



3D DENTAL SCAN: WHY YOU NEED TO DO IT AND WHAT IT SHOWS

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Abstract

Three—dimensional dental computed tomography or 3D imaging is a method of obtaining a realistic three-dimensional image of the jaw in different projections. It allows you to visualize anatomical features and pathological changes in soft tissues and bone structures of the maxillofacial region. The scan area includes the upper and lower jaw, dentition, temporomandibular joint and maxillary sinuses. A 3D image is used to plan prosthetics and implantation, to monitor the effectiveness of therapeutic treatment, before and after surgery, to diagnose developmental abnormalities, injuries, tumors, inflammation, and to determine the prognosis.





An X-ray is the dentist's main tool in making a correct diagnosis. However, a conventional orthopantomogram or an aiming image has limited diagnostic potential and does not provide complete data on the condition of the teeth and maxillofacial area. But technologies are constantly being upgraded today, and a more informative technology has come to the aid of conventional radiography – computed tomography of teeth (CT).

What does a 3D X-ray of teeth show?



3D dental tomography is a highly accurate diagnostic method that makes it possible to obtain a three-dimensional image of the maxillary system in different projections. The three-dimensional images obtained during CT scan allow the specialist to zoom in, rotate and examine the area of interest from all sides and at different depths:

- The entire maxillofacial apparatus.
- A dentition or a single tooth.
- Paranasal sinuses.
- Bone and parotid tissues.

CT scan of teeth allows you to detect inflammation, assess the uniformity of the filling material and check the quality of the filling, crown or implant, see the number of dental roots and their fragments, identify neoplasms, assess the degree of curvature of teeth, determine the exact parameters of bone tissue (height, width, density, etc.). The information obtained allows the doctor to optimize treatment measures and predict the result.



What is a dental X-ray prescribed for?

A 3D dental scan is performed in the presence of the following indications:

- Injuries to the maxillofacial region.
- Preparation for endodontic treatment (the structure of root canals, pathological processes in periodontitis, the degree of damage to the pulp, etc.).
- Diagnosis of neoplasms (cysts, abscesses, granulomas, tumors).
- Developmental anomalies and deformities of the maxillofacial apparatus.
- Quality control of the seal and implant installation.
- Planning of orthodontic treatment (detection of retinated and dystopic teeth, analysis of the condition of tissues around each tooth, etc.).
- Detection of hidden periodontal cavities and pockets.
- Implantation planning (evaluation of jawbone parameters, indications for sinus lifting or osteoplasty, modeling of the implantation result).
- Endogenous pathologies of the maxillary sinuses.

Three-dimensional X-ray examination is the "gold" standard when planning any complex dental procedure or operation. CT allows you to quickly make an accurate diagnosis, competently plan treatment or dental prosthetics and monitor the result.

What kind of equipment is used





To carry out 3d diagnostics, the SOREDEX Scanora 3D three-dimensional computed tomograph with advanced functionality is used. This is the latest generation of equipment that allows you to obtain three-dimensional images of the anatomical structures of the maxillofacial region in a few seconds, with the least radiation load for the patient.

The program analyzes the obtained multi-planar sections and builds them into a 3D model, thanks to which the specialist has the opportunity to accurately assess the condition of the maxillary system, detect all pathological processes occurring in this area and competently plan a treatment regimen.

A virtual 3-dimensional model of the scanned area can be recorded on any digital medium (CD, flash drive), which allows the attending physician, if necessary, to view the diagnostic data or involve related specialists in the analysis of the information received.

Possible harm

Cone beam dental computed tomography is the safest and fastest diagnostic method. Due to the use of a conical X-ray beam, the radiation dose obtained during the study is 10 times less than when using a spiral CT scan. And the pulsating mode of the X-ray beam additionally reduces the radiation dose. The SOREDEX Scanora 3D three-dimensional computed tomograph is one of the safest devices in terms of X-ray radiation dose - only 0.035 m3.

However, despite the safety of the study, CT has contraindications. Speaking simply about dental tomography, it is not performed during pregnancy (in the 1st trimester). 3d X-ray of teeth with contrast is prohibited for pregnant and lactating women, patients with endocrine disorders (diabetes mellitus, thyroid disorders), kidney failure and intolerance to iodine-containing drugs.

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