bite utilizing CBCT

**Authors:** Alex Rauchle, Alston Trinh, Brad Albertson DDS, Linda Phi DDS, Joorok Park DMD, MSD, Heesoo Oh DDS, MS, PhD, MSD

**Introduction:** Idiopathic condylar resorption (ICR) is a condition in which either one or both condyles undergo degeneration. Bilateral TMJ involvement presents as a clockwise rotation of the mandible in the posterior-inferior direction, resulting in an anterior open bite. The purpose of the study was to assess TMJ condylar degeneration in dental open bites compared to skeletal open bites.

**Materials and Methods:** In this retrospective study, a search for patients with clinical anterior open bite malocclusion was conducted using a databank of all patients presenting to the orthodontic clinic at UOP. A total initial search of 745 patients were found in the UOP electronic data base. After various exclusion criteria, 195 anterior open bite patients and 100 matched control subjects (no open bite) were included in the study. TMJ images were extracted from CBCT. Four raters used a modified version of Hatcher (2009) phase of condylar degeneration. The phases of condylar degeneration include normal condyle, active degeneration, and repair. A Chi-square test was used to compare control, dental open bite (MP-SN  $<38^\circ$ ), and skeletal open bite (MP-SN  $\geq 38^\circ$ ).

**Results:** The sample comprised of 118 females (60.5%) and 77 males (39.5%). The inter-rater reliability was found to be 0.721. Statistical analysis shows that condylar degeneration is twice as common in skeletal open bite cases as would be expected by chance. 26% of condyles in skeletal open bites had condylar degeneration.

**Conclusions:** With skeletal open bite patients, it is important to suspect condylar degeneration as a potential etiology.