[Eur Arch Otorhinolaryngol.](https://www.ncbi.nlm.nih.gov/pubmed/30879193) 2019 May;276(5):1493-1499. doi: 10.1007/s00405-019-05383-y. Epub 2019 Mar 16.

**Three-dimensional evaluation of maxillary sinus volume in different age and sex groups using CBCT.**

[Aktuna Belgin C](https://www.ncbi.nlm.nih.gov/pubmed/?term=Aktuna%20Belgin%20C%5BAuthor%5D&cauthor=true&cauthor_uid=30879193)1, [Colak M](https://www.ncbi.nlm.nih.gov/pubmed/?term=Colak%20M%5BAuthor%5D&cauthor=true&cauthor_uid=30879193)2, [Adiguzel O](https://www.ncbi.nlm.nih.gov/pubmed/?term=Adiguzel%20O%5BAuthor%5D&cauthor=true&cauthor_uid=30879193)3, [Akkus Z](https://www.ncbi.nlm.nih.gov/pubmed/?term=Akkus%20Z%5BAuthor%5D&cauthor=true&cauthor_uid=30879193)4, [Orhan K](https://www.ncbi.nlm.nih.gov/pubmed/?term=Orhan%20K%5BAuthor%5D&cauthor=true&cauthor_uid=30879193)5,6.

[**Author information**](https://www.ncbi.nlm.nih.gov/pubmed/30879193)

**Abstract**

**AIM:**

Sinus maxillaris is an important anatomical formation in many branches of dentistry due to its proximity to the field of work. Various methods have been used in literature to measure the maxillary sinus volume (MSV) such as cadavers, stereology, two-dimensional conventional radiographs, computed tomography (CT), magnetic resonance imaging (MRI). The aim of this study is to evaluate the change of maxillary sinus volume according to age and gender with MIMICS 19.0 (Materialise HQ Technologielaan, Leuven, Belgium) which is one of three-dimensional modeling software.

**MATERIALS AND METHODS:**

This study was performed in 200 patients selected by a retrospective review of the archives of the Dicle University, Faculty of Dentistry, Department of Oral and Maxillofacial Radiology. Patients were divided into five age groups (18-24 years, 25-34 years, 35-44 years, 45-54 years, and ≥ 55 years) and by sex. Cone-beam computed tomography (CBCT) images of the patients were transferred to the MIMICS software and the MSV was measured. All statistical analyses were performed using the SPSS (Statistical Package for Social Sciences, version 21) software.

**RESULTS:**

There was no statistically significant difference between the right and left maxillary sinus volume according to the findings obtained from our study, and maxillary sinus volume in males was found to be significantly higher than that of females. Another finding of our study is that the maxillary sinus volume decreases with age increase. Especially it was also found that the sinus volume in males in the 18-24 age group was statistically significantly higher than females.

**CONCLUSION:**

Consequently, maxillary sinus volume measurements can be made on CT, CBCT, MRI scans using reconstruction software.

**KEYWORDS:**

Cone-beam computed tomography; Maxillary sinus volume; Third party software