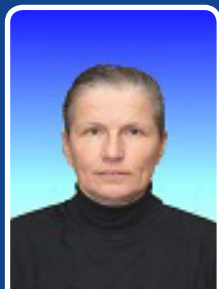


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# CRANIOFACIAL SURGERY

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## **A comparison of the precision of 2D and 3D images of soft and hard tissues in orthognathic surgery planning and therapy: Clinical evaluation**

**Statement of the Problem:** Recently there has been a great progress in three-dimensional (3D) technologies in field of medicine. Dentistry and maxillofacial surgery haven't been exceptions. Methods such as model surgery or cephalometric methods of prediction (2D prediction) including video imaging are considered as "gold standards" in orthognathic surgery. However, these techniques, despite being routine part of the diagnosis and treatment planning process, have their limitations. 3D environment adds the third dimension to planning, which moves planning closer to reality and gives us more information for diagnosing a wider range of dentofacial anomalies.

**Aim:** The aim of study is to compare treatment planning and therapy results using 2D and 3D techniques and technologies.

**Methodology & Theoretical Orientation:** Our research group consisted of 30 patients with orthognathic surgery plan. The patients came to the Department of Oral and Maxillofacial Surgery on orthodontists and dentists recommendation, and they gave informed consent to take part in the treatment. 2D and 3D analyzes were used to evaluate pre and postoperative data mainly: sets of photos (Canon EOS camera), 3D images from facial scanner VECTRA 3D Imaging system, Fidentis analyst, 2D and 3D dolphin imaging software, CBCT Kavo X-ray and cone beam 3D imaging analysis before and after therapy compared planning and surgery results.

**Findings:** 3D analysis and planning help us monitor therapy. Statistically significant results between 2D and 3D analysis were observed. Vectra 3D images and Fidentis analyst are basis of 3D communication between mutlidisciplinary team, patients and their families. 3D dolphin imaging software, CBCT Kavo X-ray and Cone Beam 3D Imaging analysis helped us mainly orthognathic treatment planning.

**Conclusion & Significance:** The 3D methods of orthognathic surgery planning and therapy bring the specific information about surgical treatment options for 3D simulation procedures.

### **Biography**

Tatjana Dostalova is the Head of the Department of Dentistry, Charles University 2nd Faculty of Medicine and University Hospital in Motol. His did his graduation as a Medical Faculty in the Charles University in Prague. He specialized his Doctors Degree in Medicine for Dentistry. He has a postgraduate training and got the attestation of 1st degree in Dentistry and 2nd degree in Prosthetic Dentistry. He is also a recognized specialist in European Prosthodontist Association. And got attestation in Clinical Dentistry.

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