

# **Temporomandibular joint anatomy using cbct: assessing condyle position and joint space in the people with normal function of temporomandibular joint.**

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## **Introduction**

Temporomandibular joint disorders are the most common disorders in dentistry which can give no symptoms in the beginning. Most of them are internal derangement. By using CBCT in their routine work the dentists can assess the first signs of asymptomatic disorders like a narrowing of joint space and abnormal position of condyle in glenoid fossa. The newer technique such as CBCT (cone-beam computed tomography) produces images using lower radiation doses and higher resolution than normal CT.

## **Aim**

The purpose of this study is to assess the position of condyle in glenoid fossa and joint spaces in the people with normal function of temporomandibular joint.

## **Materials and methods**

CBCT images of 30 patients (20 males and 10 females between 18-25 years old) were analyzed in axial, coronal and sagittal view. The patients had no history of temporomandibular joint disorders such as absence of history of pain, clenching, joint sounds, without limitation of mandible motions. Also as a criteria was chosen the absence of the extracted teeth. Their CBCT images were obtained according to many reasons except TMJ disorders. Were assessed bilaterally (right and left sides): position of condyle in glenoid fossa (centric or eccentric), anterior (Ajs), posterior (Pjs), superior (Sjs), medial (Mjs), lateral joint spaces (Ljs). All images were taken in an upright position of patients using tom Galileos GAX5 (Sirona Dental System, Bensheim, Germany) and analyzed by program GALILEOS Viewer.

## **Results**

The program "Statistica" was used to assess the data. in this group of 30 patients(20 males and 10 females between 18-25 years old) without any history of temporomandibular joint disorders were evaluated:

- 1) the common position of condyle in glenoid fossa was 91%;anterior position- 3%,posterior position -1%;
- 2) mean values of Ajs- $2.0\pm 0.7$ mm,Pjs- $2.3\pm 0.8$ mm,Sjs- $3.2\pm 0.7$ mm,Mjs- $2.7\pm 0.9$ mm,Ljs- $2.3\pm 0.5$ mm in right side and Ajs- $1.8\pm 0.4$ mm,Pjs- $2.0\pm 0.5$ mm,Sjs- $2.9\pm 0.9$ mm,Mjs- $2.8\pm 0.9$ mm,Ljs- $2.0\pm 0.5$ mm in left side;
- 3) significant differences between the values of Ajs, Pjs, Sjs, Mjs, Ljs in right and left sides.

## **Conclusion**

The algorithm of assessment of joint space and condyle position and data received in this study can be useful for clinical evaluation of temporomandibular joint. In many cases the narrowing of the space should be the first and most common finding to describe in the setting of degenerative osteoarthritis and chronic internal derangement which don't give any symptoms in the beginning. The evaluation of joint spaces should be done always in right and left sides independently.