

## Dysgnathiechirurgie im digitalen Workflow

# Computerbasierte OP-Planung

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## Literaturangabe

- [1] K. Suese, Progress in digital dentistry: The practical use of intraoral scanners, *Dental materials journal* (2019).
- [2] J.-F. Güth, C. Runkel, F. Beuer, M. Stimmelmayr, D. Edelhoff, C. Keul, Accuracy of five intraoral scanners compared to indirect digitalization, *Clinical oral investigations* 21 (2017) 1445–1455.
- [3] T. Almutairi, K. Naudi, N. Nairn, X. Ju, J. Whitters, A. Ayoub, Replacement of the Distorted Dentition of the Cone-Beam Computed Tomography Scans for Orthognathic Surgery Planning, *Journal of oral and maxillofacial surgery official journal of the American Association of Oral and Maxillofacial Surgeons* 76 (2018) 1561.e1–1561.e8.
- [4] P.G.M. Knoops, C.A.A. Beaumont, A. Borghi, N. Rodriguez-Florez, R.W.F. Breakey, W. Rodgers et al., Comparison of three-dimensional scanner systems for craniomaxillofacial imaging, *Journal of plastic, reconstructive & aesthetic surgery JPRAS* 70 (2017) 441–449.
- [5] C.-T. Ho, H.-H. Lin, L.-J. Lo, Intraoral Scanning and Setting Up the Digital Final Occlusion in Three-Dimensional Planning of Orthognathic Surgery, *Plastic and Reconstructive Surgery* 143 (2019) 1027e–1036e.
- [6] T. Shirota, S. Shiogama, Y. Asama, M. Tanaka, Y. Kurihara, H. Ogura et al., CAD/CAM splint and surgical navigation allows accurate maxillary segment positioning in Le Fort I osteotomy, *Heliyon* 5 (2019) e02123.
- [7] N. Zhang, S. Liu, Z. Hu, J. Hu, S. Zhu, Y. Li, Accuracy of virtual surgical planning in two-jaw orthognathic surgery: comparison of planned and actual results, *Oral surgery, oral medicine, oral pathology and oral radiology* 122 (2016) 143–151.
- [8] Y. Wan, T. Jackson, C. Chung, F. Gao, G. Blakey, T. Nguyen, Comparison of condylar position in orthognathic surgery cases treated with virtual surgical planning vs. conventional model planning, *Orthodontics & craniofacial research* 22 Suppl 1 (2019) 142–148.
- [9] P.G.M. Knoops, A. Borghi, R.W.F. Breakey, J. Ong, N.U.O. Jeelani, R. Bruun et al., Three-dimensional soft tissue prediction in orthognathic surgery: a clinical comparison of Dolphin, ProPlan CMF, and probabilistic finite element modelling, *International journal of oral and maxillofacial surgery* 48 (2019) 511–518.
- [10] T. Elshebiny, S. Morcos, A. Mohammad, F. Quereshy, M. Valiathan, Accuracy of Three-Dimensional Soft Tissue Prediction in Orthognathic Cases Using Dolphin Three-Dimensional Software, *The Journal of craniofacial surgery* 30 (2019) 525–528.
- [11] S.-Y. Park, D.-S. Hwang, J.-M. Song, U.-K. Kim, Comparison of time and cost between conventional surgical planning and virtual surgical planning in orthognathic surgery in Korea, *Maxillofacial plastic and reconstructive surgery* 41 (2019) 35.
- [12] T. Steinhuber, S. Brunold, C. Gärtner, V. Offermanns, H. Ulmer, O. Ploder, Is Virtual Surgical Planning in Orthognathic Surgery Faster Than Conventional Planning? A Time and Workflow Analysis of an Office-Based Workflow for Single- and Double-Jaw Surgery, *Journal of oral and maxillofacial surgery official journal of the American Association of Oral and Maxillofacial Surgeons* 76 (2018) 397–407.
- [13] C.M. Resnick, G. Inverso, M. Wrzosek, B.L. Padwa, L.B. Kaban, Z.S. Peacock, Is There a Difference in Cost Between Standard and Virtual Surgical Planning for Orthognathic Surgery?, *Journal of oral and maxillofacial surgery official journal of the American Association of Oral and Maxillofacial Surgeons* 74 (2016) 1827–1833.
- [14] M. Berger, I. Nova, S. Kallus, O. Ristow, C. Freudlsperger, U. Eisenmann et al., Can electromagnetic-navigated maxillary positioning replace occlusional splints in orthognathic surgery? A clinical pilot study, *Journal of cranio-maxillo-facial surgery official publication of the European Association for Cranio-Maxillo-Facial Surgery* 45 (2017) 1593–1599.
- [15] J. Kraima, R.H. Schepers, F.K.L. Spijkervet, T.J.J. Maal, F. Baan, M.J.H. Witjes et al., Splintless surgery using patient-specific osteosynthesis in Le Fort I osteotomies: a randomized controlled multi-centre trial, *International journal of oral and maxillofacial surgery* (2019).
- [16] B. Li, S. Shen, W. Jiang, J. Li, T. Jiang, J.J. Xia et al., A new approach of splint-less orthognathic surgery using a personalized orthognathic surgical guide system: A preliminary study, *International journal of oral and maxillofacial surgery* 46 (2017) 1298–1305.