Innanzitutto vorrei ringraziare da parte del Prof Persin e tutto il dipartimento di ortodonzia dell'università statale di medicina e odontoiatria di Mosca la possibilità di partecipare a questo evento importante e a condividere con voi l'esperienza di attività clinica e di ricerca nell'ambito diagnostico. In particolare parlerò della diagnosi tridimensionale e la valutazione dell'armonia del tutto il sistema dentofacciale.

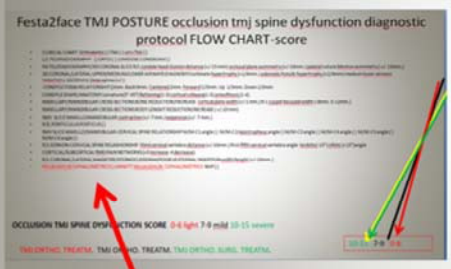
- Low dose conebeam-Chieti Univ. protocol

Chieti-Moscow Univ. 3D protocols

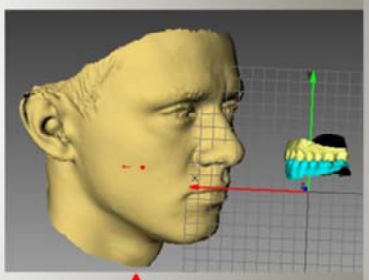
- Scanner 3D – Model Scanner Moscow Univ. protocol

Oenning, A. C., Jacobs, R., Pauwels, R., Stratis, A., Hedesiu, M., Salmon, B., & DIMITRA Research Group. (2018). Cone-beam CT in paediatric dentistry: DIMITRA project position statement. *Pediatric Radiology*, *48*(3), 308-316.

Protocols integration main problems are related to soft tisues analysis: TVL and NHP are not reproducible positions: when we however need to utilize?



PRE-SURGICAL CASES (CHIETI)



Models + Soft Tissues integration (Moscow)

Zebeib, A. M., & Naini, F. B. (2014). Variability of the inclination of anatomic horizontal reference planes of the craniofacial complex in relation to the true horizontal line in orthognathic patients. *American Journal of Orthodontics and Dentofacial Orthopedics*, *146*(6), 740-747.

- Low dose conebeam-Chieti Univ. protocol

Chieti-Moscow Univ. 3D protocols

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Festa2face tmj posture 3D occlusion tmj spine dysfunction diagnostic protocol FLOW CHART-score

- CLINICAL CHART ORTHODONTICS ( ) TMJ ( ) ORT.+TMJ ( )
- LATERAL/FRONTAL TELERADIOGRAPHY ( ) ORTO ( ) LOWDOSE CONEBEAM ( ) SEGMENTATION ALFA ( ) BETA ( ) ORTHOGONAL ( ) PERSPECTIVE ( ) NHP+TVL+FP ( )
- LATERAL/FRONTAL SLICE TELERADIOGRAPHY Ba-A ( ) Ba-B ( ) R/L condyle head-Gonion distance (+/-15 mm) occlusal plane asimmetry (+/-10mm.) palatal suture Menton asimmetry (+/-15mm.)
- LATERAL/FRONTAL SLICE TELERADIOGRAPHY UPPER/MEDIUM/LOWER AIRWAYS turbinate hypertrophy (+1/4mm.) adenoids/tonsils hypertrophy (+2/4mm) medium lower airways reduction (-10/20mm) sleep apnea (+/-)
- R/L PONTICULUS POSTICUS ( )
- LATERAL/CORONAL SLICE CERVICAL SPINE RELATIONSHIP C0 ( ) C1 ( ) C2 ( ) C3 ( ) C4( ) C5 ( ) C6 ( ) Cervical Angle ( ) Coronal Ba Ep Angle ( ) R/L C0-Ep Distance ( )
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- R/L GONION-CERVICAL SPINE RELASHIONSHIP third cervical vertebra distance (+/-10mm.) first/fifth cervical vertebra angle lordotic(-15°) cifotic (+15°)angle
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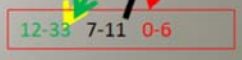
OCCLUSION TMJ SPINE DYSFUNCTION SCORE 0-6 light 7-11 mild 12-33 severe

TMJ ORTHO. TREATM. TMJ ORTHO. TREATM. TMJ ORTHO. SURG. TREATM.



Lee, S. H., Kil, T. J., Park, K. R., Kim, B. C., Kim, J. G., Piao, Z., & Corre, P. (2014). Three-dimensional architectural and structural analysis—a transition in concept and design from Delaire's cephalometric analysis. *International journal of oral and maxillofacial surgery*, *43*(9), 1154-1160.

Case 41 TMJ Extrarticular: Mild Class III, Deep Bite, Pass. Aligners + Active Aligners

TMJ: Severe Myofascial Pain Syndrome , mild soreness
External Pterigoideus RL, Upper Tapezius RL

Age:47 years

2 months Passive Aligners + Active Aligners 16 Months

Festa2face tmj posture 3D occlusion tmj spine dysfunction diagnostic protocol FLOW CHART-score

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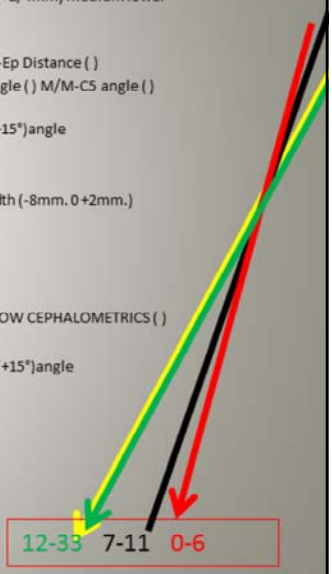
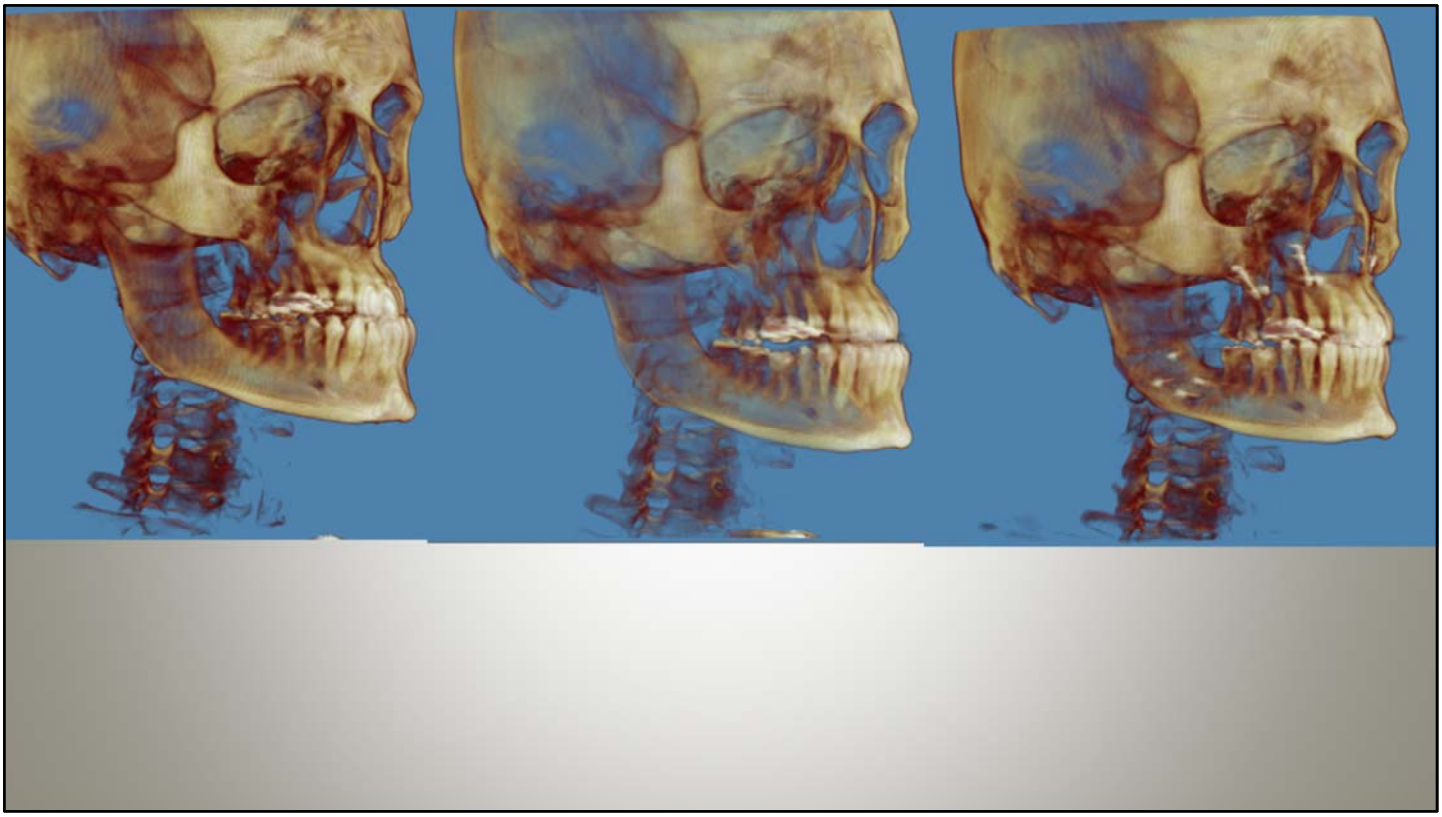


OCCLUSION TMJ SPINE DYSFUNCTION SCORE 0-6 light 7-11 mild 12-33 severe

TMJ ORTHO. TREATM. TMJ ORTHO. TREATM. TMJ ORTHO. SURG. TREATM.



Festa2face tmj posture 3D occlusion tmj spine dysfunction diagnostic protocol FLOW CHART-score

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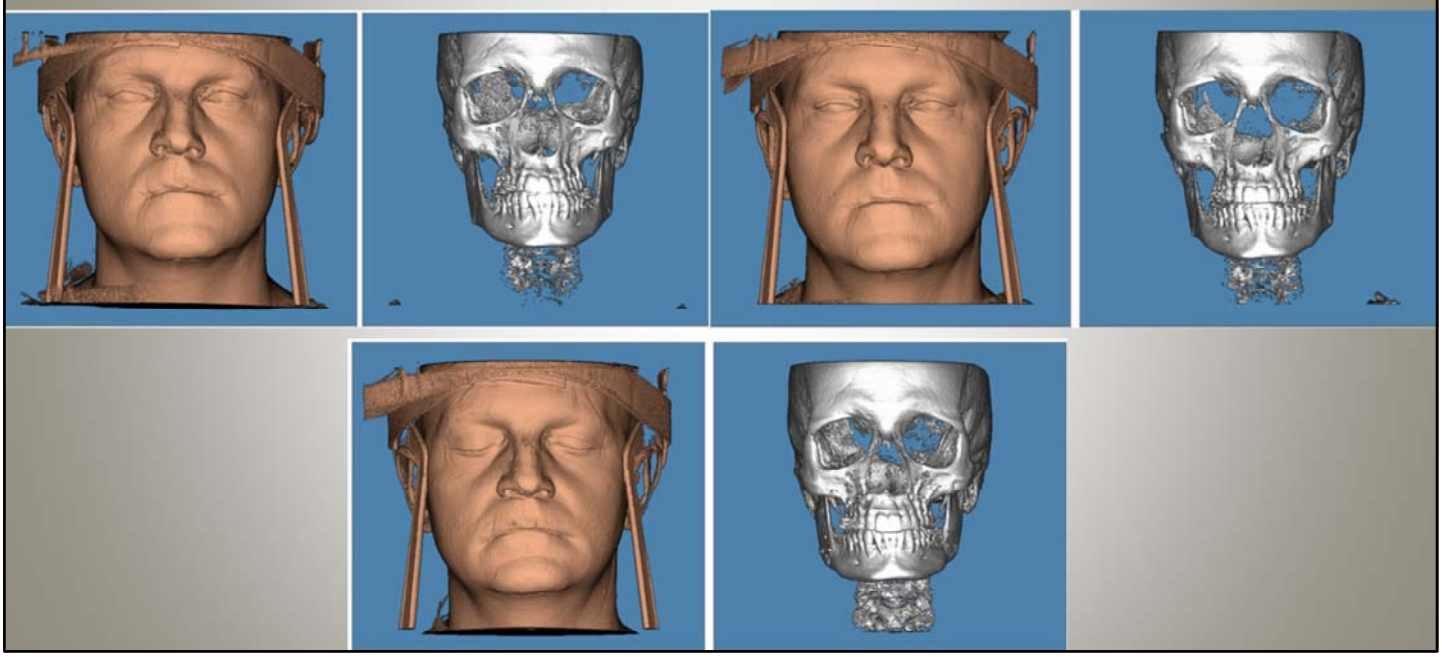
Nowinski, W. L., & Thaung, T. S. (2018). A 3D stereotactic atlas of the adult human skull base. *Brain informatics*, *5*(2), 1.

BETA SEGMENTATION



Festa2face tmj posture 3D occlusion tmj spine dysfunction diagnostic protocol FLOW CHART-score

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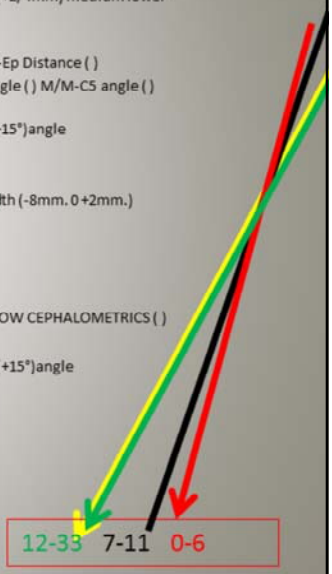
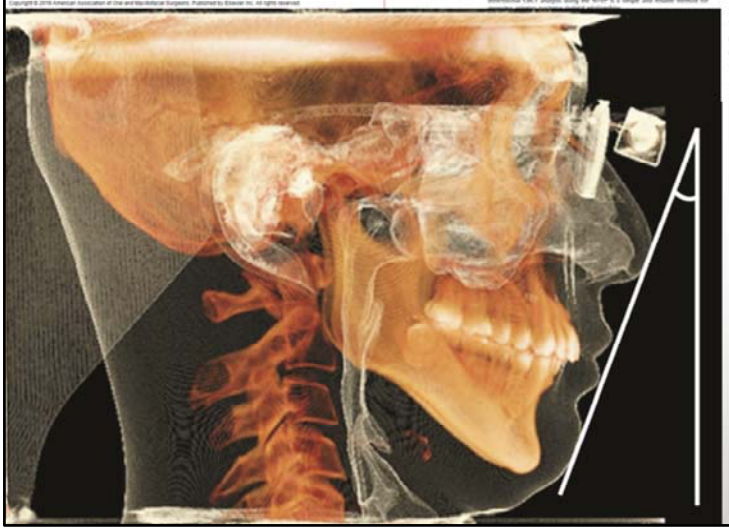


OCCLUSION TMJ SPINE DYSFUNCTION SCORE 0-6 light 7-11 mild 12-33 severe

TMJ ORTHO. TREATM. TMJ ORTHO. TREATM. TMJ ORTHO. SURG. TREATM.

Effects of Different Head Positioning Methods on Facial Soft Tissue Analysis Using Stereophotogrammetry.

Assessment of anterior-posterior jaw relationships in Korean adults using the nasion true vertical plane in cone-beam computed tomography images



Skeletal-versus soft-tissue-based cephalometric analyses: is the correlation reproducible?

Ploder O[1], Klöhnke R[1,2], Winsauer H[3], Götz C[4], Bissinger O[4], Haller B[5], Kolk A[4]

Author information

1 a Department of Oral and Maxillofacial Surgery , Academic Teaching Hospital , Feldkirch , Austria.
2 b Department of Oral and Maxillofacial Surgery , University Medical Center Hamburg-Eppendorf , Germany.
3 c Dental School , University of Graz, Graz , Austria.
4 d Department of Oral- and Craniomaxillofacial Surgery , Klinikum rechts der Isar, University of Technology , Munich , Germany.
5 e Department of Medical Statistics and Epidemiology , Munich Klinikum rechts der Isar, University of Technology , Munich , Germany.

Abstract

OBJECTIVES: Dentofacial deformities can be analyzed by skeletal and soft tissue cephalometric analysis (CA). The aim was to evaluate the difference in reproducibility between both methods.

MATERIALS AND METHODS: Lateral cephalograms of 112 patients (65 females and 47 males, 27.7 ± 9.0 years) were oriented in natural head position (NHP) and digitized. The distances of skeletal (SNA, SNB, SnPog) and soft tissue (A', B' and Pog') landmarks relative to the respective norm values and the angles between the Nasion Sella line (NSL) and Frankfurt horizontal (FH) to NHP were measured for statistical evaluation and compared with respective data of an adult control group (CG) with class I occlusion and harmonic facial balance.

RESULTS: The mean differences (mm ± SD) of skeletal and soft tissue landmarks were -2.4 ± 4.4 (A), -7.0 ± 9.3 (B), -6.3 ± 11.2 (Pog), -0.9 ± 1.8 (A'), -4.7 ± 6.2 (B'), and -6.1 ± 7.8 (Pog'), respectively. Pearsons's correlation (r) between the measurements of SNA/A', SNB/B' and SNPog/Pog' were r = .158 (p = .092), r = .662 (p < .001) and r = .655 (p < .001), respectively. The mean (±SD) angles between NSL and FH to NHP were -9.8° ± 5 and 0.0° ± 3.9, respectively.

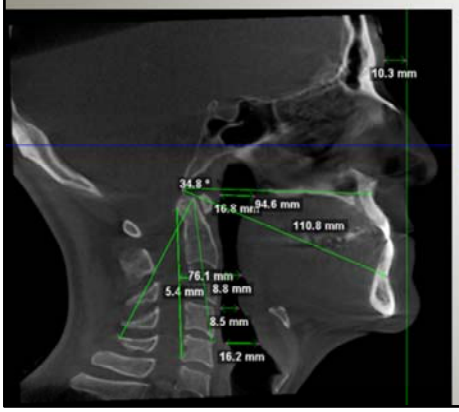
CONCLUSION: Variability of cranial-based measurements could give a possible explanation for the high variation and the low reproducibility of skeletal cephalometric analysis with soft tissue measurements. Soft-tissue cephalometric analysis would probably improve facial analysis and treatment planning.

KEYWORDS: Dentofacial deformities; facial analysis; intracranial variability; skeletal cephalometric analysis; soft tissue cephalometric analysis

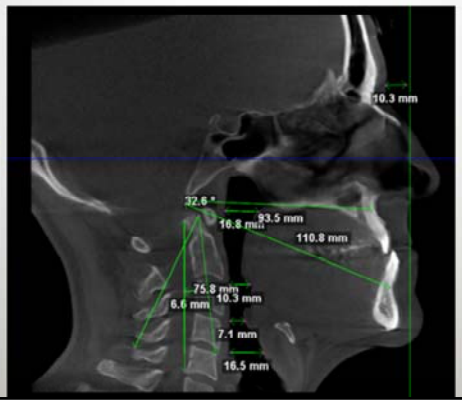
FP+TVL+NHP ALFA SEGMENTATION STEP 6 cephalometrics

3 > FESTA2FACE® TMJPOSTURE® modified ARNETT McLAUGHLIN CEPHALOMETRICS

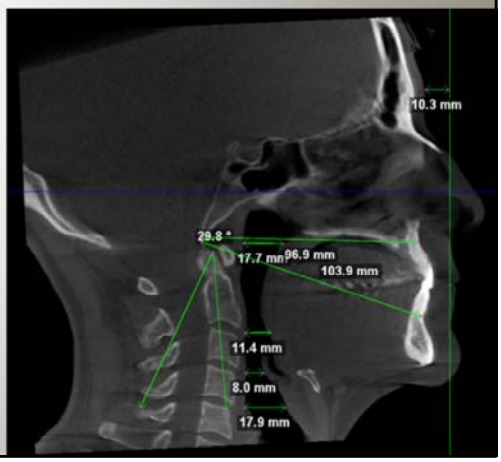
Initial



Progress



Final



Festa2face tmj posture 3D occlusion tmj spine dysfunction diagnostic protocol FLOW CHART-score

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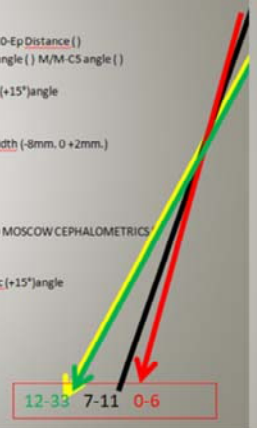

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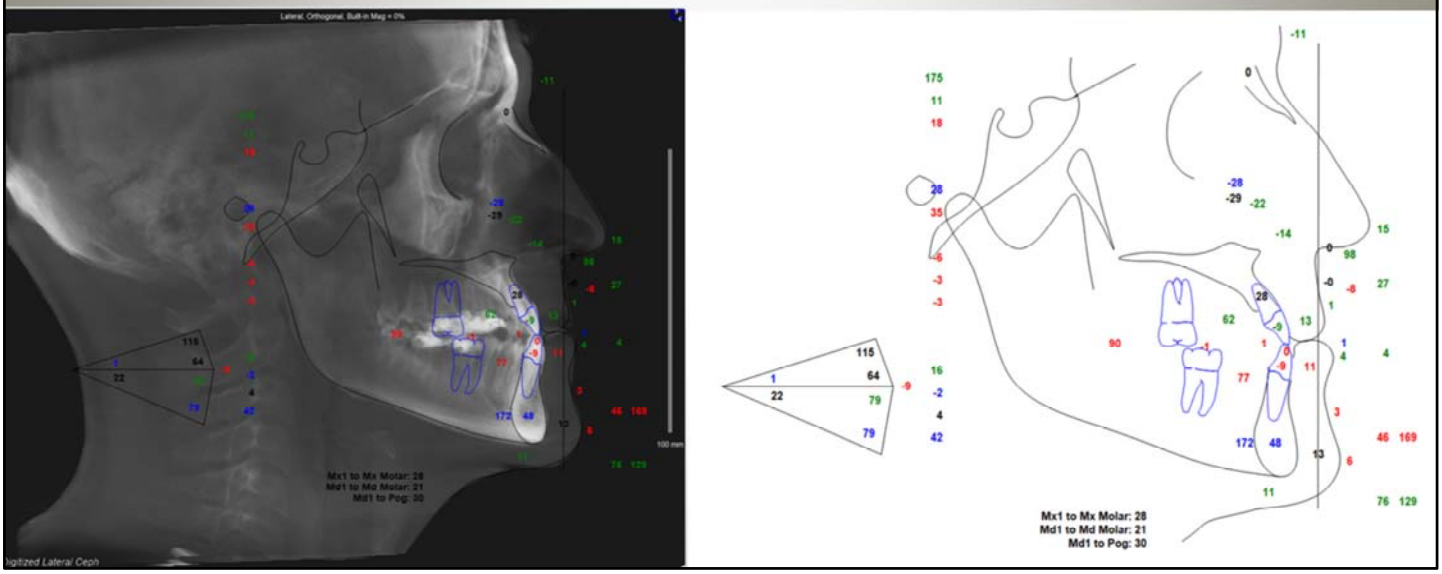
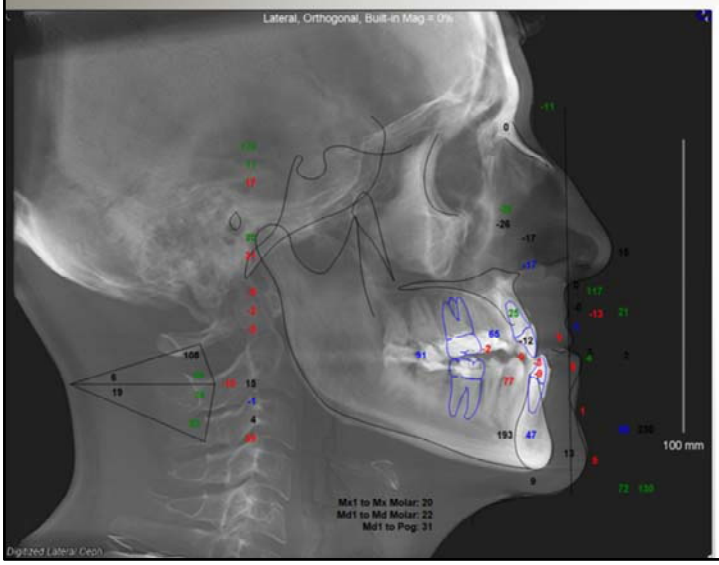
Leung, M. Y., Lo, J., & Leung, Y. Y. (2016). Accuracy of different modalities to record natural head position in 3 dimensions: a systematic review. *Journal of Oral and Maxillofacial Surgery, 74*(11), 2261-2284.

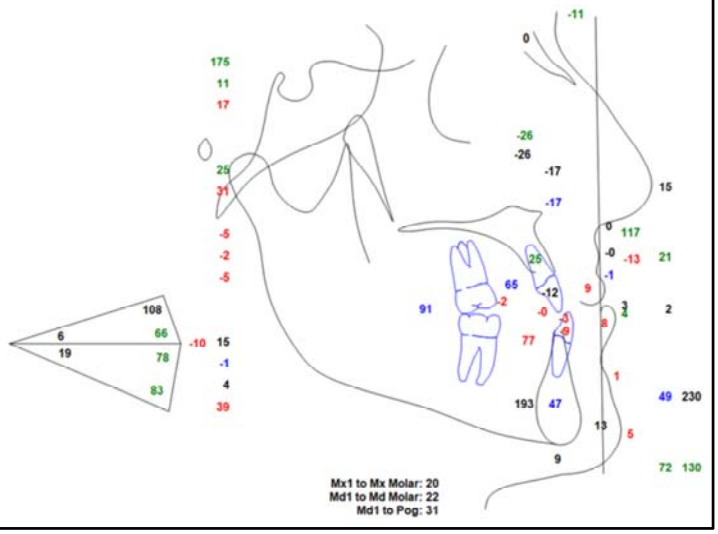
Cassi, D., De Biase, C., Tonni, I., Gandolfini, M., Di Blasio, A., & Piancino, M. G. (2016). Natural position of the head: review of two-dimensional and three-dimensional methods of recording. *British Journal of Oral and Maxillofacial Surgery, 54*(3), 233-240.

FESTA2FACE® TMJPOSTURE® MODIFIED ARNETT McLAUGHLIN CEPHALOMETRICS INITIAL

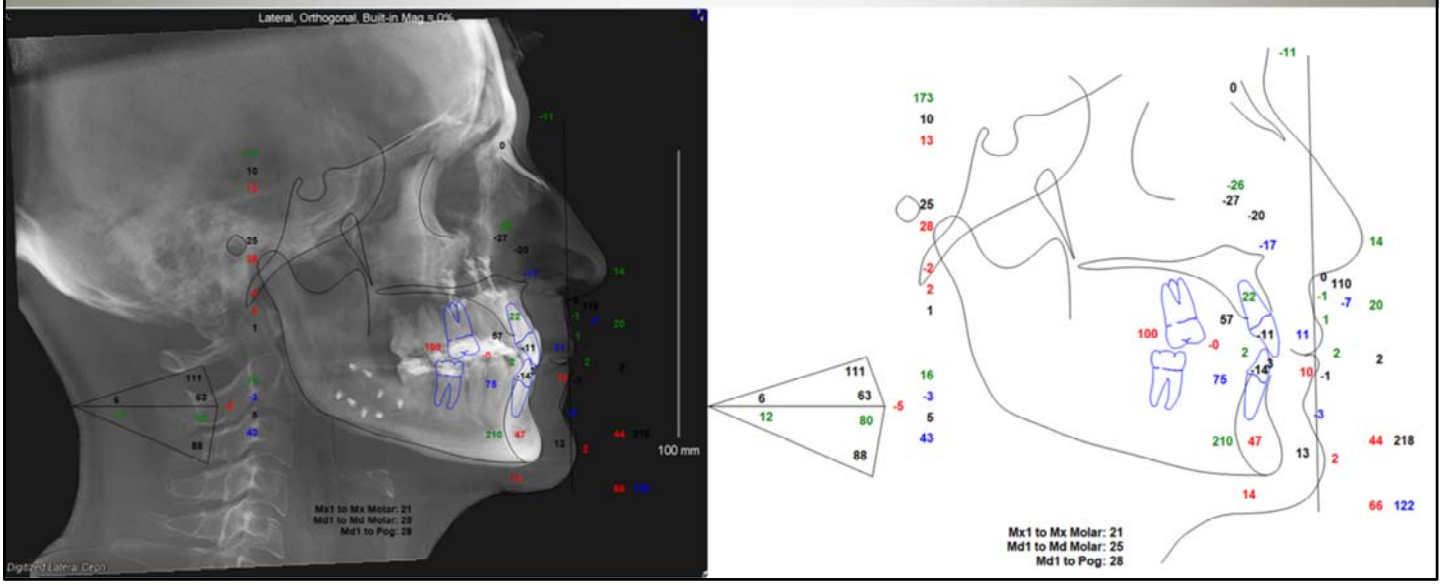


FESTA2FACE® TMJPOSTURE® MODIFIED ARNETT McLAUGHLIN CEPHALOMETRICS PROGRESS



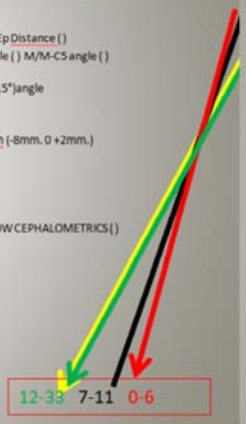


FESTA2FACE® TMJPOSTURE® MODIFIED ARNETT McLAUGHLIN CEPHALOMETRICS FINAL (XXX>X)



Festa2face tmj posture 3D occlusion tmj spine dysfunction diagnostic protocol FLOW CHART-score

- CLINICAL CHART ORTHODONTICS ( ) TMJ ( ) ORT.+TMJ ( )
- LATERAL/FRONTAL TELERADIOGRAPHY ( ) ORTO ( ) LOWDOSE CONEBEAM ( ) SEGMENTATION ALFA ( ) BETA ( ) ORTHOGONAL ( ) PERSPECTIVE ( ) NHP+TVL+FP ( )
- LATERAL/FRONTAL SLICE TELERADIOGRAPHY Ba-A ( ) Ba-B ( ) R/L condyle head-Gonion distance (+/-15 mm) occlusal plane asimmetry (+/-10mm.) palatal suture Menton asimmetry (+/- 15mm.)
- LATERAL/FRONTAL SLICE TELERADIOGRAPHY UPPER/MEDIUM/LOWER AIRWAYS turbinate hypertrophy (+1/4mm.) adenoids/tonsils hypertrophy (+2/4mm) medium lower airways reduction (-10/20mm) sleep apnea (+/-)
- R/IL PONTICULUS POSTICUS ( )
- LATERAL/CORONAL SLICE CERVICAL SPINE RELATIONSHIP C0 ( ) C1 ( ) C2 ( ) C3 ( ) C4( ) C5 ( ) C6 ( ) Cervical Angle ( ) Coronal Ba Ep Angle ( ) R/L C0-Ep Distance ( )
- SMV SLICE MAXILLO/MANDIBULAR-CERVICAL SPINE RELATIONSHIP M/M-C1 angle ( ) M/M-C2/epistropheus angle ( ) M/M-C3 angle ( ) M/M-C4 angle ( ) M/M-C5 angle ( ) M/M-C6 angle ( )
- R/L GONION-CERVICAL SPINE RELASHIONSHIP third cervical vertebra distance (+/-10mm.) first/fifth cervical vertebra angle lordotic(-15°) cifotic (+15°)angle
- CORONAL/LATERAL SLICE CONDYLE FOSSA RELATIONSHIP (2mm. Back 0mm. Centered 2mm. Forward 1/3mm. Up 1/3mm. Down 1/3mm
- CORONAL/LATERAL SLICE CONDYLE SHAPE/ANATOMY curvature(5°-45°) flattening(1-3) cortical collapse(1-3) osteofitosis (1-4)
- CORONAL /SLICE MAXILLARY/MANDIBULAR CROSS-SECTIONS BONE REDUCTION/INCREASE cortical plate width (+/-1 mm.) R-L cuspid bicuspid width (-8mm. 0 +2mm.)
- MAXILLARY/MANDIBULAR CROSS-SECTIONS BODY LENGHT REDUCTION/INCREASE (+/-10 mm)
- SMV SLICE MAXILLO/MANDIBULAR contraction (+/- 7 mm.) expansion (+/- 7 mm.)
- CORTICAL/SUBCORTICAL fMRI PAIN NETWORKS (+5 increase -4 decrease)
- R/L CORONAL/LATERAL MASSETER/STERNOCLEIDOMASTOIDEUS STERNAL INSERTION width/lenght (+/-10mm.)
- McLAUGHLIN CEPHALOMETRICS ( ) FESTA2FACE® TMJPOSTURE® MODIFIED ARNETT McLAUGHLIN CEPHALOMETRICS NHP+TVL+FP ( ) 3D MOSCOW CEPHALOMETRICS ( ) SUPERIMPOSITIONS (XXX-X)



TMJ ORTHO. TREATM. TMJ ORTHO. TREATM. TMJ ORTHO. SURG. TREATM.

OCCLUSION TMJ SPINE DYSFUNCTION SCORE 0-6 light 7-11 mild 12-33 severe

Ghoneima, A., Cho, H., Farouk, K., & Kula, K. (2017). Accuracy and reliability of landmark-based, surface-based and voxel-based 3D cone-beam computed tomography superimposition methods. *Orthodontics & craniofacial research*, *20*(4), 227-236.

Yatabe, M., Prieto, J. C., Styner, M., Zhu, H., Ruellas, A. C., Paniagua, B., ... & Ribera, N. (2019). 3D superimposition of craniofacial imaging—The utility of multicentre collaborations. *Orthodontics & craniofacial research*, *22*, 213-220.

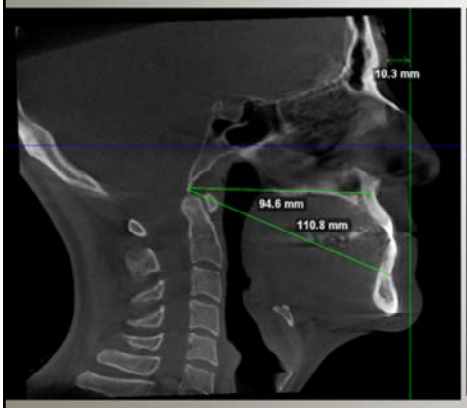
FESTA2FACE® TMJPOSTURE® MODIFIED ARNETT McLAUGHLIN CEPHALOMETRICS

SUPERIMPOSITIONS (XXX>X)

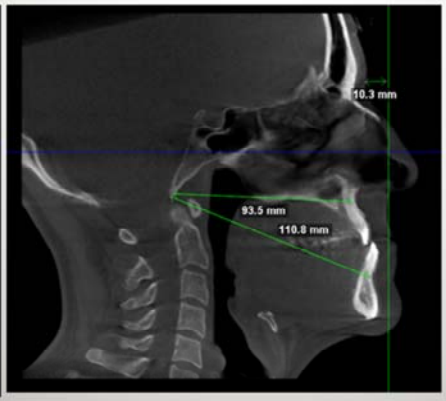
S-NA@S ANS-PNS@Na-Pog Go-Me@Me

LATERAL SLICE TELERADIOGRAPHY (XXX>X)

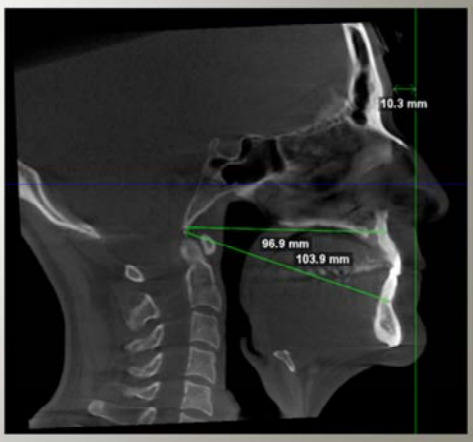
Initial



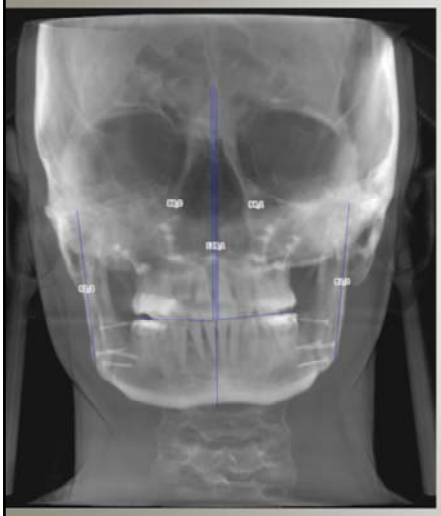
Progress

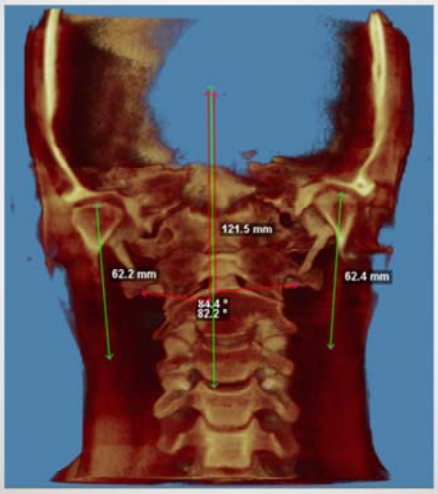


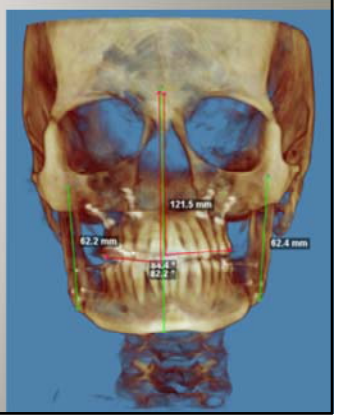
Final



FRONTAL SLICE TELERADIOGRAPHY FINAL (XXX>XX)







Festa2face tmj posture 3D occlusion tmj spine dysfunction diagnostic protocol FLOW CHART-score

- CLINICAL CHART ORTHODONTICS ( ) TMJ ( ) ORT.+TMJ ( )
- LATERAL/FRONTAL TELERADIOGRAPHY ( ) ORTO ( ) LOWDOSE CONEBEAM ( ) SEGMENTATION ALFA ( ) BETA ( ) ORTHOGONAL ( ) PERSPECTIVE ( ) NHP+TVL+FP ( )
- LATERAL/FRONTAL CORONAL SLICE TELERADIOGRAPHY Ba-A ( ) Ba-B ( ) R/L condyle head-Gonion distance (+/-15 mm) occlusal plane asimmetry (+/-10mm.) palatal suture Menton asimmetry (+/- 15mm.)
- LATERAL/FRONTAL/AXIAL SLICE TELERADIOGRAPHY UPPER/MEDIUM/LOWER AIRWAYS turbinate hypertrophy (+1/4mm.) adenoids/tonsils hypertrophy (+2/4mm) medium lower airwavs reduction (-10/20mm) sleep apnea (+/-) Ramus Retromolar-C2-Medium Airways ( )
- R/L PONTICULUS POSTICUS ( )
- LATERAL/CORONAL SLICE CERVICAL SPINE RELATIONSHIP C0 ( ) C1 ( ) C2 ( ) C3 ( ) C4( ) C5 ( ) C6 ( ) Cervical Angle ( ) Coronal Ba Ep Angle ( ) R/L C0-Ep Distance ( )
- SMV SLICE MAXILLO/MANDIBULAR-CERVICAL SPINE RELATIONSHIP M/M-C1 angle ( ) M/M-C2/epistropheus angle ( ) M/M-C3 angle ( ) M/M-C4 angle ( ) M/M-C5 angle ( ) M/M-C6 angle ( )
- R/L GONION-CERVICAL SPINE RELASHIONSHIP third cervical vertebra distance (+/-10mm.) first/fifth cervical vertebra angle lordotic(-15°) cifotic (+15°)angle
- CORONAL/LATERAL SLICE CONDYLE FOSSA RELATIONSHIP (2mm. Back 0mm. Centered 2mm. Forward 1/3mm. Up 1/3mm. Down 1/3mm
- CORONAL/LATERAL SLICE CONDYLE SHAPE/ANATOMY curvature(5°-45°) flattening(1-3) cortical collapse(1-3) osteofitosis (1-4)
- CORONAL /SLICE MAXILLARY/MANDIBULAR CROSS-SECTIONS BONE REDUCTION/INCREASE cortical plate width (+/-1 mm.) R-L cuspid bicuspid width (-8mm. 0 +2mm.)
- MAXILLARY/MANDIBULAR CROSS-SECTIONS BODY LENGHT REDUCTION/INCREASE (+/-10 mm)
- SMV SLICE MAXILLO/MANDIBULAR contraction (+/- 7 mm.) expansion (+/- 7 mm.)
- CORTICAL/SUBCORTICAL fMRI PAIN NETWORKS (+5 increase -4 decrease)
- R/L CORONAL/LATERAL MASSETER/STERNOCLEIDOMASTOIDEUS STERNAL INSERTION width/lenght (+/-10mm.)
- McLAUGHLIN CEPHALOMETRICS ( ) FESTA2FACE® TMJPOSTURE® MODIFIED ARNETT McLAUGHLIN CEPHALOMETRICS NHP+TVL+FP ( ) 3D MOSCOW CEPHALOMETRICS ( )

- R/L GONION-CERVICAL SPINE RELASHIONSHIP third cervical vertebra distance (+/-10mm.) first/fifth cervical vertebra angle lordotic(-15°) cifotic (+15°)angle

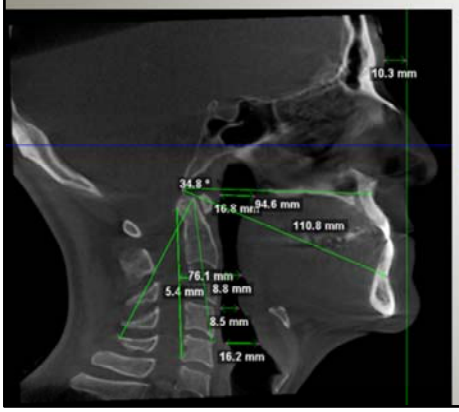
OCCLUSION TMJ SPINE DYSFUNCTION SCORE 0-6 light 7-11 mild 12-33 severe

TMJ ORTHO. TREATM. TMJ ORTHO. TREATM. TMJ ORTHO. SURG. TREATM.

Pérez-Mota, J., Solorio-Ordaz, F., & Cervantes-de Gortari, J. (2018). Flow and air conditioning simulations of computer turbinectomized nose models. *Medical & biological engineering & computing*, *56*(10), 1899-1910.

LATERAL SLICE TELERADIOGRAPHY
UPPER/MEDIUM/LOWER AIRWAYS

Initial



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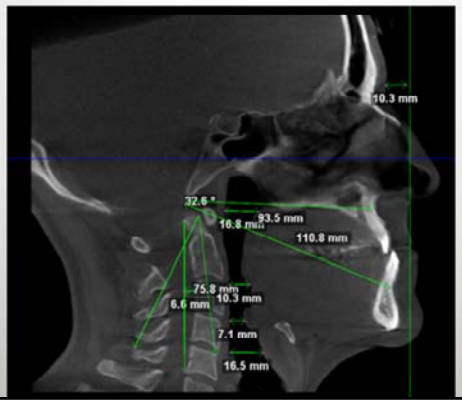

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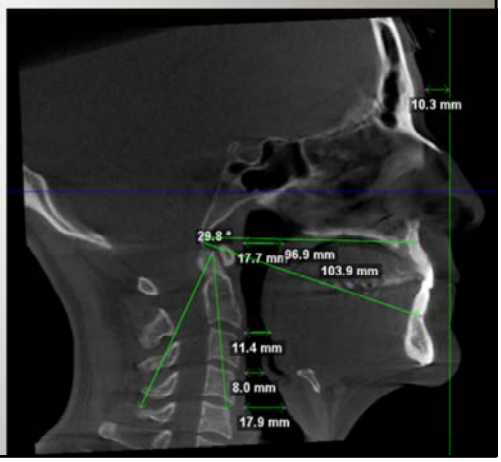
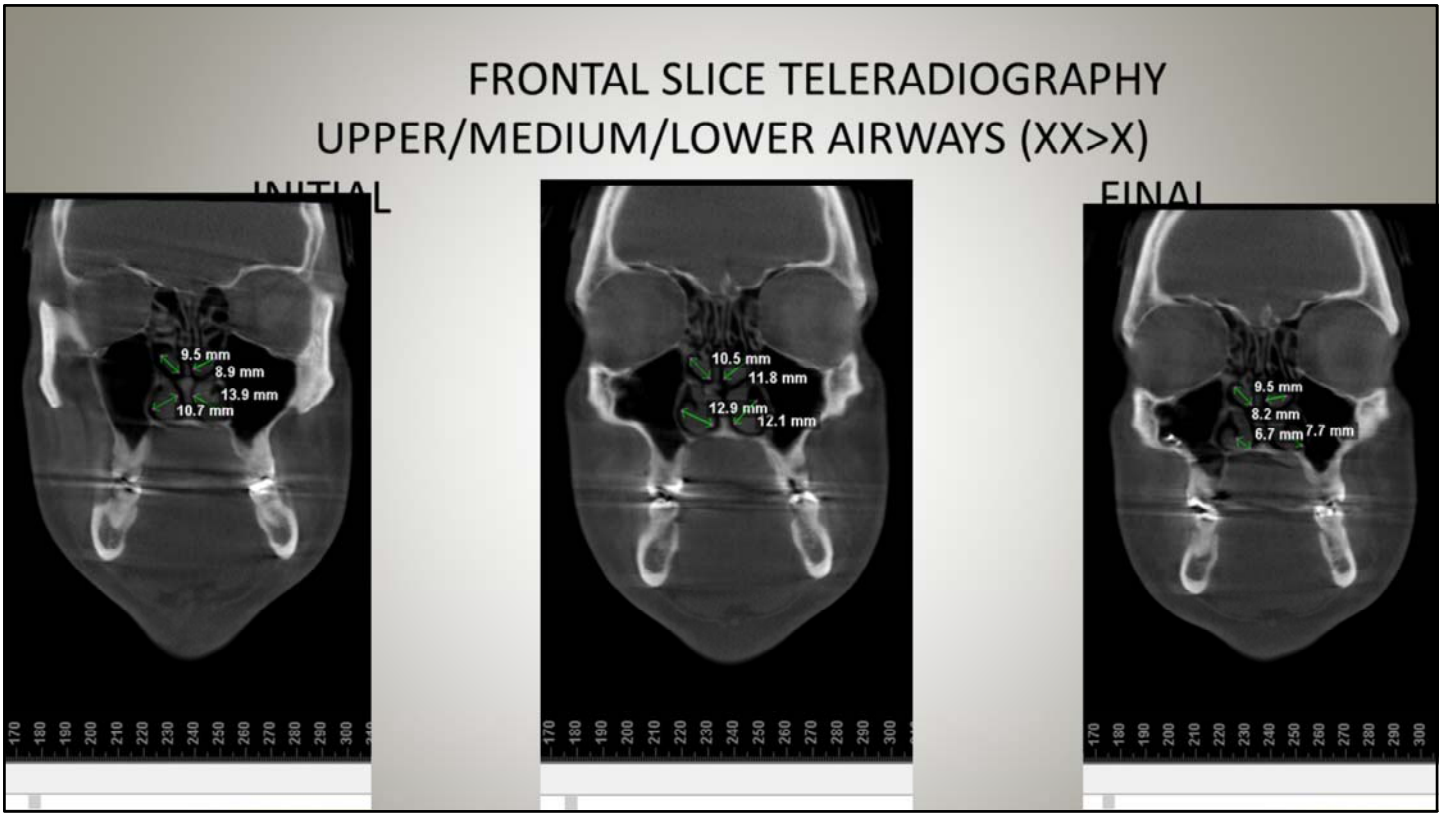
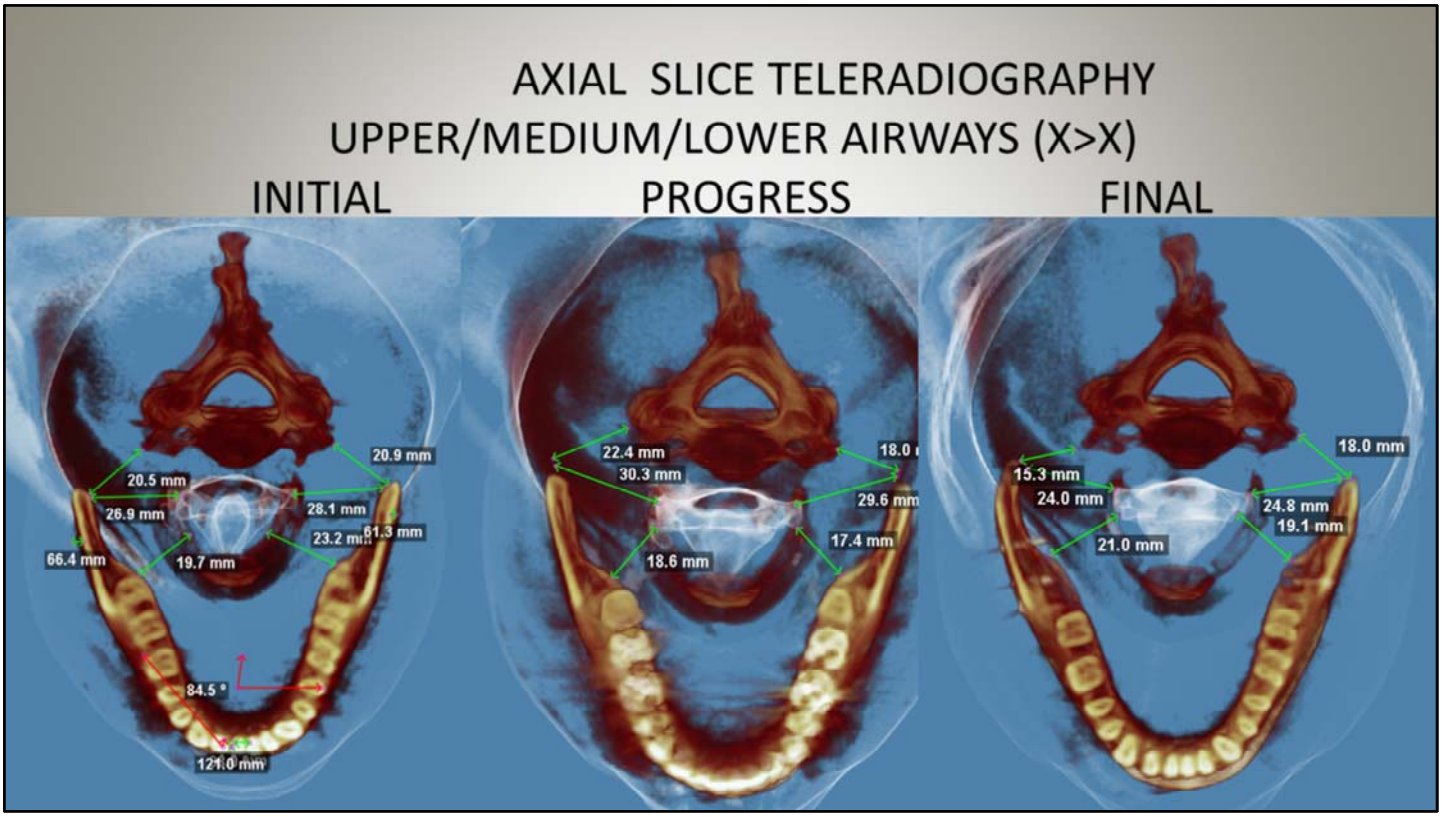



FRONTAL SLICE TELERADIOGRAPHY
UPPER/MEDIUM/LOWER AIRWAYS (XX>X)
INITIAL
FINAL
9.5 mm
8.9 mm
13.9 mm
10.7 mm
10.5 mm
11.8 mm
12.9 mm
12.1 mm
9.5 mm
8.2 mm
6.7 mm
7.7 mm


AXIAL SLICE TELERADIOGRAPHY
UPPER/MEDIUM/LOWER AIRWAYS (X>X)
INITIAL
PROGRESS
FINAL
20.9 mm
20.5 mm
26.9 mm
28.1 mm
23.2 mm
61.3 mm
66.4 mm
19.7 mm
84.5 °
121.0 mm
22.4 mm
30.3 mm
29.6 mm
17.4 mm
18.6 mm
18.0 mm
15.3 mm
24.0 mm
21.0 mm
24.8 mm
19.1 mm

Festa2face tmj posture 3D occlusion tmj spine dysfunction diagnostic protocol FLOW CHART-score

- CLINICAL CHART ORTHODONTICS ( ) TMJ ( ) ORT.+TMJ ( )
- LATERAL/FRONTAL TELERADIOGRAPHY ( ) ORTO ( ) LOWDOSE CONEBEAM ( ) SEGMENTATION ALFA ( ) BETA ( ) ORTHOGONAL ( ) PERSPECTIVE ( ) NHP+TVL+FP ( )
- LATERAL/FRONTAL CORONAL SLICE TELERADIOGRAPHY Ba-A ( ) Ba-B ( ) R/L condyle head-Gonion distance (+/-15 mm) occlusal plane asimmetry (+/-10mm.) palatal suture Menton asimmetry (+/- 15mm.)
- LATERAL/FRONTAL/AXIAL SLICE TELERADIOGRAPHY UPPER/MEDIUM/LOWER AIRWAYS turbinate hypertrophy (+1/4mm.) adenoids/tonsils hypertrophy (+2/4mm) medium lower airwavs reduction (-10/20mm) sleep apnea (+/-) Ramus Retromolar-C2-Medium Airways( )
- R/L PONTICULUS POSTICUS ( )
- LATERAL/CORONAL SLICE CERVICAL SPINE RELATIONSHIP C0 ( ) C1 ( ) C2 ( ) C3 ( ) C4( ) C5 ( ) C6 ( ) Cervical Angle ( ) Coronal Ba Ep Angle ( ) R/L C0-Ep Distance ( )
- SMV SLICE MAXILLO/MANDIBULAR-CERVICAL SPINE RELATIONSHIP M/M-C1 angle ( ) M/M-C2/epistropheus angle ( ) M/M-C3 angle ( ) M/M-C4 angle ( ) M/M-C5 angle ( ) M/M-C6 angle ( )
- R/L GONION-CERVICAL SPINE RELASHIONSHIP third cervical vertebra distance (+/-10mm.) first/fifth cervical vertebra angle lordotic(-15°) cifotic (+15°)angle
- CORONAL/LATERAL SLICE CONDYLE FOSSA RELATIONSHIP (2mm. Back 0mm. Centered 2mm. Forward 1/3mm. Up 1/3mm. Down 1/3mm
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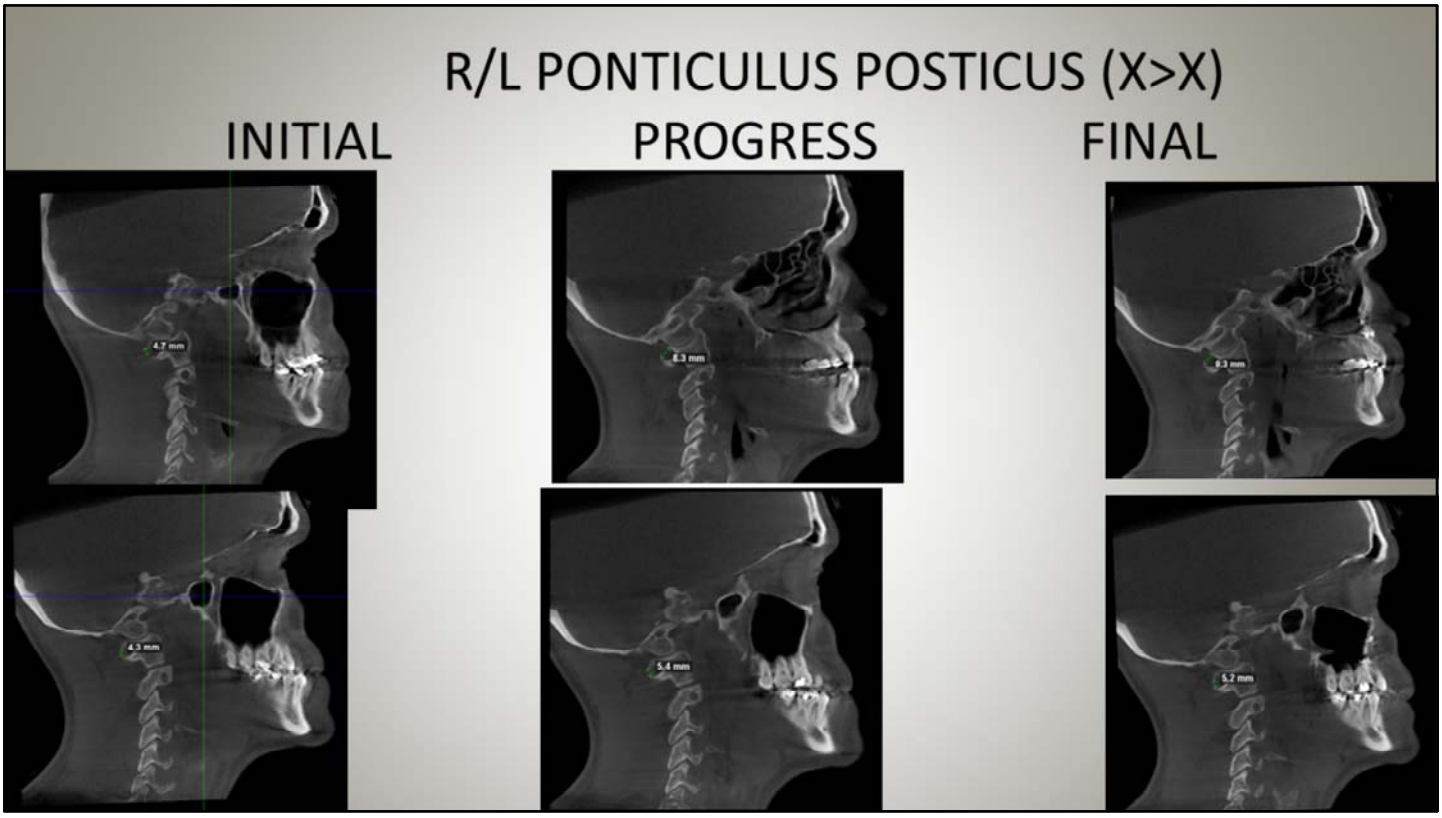
- CORONAL /SLICE MAXILLARY/MANDIBULAR CROSS-SECTIONS BONE REDUCTION/INCREASE cortical plate width (+/-1 mm.) R-L cuspid bicuspid width (-8mm. 0 +2mm.)
- MAXILLARY/MANDIBULAR CROSS-SECTIONS BODY LENGHT REDUCTION/INCREASE (+/-10 mm)
- SMV SLICE MAXILLO/MANDIBULAR contraction (+/- 7 mm.) expansion (+/- 7 mm.)
- CORTICAL/SUBCORTICAL fMRI PAIN NETWORKS (+5 increase -4 decrease)
- R/L CORONAL/LATERAL MASSETER/STERNOCLEIDOMASTOIDEUS STERNAL INSERTION width/lenght (+/-10mm.)
- McLAUGHLIN CEPHALOMETRICS ( ) FESTA2FACE® TMJPOSTURE® MODIFIED ARNETT McLAUGHLIN CEPHALOMETRICS NHP+TVL+FP ( ) 3D MOSCOW CEPHALOMETRICS ( )

- R/L GONION-CERVICAL SPINE RELASHIONSHIP third cervical vertebra distance (+/-10mm.) first/fifth cervical vertebra angle lordotic(-15°) cifotic (+15°)angle

OCCLUSION TMJ SPINE DYSFUNCTION SCORE 0-6 light 7-11 mild 12-33 severe

TMJ ORTHO. TREATM. TMJ ORTHO. TREATM. TMJ ORTHO. SURG. TREATM.

Vaněk, P., Bradáč, O., De Lacy, P., Konopková, R., Lacman, J., & Beneš, V. (2017). Vertebral artery and osseous anomalies characteristic at the craniocervical junction diagnosed by CT and 3D CT angiography in normal Czech population: analysis of 511 consecutive patients. *Neurosurgical review*, *40*(3), 369-376.


R/L PONTICULUS POSTICUS (X>X)
INITIAL
PROGRESS
FINAL
4.7 mm
8.3 mm
8.3 mm
4.3 mm
5.4 mm
5.2 mm

Festa2face tmj posture 3D occlusion tmj spine dysfunction diagnostic protocol FLOW CHART-score

- CLINICAL CHART ORTHODONTICS ( ) TMJ ( ) ORT.+TMJ ( )
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- LATERAL/FRONTAL CORONAL SLICE TELERADIOGRAPHY Ba-A ( ) Ba-B ( ) R/L condyle head-Gonion distance (+/-15 mm) occlusal plane asimmetry (+/-10mm.) palatal suture Menton asimmetry (+/- 15mm.)
- LATERAL/FRONTAL/AXIAL SLICE TELERADIOGRAPHY UPPER/MEDIUM/LOWER AIRWAYS turbinate hypertrophy (+1/4mm.) adenoids/tonsils hypertrophy (+2/4mm) medium lower airways reduction (-10/20mm) sleep apnea (+/-) Ramus Retromolar-C2-Medium Airways( )
- R/IL PONTICULUS POSTICUS ( )
- LATERAL/CORONAL SLICE CERVICAL SPINE RELATIONSHIP A-C1 ( ) A-C2 ( ) A-C3 ( ) A-C4( ) A-C5 ( ) Coronal Ba Ep Angle ( ) R/L C0-Ep Distance ( )
- SMV SLICE MAXILLO/MANDIBULAR-CERVICAL SPINE RELATIONSHIP M/M-C1 angle ( ) M/M-C2/epistropheus angle ( ) M/M-C3 angle ( ) M/M-C4 angle ( ) M/M-C5 angle ( ) M/M-C6 angle ( )
- CORONAL/LATERAL SLICE CONDYLE FOSSA RELATIONSHIP (2mm. Back 0mm. Centered 2mm. Forward 1/3mm. Up 1/3mm. Down 1/3mm
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- MAXILLARY/MANDIBULAR CROSS-SECTIONS BODY LENGHT REDUCTION/INCREASE (+/-10 mm)
- SMV SLICE MAXILLO/MANDIBULAR contraction (+/- 7 mm.) expansion (+/- 7 mm.)
- CORTICAL/SUBCORTICAL fMRI PAIN NETWORKS (+5 increase -4 decrease)
- R/L CORONAL/LATERAL MASSETER/STERNOCLEIDOMASTOIDEUS STERNAL INSERTION width/lenght (+/-10mm.)
- McLAUGHLIN CEPHALOMETRICS ( ) FESTA2FACE® TMJPOSTURE® MODIFIED ARNETT McLAUGHLIN CEPHALOMETRICS NHP+TVL+FP ( ) 3D MOSCOW CEPHALOMETRICS ( )

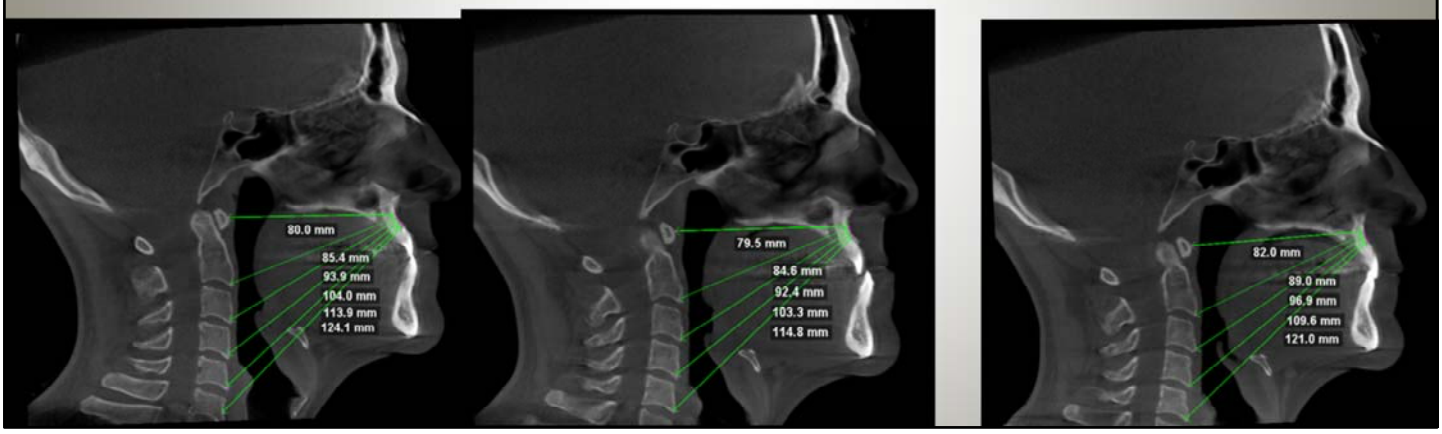
OCCLUSION TMJ SPINE DYSFUNCTION SCORE 0-6 light 7-11 mild 12-33 severe

TMJ ORTHO. TREATM. TMJ ORTHO. TREATM. TMJ ORTHO. SURG. TREATM.

Bedoya, A., Landa Nieto, Z., Zuluaga, L. L., & Rocabado, M. (2014). Morphometry of the cranial base and the cranial–cervical–mandibular system in young patients with type II, division 1 malocclusion, using tomographic cone beam. *CRANIO®*, *32*(3), 199-207.

LATERAL SLICE CERVICAL SPINE RELATIONSHIP (X>X)

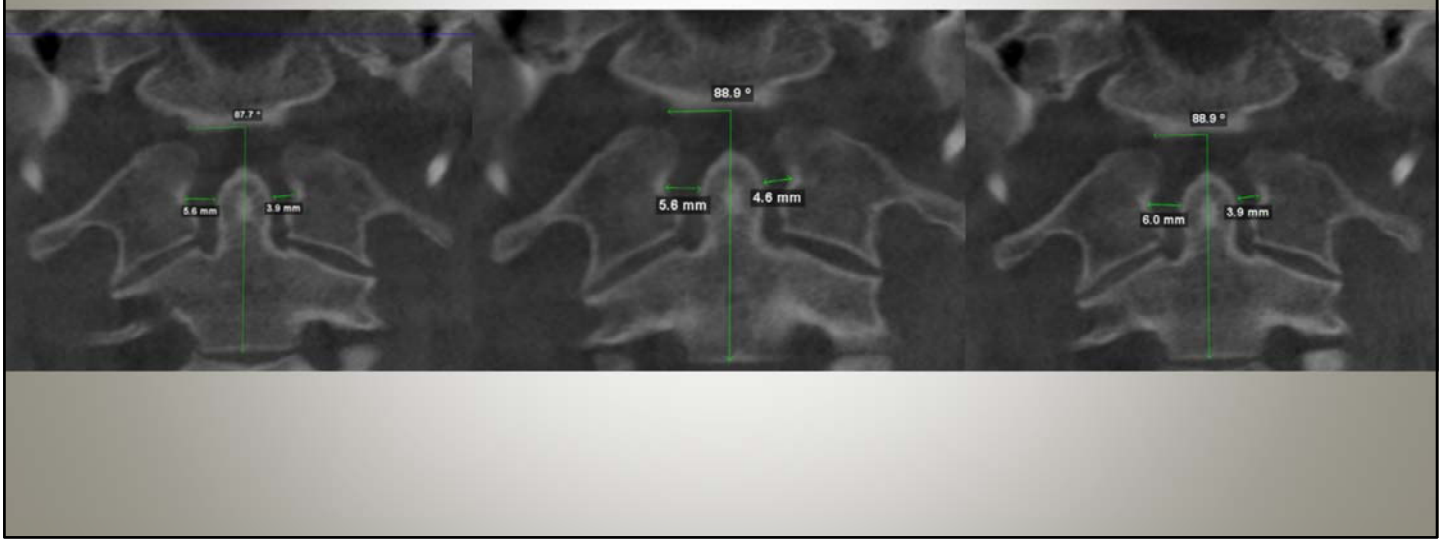
INITIAL PROGRESS FINAL



CORONAL SLICE CERVICAL SPINE RELATIONSHIP

Coronal Ba Ep Angle ( ) R/L C0-Ep Distance ( ) (X>X)

INITIAL PROGRESS FINAL



Festa2face tmj posture 3D occlusion tmj spine dysfunction diagnostic protocol FLOW CHART-score

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- LATERAL/FRONTAL CORONAL SLICE TELERADIOGRAPHY Ba-A ( ) Ba-B ( ) R/L condyle head-Gonion distance (+/-15 mm) occlusal plane asimmetry (+/-10mm.) palatal suture Menton asimmetry (+/- 15mm.)
- LATERAL/FRONTAL/AXIAL SLICE TELERADIOGRAPHY UPPER/MEDIUM/LOWER AIRWAYS turbinate hypertrophy (+1/4mm.) adenoids/tonsils hypertrophy (+2/4mm) medium lower airways reduction (-10/20mm) sleep apnea (+/-) Ramus Retromolar-C2-Medium Airways( )
- R/lL PONTICULUS POSTICUS ( )
- LATERAL/CORONAL SLICE CERVICAL SPINE RELATIONSHIP A-C1 ( ) A-C2 ( ) A-C3 ( ) A-C4( ) A-C5 ( ) Coronal Ba Ep Angle ( ) R/L C0-Ep Distance ( )
- SMV SLICE MAXILLO/MANDIBULAR-CERVICAL SPINE RELATIONSHIP M/M-C1 angle ( ) M/M-C2/epistropheus angle ( ) M/M-C3 angle ( ) M/M-C4 angle ( ) M/M-C5 angle ( ) M/M-C6 angle ( )
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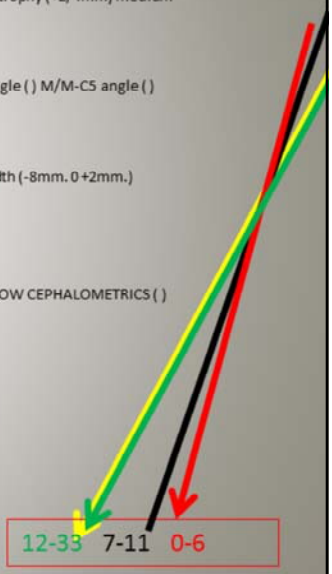
- CORONAL /SLICE MAXILLARY/MANDIBULAR CROSS-SECTIONS BONE REDUCTION/INCREASE cortical plate width (+/-1 mm.) R-L cuspid bicuspid width (-8mm. 0 +2mm.)
- MAXILLARY/MANDIBULAR CROSS-SECTIONS BODY LENGHT REDUCTION/INCREASE (+/-10 mm)
- SMV SLICE MAXILLO/MANDIBULAR contraction (+/- 7 mm.) expansion (+/- 7 mm.)
- CORTICAL/SUBCORTICAL fMRI PAIN NETWORKS (+5 increase -4 decrease)
- R/L CORONAL/LATERAL MASSETER/STERNOCLEIDOMASTOIDEUS STERNAL INSERTION width/lenght (+/-10mm.)
- McLAUGHLIN CEPHALOMETRICS ( ) FESTA2FACE® TMJPOSTURE® MODIFIED ARNETT McLAUGHLIN CEPHALOMETRICS NHP+TVL+FP ( ) 3D MOSCOW CEPHALOMETRICS ( )

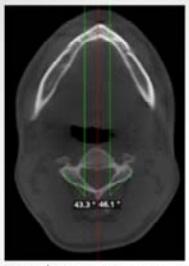
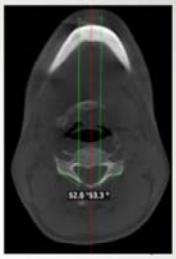


OCCLUSION TMJ SPINE DYSFUNCTION SCORE 0-6 light 7-11 mild 12-33 severe

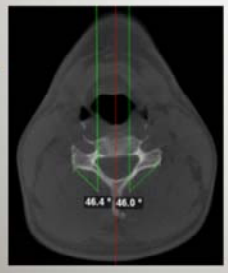
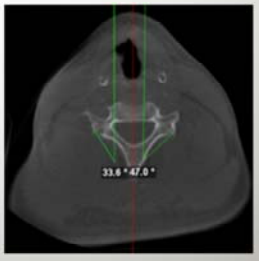
TMJ ORTHO. TREATM. TMJ ORTHO. TREATM. TMJ ORTHO. SURG. TREATM.

SMV SLICE MAXILLO/MANDIBULAR-CERVICAL SPINE RELATIONSHIP INITIAL

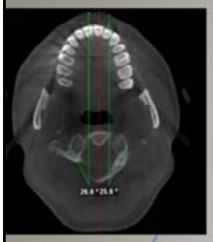


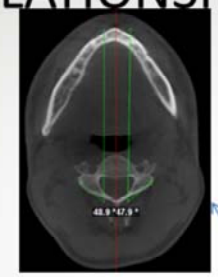



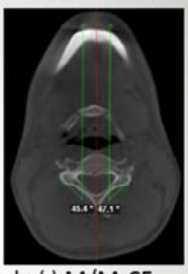
M/M-C1 angle ( ) M/M-C2/epistropheus angle ( ) M/M-C3 angle ( ) M/M-C4 angle ( ) M/M-C5 angle ( ) M/M-C6 angle ( )

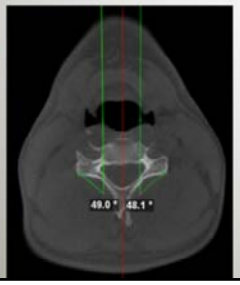
SMV SLICE MAXILLO/MANDIBULAR-CERVICAL SPINE RELATIONSHIP PROGRESS

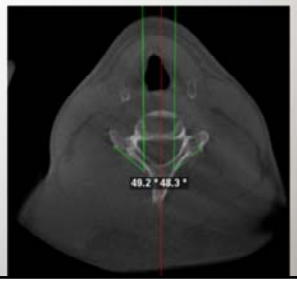




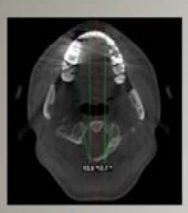


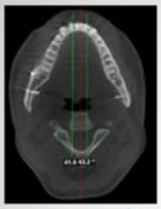
M/M-C1 angle ( ) M/M-C2/epistropheus angle ( ) M/M-C3 angle ( ) M/M-C4 angle ( ) M/M-C5 angle ( ) M/M-C6 angle ( )

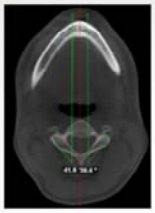


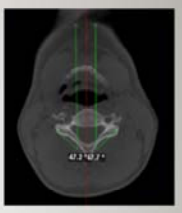


SMV SLICE MAXILLO/MANDIBULAR-CERVICAL SPINE RELATIONSHIP FINAL (X>X)

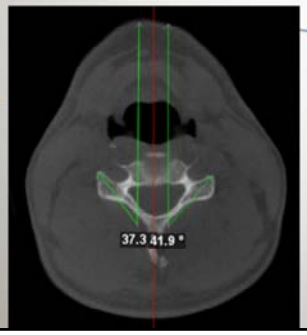


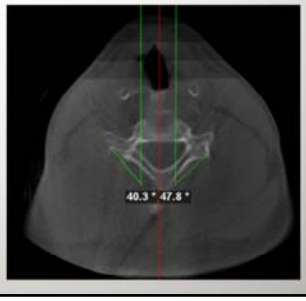






M/M-C1 angle ( ) M/M-C2/epistropheus angle ( ) M/M-C3 angle ( ) M/M-C4 angle ( ) M/M-C5 angle ( ) M/M-C6 angle ( )





Festa2face tmj posture 3D occlusion tmj spine dysfunction diagnostic protocol FLOW CHART-score

- CLINICAL CHART ORTHODONTICS ( ) TMJ ( ) ORT.+TMJ ( )
- LATERAL/FRONTAL TELERADIOGRAPHY ( ) ORTO ( ) LOWDOSE CONEBEAM ( ) SEGMENTATION ALFA ( ) BETA ( ) ORTHOGONAL ( ) PERSPECTIVE ( ) NHP+TVL+FP ( )
- LATERAL/FRONTAL CORONAL SLICE TELERADIOGRAPHY Ba-A ( ) Ba-B ( ) R/L condyle head-Gonion distance (+/-15 mm) occlusal plane asimmetry (+/-10mm.) palatal suture Menton asimmetry (+/- 15mm.)
- LATERAL/FRONTAL/AXIAL SLICE TELERADIOGRAPHY UPPER/MEDIUM/LOWER AIRWAYS turbinate hypertrophy (+1/4mm.) adenoids/tonsils hypertrophy (+2/4mm) medium lower airways reduction (-10/20mm) sleep apnea (+/-) Ramus Retromolar-C2-Medium Airways ( )
- R/L PONTICULUS POSTICUS ( )
- LATERAL/CORONAL SLICE CERVICAL SPINE RELATIONSHIP A-C1 ( ) A-C2 ( ) A-C3 ( ) A-C4 ( ) A-C5 ( ) Coronal Ba Ep Angle ( ) R/L C0-Ep Distance ( )
- SMV SLICE MAXILLO/MANDIBULAR-CERVICAL SPINE RELATIONSHIP M/M-C1 angle ( ) M/M-C2/epistropheus angle ( ) M/M-C3 angle ( ) M/M-C4 angle ( ) M/M-C5 angle ( ) M/M-C6 angle ( )
- CORONAL/LATERAL SLICE CONDYLE FOSSA RELATIONSHIP Lateral Pole ( ) Center ( ) Medial Pole ( ) 2mm. Back 0mm. Centered 2mm. Forward 1/3mm. Up 1/3mm. Down 1/3mm
- CORONAL/LATERAL SLICE CONDYLE SHAPE/ANATOMY curvature(5°-45°) flattening(1-3) cortical collapse(1-3) osteofitosis (1-4)
- CORONAL /SLICE MAXILLARY/MANDIBULAR CROSS-SECTIONS BONE REDUCTION/INCREASE cortical plate width (+/-1 mm.) R-L cuspid bicuspid width (-8mm. 0 +2mm.)
- MAXILLARY/MANDIBULAR CROSS-SECTIONS BODY LENGHT REDUCTION/INCREASE (+/-10 mm)
- SMV SLICE MAXILLO/MANDIBULAR contraction (+/- 7 mm.) expansion (+/- 7 mm.)
- CORTICAL/SUBCORTICAL fMRI PAIN NETWORKS (+5 increase -4 decrease)
- R/L CORONAL/LATERAL MASSETER/STERNOCLEIDOMASTOIDEUS STERNAL INSERTION width/lenght (+/-10mm.)
- McLAUGHLIN CEPHALOMETRICS ( ) FESTA2FACE® TMJPOSTURE® MODIFIED ARNETT McLAUGHLIN CEPHALOMETRICS NHP+TVL+FP ( ) 3D MOSCOW CEPHALOMETRICS ( )

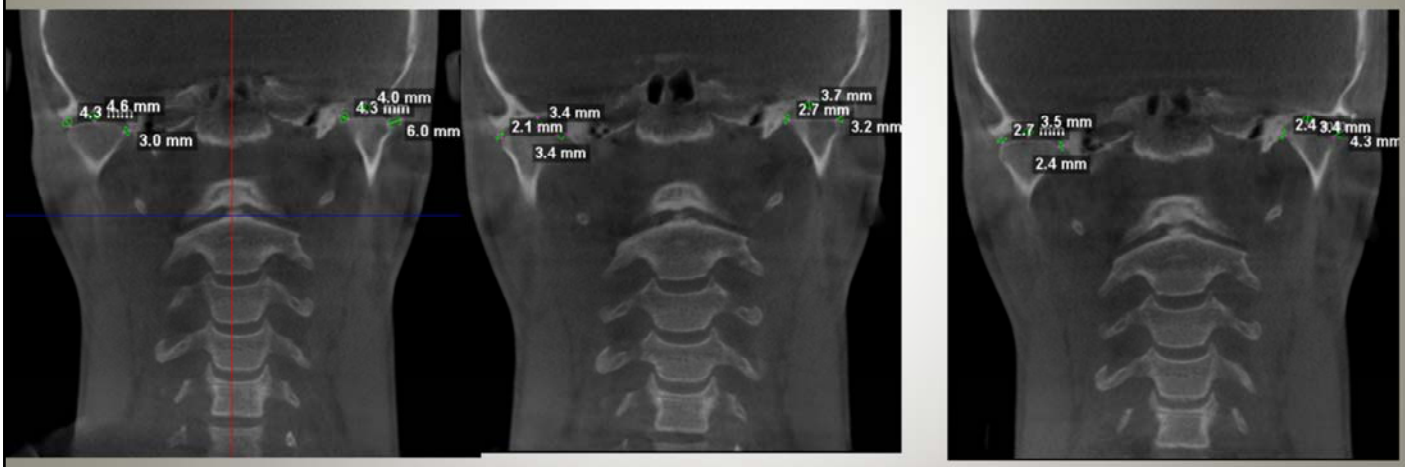
OCCLUSION TMJ SPINE DYSFUNCTION SCORE 0-6 light 7-11 mild 12-33 severe

TMJ ORTHO. TREATM. TMJ ORTHO. TREATM. TMJ ORTHO. SURG. TREATM.

Zhou, Y., Li, J. P., Lv, W. C., Ma, R. H., & Li, G. (2018). Three-dimensional CBCT images registration method for TMJ based on reconstructed condyle and skull base. *Dentomaxillofacial Radiology*, *47*(5), 20170421.

CORONAL SLICE CONDYLE FOSSA RELATIONSHIP

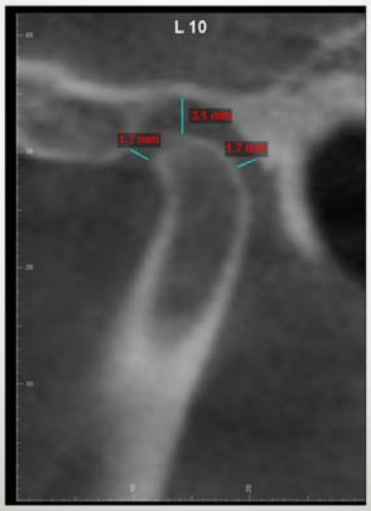
INITIAL PROGRESS FINAL (XX>X)



LATERAL SLICE CONDYLE FOSSA RELATIONSHIP

INITIAL

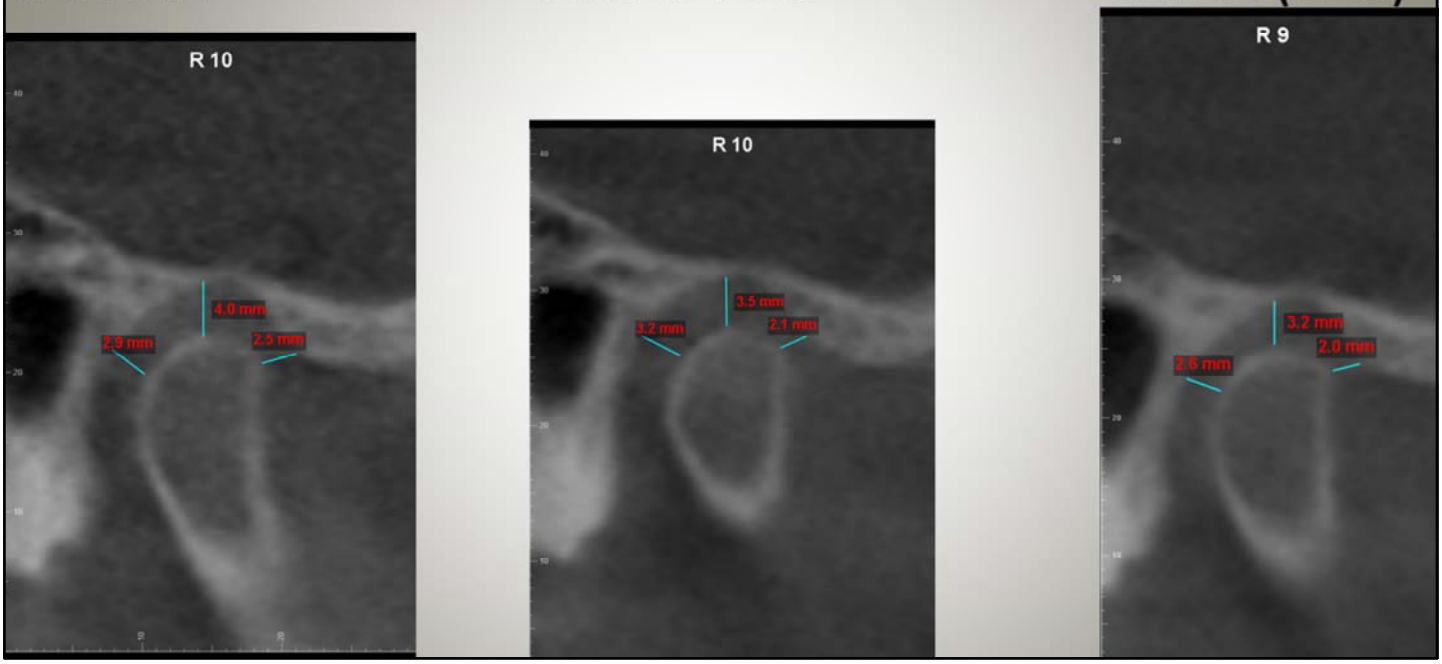
PROGRESS



FINAL(XXX>X)

LATERAL SLICE R CONDYLE FOSSA RELATIONSHIP

INITIAL PROGRESS FINAL (X>X)



Festa2face tmj posture 3D occlusion tmj spine dysfunction diagnostic protocol FLOW CHART-score

- CLINICAL CHART ORTHODONTICS ( ) TMJ ( ) ORT.+TMJ ( )
- LATERAL/FRONTAL TELERADIOGRAPHY ( ) ORTO ( ) LOWDOSE CONEBEAM ( ) SEGMENTATION ALFA ( ) BETA ( ) ORTHOGONAL ( ) PERSPECTIVE ( ) NHP+TVL+FP ( )
- LATERAL/FRONTAL CORONAL SLICE TELERADIOGRAPHY Ba-A ( ) Ba-B ( ) R/L condyle head-Gonion distance (+/-15 mm) occlusal plane asimmetry (+/-10mm.) palatal suture Menton asimmetry (+/- 15mm.)
- LATERAL/FRONTAL/AXIAL SLICE TELERADIOGRAPHY UPPER/MEDIUM/LOWER AIRWAYS turbinate hypertrophy (+1/4mm.) adenoids/tonsils hypertrophy (+2/4mm) medium lower airways reduction (-10/20mm) sleep apnea (+/-) Ramus Retromolar-C2-Medium Airways( )
- R/lL PONTICULUS POSTICUS ( )
- LATERAL/CORONAL SLICE CERVICAL SPINE RELATIONSHIP A-C1 ( ) A-C2 ( ) A-C3 ( ) A-C4( ) A-C5 ( ) Coronal Ba Ep Angle ( ) R/L C0-Ep Distance ( )
- SMV SLICE MAXILLO/MANDIBULAR-CERVICAL SPINE RELATIONSHIP M/M-C1 angle ( ) M/M-C2/epistropheus angle ( ) M/M-C3 angle ( ) M/M-C4 angle ( ) M/M-C5 angle ( ) M/M-C6 angle ( )
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- CORONAL /SLICE MAXILLARY/MANDIBULAR CROSS-SECTIONS BONE REDUCTION/INCREASE cortical plate width (+/-1 mm.) R-L cuspid bicuspid width (-8mm. 0 +2mm.)
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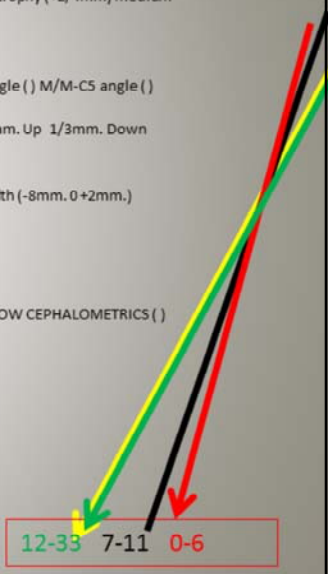
- CORTICAL/SUBCORTICAL fMRI PAIN NETWORKS (+5 increase -4 decrease)
- R/L CORONAL/LATERAL MASSETER/STERNOCLEIDOMASTOIDEUS STERNAL INSERTION width/lenght (+/-10mm.)
- McLAUGHLIN CEPHALOMETRICS ( ) FESTA2FACE® TMJPOSTURE® MODIFIED ARNETT McLAUGHLIN CEPHALOMETRICS NHP+TVL+FP ( ) 3D MOSCOW CEPHALOMETRICS ( )

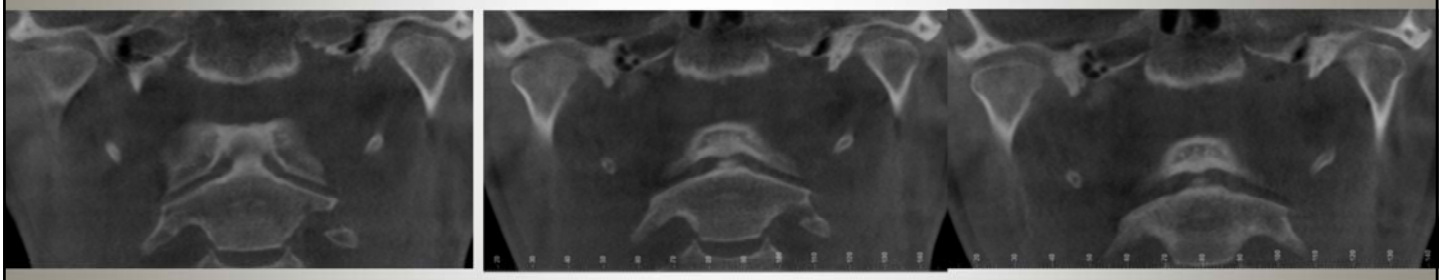


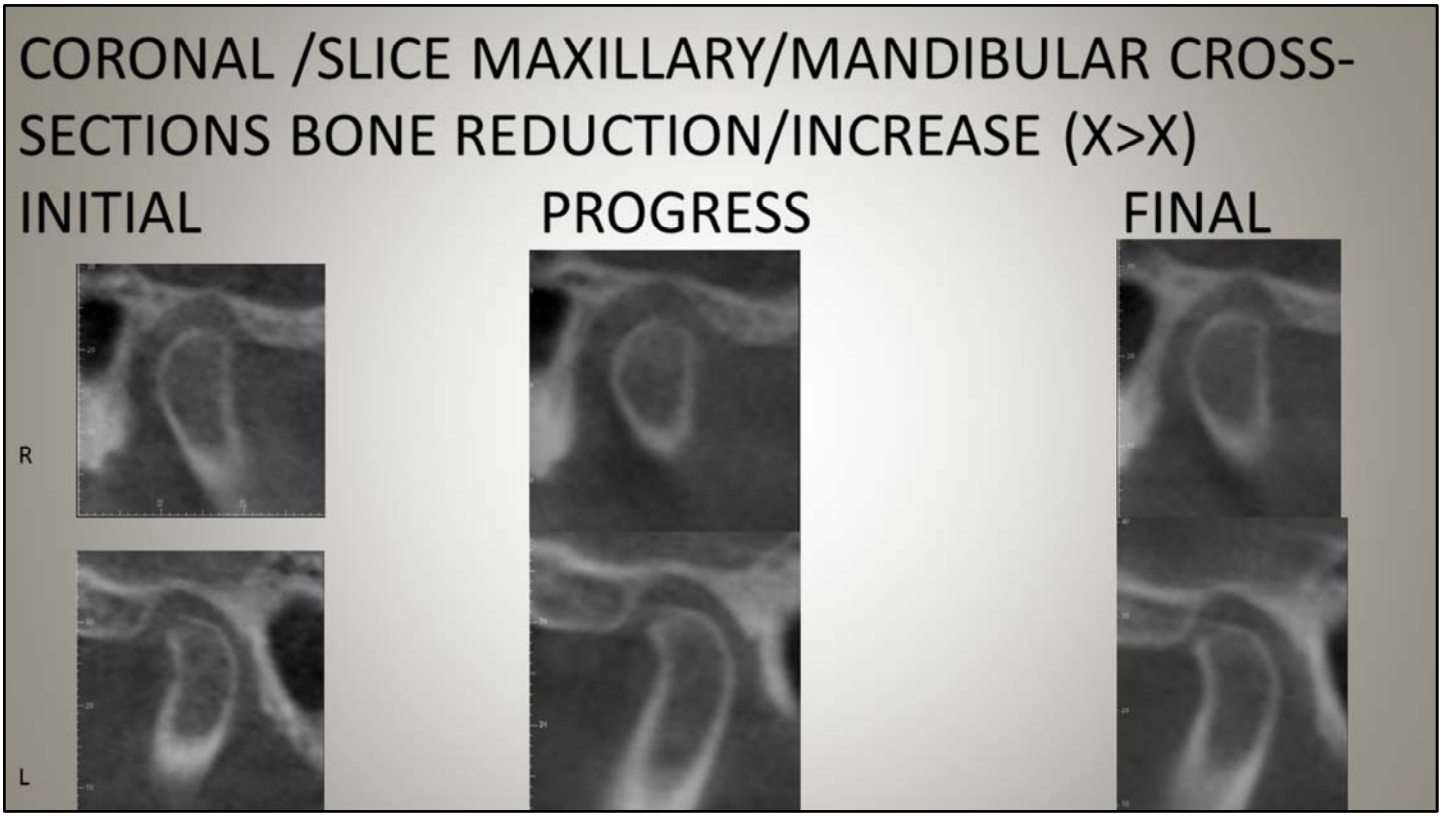
OCCLUSION TMJ SPINE DYSFUNCTION SCORE 0-6 light 7-11 mild 12-33 severe

TMJ ORTHO. TREATM. TMJ ORTHO. TREATM. TMJ ORTHO. SURG. TREATM.

CORONAL SLICE CONDYLE SHAPE/ANATOMY

INITIAL PROGRESS FINAL(X>X)




CORONAL /SLICE MAXILLARY/MANDIBULAR CROSS-SECTIONS BONE REDUCTION/INCREASE (X>X)
INITIAL
PROGRESS
FINAL
R
L

Festa2face tmj posture 3D occlusion tmj spine dysfunction diagnostic protocol FLOW CHART-score

- CLINICAL CHART ORTHODONTICS ( ) TMJ ( ) ORT.+TMJ ( )
- LATERAL/FRONTAL TELERADIOGRAPHY ( ) ORTO ( ) LOWDOSE CONEBEAM ( ) SEGMENTATION ALFA ( ) BETA ( ) ORTHOGONAL ( ) PERSPECTIVE ( ) NHP+TVL+FP ( )
- LATERAL/FRONTAL CORONAL SLICE TELERADIOGRAPHY Ba-A ( ) Ba-B ( ) R/L condyle head-Gonion distance (+/-15 mm) occlusal plane asimmetry (+/-10mm.) palatal suture Menton asimmetry (+/- 15mm.)
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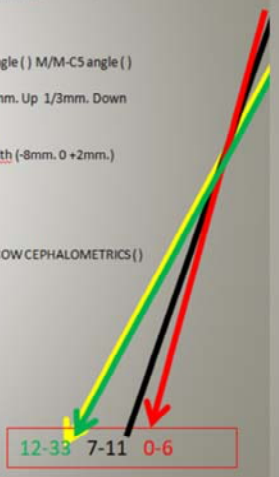
- MAXILLARY/MANDIBULAR CROSS-SECTIONS BODY LENGHT REDUCTION/INCREASE (+/-10 mm)
- SMV SLICE MAXILLO/MANDIBULAR contraction (+/- 7 mm.) expansion (+/- 7 mm.)
- CORTICAL/SUBCORTICAL fMRI PAIN NETWORKS (+5 increase -4 decrease)
- R/L CORONAL/LATERAL MASSETER/STERNOCLEIDOMASTOIDEUS STERNAL INSERTION width/lenght (+/-10mm.)
- McLAUGHLIN CEPHALOMETRICS ( ) FESTA2FACE® TMJPOSTURE® MODIFIED ARNETT McLAUGHLIN CEPHALOMETRICS NHP+TVL+FP ( ) 3D MOSCOW CEPHALOMETRICS ( )



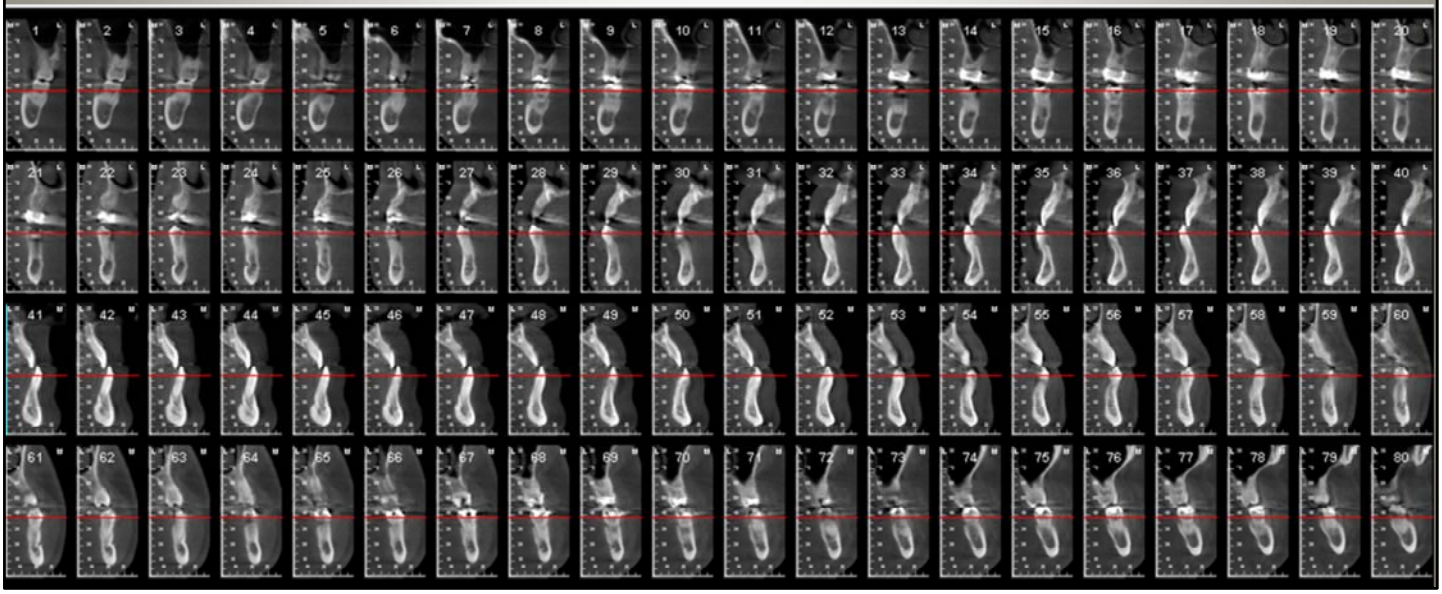
OCCLUSION TMJ SPINE DYSFUNCTION SCORE 0-6 light 7-11 mild 12-33 severe

TMJ ORTHO. TREATM. TMJ ORTHO. TREATM. TMJ ORTHO. SURG. TREATM.

Benazzi, S., Panetta, D., Fornai, C., Toussaint, M., Gruppioni, G., & Hublin, J. J. (2014). Guidelines for the digital computation of 2D and 3D enamel thickness in hominoid teeth. *American Journal of Physical Anthropology*, *153*(2), 305-313.

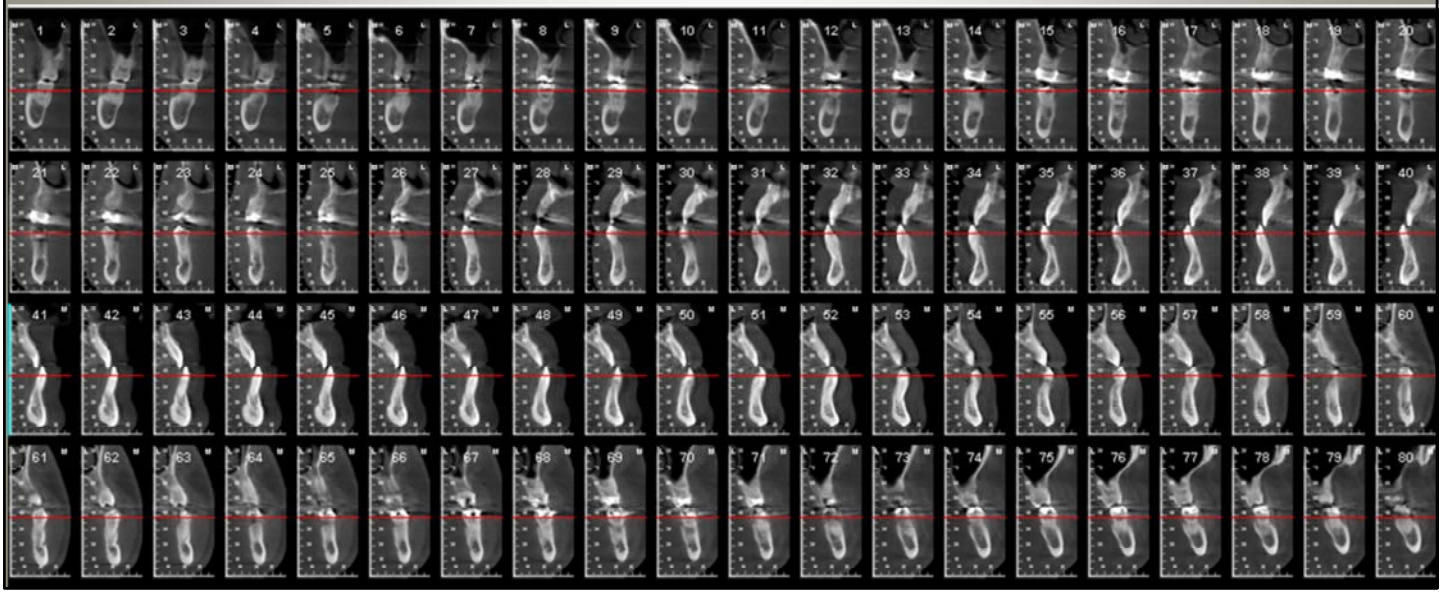
LATERAL SLICE CONDYLE SHAPE/ANATOMY

INITIAL PROGRESS FINAL



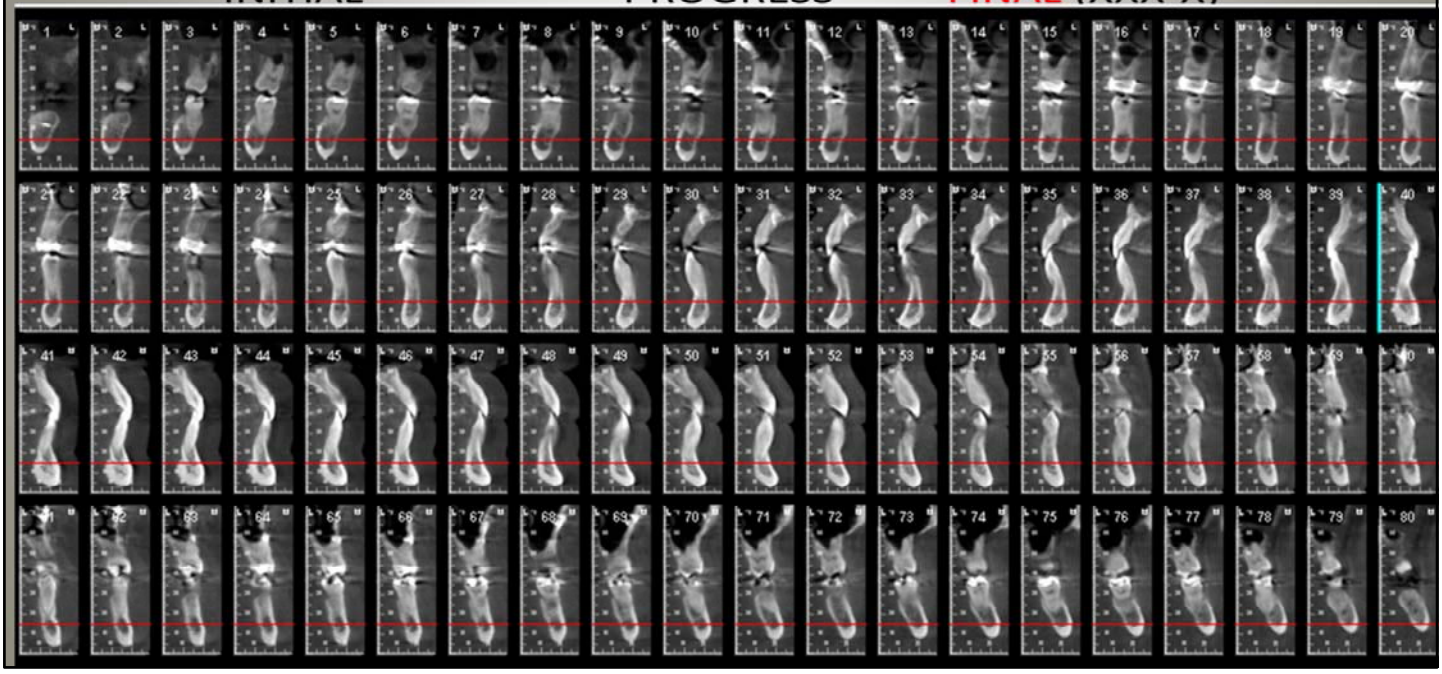
LATERAL SLICE CONDYLE SHAPE/ANATOMY

INITIAL PROGRESS FINAL



LATERAL SLICE CONDYLE SHAPE/ANATOMY

INITIAL PROGRESS FINAL (XXX-X)



Festa2face tmj posture 3D occlusion tmj spine dysfunction diagnostic protocol FLOW CHART-score

- CLINICAL CHART ORTHODONTICS ( ) TMJ ( ) ORT.+TMJ ( )
- LATERAL/FRONTAL TELERADIOGRAPHY ( ) ORTO ( ) LOWDOSE CONEBEAM ( ) SEGMENTATION ALFA ( ) BETA ( ) ORTHOGONAL ( ) PERSPECTIVE ( ) NHP+TVL+FP ( )
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- LATERAL/CORONAL SLICE CERVICAL SPINE RELATIONSHIP A-C1 ( ) A-C2 ( ) A-C3 ( ) A-C4( ) A-C5 ( ) Coronal Ba Ep Angle ( ) R/L C0-Ep Distance ( )
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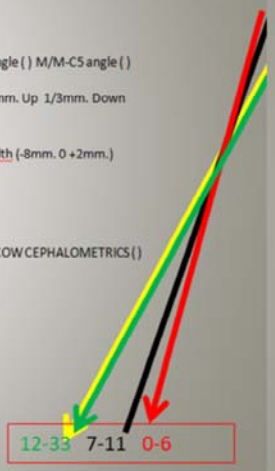
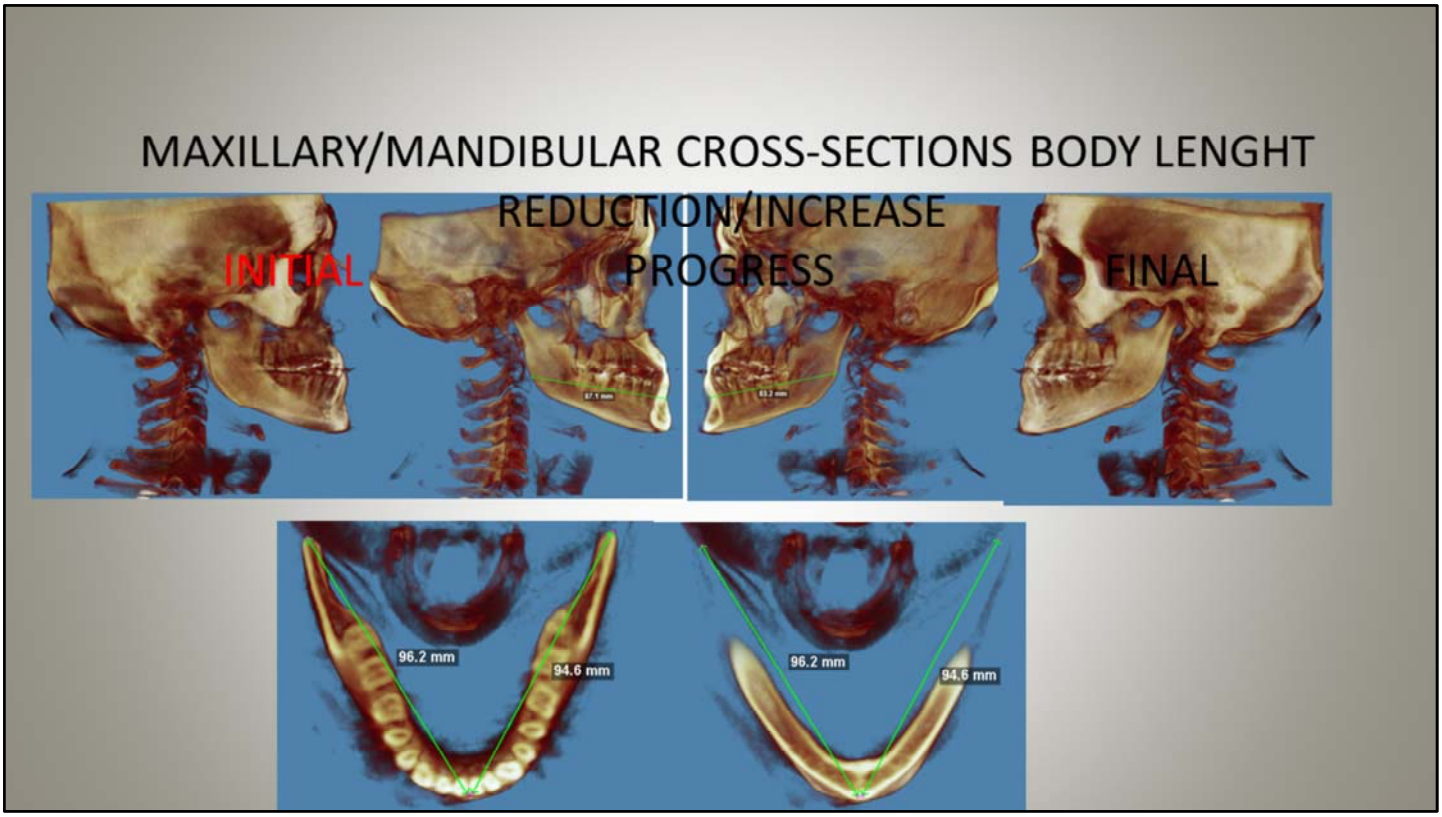
- CORONAL /SLICE MAXILLARY/MANDIBULAR CROSS-SECTIONS BONE REDUCTION/INCREASE cortical plate width (+/-1 mm.) R-L cuspid bicuspid width (-8mm. 0 +2mm.)
- MAXILLARY/MANDIBULAR CROSS-SECTIONS BODY LENGHT REDUCTION/INCREASE (+/-10 mm)
- SMV SLICE MAXILLO/MANDIBULAR contraction (+/- 7 mm.) expansion (+/- 7 mm.)
- CORTICAL/SUBCORTICAL fMRI PAIN NETWORKS (+5 increase -4 decrease)
- R/L CORONAL/LATERAL MASSETER/STERNOCLEIDOMASTOIDEUS STERNAL INSERTION width/lenght (+/-10mm.)
- McLAUGHLIN CEPHALOMETRICS ( ) FESTA2FACE® TMJPOSTURE® MODIFIED ARNETT McLAUGHLIN CEPHALOMETRICS NHP+TVL+FP ( ) 3D MOSCOW CEPHALOMETRICS ( )



OCCLUSION TMJ SPINE DYSFUNCTION SCORE 0-6 light 7-11 mild 12-33 severe

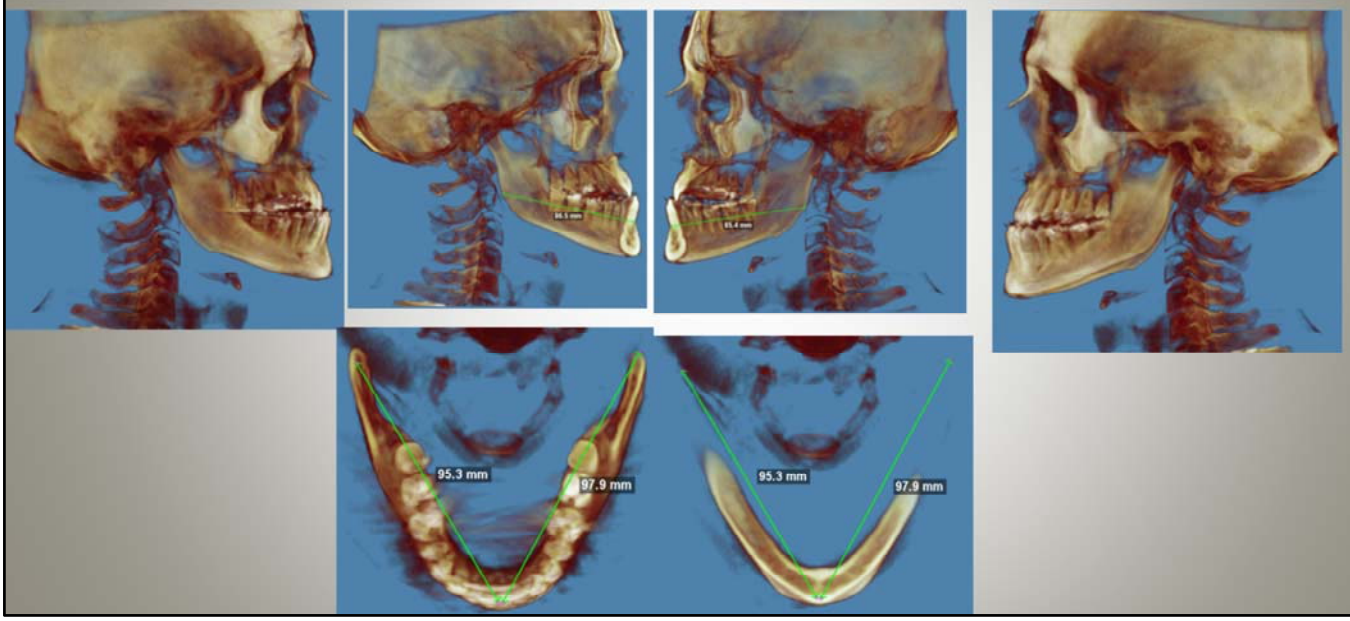
TMJ ORTHO. TREATM. TMJ ORTHO. TREATM. TMJ ORTHO. SURG. TREATM.

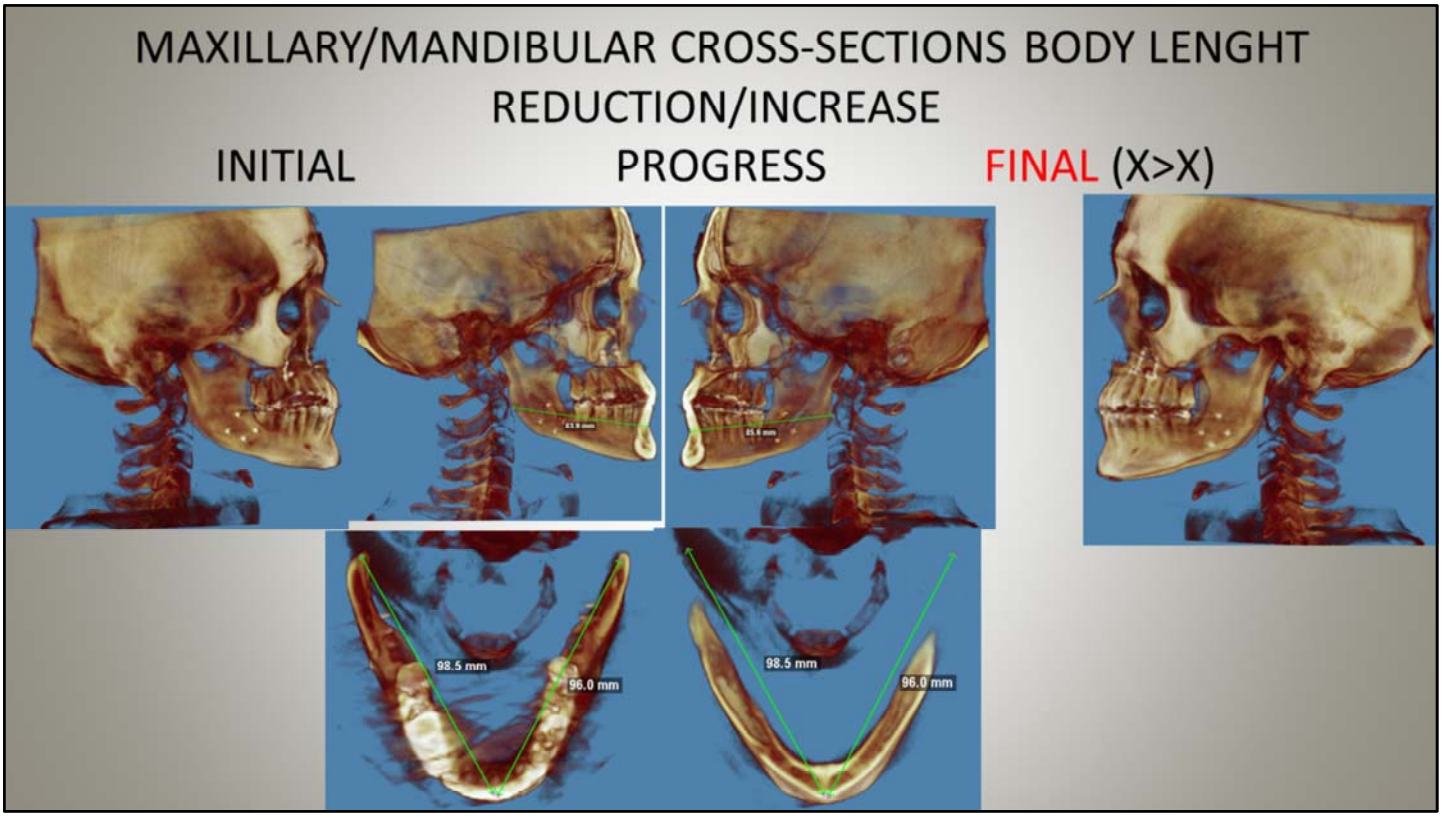
Dobai, A., Vizkelety, T., Markella, Z., Rosta, A., Kucsera, Á., & Barabás, J. (2017). Lower face cephalometry based on quadrilateral analysis with cone-beam computed tomography: a clinical pilot study. *Oral and maxillofacial surgery*, *21*(2), 207-218.


MAXILLARY/MANDIBULAR CROSS-SECTIONS BODY LENGHT REDUCTION/INCREASE
INITIAL
PROGRESS
FINAL
96.2 mm
94.6 mm
96.2 mm
94.6 mm

MAXILLARY/MANDIBULAR CROSS-SECTIONS BODY LENGHT REDUCTION/INCREASE

INITIAL PROGRESS FINAL




MAXILLARY/MANDIBULAR CROSS-SECTIONS BODY LENGHT
REDUCTION/INCREASE
INITIAL
PROGRESS
FINAL (X>X)
98.5 mm
96.0 mm
98.5 mm
96.0 mm

Festa2face tmj posture 3D occlusion tmj spine dysfunction diagnostic protocol FLOW CHART-score

- CLINICAL CHART ORTHODONTICS ( ) TMJ ( ) ORT.+TMJ ( )
- LATERAL/FRONTAL TELERADIOGRAPHY ( ) ORTO ( ) LOWDOSE CONEBEAM ( ) SEGMENTATION ALFA ( ) BETA ( ) ORTHOGONAL ( ) PERSPECTIVE ( ) NHP+TVL+FP ( )
- LATERAL/FRONTAL CORONAL SLICE TELERADIOGRAPHY Ba-A ( ) Ba-B ( ) R/L condyle head-Gonion distance (+/-15 mm) occlusal plane asimmetry (+/-10mm.) palatal suture Menton asimmetry (+/- 15mm.)
- LATERAL/FRONTAL/AXIAL SLICE TELERADIOGRAPHY UPPER/MEDIUM/LOWER AIRWAYS turbinate hypertrophy (+1/4mm.) adenoids/tonsils hypertrophy (+2/4mm) medium lower airways reduction (-10/20mm) sleep apnea (+/-) Ramus Retromolar-C2-Medium Airways( )
- R/IL PONTICULUS POSTICUS ( )
- LATERAL/CORONAL SLICE CERVICAL SPINE RELATIONSHIP A-C1 ( ) A-C2 ( ) A-C3 ( ) A-C4( ) A-C5 ( ) Coronal Ba Ep Angle ( ) R/L C0-Ep Distance ( )
- SMV SLICE MAXILLO/MANDIBULAR-CERVICAL SPINE RELATIONSHIP M/M-C1 angle ( ) M/M-C2/epistropheus angle ( ) M/M-C3 angle ( ) M/M-C4 angle ( ) M/M-C5 angle ( ) M/M-C6 angle ( )
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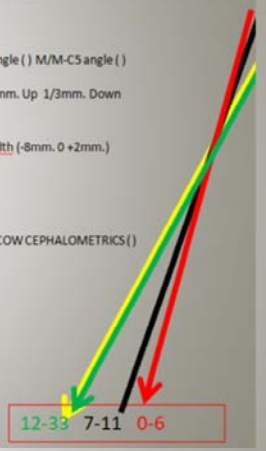
- CORONAL /SLICE MAXILLARY/MANDIBULAR CROSS-SECTIONS BONE REDUCTION/INCREASE cortical plate width (+/-1 mm.) R-L cuspid bicuspid width (-8mm. 0 +2mm.)
- MAXILLARY/MANDIBULAR CROSS-SECTIONS BODY LENGHT REDUCTION/INCREASE (+/-10 mm)
- SMV SLICE MAXILLO/MANDIBULAR contraction (+/- 7 mm.) expansion (+/- 7 mm.)
- CORTICAL/SUBCORTICAL fMRI PAIN NETWORKS (+5 increase -4 decrease)
- R/L CORONAL/LATERAL MASSETER/STERNOCLEIDOMASTOIDEUS STERNAL INSERTION width/lenght (+/-10mm.)
- McLAUGHLIN CEPHALOMETRICS ( ) FESTA2FACE® TMJPOSTURE® MODIFIED ARNETT McLAUGHLIN CEPHALOMETRICS NHP+TVL+FP ( ) 3D MOSCOW CEPHALOMETRICS ( )

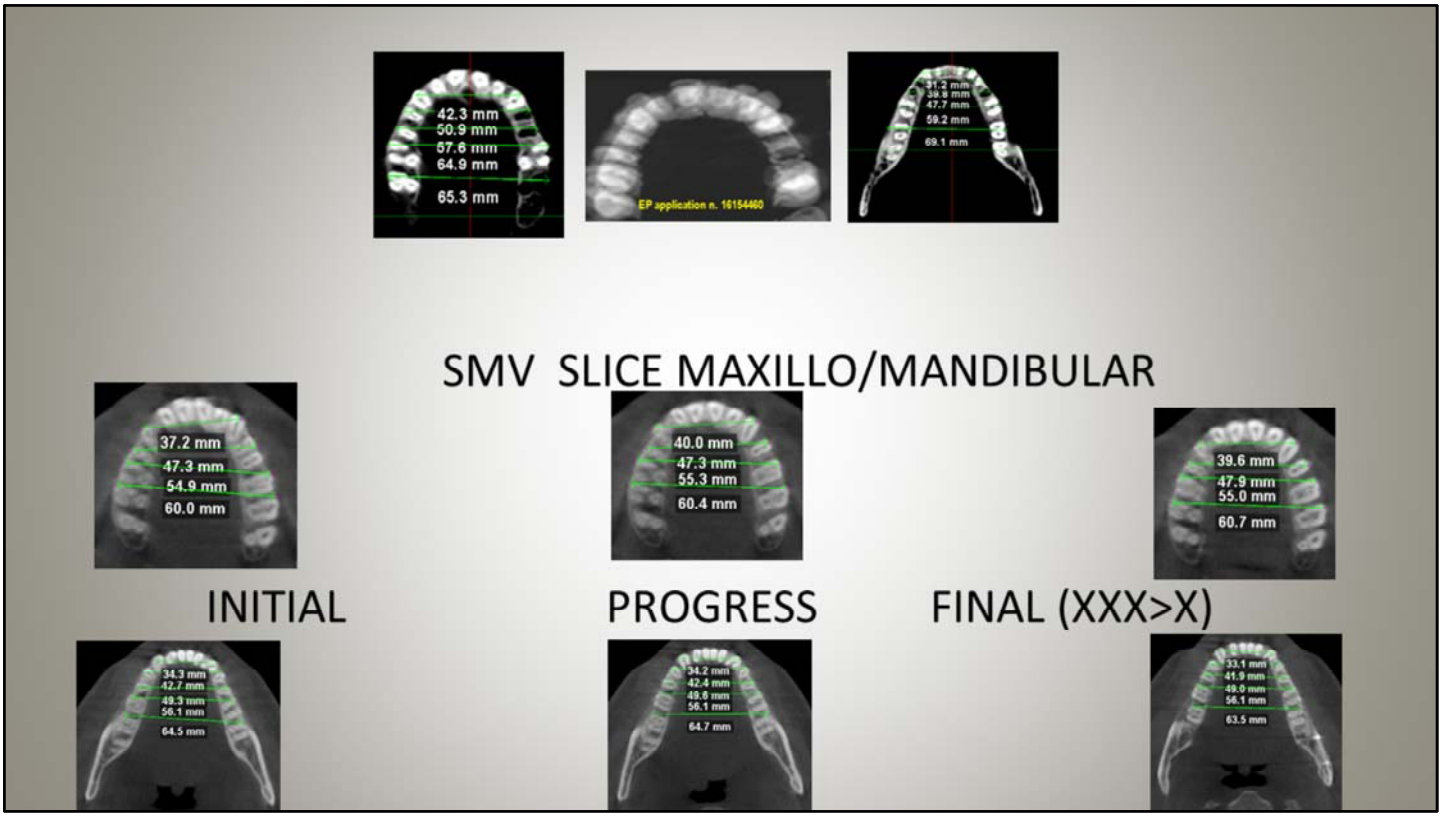


OCCLUSION TMJ SPINE DYSFUNCTION SCORE 0-6 light 7-11 mild 12-33 severe

TMJ ORTHO. TREATM. TMJ ORTHO. TREATM. TMJ ORTHO. SURG. TREATM.

Festa, F., Capasso, L., D'Anastasio, R., Anastasi, G., Festa, M., Caputi, S., & Tecco, S. (2010). Maxillary and mandibular base size in ancient skulls and of modern humans from Opi, Abruzzi, Italy: a cross-sectional study. *World J Orthod*, *11*, e1-e4.

Montasser, M. A., & Taha, M. (2012). Relationship between dental crowding, skeletal base lengths, and dentofacial measurements. Progress in orthodontics, 13(3), 281-287.


42.3 mm
50.9 mm
57.6 mm
64.9 mm
65.3 mm
EP application n. 16154460
SMV SLICE MAXILLO/MANDIBULAR
37.2 mm
47.3 mm
54.9 mm
60.0 mm
40.0 mm
47.3 mm
55.3 mm
60.4 mm
39.6 mm
47.9 mm
55.0 mm
60.7 mm
INITIAL
PROGRESS
FINAL (XXX>X)
34.3 mm
42.7 mm
49.3 mm
56.1 mm
64.5 mm
34.2 mm
42.4 mm
49.8 mm
56.1 mm
64.7 mm
33.1 mm
41.9 mm
49.0 mm
56.1 mm
63.5 mm

Festa2face tmj posture 3D occlusion tmj spine dysfunction diagnostic protocol FLOW CHART-score

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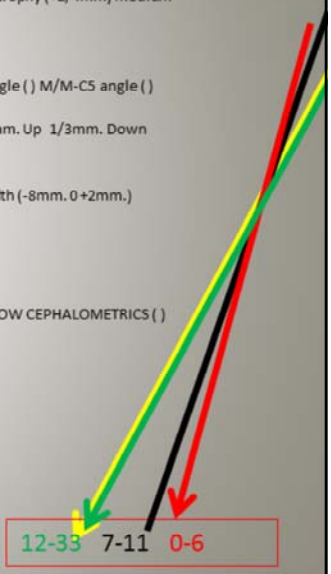

OCCLUSION TMJ SPINE DYSFUNCTION SCORE 0-6 light 7-11 mild 12-33 severe

TMJ ORTHO. TREATM. TMJ ORTHO. TREATM. TMJ ORTHO. SURG. TREATM.

Festa2face tmj posture 3D occlusion tmj spine dysfunction diagnostic protocol FLOW CHART-score

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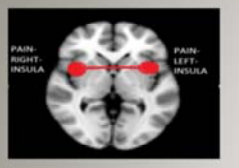
OCCLUSION TMJ SPINE DYSFUNCTION SCORE 0-6 light 7-11 mild 12-33 severe

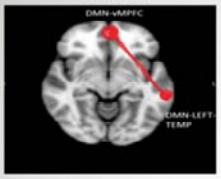
TMJ ORTHO. TREATM. TMJ ORTHO. TREATM. TMJ ORTHO. SURG. TREATM.

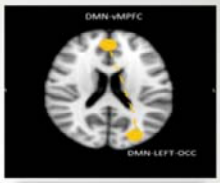
Nebel, M. B., Folger, S., Tommerdahl, M., Hollins, M., McGlone, F., & Essick, G. (2010). Temporomandibular disorder modifies cortical response to tactile stimulation. The Journal of Pain, 11(11), 1083-1094.

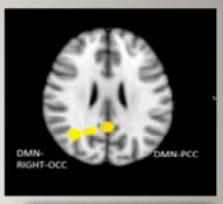
CORTICAL/SUBCORTICAL fMRI PAIN NETWORKS

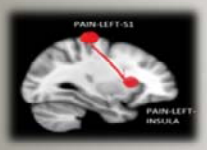
INITIAL PROGRESS (XXX>X)

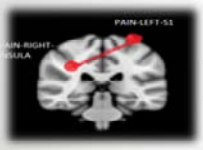


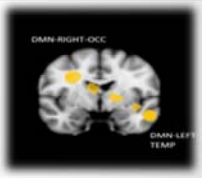


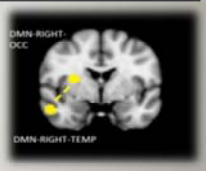












Festa2face tmj posture 3D occlusion tmj spine dysfunction diagnostic protocol FLOW CHART-score

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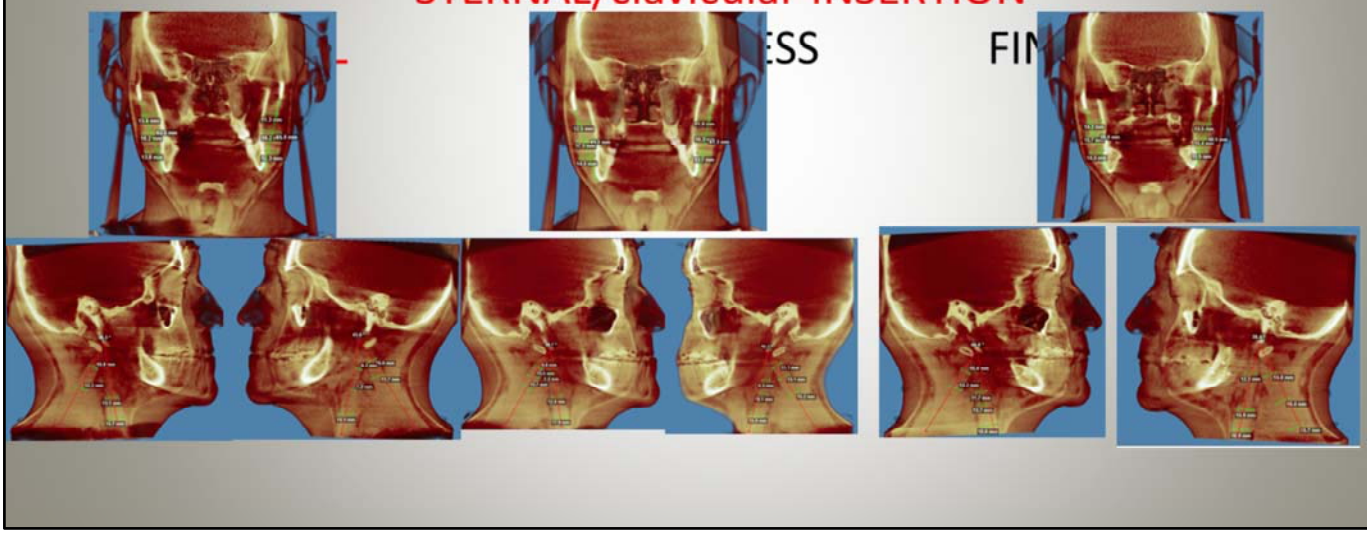
OCCLUSION TMJ SPINE DYSFUNCTION SCORE 0-6 light 7-11 mild 12-33 severe

TMJ ORTHO. TREATM. TMJ ORTHO. TREATM. TMJ ORTHO. SURG. TREATM.

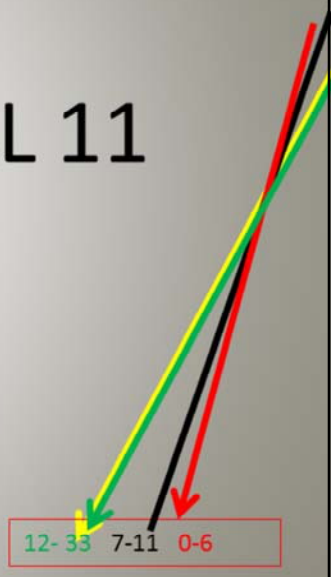
Golin, S. L., Sinicato, N. A., Valle-Corotti, K., Fuziy, A., Nahas-Scocate, A. C., Appenzeller, S., & Costa, A. L. F. (2017). Assessment of condyle, masseter and temporal muscles volumes in patients with juvenile systemic lupus erythematosus: A cross-sectional study. *Journal of oral biology and craniofacial research*, *7*(2), 89-94.

R/L CORONAL/LATERAL MASSETER/STERNOCLEIDOMASTOIDEUS
STERNAL/clavicular INSERTION



Festa2face tmj posture 3D occlusion tmj spine dysfunction diagnostic protocol FLOW CHART-score

INITIAL 27 > FINAL 11



OCCLUSION TMJ SPINE DYSFUNCTION SCORE 0-6 light 7-9 mild 10-16 severe

TMJ ORTHO. TREATM. TMJ ORTHO. TREATM. TMJ ORTHO. SURG. TREATM.

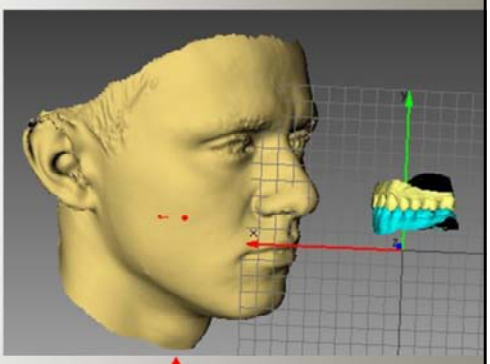
- Low dose conebeam-Chieti Univ. protocol

Chieti-Moscow Univ. 3D protocols

- Scanner 3D – Model Scanner Moscow Univ. protocol

Protocols integration main problems are related to soft tisues analysis: TVL and NHP are not reproducible positions: when we however need to utilize?

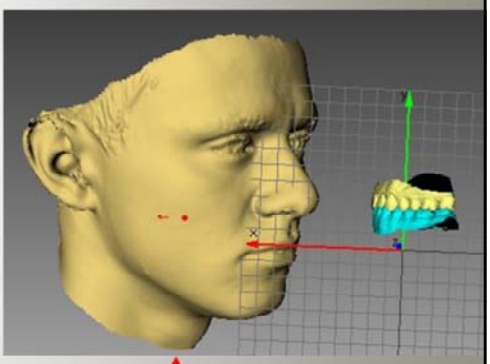
PRE-SURGICAL CASES (CHIETI)



Models + Soft Tissues integration (Moscow)

Protocols integration main problems are related to soft tisues analysis: TVL and NHP are not reproducible positions: when we however need to utilize?

PRE-SURGICAL CASES (CHIETI)

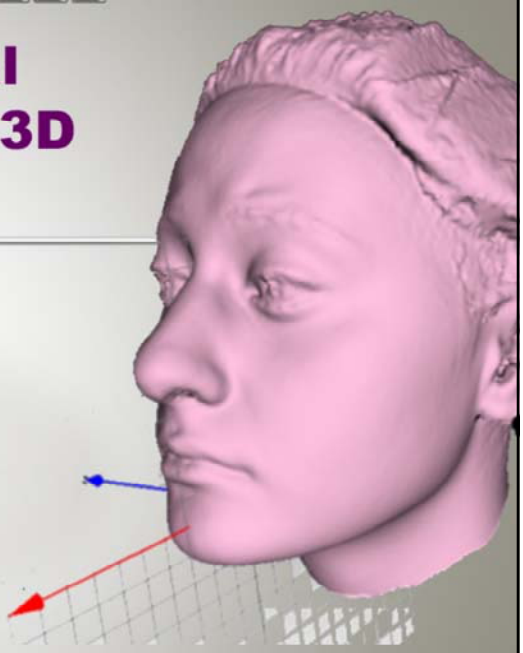


Models + Soft Tissues integration (Moscow)

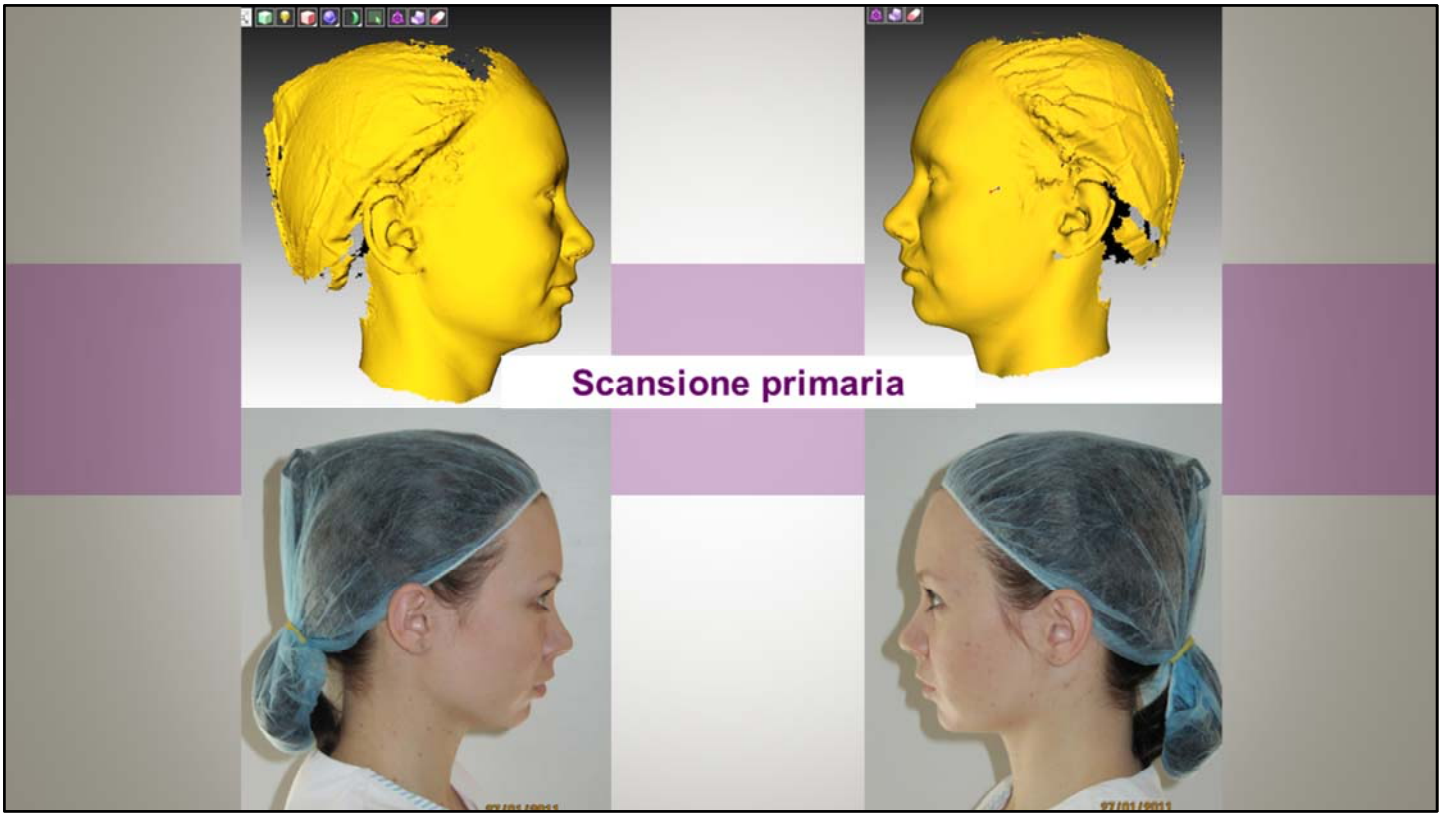
Cercando di superare questo problema la Scuola del prof. Persin ha messo a punto una serie di ricerche con un unico obbiettivo: trovare gli standard di riferimento per la tecnologia 3D

Diagnostics of dental system state by using 3D models

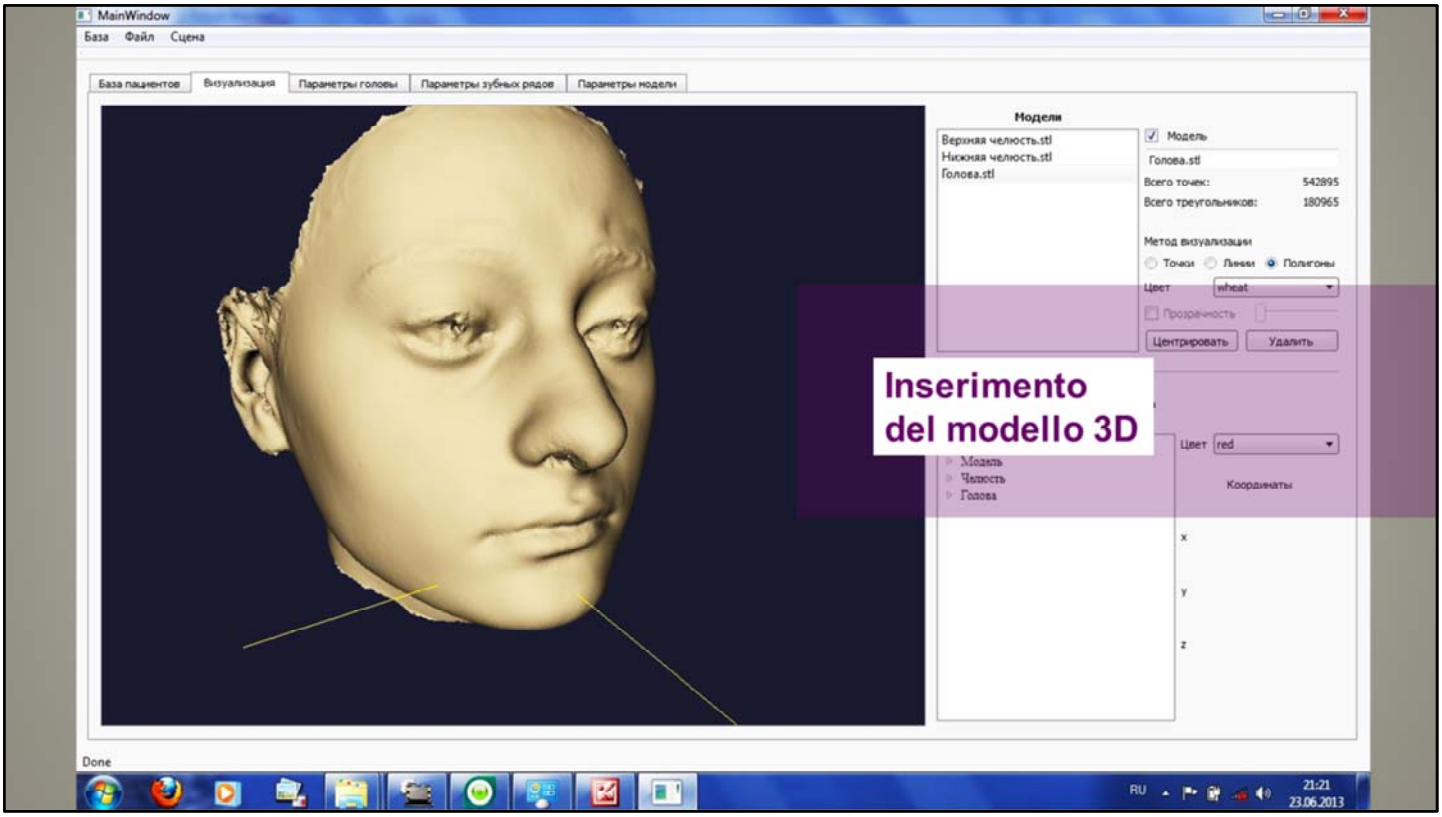
- FACE AESTHETICS
- DIAGNOSTICS OF DENTITIONS
- DIAGNOSTICS OF OCCLUSION
- DIAGNOSTICS OF JAW BONES

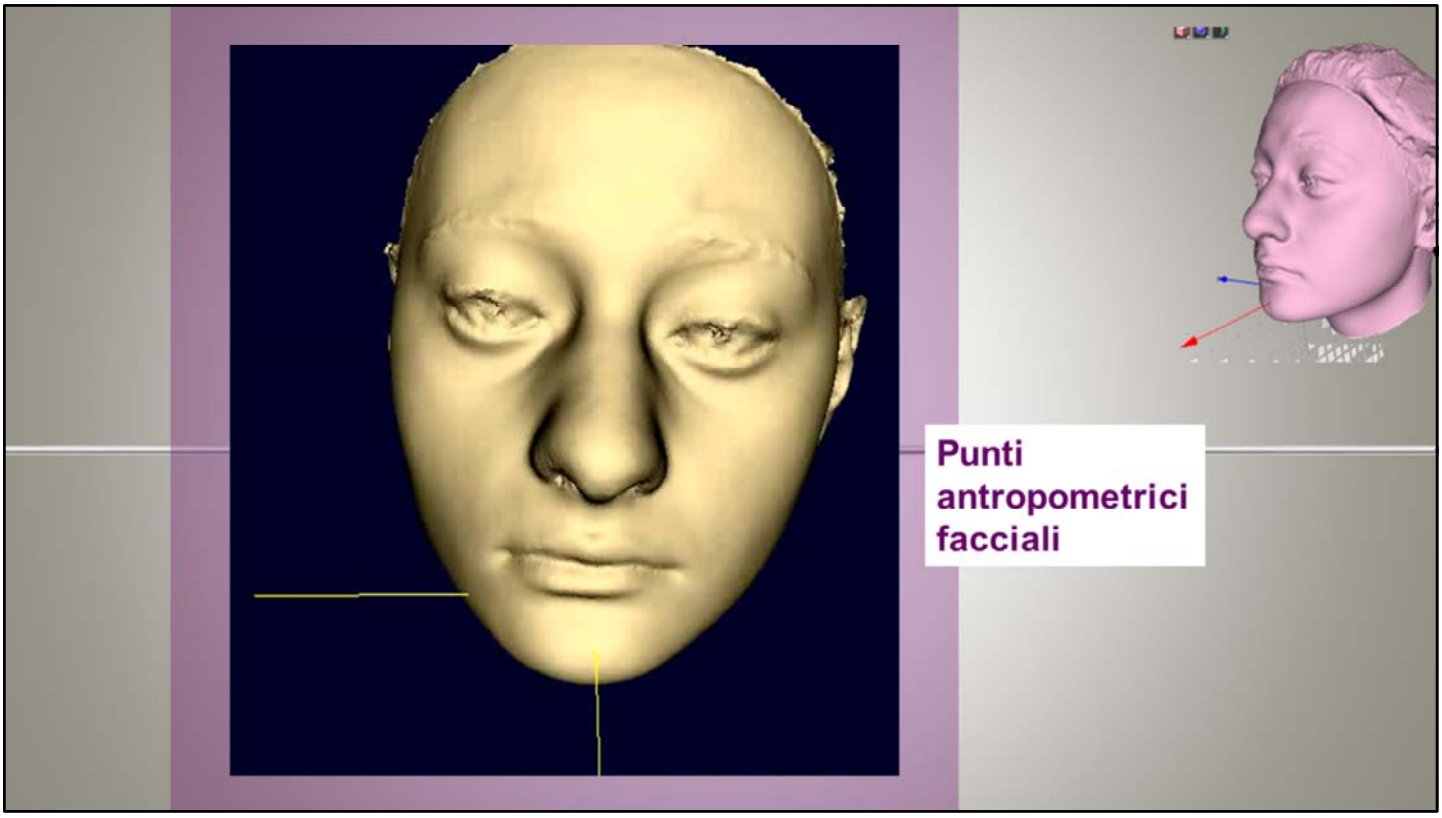


Per la scansione della testa noi utilizziamo lo scanner broadway 3D
E' una telecamera tridimensionale che scannerizza la superficie degli oggetti nella modalità video.
Il processo della scansione e' molto semplice. Basta prendere la telecamera e fare un giro attorno all'oggetto. Poi il software trasformerà in automatico diversi immagini in una unico immagine tridimensionale.
Lo scanner Broadway e' ad alta velocità di scansione - circa 1,5 mln di pixel al secondo. Questo permette di effettuare la scansione in tempi 10 volte più brevi rispetto agli scanner laser mantenendo altissima precisione e risoluzione dell'immagine.
Inoltre grazie alla modalità video questo scanner permette di effettuare la scansione degli oggetti in movimento, che può essere estremamente utile in medicina.

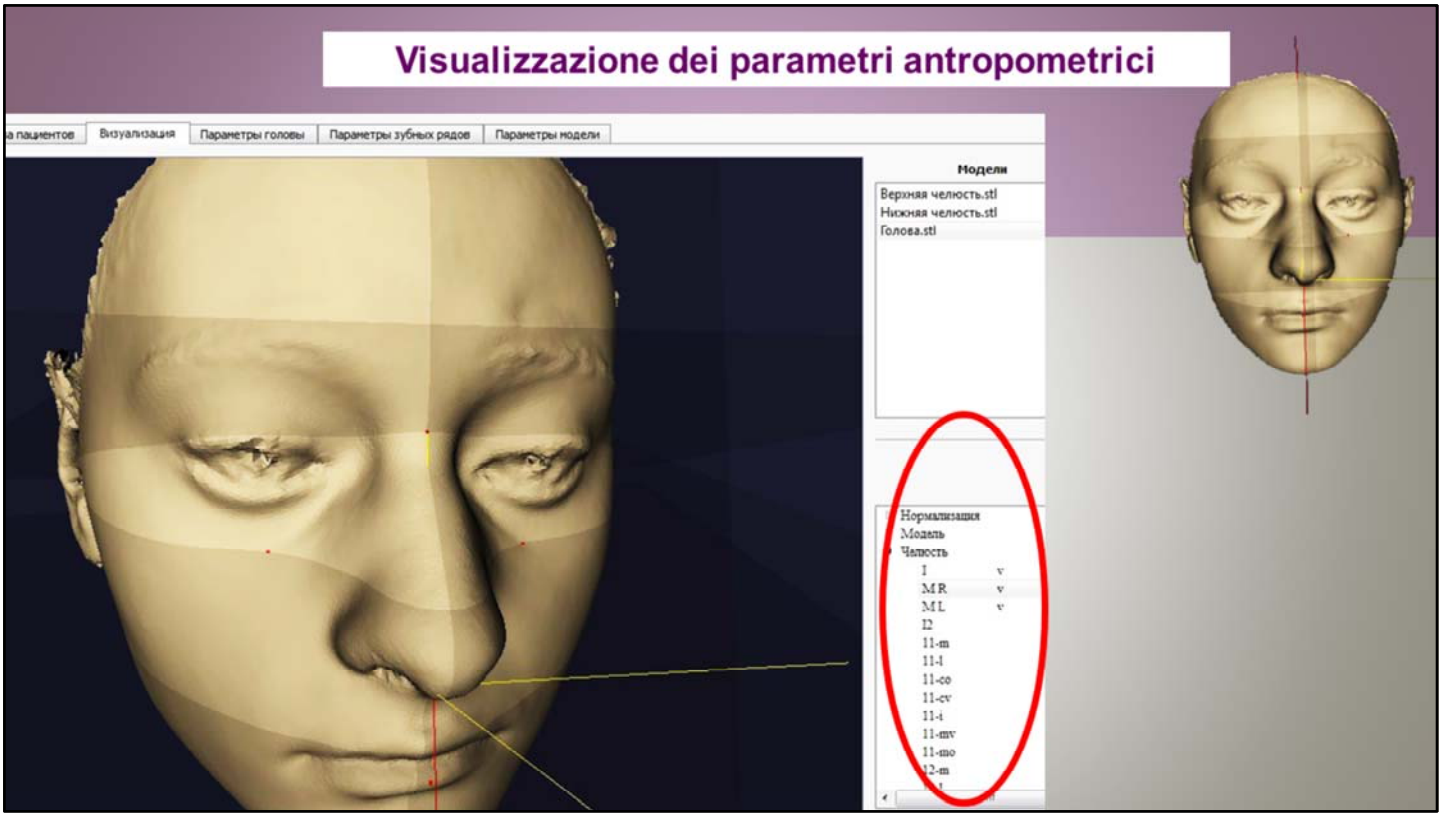


Il modello tridimensionale dell’intero complesso cranio facciale e' uno strumento diagnostico di potenzialità elevate.

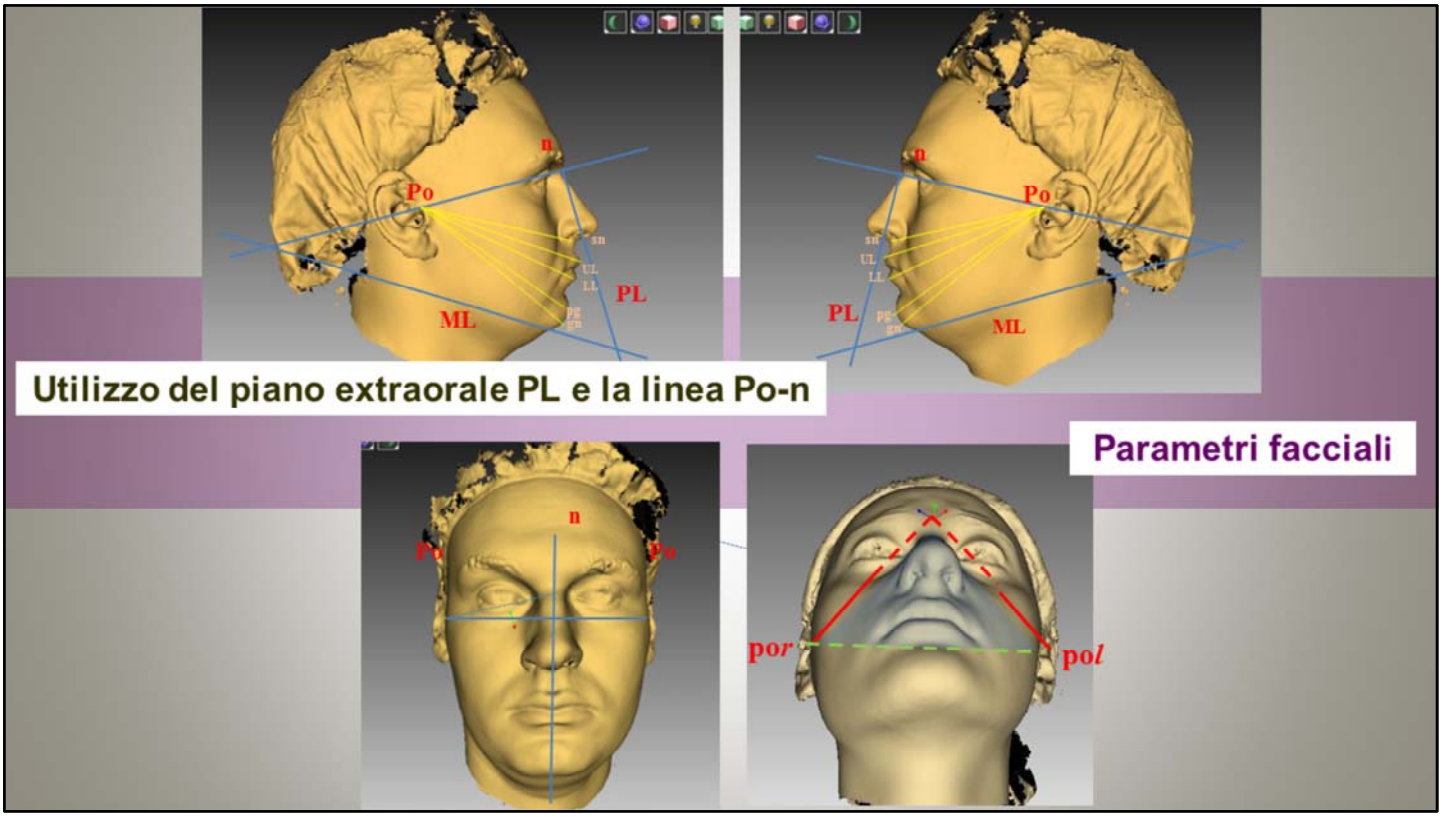

MainWindow
База Файл Сцена
База пациентов
Визуализация
Параметры головы
Параметры зубных рядов
Параметры модели
Модели
Верхняя челюсть.stl
Нижняя челюсть.stl
Голова.stl
Модель
Голова.stl
Всего точек: 542895
Всего треугольников: 180965
Метод визуализации
Точки Линии Полигоны
Цвет inheat
Прозрачность
Центрировать
Удалить
Inserimento del modello 3D
Цвет red
Координаты
x
y
z
Done
RU
21:21
23.06.2013



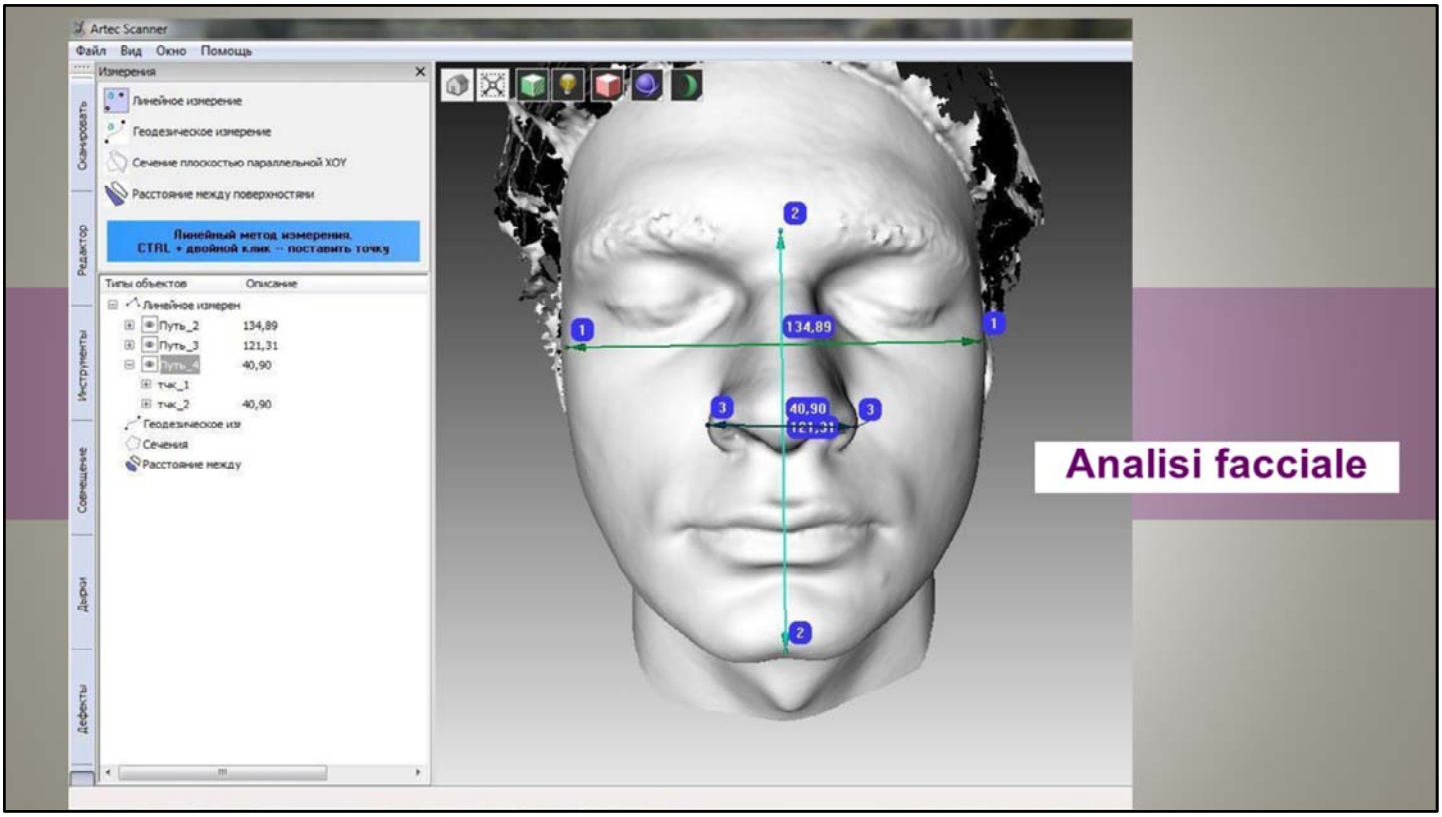
E all'interno di questa cartella virtuale e' possibile visualizzare il modello della testa e delle arcate in tutte le proiezioni possibili. Come vedete possiamo girarlo a nostro piacimento ed eventualmente applicare i punti antropometrici che useremo poi in seguito per l'analisi facciale. La cosa importante e' che con il modello tridimensionale abbiamo accesso a tutte le aree del viso del paziente e delle arcate dentarie come se avessimo il modello in mano. Perciò la nostra percezione è assolutamente la stessa che siamo abituati ad avere con il modello in gesso.



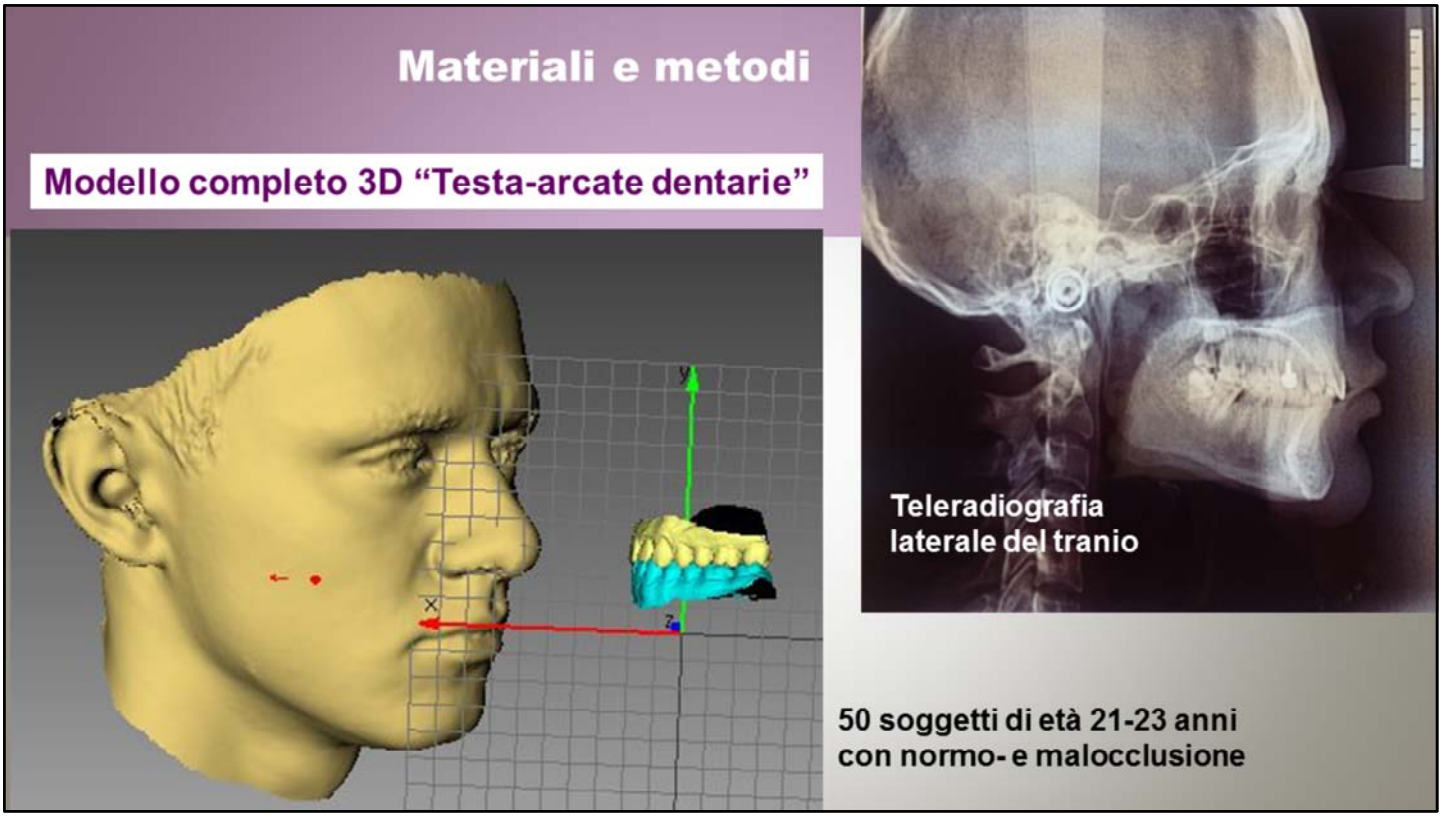
Basandosi sui punti antropometrici che abbiamo applicato il software può effettuare le misurazioni, tracciare i piani facciali di riferimento ed eseguire varie analisi



Per l'analisi facciale tridimensionale si utilizza come riferimento il Porion cutaneo, la linea Po-n e il piano extraorale PL, di cui parleremo in seguito. Per valutare la simmetria facciale utilizziamo il triangolo formato da punto nasion e due punti porion destro e sinistro.



possiamo scegliere che tipo di analisi facciale utilizzare ed il sistema effettua le misurazioni e ci comunica il risultato

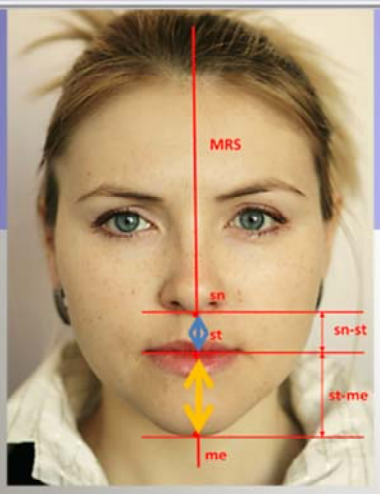


In questo modo sono stati ottenuti i modelli tridimensionali completi testa-dentizione di 50 soggetti di età compresa tra 21 e 23 anni con normo- e malocclusione. Eè stata eseguita l’analisi cefalometrica tradizionale e l’analisi antropometrica del modello tridimensionale utilizzando gli stessi parametri.

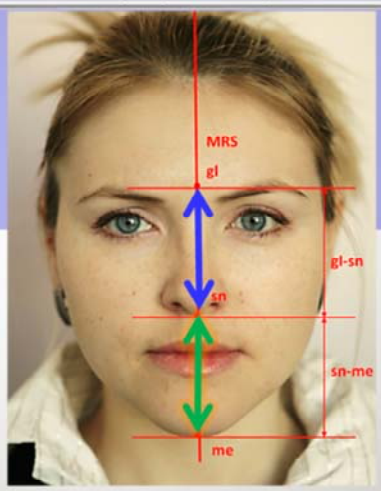
COMPUTER VERSION OF FACE AESTHETICS DETERMINATION DEVELOPMENT REGARDING TO PORION (Po) POINT

The index of face aesthetics proposed by Slabkovskaya A. and Kovalenko A.

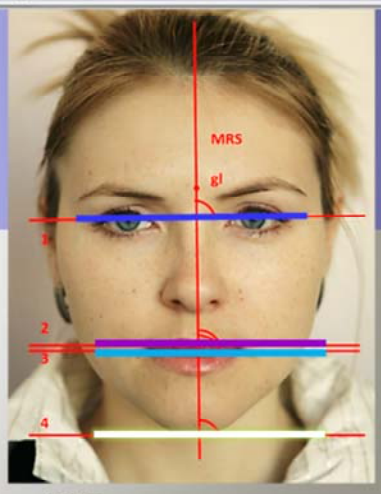
Face parameters in frontal plane



sn-st/st-me
Average value 0.5
standart deviation 0.02

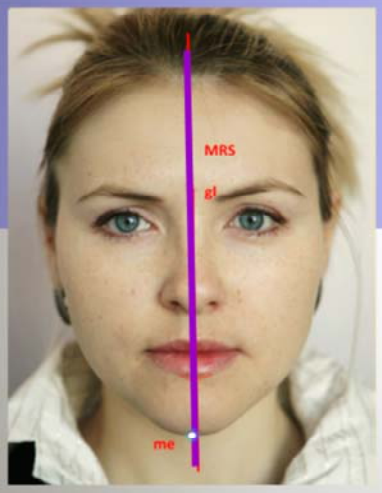


gl-sn/sn-me
Average value 1.00
standart deviation 0.03

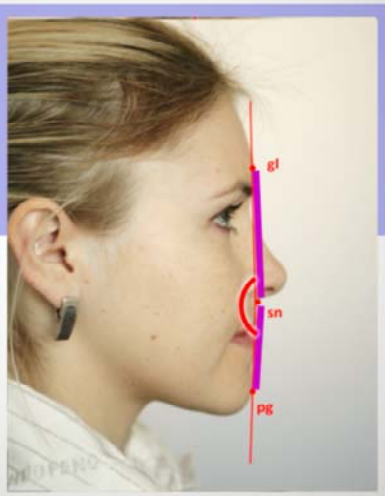


p-p/MRS
st-st/MRS
go-go/MRS
me-me/MRS
Average value 90°
standart deviation 2°

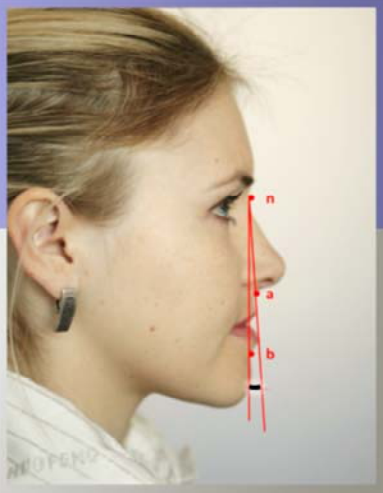
Face parameters in frontal plane



MRS/ me
Average value 0°
standart deviation 1°

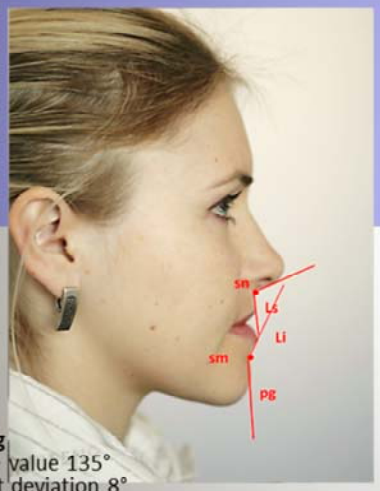


gl-sn-pg
Average value 168°
standart deviation 2°

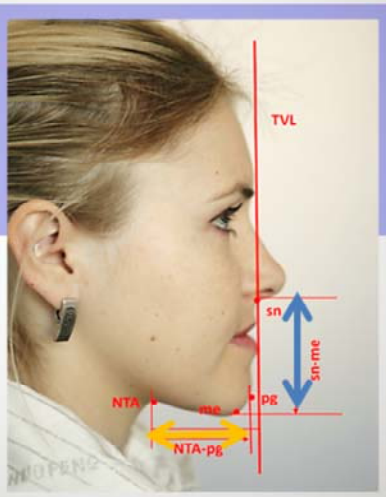


угол anb
Average value 105°
standart deviation 4°

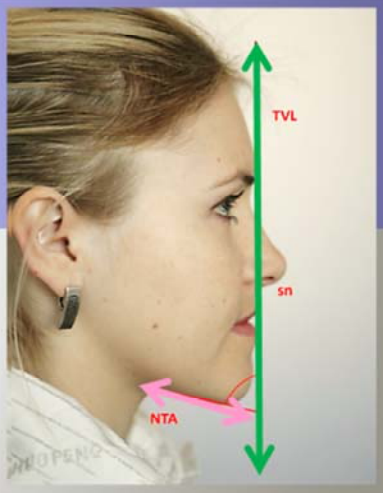
Face parameters in sagittal plane



Li-sm-pg
Average value 135°
standart deviation 8°
col-sn-Ls
Average value 105°
standart deviation 4°



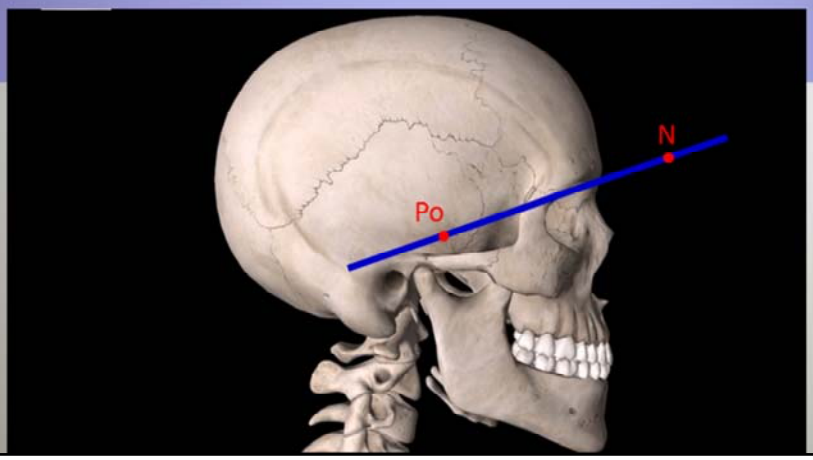
sn-me/NTA-pg
Average value 1.2
standart deviation 0.1



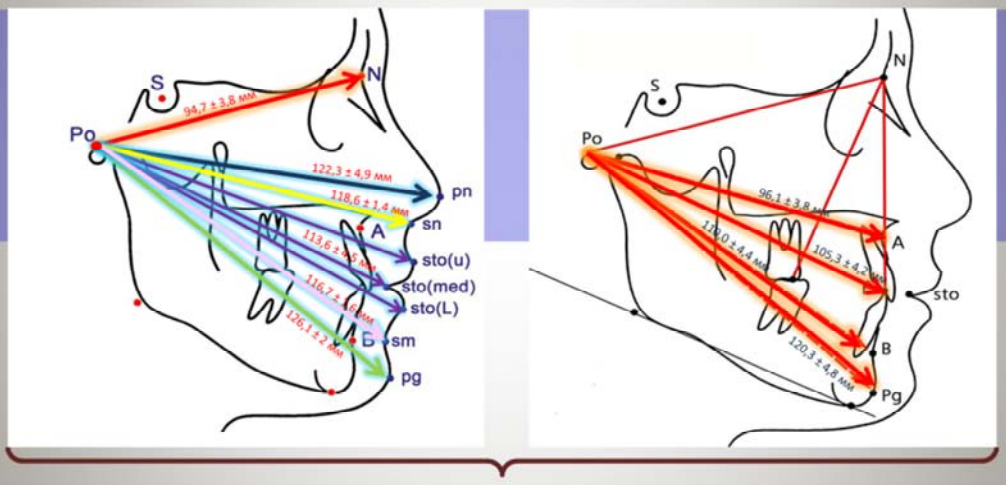
NTA/TVL
Average value 90°
standart deviation 2°

Materials and methods

Po-N line was taken as the main referent line, regarding which the linear and angular parameters were determined and the index indicators were calculated



Materials and methods



Distance determination from Po point to specified points gives us a representation about location of face soft-tissue and bone parameters

Results

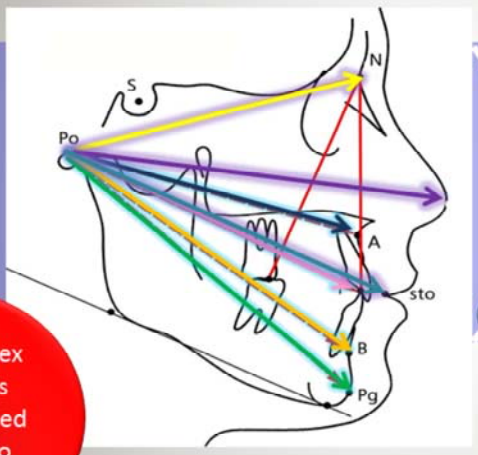
The computer program for soft-tissue and bone parameters evaluation, regarding to Po point, was developed based on received data

PROF. PERSIN: PERSIN HARMONY 2

Chernovskiy M. 11y 0m 26/11/2018 N Sum=31mm

Measurement	Value	Units	Mean	Diff	S.D.
Po-N	94,6	mm	0,0	94,6	0,0
Po-pn	123,9	mm	0,0	123,9	0,0
Po-sn	111,4	mm	0,0	111,4	0,0
Po-sto(U)	115,5	mm	0,0	115,5	0,0
Po-sto(med)	115,6	mm	0,0	115,6	0,0
Po-sto(L)	115,6	mm	0,0	115,6	0,0
Po-sm	121,7	mm	0,0	121,7	0,0
Po-Pg	123,7	mm	0,0	123,7	0,0
Po-Me	119,9	mm	0,0	119,9	0,0
Po-A	95,9	mm	0,0	95,9	0,0
Po-B	113,6	mm	0,0	113,6	0,0
Po-1U	105,9	mm	0,0	105,9	0,0
Po-1L	107,0	mm	0,0	107,0	0,0

Results

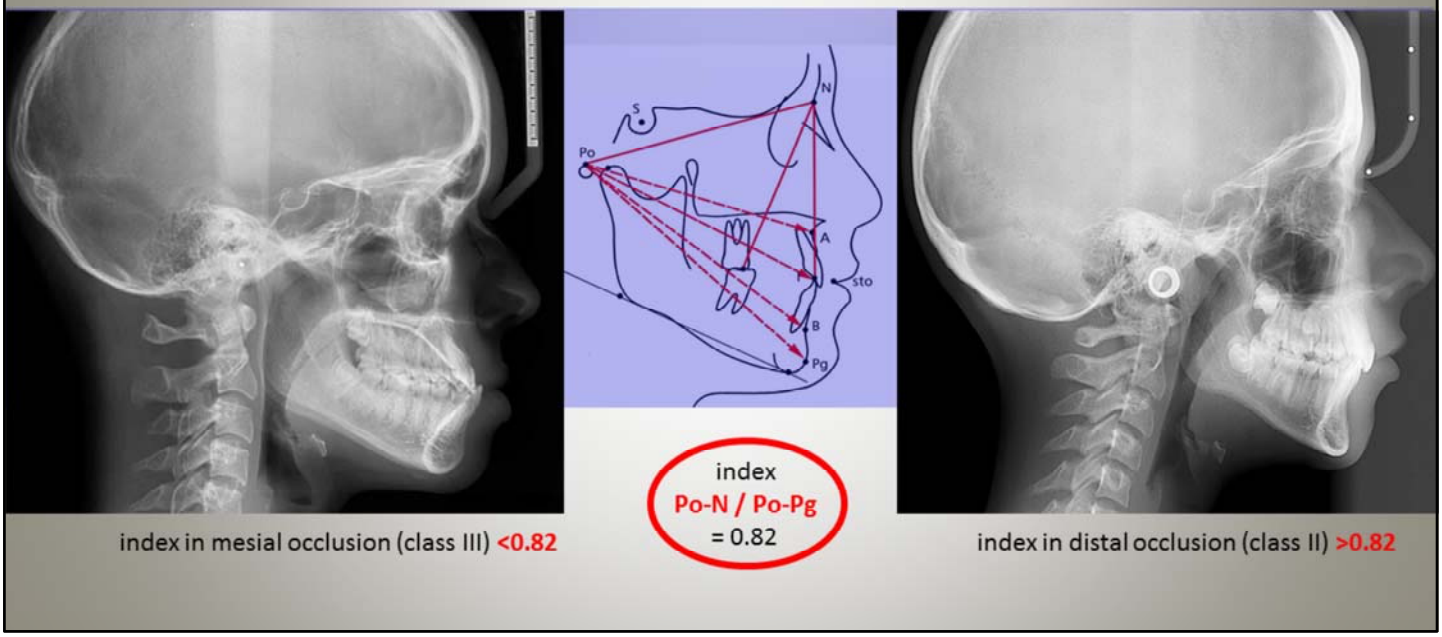


Besides, index parameters were proposed regarding to Po-N line

1. Po-N / Po-A = 1.01
2. Po-N / Po-B = 0.9
3. Po-N / Po-pg
4. Po-N / Po-I = 0.93
5. Po-N / Po-pn = 0.81
6. Po-N / Po-sto = 0.86

In patients with physiological occlusion index values are starting and initial compared to the parameters evaluated from patients with occlusion anomalies

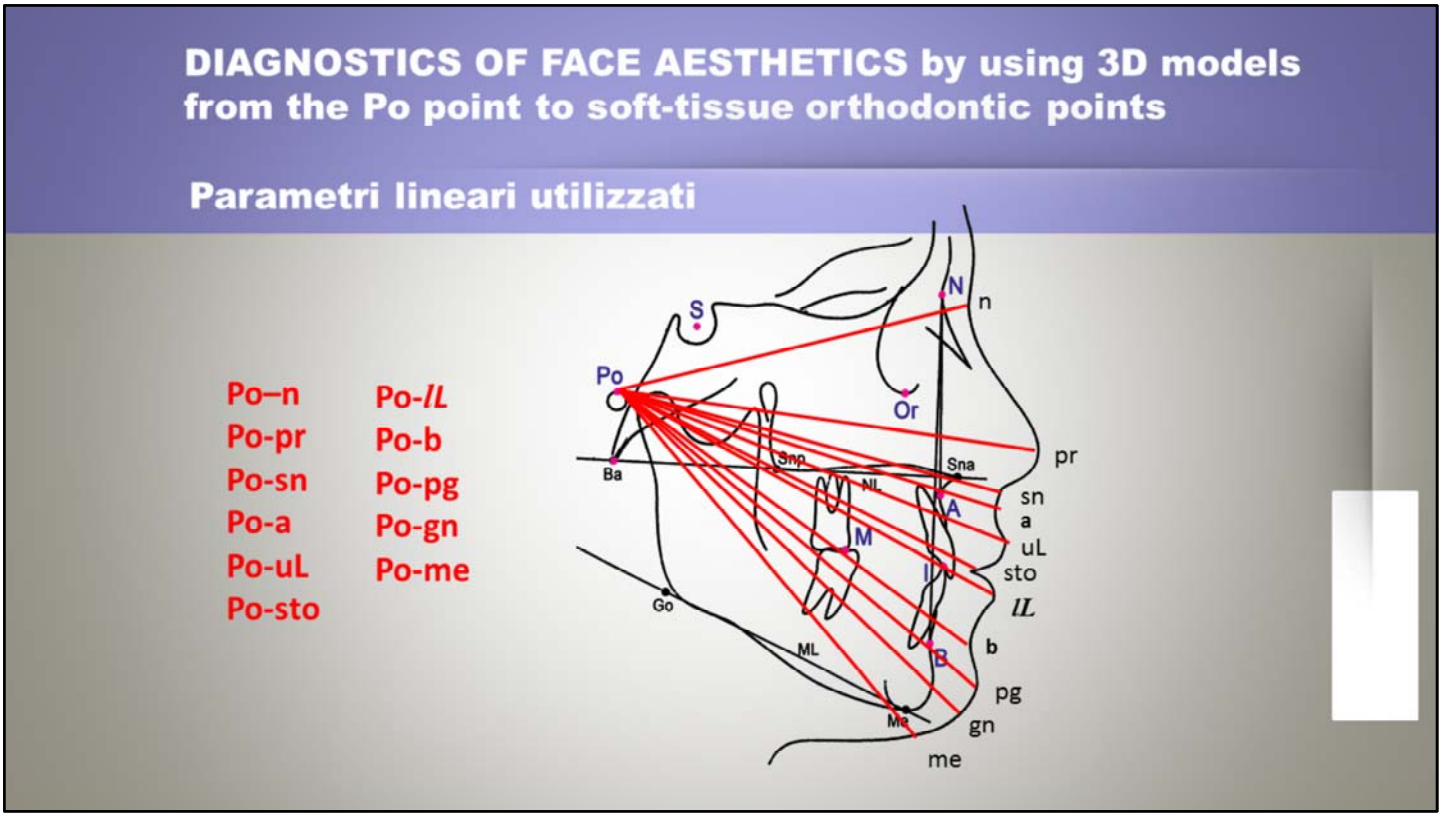
Results



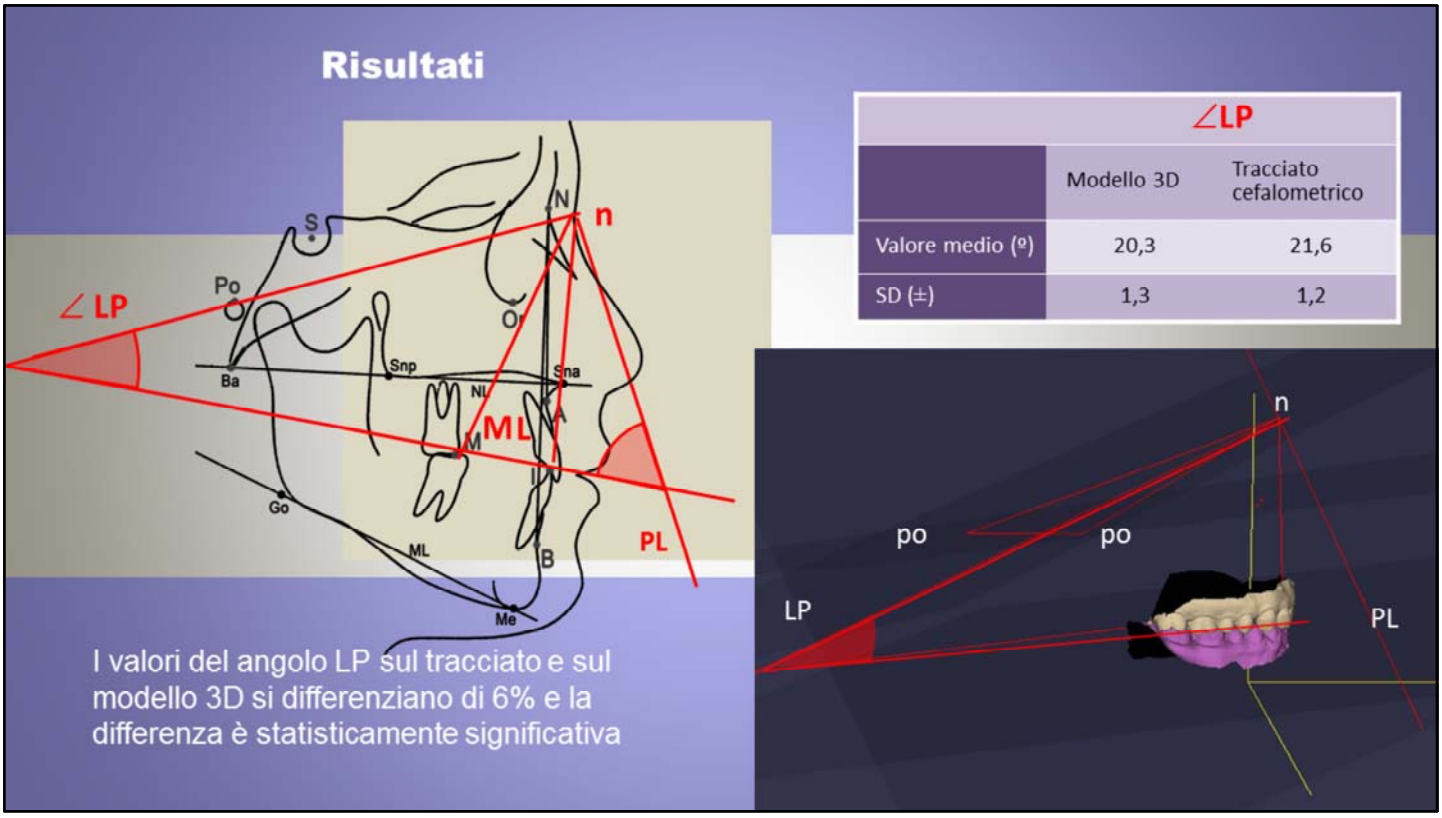
index in mesial occlusion (class III) <0.82

index
Po-N / Po-Pg
= 0.82

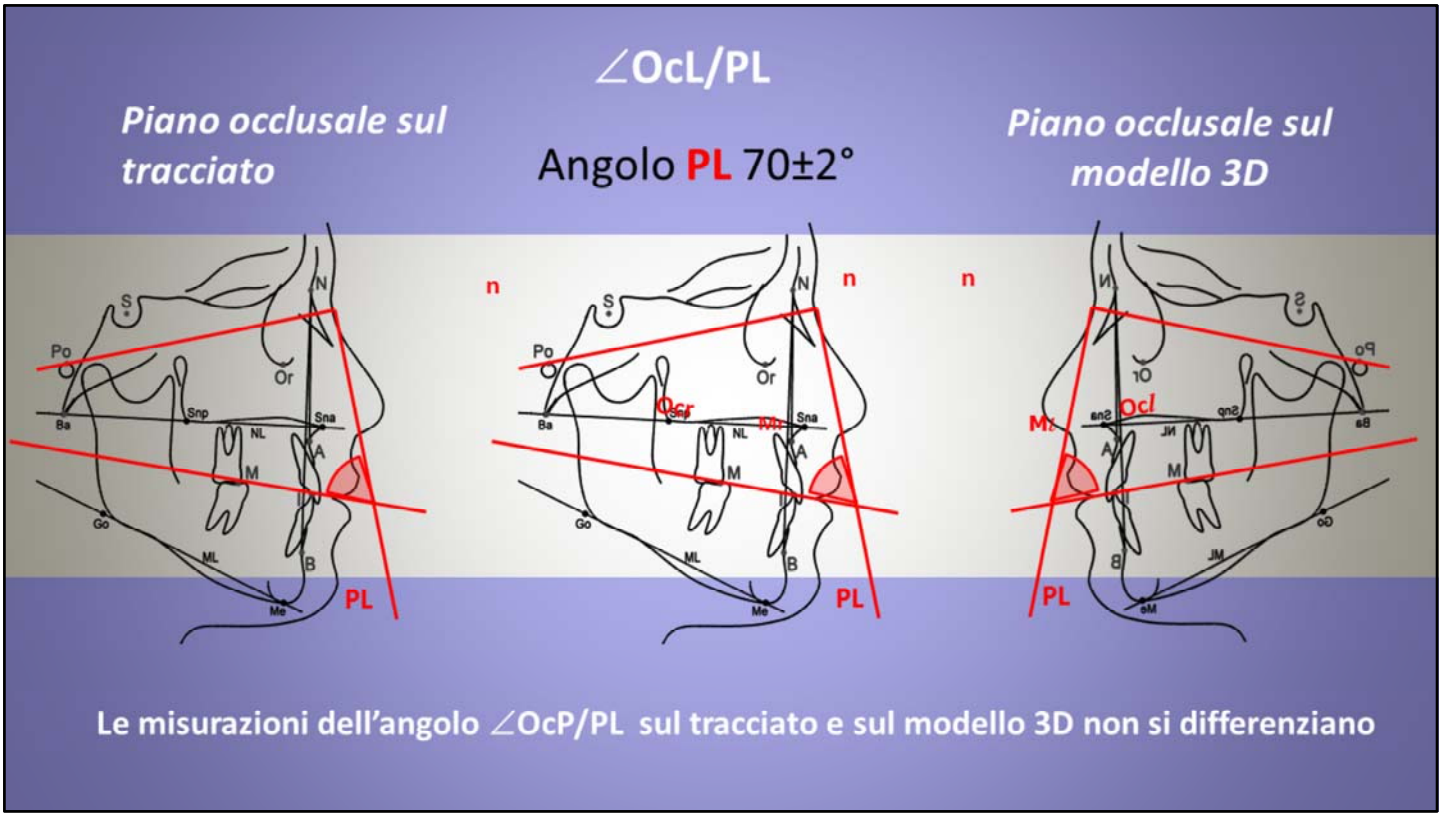
index in distal occlusion (class II) >0.82



Per valutare i parametri facciali è stato utilizzato utilizzato il punto Po come punto di riferimento dal quale sono stati tracciati i vettori ai tutti i punti del profilo dei tessuti molli



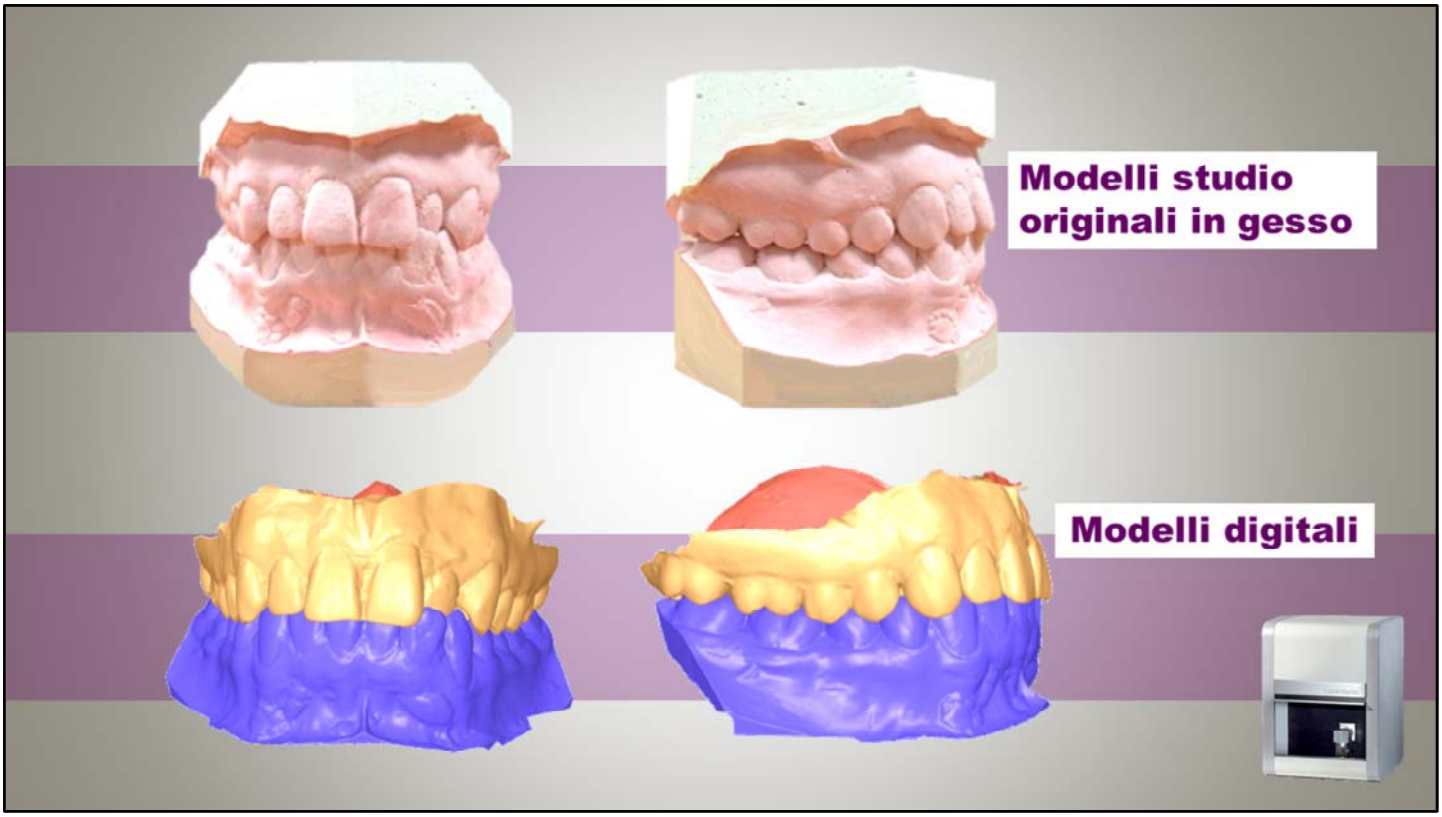
E poi sono stati comparati i dati ottenuti con l'analisi cefalometrica tradizionale e il modello 3D. Sono stati riscontrati dati discordanti. Si è visto che lo stesso parametro può avere valori diversi. Per esempio, valori deli' angolo LP sul tracciato e sul modello 3D si differenziano del 6% e la differenza è statisticamente significativa



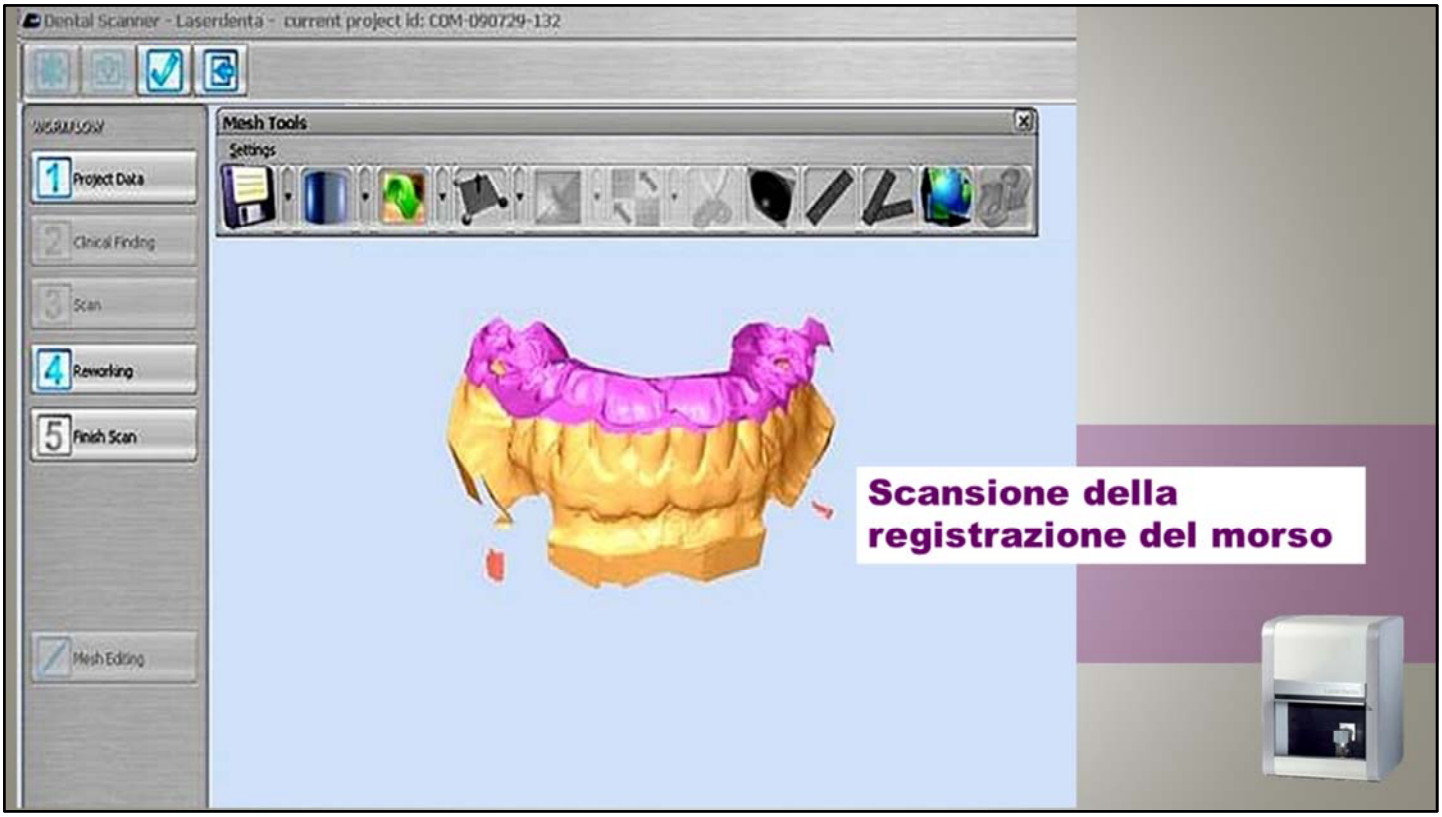
Altri parametri, invece, coincidono. Come, per esempio, l'inclinazione del piano occlusale alla linea PL.
Il vantaggio che si ha con il modello 3D è che si possono effettuare due misurazioni separate per il lato destro ed il lato sinistro.

Per correggere questa discrepanza è stato realizzato un modello tridimensionale della testa e della arcate dentarie

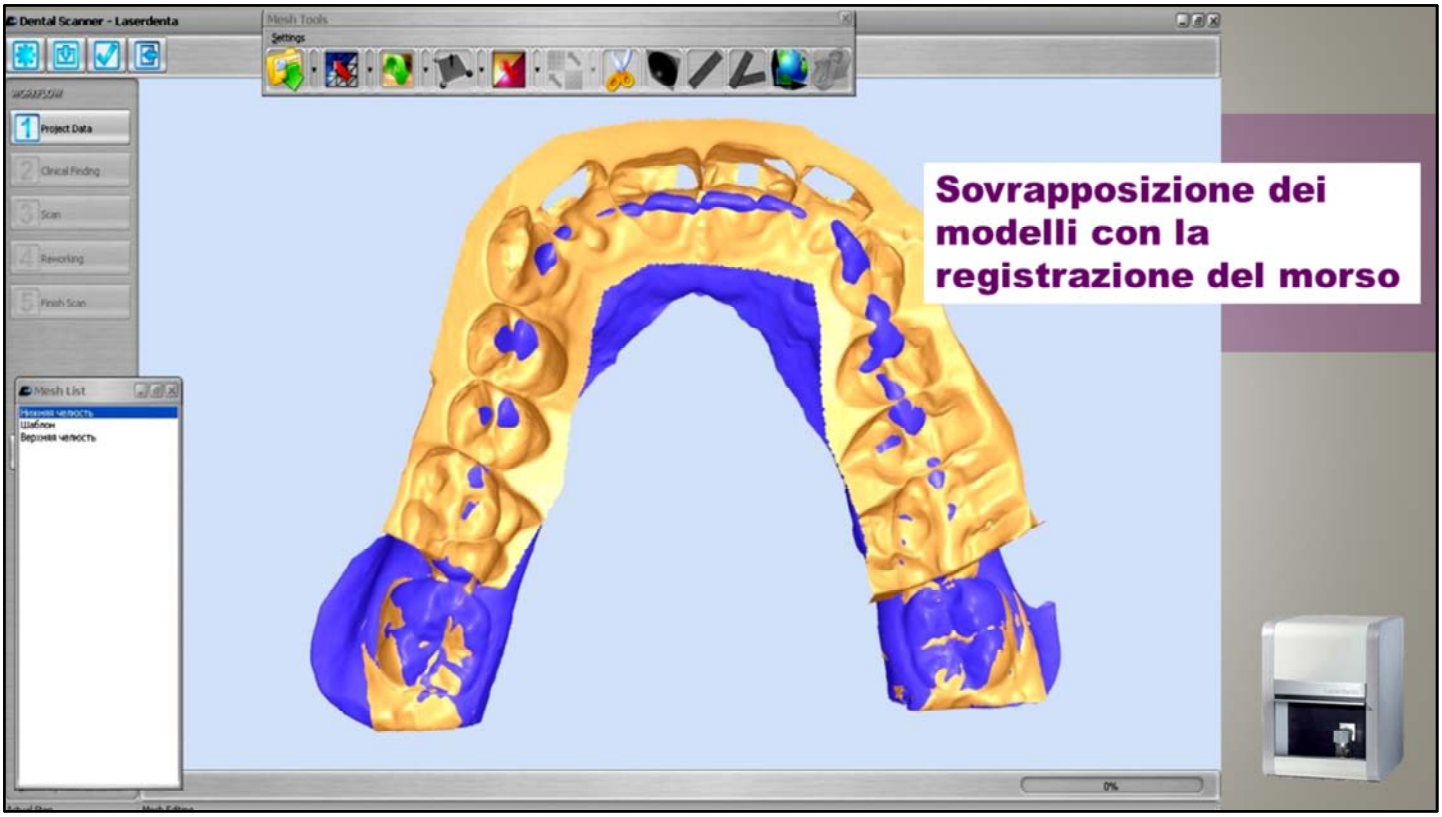
Innanzitutto si effettua una scansione dei modelli in gesso con uno scanner 3D. Scannerizzando i modelli studio è stato possibile creare un archivio virtuale dei modelli e questo di per se è già di gran vantaggio per la gestione dello studio odontoiatrico.



Il computer ottiene il modello virtuale, controlla automaticamente la qualità della scansione, rivela i difetti e in caso di necessità ripete la scansione di queste area per ottenere il modello corretto.



Dopo la scansione dei modelli il software chiede di posizionare la registrazione del morso in silicone



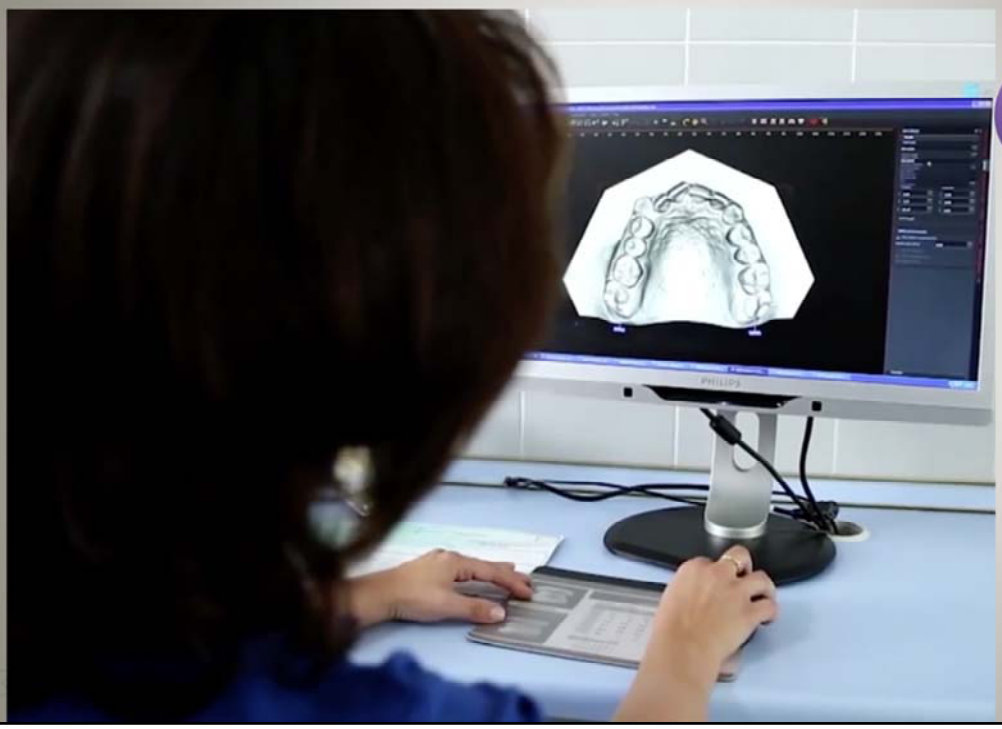
Qua vediamo la sovrapposizione del modello con la registrazione del morso

Ortho 3D
Ортодонтическая лаборатория цифровой диагностики

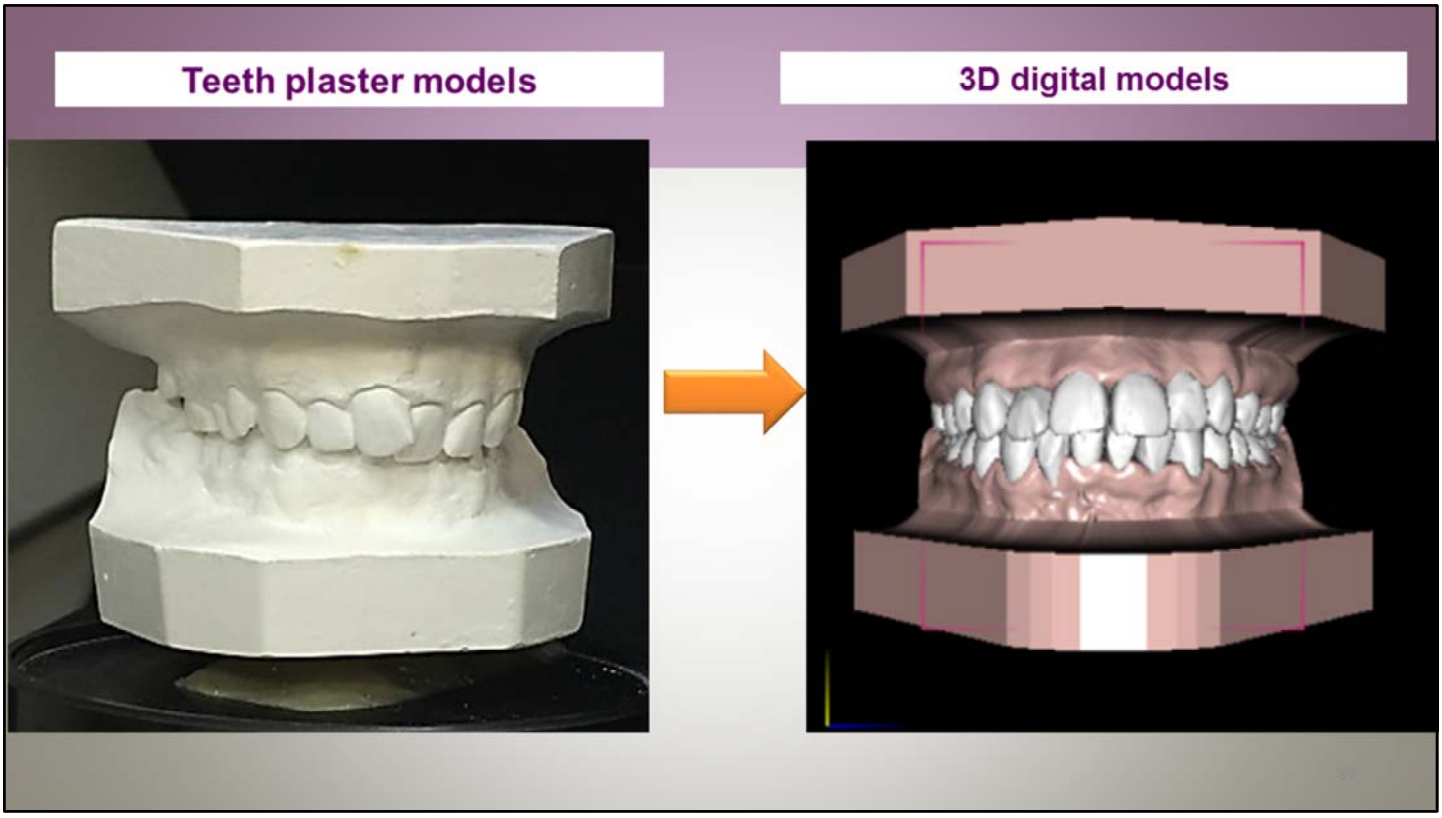
Software package Ortho3D
for work with digital models

- **Digital anthropometry of dentitions**
- **Digital cephalometry**
- Virtual set up
- Braces positioning
- Modeling of transfer template for braces indirect fixation

Working with digital models in the clinic

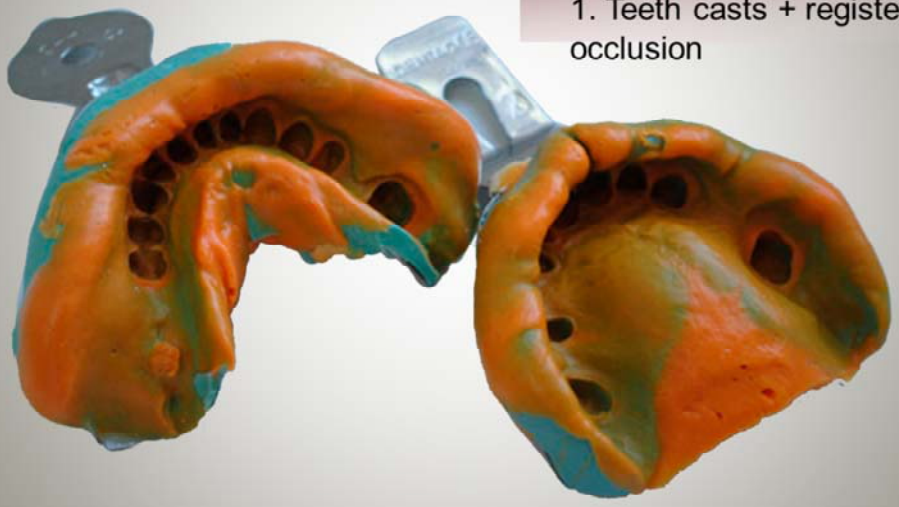


Orthodontic lab for digital diagnostics


Teeth plaster models
3D digital models

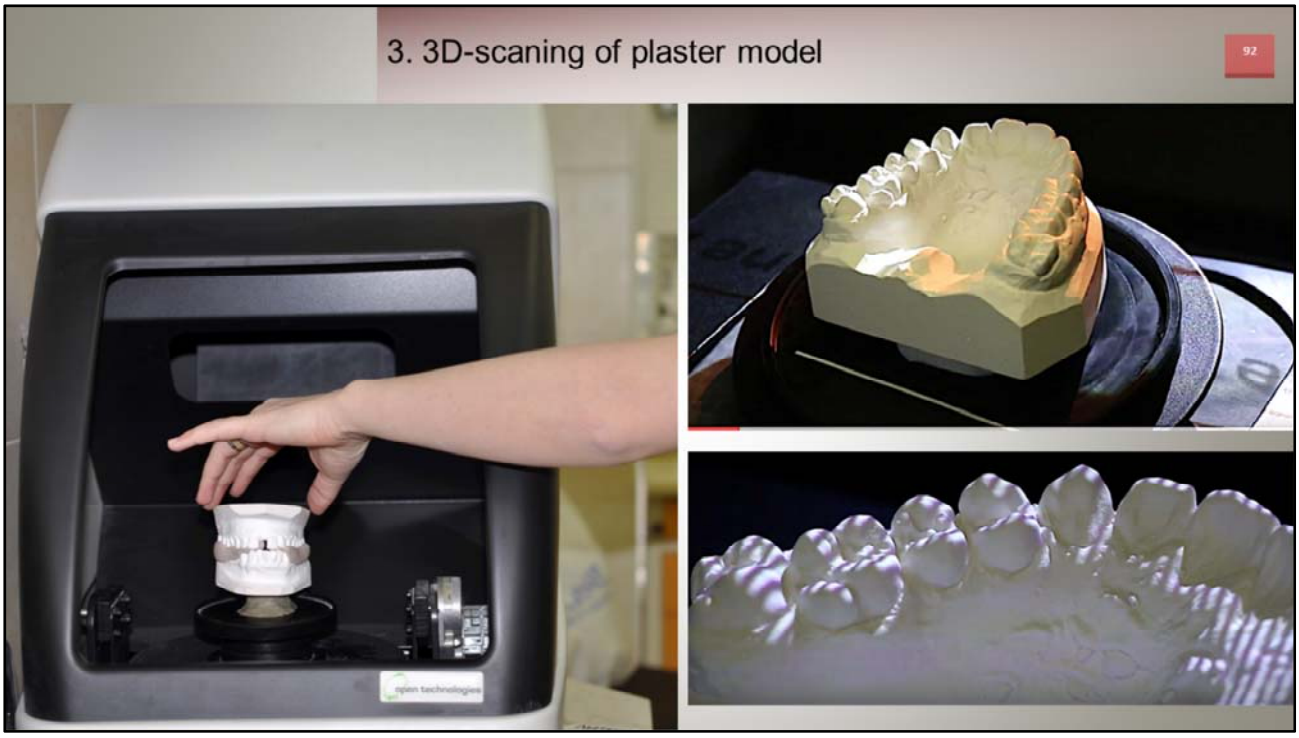
Technology of digital 3D models creation

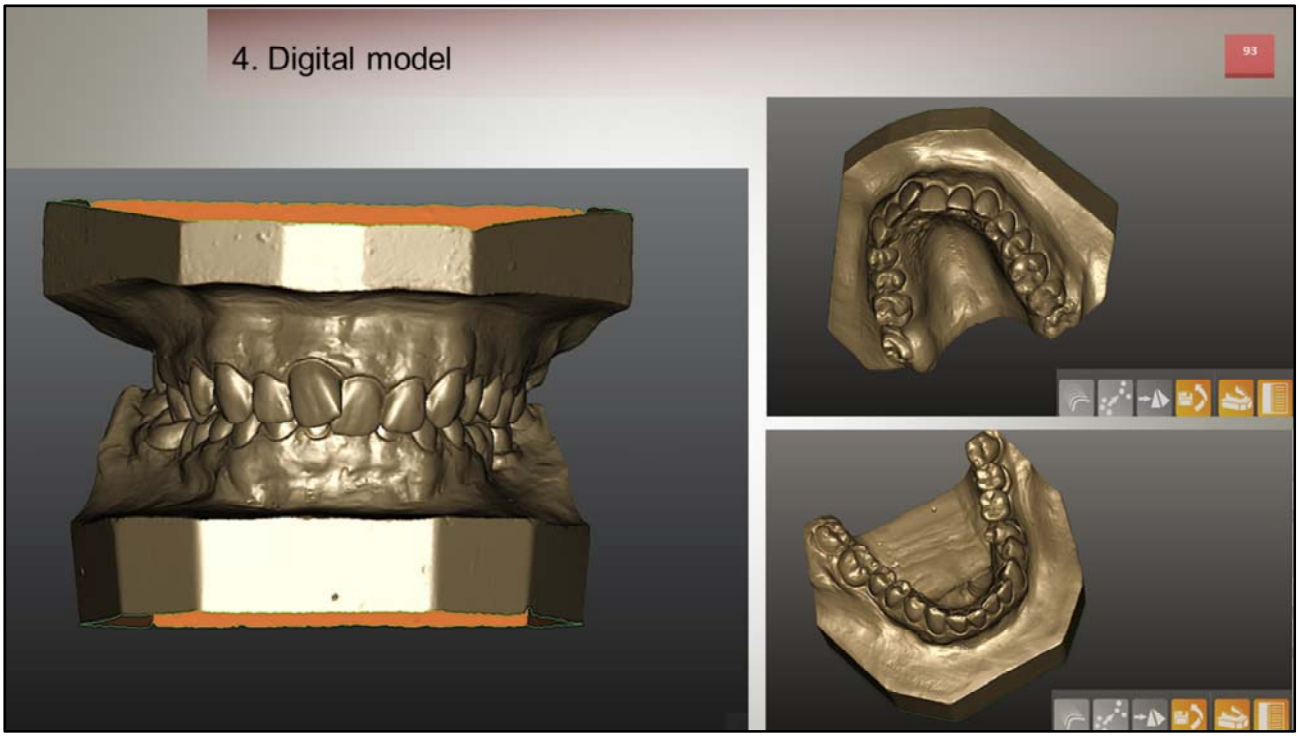
1. Teeth casts + register of occlusion

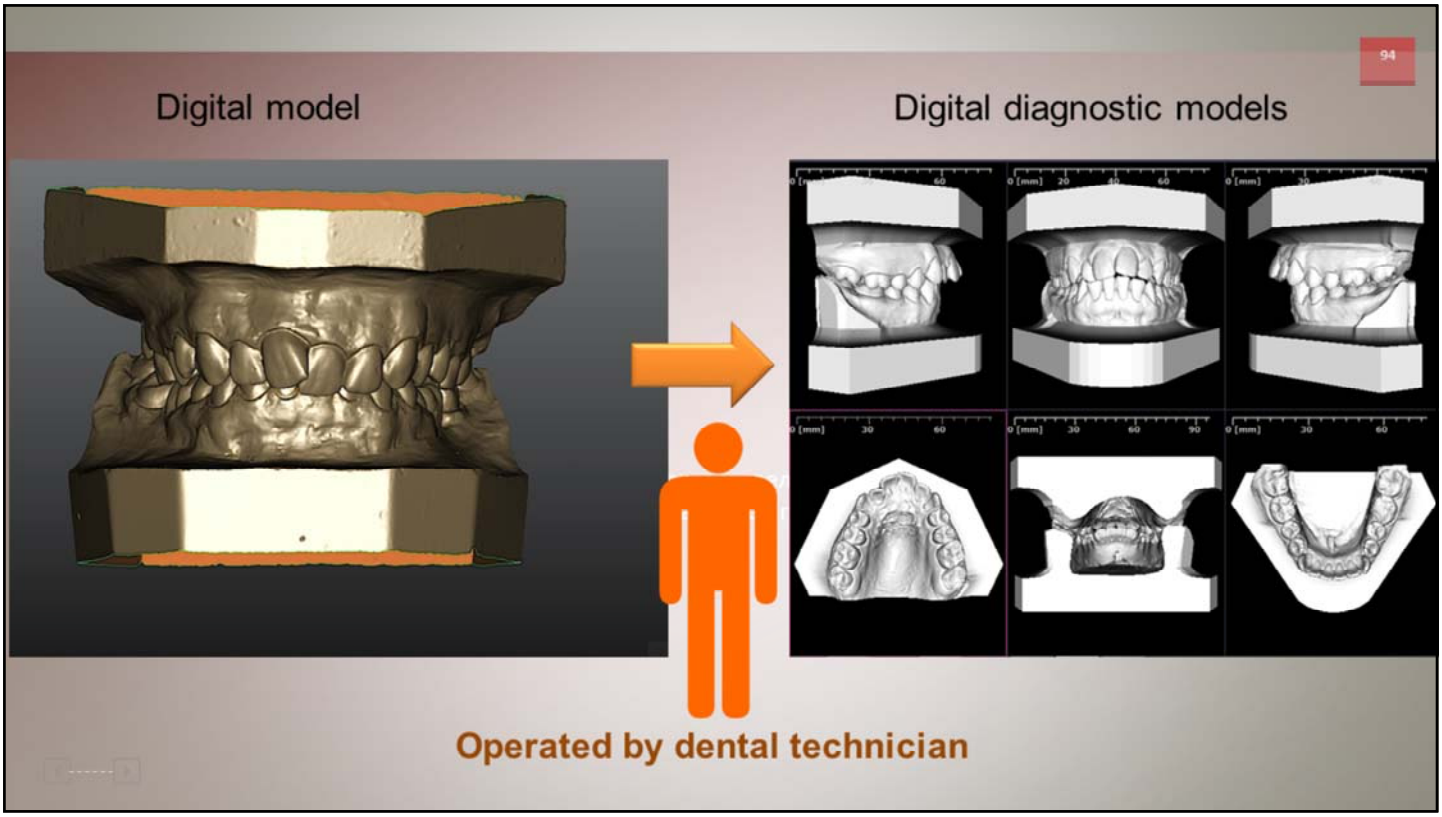


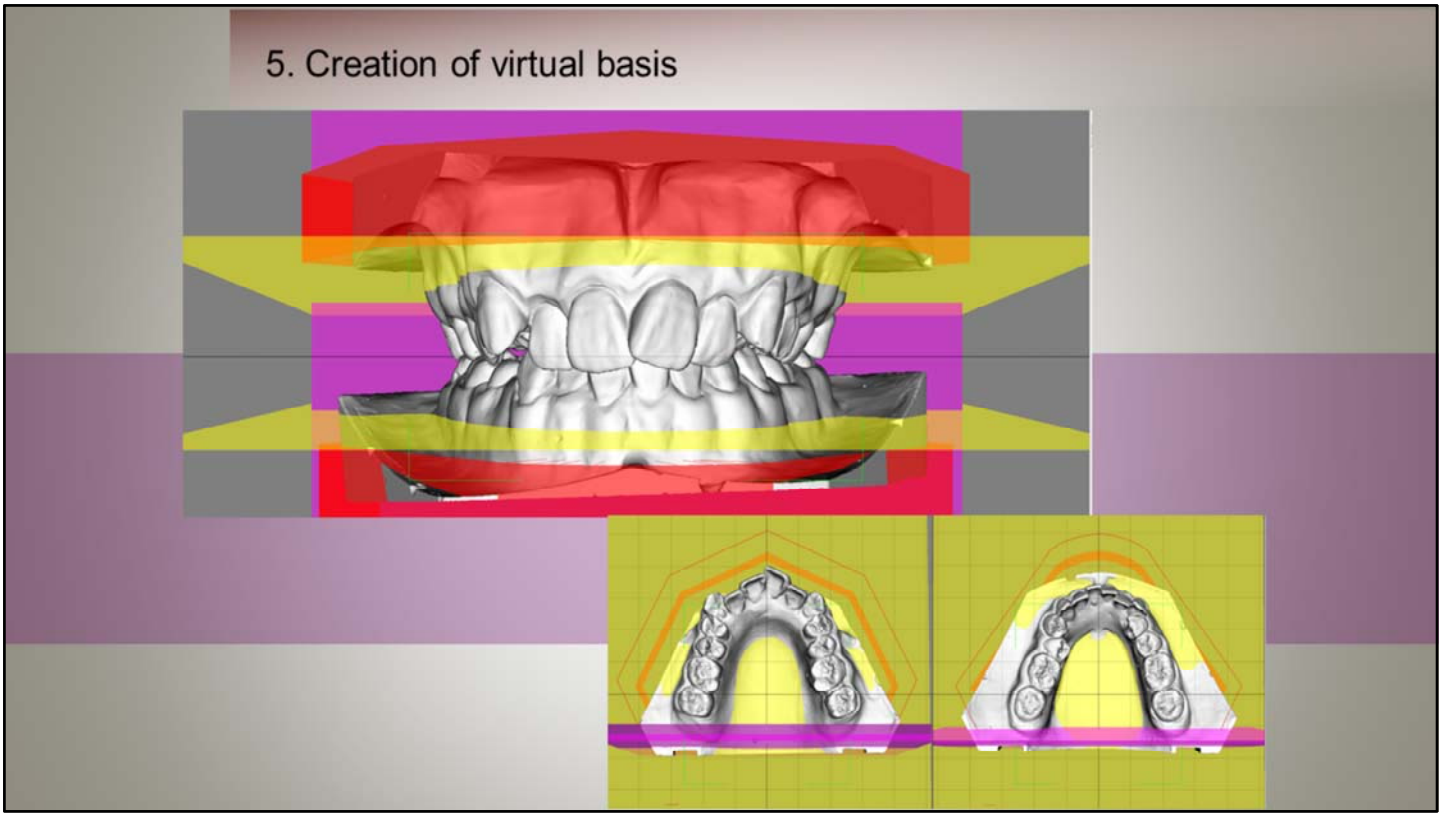
2. Creation and engraving of teeth plaster models

Orthodontic lab for digital diagnostics

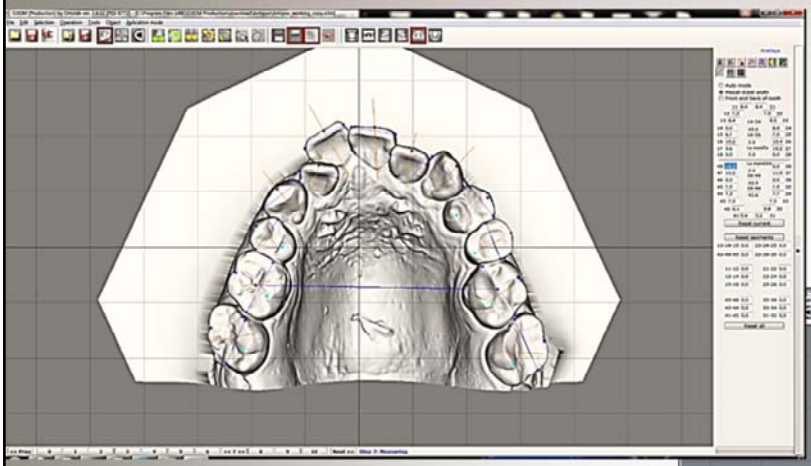

3. 3D-scaning of plaster model
92


4. Digital model
93

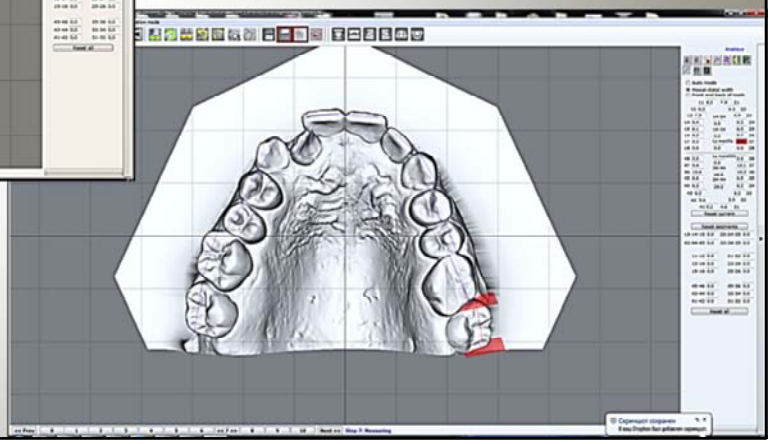

94
Digital model
Digital diagnostic models
Operated by dental technician


5. Creation of virtual basis

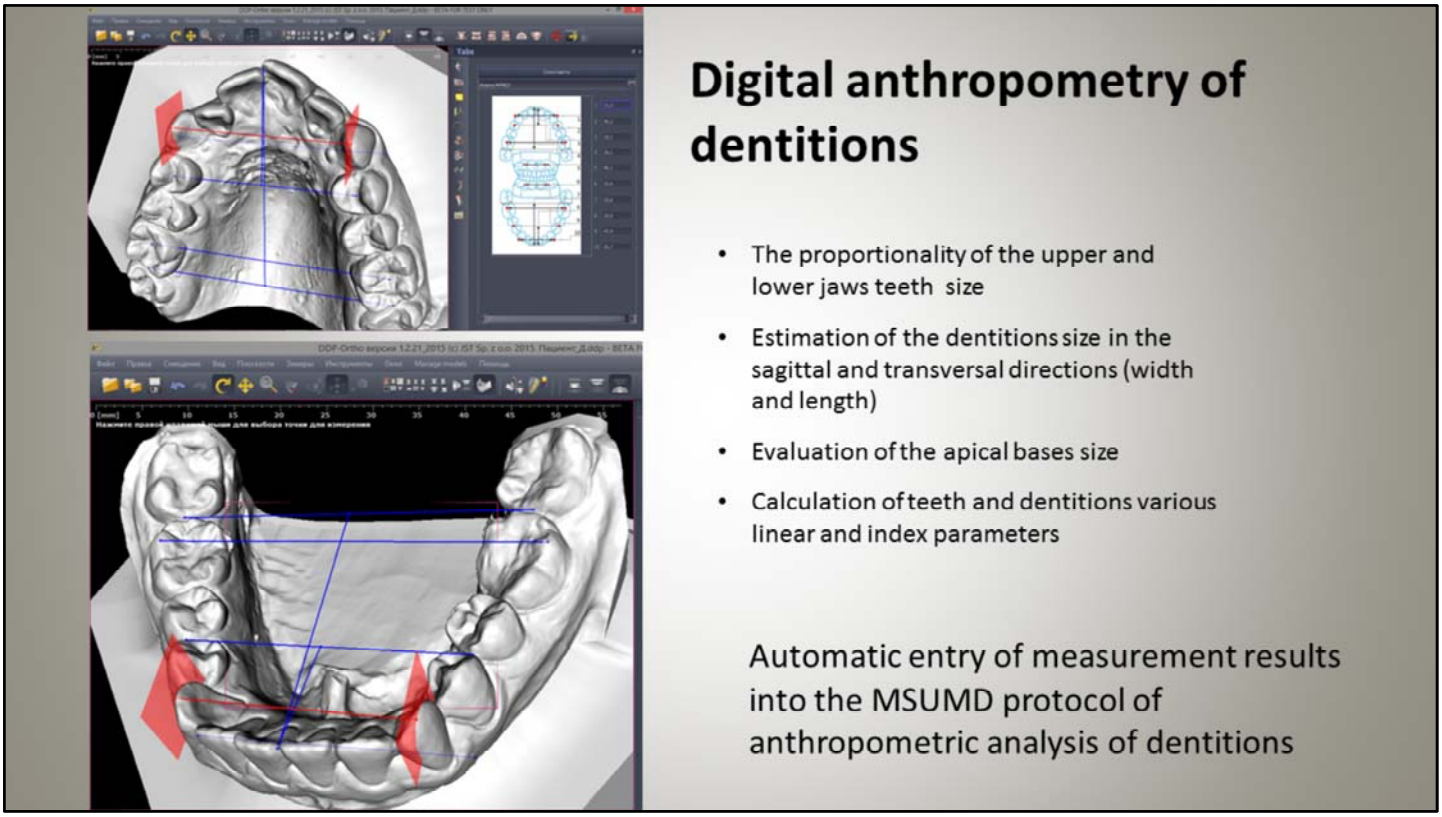
6. Arrangement of reference points on digital models



Tooth axes

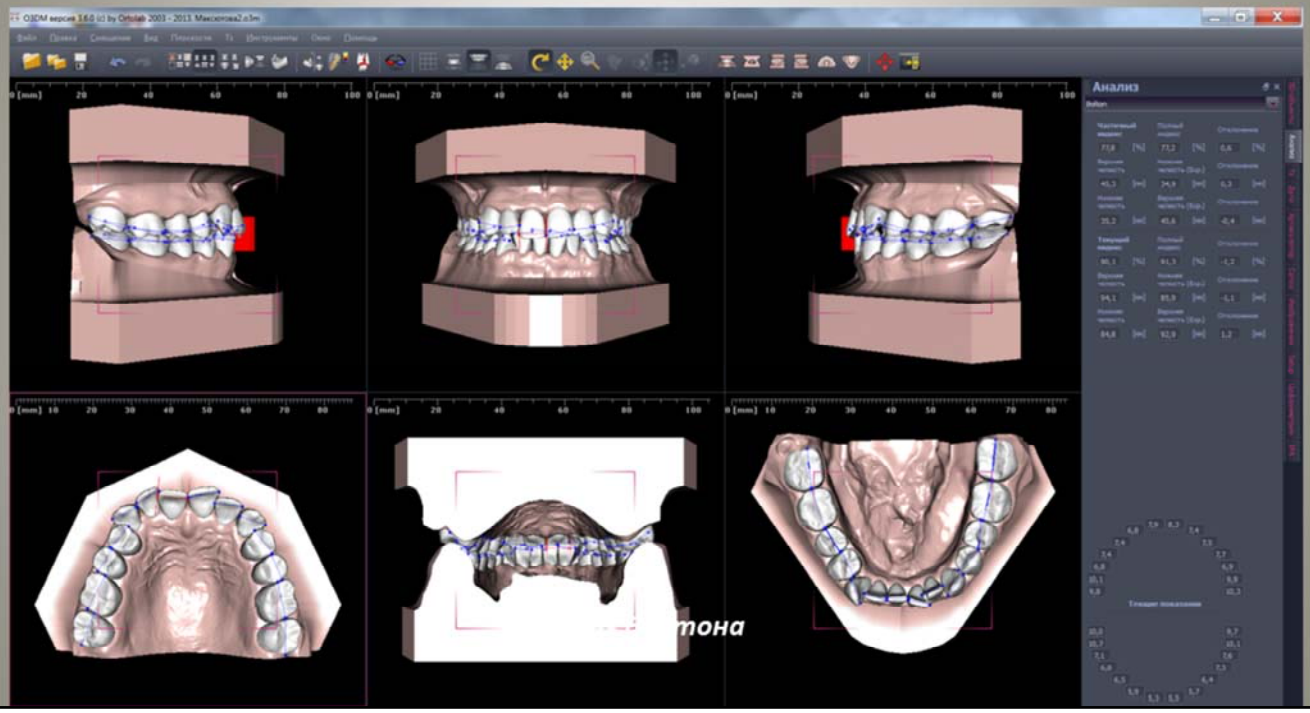


mesiodistal sizes of teeth

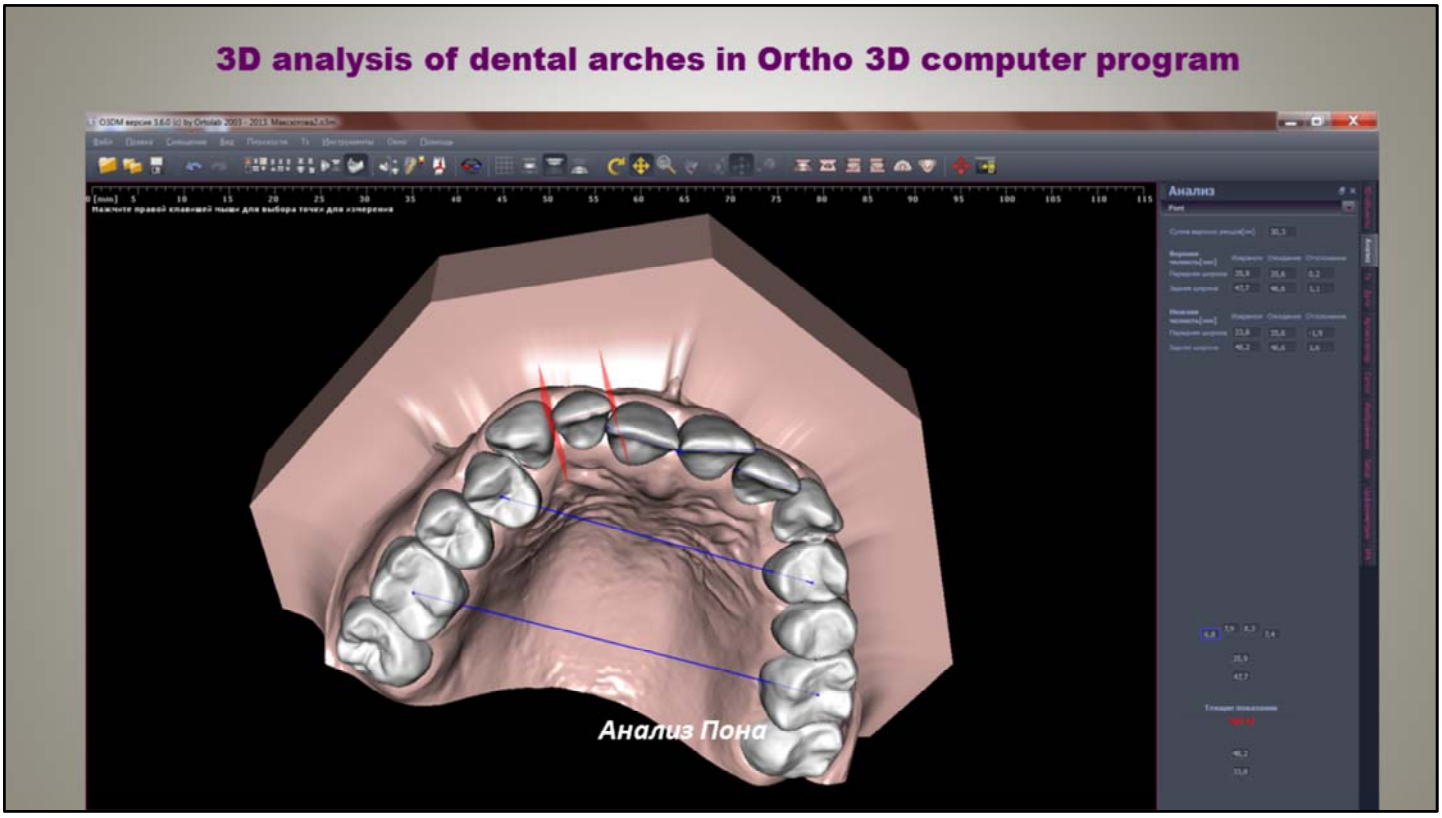


Questo programma offre un'ampia gamma di possibilità per le misurazioni e le analisi di base sui modelli digitali. Le misurazioni utilizzate nelle tecniche tradizionali vengono effettuate in DDP-Ortho utilizzando strumenti speciali e sono caratterizzate da alta precisione e facilità di esecuzione. Grazie alle moderne capacità del programma, possono essere effettuate misurazioni difficili da eseguire manualmente (analisi dei segmenti della serie di denti, valutazione della simmetria). Migliorando l'integrazione di piani e segmenti ausiliari con gli strumenti di misura, il processo di misurazione diventa più preciso e facile. Il programma consente di misurare angoli, segmenti e distanze tra oggetti e piani. Questo programma include la mappa medica del paziente ortodontico, così come il protocollo di antropometria delle file dentali, sviluppato presso il Dipartimento di Ortodonzia MGMSU. DDP-Ortho supporta il processo di compilazione del protocollo di antropometria delle file dentali, il vantaggio di effettuare automaticamente i risultati delle misurazioni dei modelli digitali delle file dentali nel protocollo di indagine

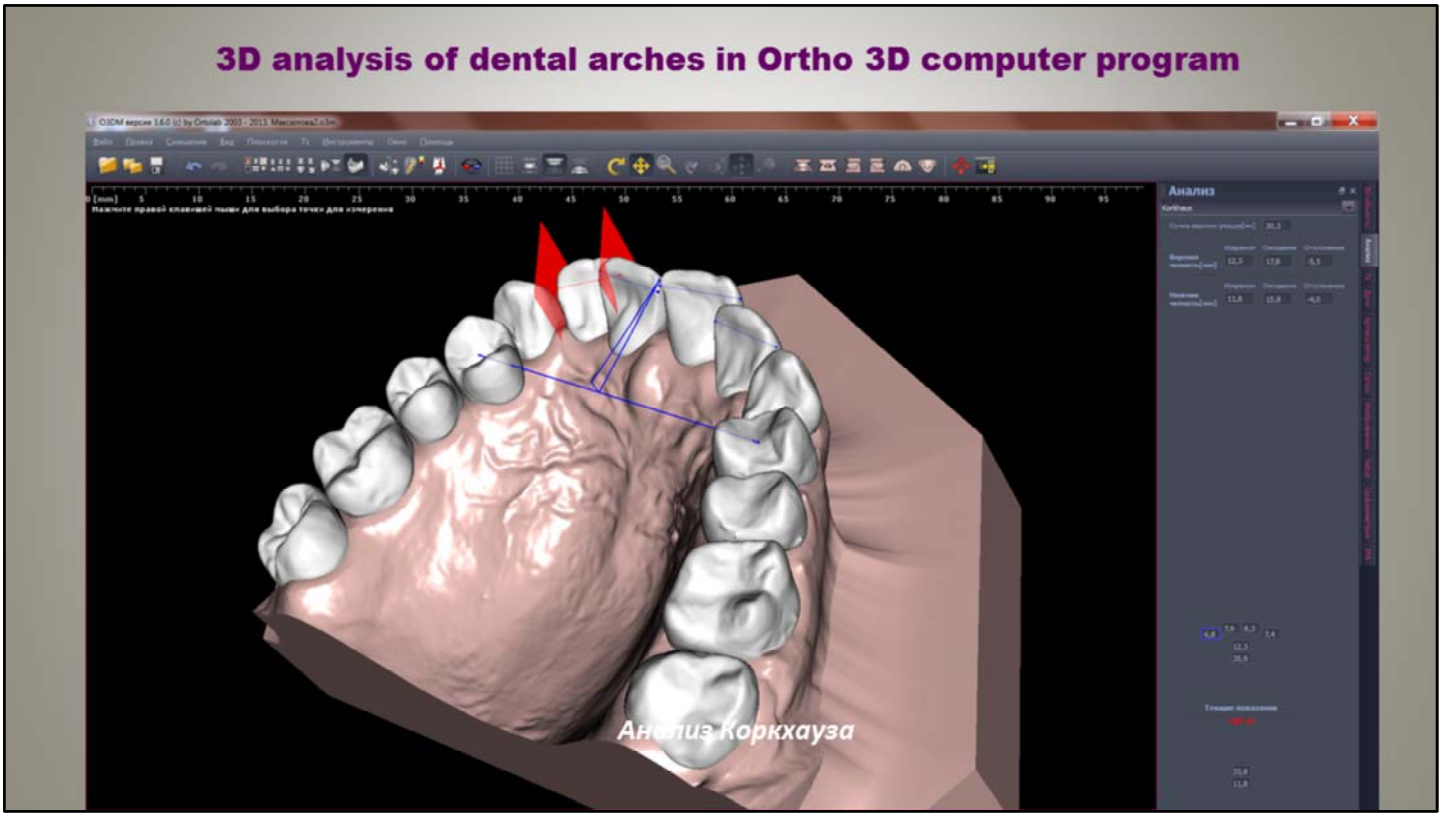
3D analysis of dental arches in Ortho 3D computer program



3D analysis of dental arches in Ortho 3D computer program



3D analysis of dental arches in Ortho 3D computer program



Протокол антропометрической диагностики моделей зубных рядов

Пациент: Сергеев А.И., 14 лет,
находится на обследовании

Мезио-дистальные размеры зубов

В/Ч	9,0	7,0	7,0	8,0	7,0	9,5	9,5	7,0	8,0	7,0	7,0	9,0
	6	5	4	3	2	1	1	2	3	4	5	6
Н/Ч	10,0	7,0	7,0	7,5	6,5	6,0	6,0	6,5	7,5	7,0	7,0	10,0

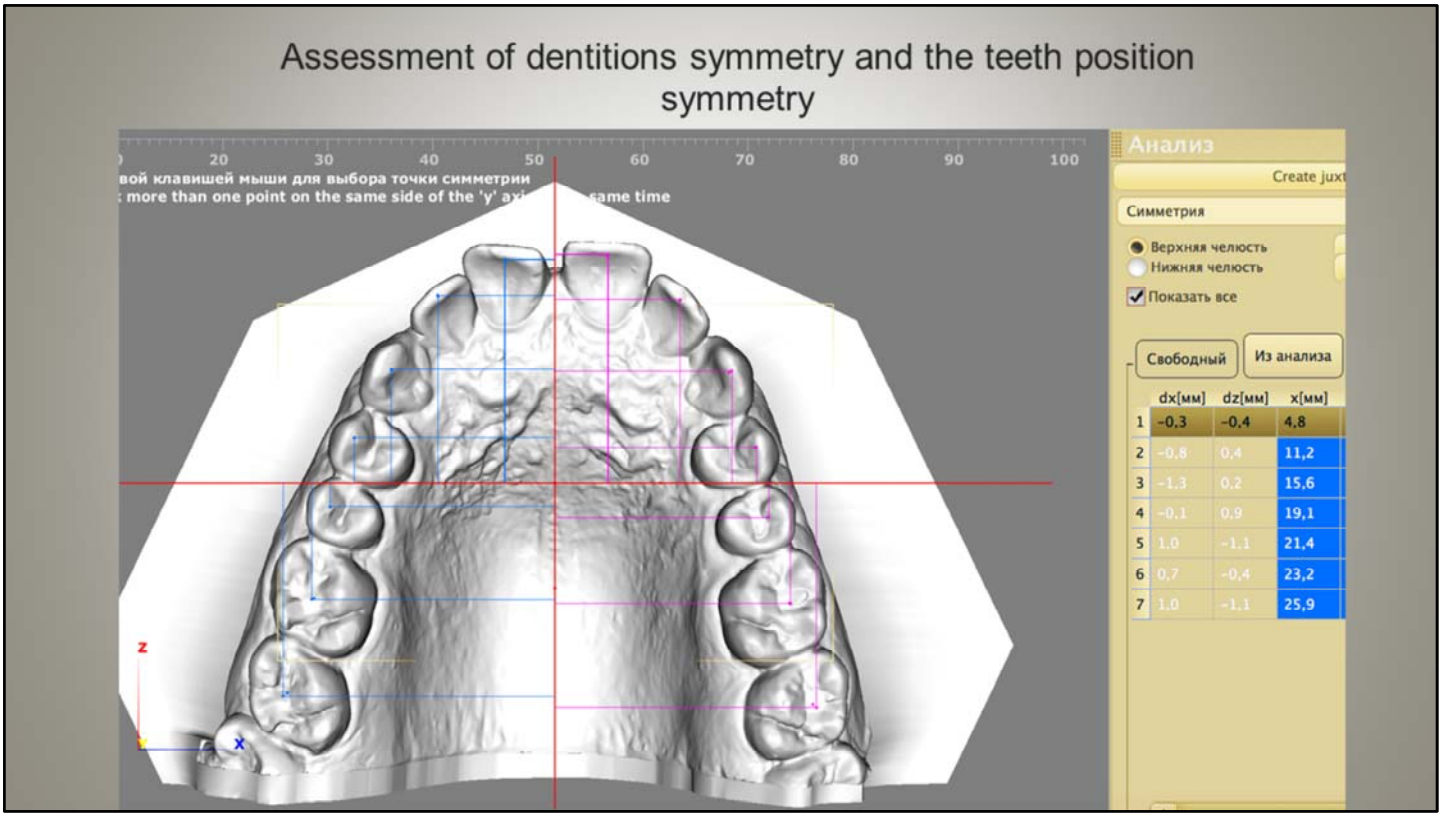
Измерения зубных рядов

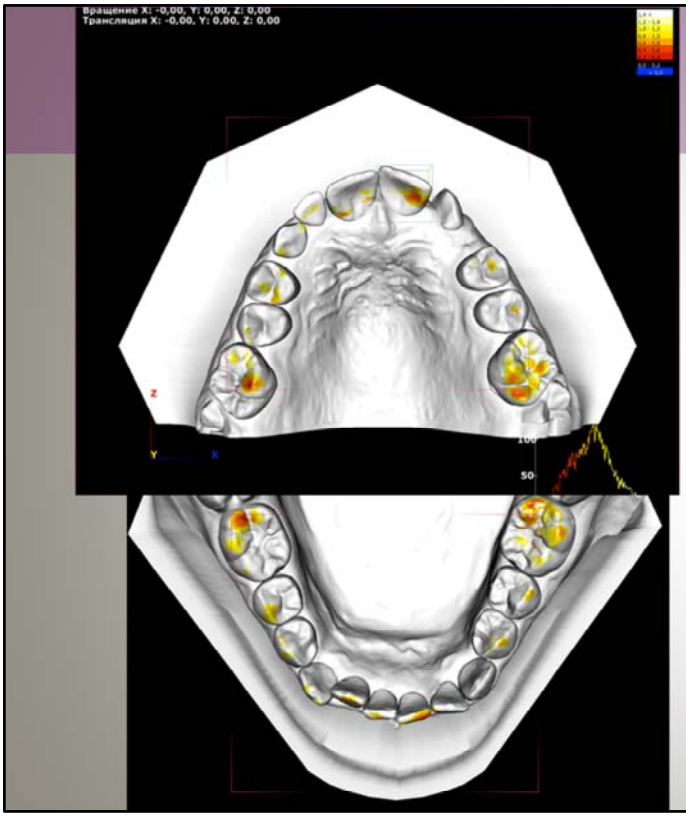
	Параметр		Зубной ряд					
			Верхний			Нижний		
			Знач.	Норма	Откл.	Знач.	Норма	Откл.
1	$\sum_{12}$	Сумма мезио-дистальных размеров 12-ти зубов	95,0 mm			88,0 mm		
2	I_{12}	Отношение $\frac{6\text{-}6}{6\text{-}6}$	1,08	1,08	0,00			
3	L_{arch}	Лонгитудинальная длина зубного ряда	105,0 mm	95,0 mm	10,0 mm	86,0 mm	88,0 mm	-2,0 mm
4	$\sum_{321123}$	Сумма мезио-дистальных размеров 6-ти зубов	49,0 mm			40,0 mm		
5	I_{321123}	Отношение $\frac{\sum 321123}{\sum 321123}$	1,26	1,29	-0,03			
6	$\sum_{3322}$	Сумма мезио-дистальных размеров резцов	33,0 mm			25,0 mm		
7	I_{3322}	Отношение $\frac{\sum 3322}{\sum 3322}$	1,32	1,33	-0,01			
		Ширина зубного ряда						
8	L_{3-3}	Расстояние между клыками	35,0 mm	36,0 mm	-1,0 mm	28,0 mm	30,8 mm	-2,8 mm
9	I_{3-3}	Отношение $\frac{13-3}{13-3}$	1,25	1,31	-0,06			
10	I_c	Отношение $\frac{13-3}{\sum 3322}$	1,40	1,44	-0,04	1,12	1,10	0,02
11	L_{6-6}	Расстояние между первыми молярами	44,5 mm	50,8 mm	-6,3 mm	43,5 mm	50,8 mm	-7,3 mm
12	$I_{6-6(R)}$	Отношение $\frac{16-6}{\sum 3322}$ (Linder-Hart)	1,35	1,54	-0,19	1,32	1,54	-0,22
13	$I_{6-6(S)}$	Отношение $\frac{16-6}{\sum 12}$ (Снагина)	0,47	0,50	-0,03	0,49	0,50	-0,01
		Длина зубного ряда						
14	L_{pr}	Длина переднего отрезка зубного ряда (Коркхаус)	25,0 mm	19,0 mm	6,0 mm	13,5 mm	17,0 mm	-3,5 mm
15	I_{pr}	Отношение $\frac{L_{pr}}{\sum 3322}$	0,76	0,58	0,18	0,41	0,52	-0,11
16	L_{pr}	Проекционная длина зубного ряда	44,5 mm	34,3 mm	10,2 mm	29,5 mm	30,8 mm	-1,3 mm
17	I_{pr}	Отношение $\frac{L_{pr}}{6\text{-}6}$	0,51	0,39	0,12	0,34	0,35	-0,01
18	B_a	Ширина апикального базиса (Хаус)	44,0 mm	41,8 mm	2,2 mm	35,0 mm	35,2 mm	-0,2 mm
19	I_a	Отношение $\frac{B_a}{\sum 12}$ (Снагина)	0,46	0,44	0,02	0,40	0,40	0,00

Заключение антропометрического анализа

		Параметр	Зубной ряд					
			Верхний			Нижний		
			заключение	отклонение	достоверность	заключение	отклонение	достоверность
2	I_{12}	Отношение $\frac{6\text{-}6}{6\text{-}6}$	В пределах нормы	0,00				
3	L_{arch}	Лонгитудинальная длина зубного ряда	Увеличена	10,0 mm	* * *	В пределах нормы	-2,0 mm	
5	I_{321123}	Отношение $\frac{\sum 321123}{\sum 321123}$	В пределах нормы	-0,03				
7	I_{3322}	Отношение $\frac{\sum 3322}{\sum 3322}$	В пределах нормы	-0,01				
8	L_{3-3}	Расстояние между клыками	В пределах нормы	-1,0 mm		В пределах нормы	-2,8 mm	* * *
9	I_{3-3}	Отношение $\frac{13-3}{13-3}$	Уменьшено	-0,06	*			
10	I_c	Отношение $\frac{13-3}{\sum 3322}$	В пределах нормы	-0,04		В пределах нормы	0,02	
11	L_{6-6}	Расстояние между первыми молярами	Уменьшено	-6,3 mm	* * *	Уменьшено	-7,3 mm	* * *
12	$I_{6-6(R)}$	Отношение $\frac{16-6}{\sum 3322}$ (Linder-Hart)	Уменьшено	-0,19	* * *	Уменьшено	-0,22	* * *
13	$I_{6-6(S)}$	Отношение $\frac{16-6}{\sum 12}$ (Снагина)	Уменьшено	-0,03	*	В пределах нормы	-0,01	
14	L_{pr}	Длина переднего отрезка зубного ряда (Коркхаус)	Увеличена	6,0 mm	* * *	Уменьшена	-3,5 mm	* * *
15	I_{pr}	Отношение $\frac{L_{pr}}{\sum 3322}$	Увеличено	0,18	* * *	Уменьшено	-0,11	* * *
16	L_{pr}	Проекционная длина зубного ряда	Увеличена	10,2 mm	* * *	Уменьшена	-1,3 mm	*
17	I_{pr}	Отношение $\frac{L_{pr}}{6\text{-}6}$	Увеличено	0,12	* * *	В пределах нормы	-0,01	
18	B_a	Ширина апикального базиса (Хаус)	Увеличена	2,2 mm	*	В пределах нормы	-0,2 mm	
19	I_a	Отношение $\frac{B_a}{\sum 12}$ (Снагина)	Увеличено	0,02	*	В пределах нормы	0,00	

Protocol and conclusion on the anthropometric analysis of the dentitions.
Orthodontic Department MSUMD


Assessment of dentitions symmetry and the teeth position symmetry
20
30
40
50
60
70
80
90
100
вой клавишей мыши для выбора точки симметрии
more than one point on the same side of the 'y' axi
same time
Анализ
Create juxt
Симметрия
Верхняя челюсть
Нижняя челюсть
Показать все
Свободный
Из анализа
dx[мм] dz[мм] x[мм]
1 -0,3 -0,4 4,8
2 -0,8 0,4 11,2
3 -1,3 0,2 15,6
4 -0,1 0,9 19,1
5 1,0 -1,1 21,4
6 0,7 -0,4 23,2
7 1,0 -1,1 25,9
z
x



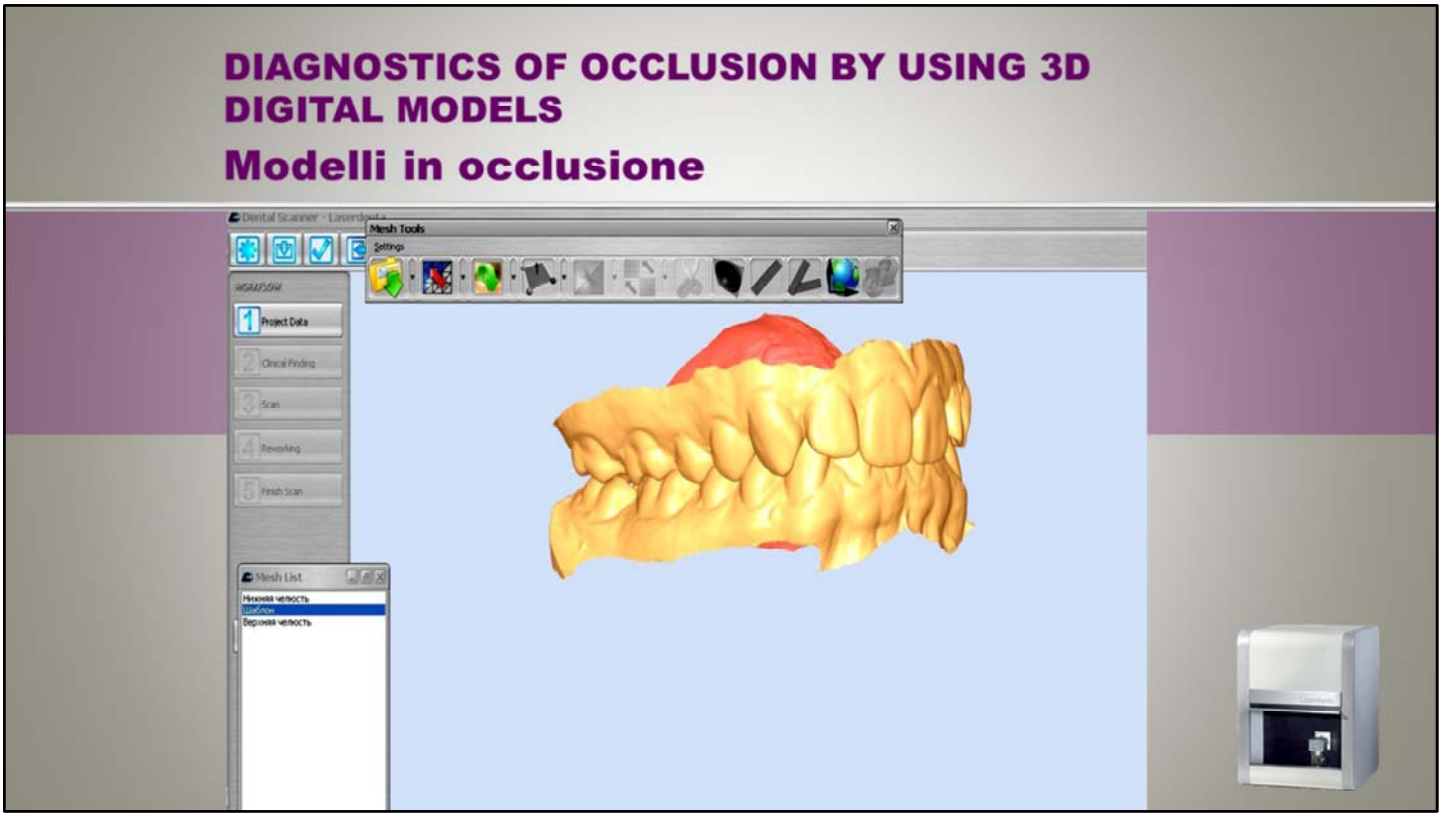
Estimation of the distance between the points located on the antagonist teeth surfaces

These distances are marked with colors. The diagram illustrates the static contact data between the points of the teeth in the lower and upper jaws.

The horizontal axis is the distance between two opposite points on the upper and lower jaws

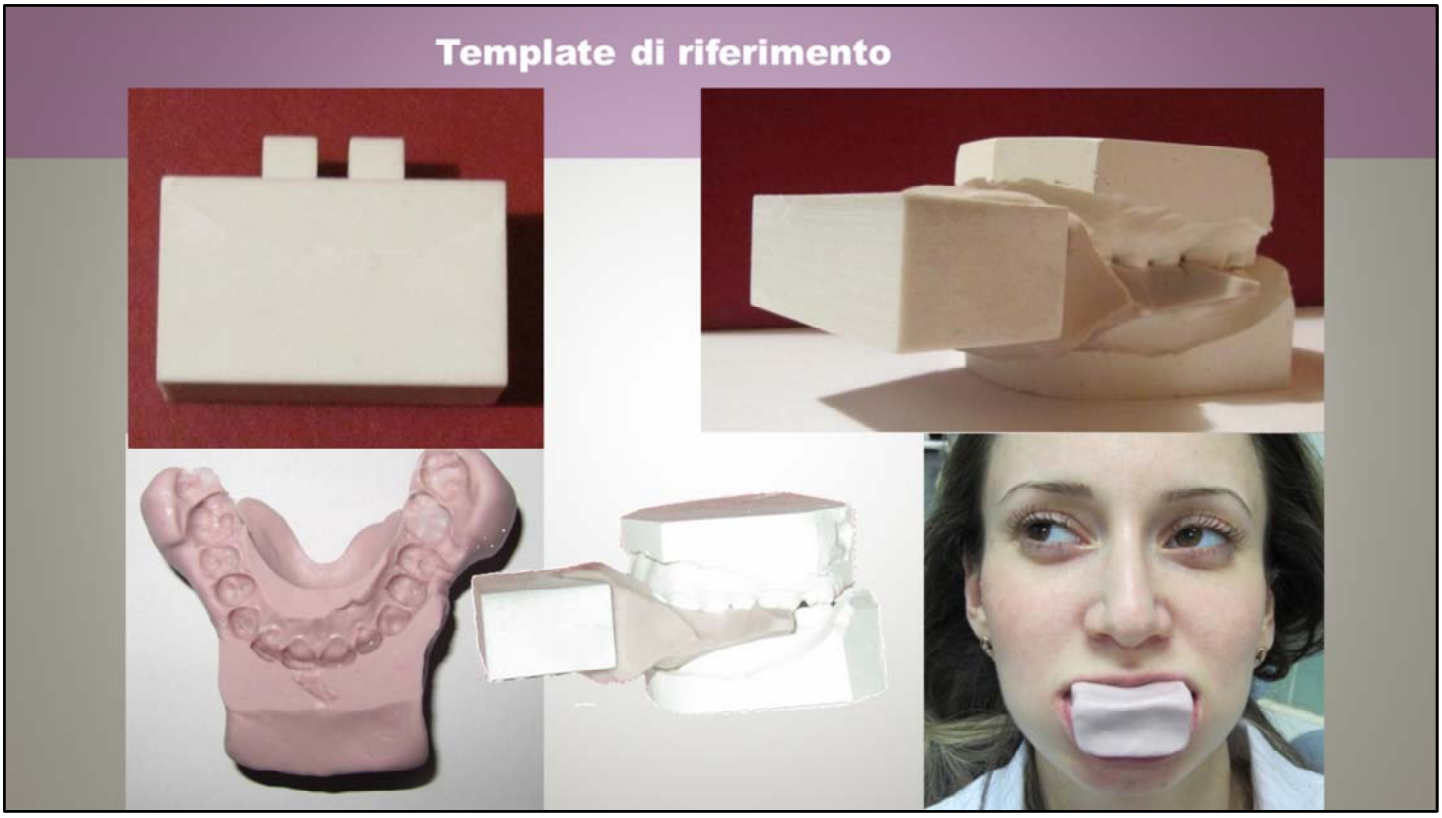
The vertical axis indicates the number of points pairs located in this area. For each distance in the range from -0.5 to 1.5 mm.

The scheme allows an approximate estimate the teeth occlusal contacts area in various positions of the lower jaw relative to the upper jaw.

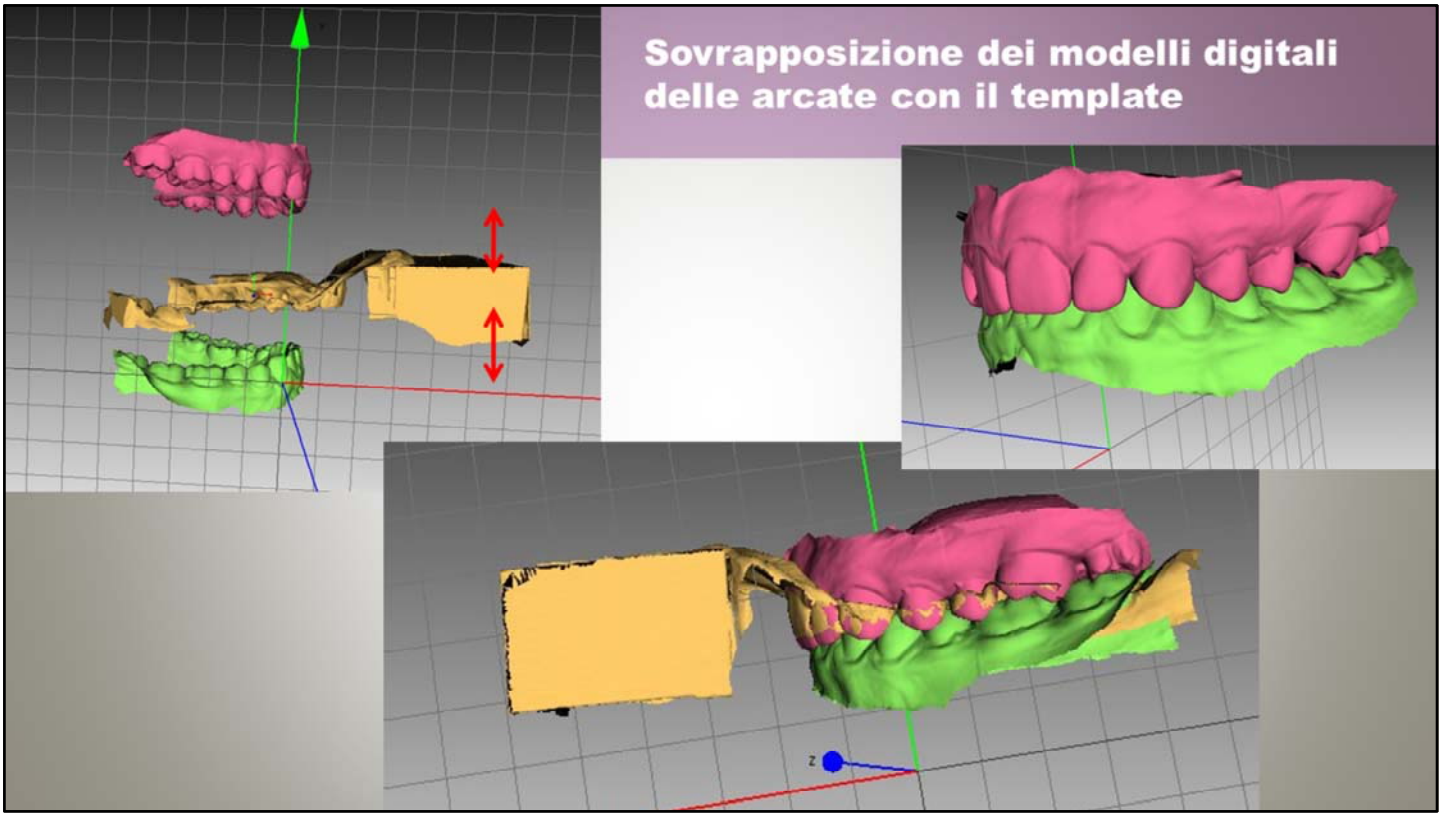


Soprapponendo i due modelli con la registrazione del morso otteniamo il modello virtuale delle arcate in occlusione

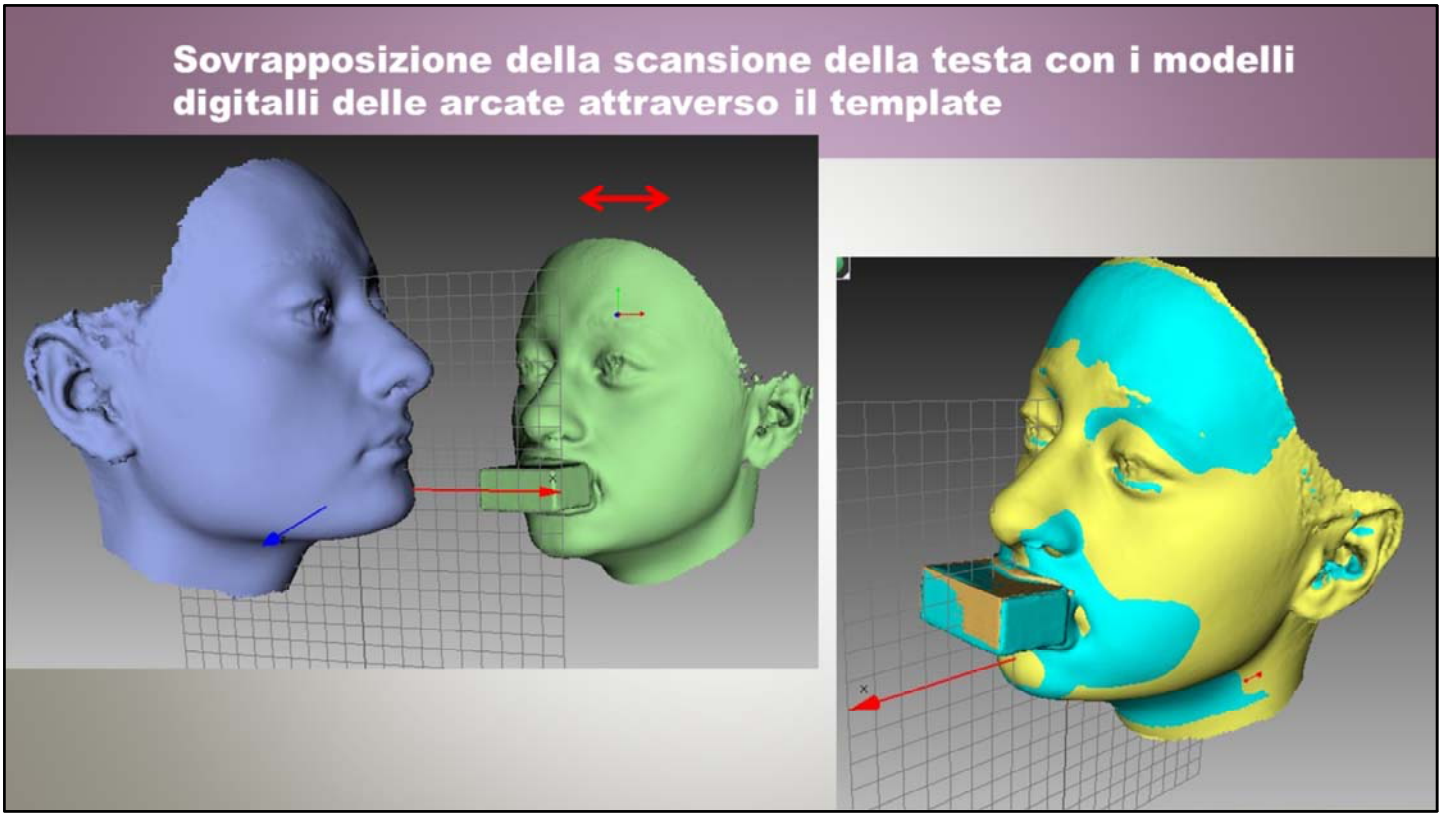
Una volta ottenuti i modelli virtuali delle arcate e del cranio possiamo unirli assieme.



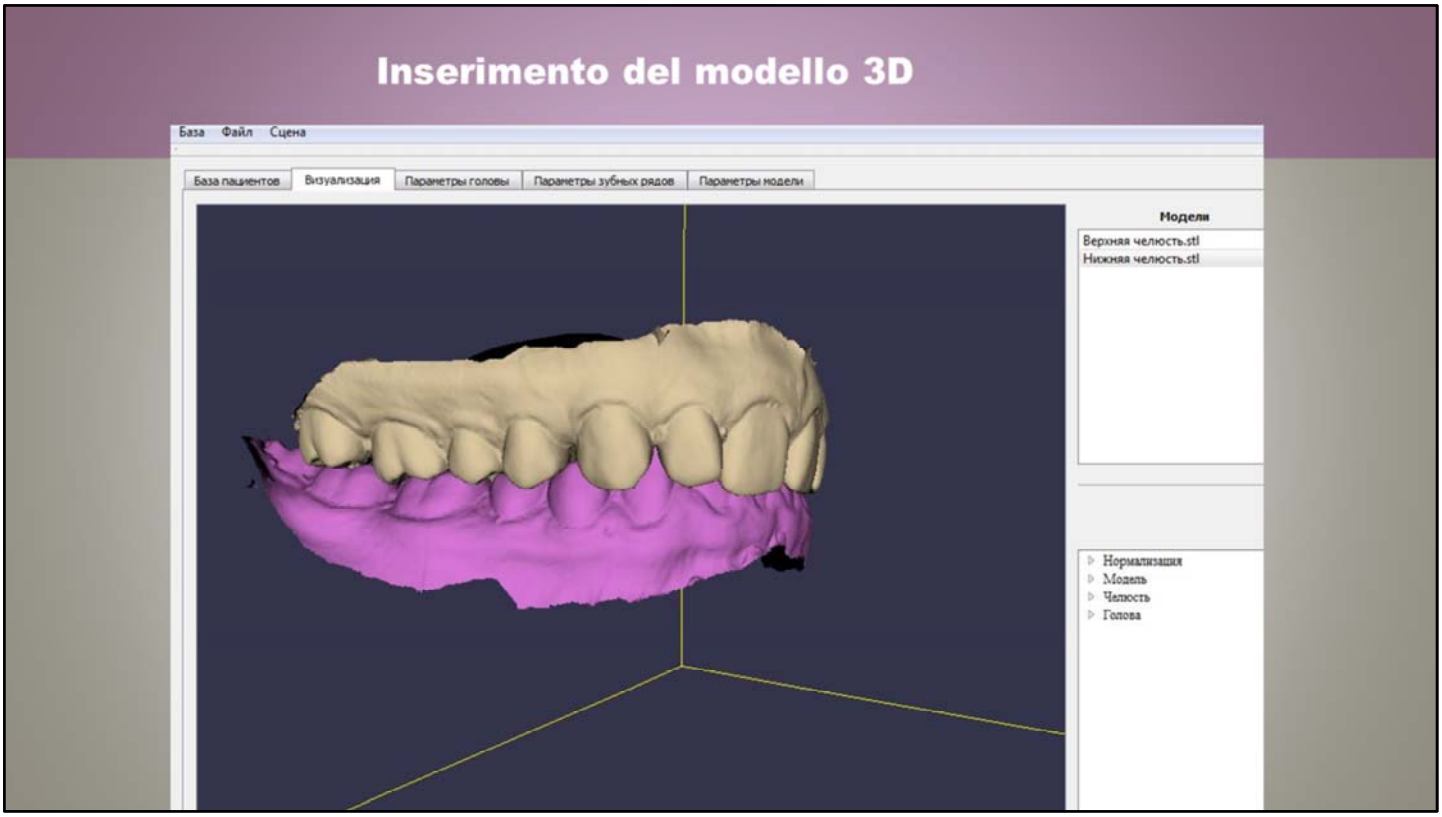
Per questo dobbiamo utilizzare il template di riferimento fatto con l'apposito materiale



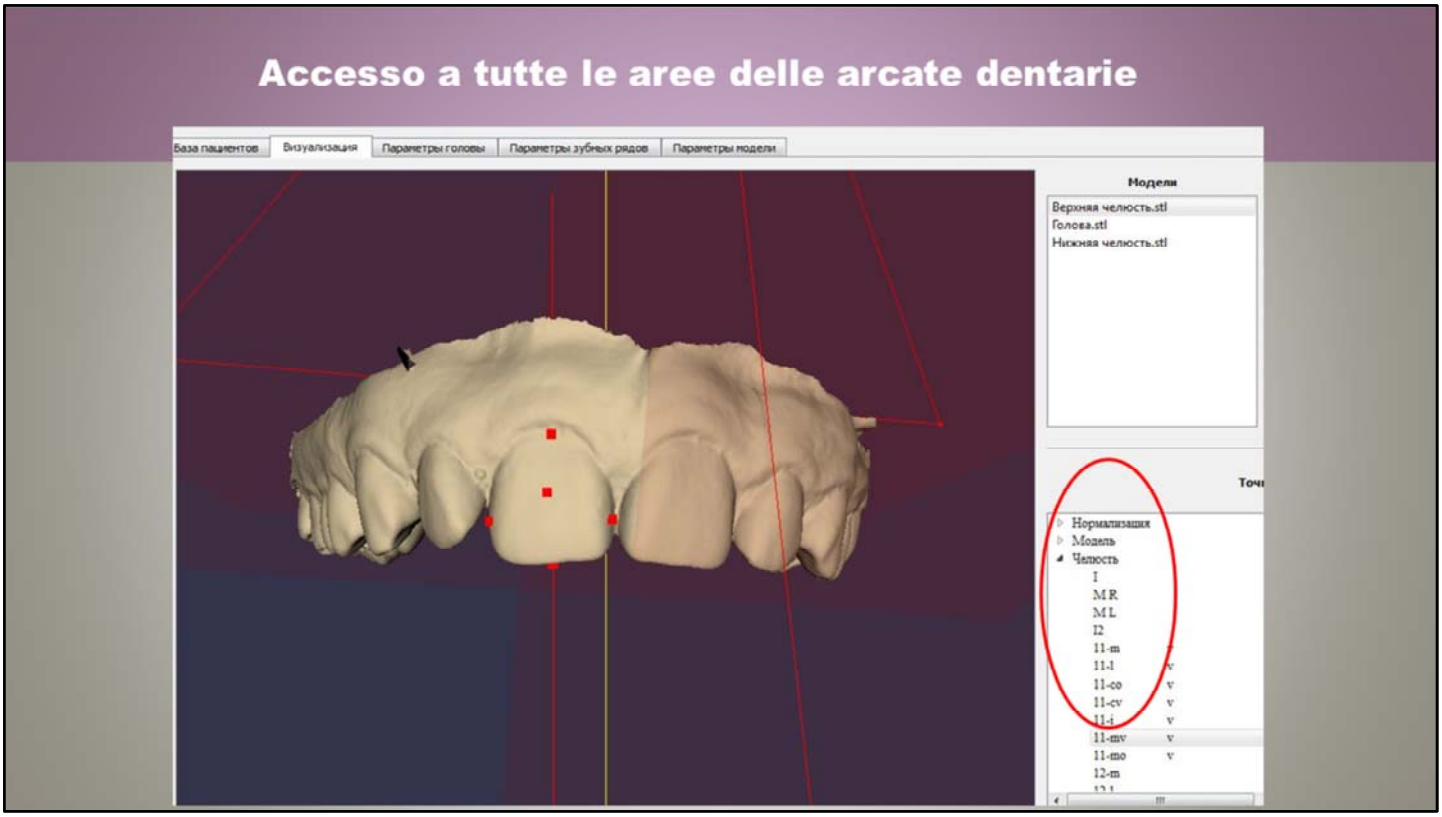
Questo template indica al software come posizionare esattamente le arcate nel cranio



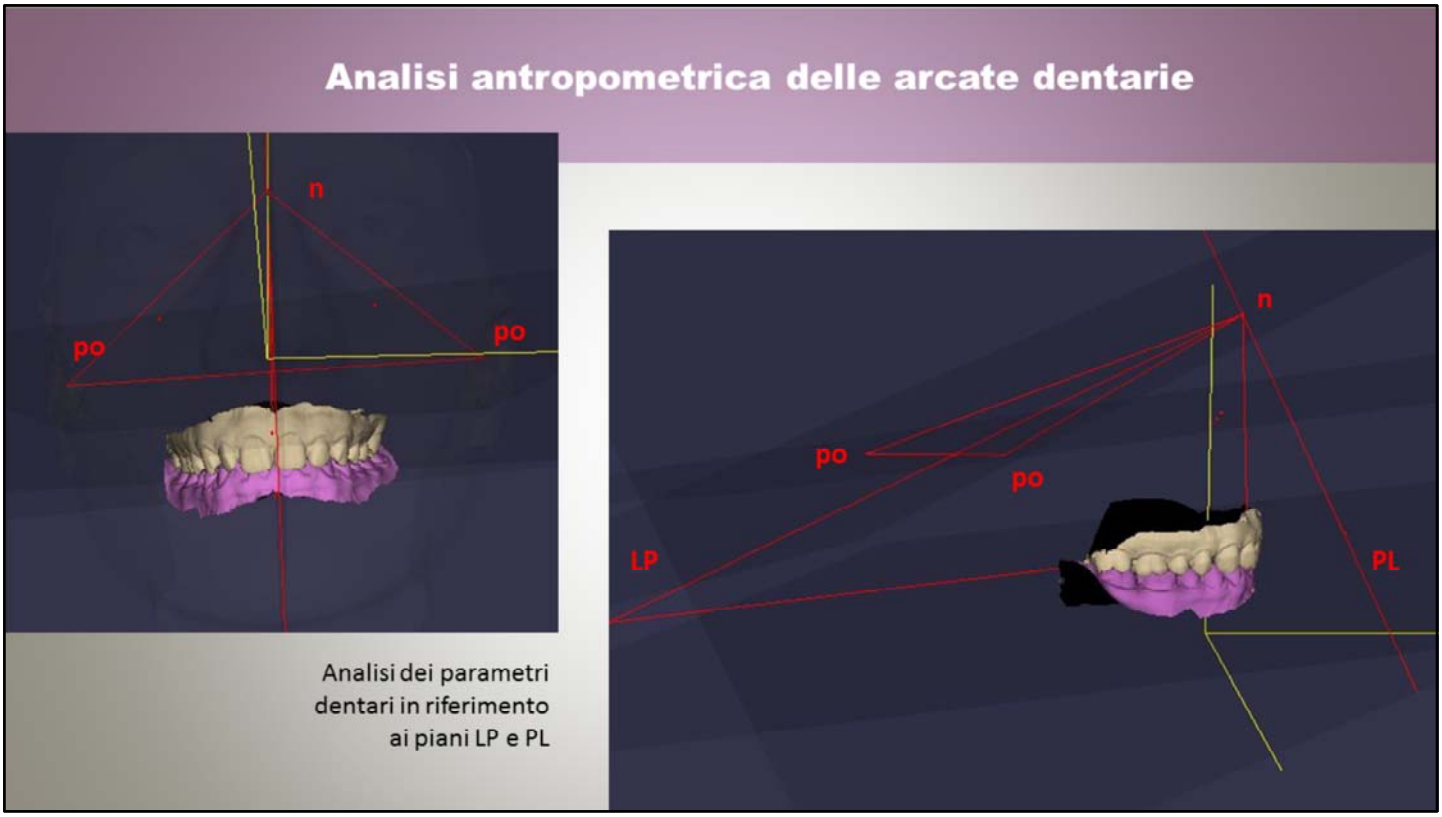
Poi il software unisce due modelli virtuali con il template



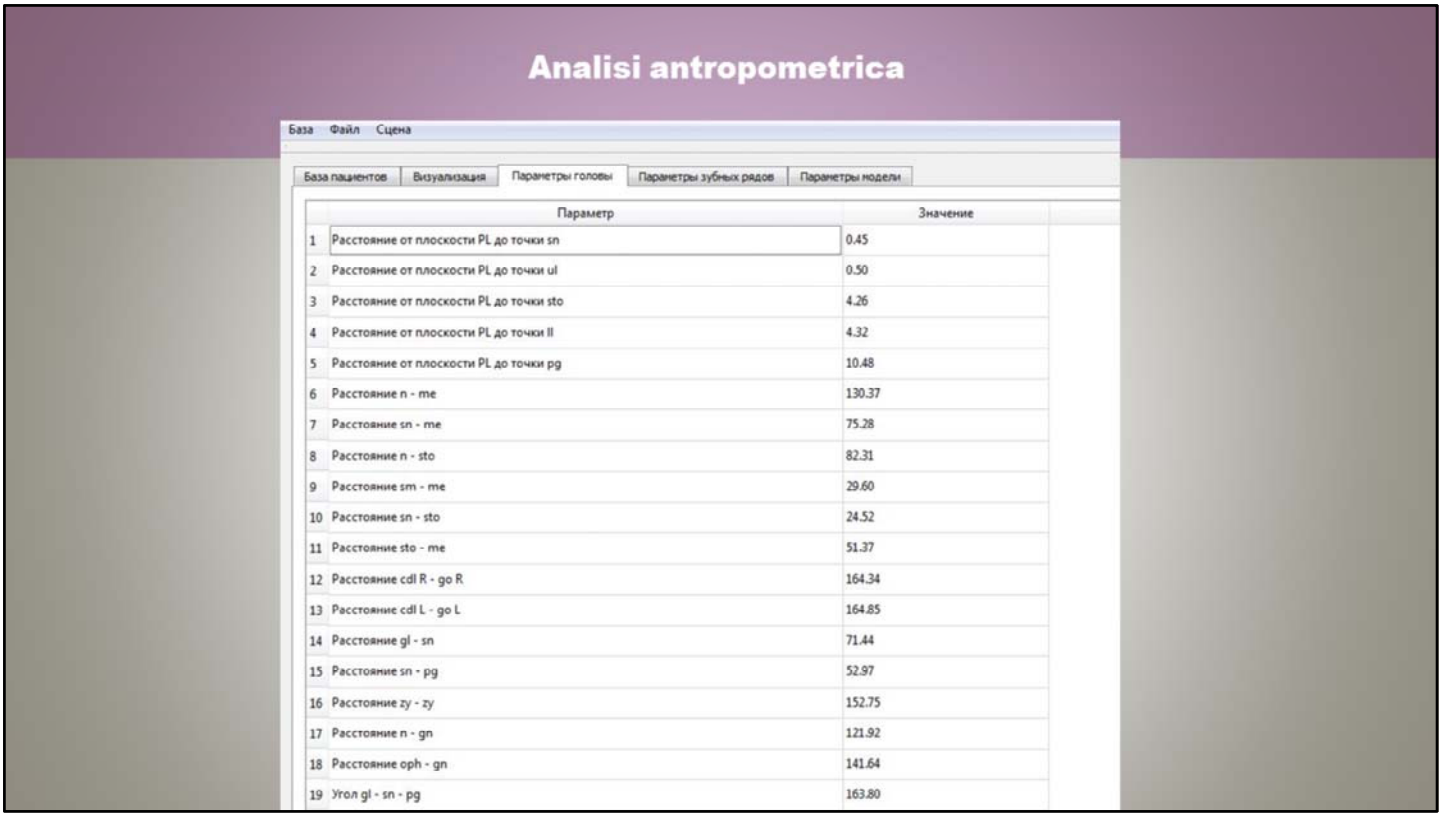
Dopo di che il modello tridimensionale viene aggiunto alla cartella del paziente



E' possibile effettuare anche misurazioni dei denti e delle arcate



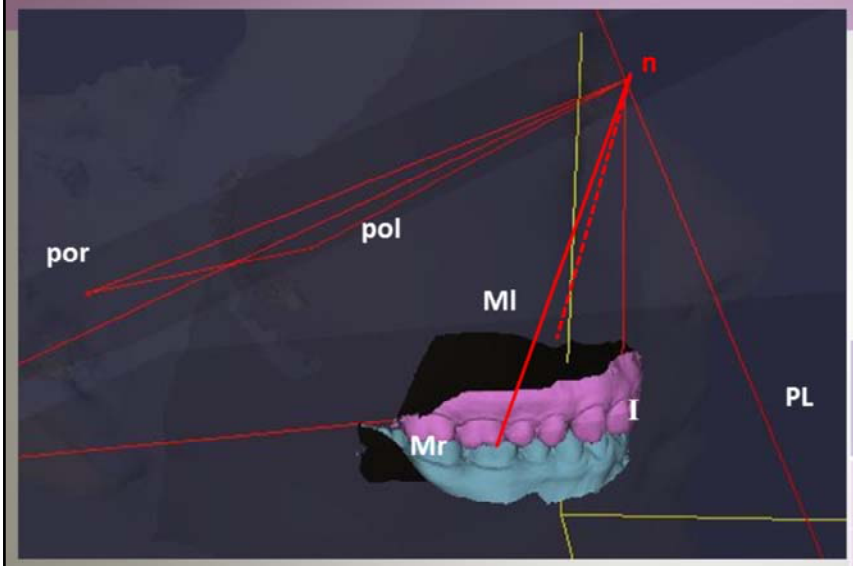
Un’altra cosa importante che che si può fare con questo sistema, avendo a disposizione il modello completo testa-dentizione, è valutare la posizione delle arcate dentarie nel cranio con gli stessi piani di riferimento



	Параметр	Значение
1	Расстояние от плоскости PL до точки sn	0.45
2	Расстояние от плоскости PL до точки ul	0.50
3	Расстояние от плоскости PL до точки sto	4.26
4	Расстояние от плоскости PL до точки ll	4.32
5	Расстояние от плоскости PL до точки pg	10.48
6	Расстояние n - me	130.37
7	Расстояние sn - me	75.28
8	Расстояние n - sto	82.31
9	Расстояние sm - me	29.60
10	Расстояние sn - sto	24.52
11	Расстояние sto - me	51.37
12	Расстояние cdl R - go R	164.34
13	Расстояние cdl L - go L	164.85
14	Расстояние gl - sn	71.44
15	Расстояние sn - pg	52.97
16	Расстояние zy - zy	152.75
17	Расстояние n - gn	121.92
18	Расстояние oph - gn	141.64
19	Угол gl - sn - pg	163.80

Alla fine tutti i dati vengono registrati automaticamente in cartella e possono essere consultati in ogni momento

Grado di asimmetria del piano occlusale per il vettore n-M a destra e a sinistra



Lunghezza del vettore n-M nel 52% dei casi è uguale a destra e a sinistra, mentre nel 48% - asimmetrica

Vettori	Percentuali
Simmetria	52%
Asimmetria meno di 3mm	40%
Asimmetria più di 3mm	8%

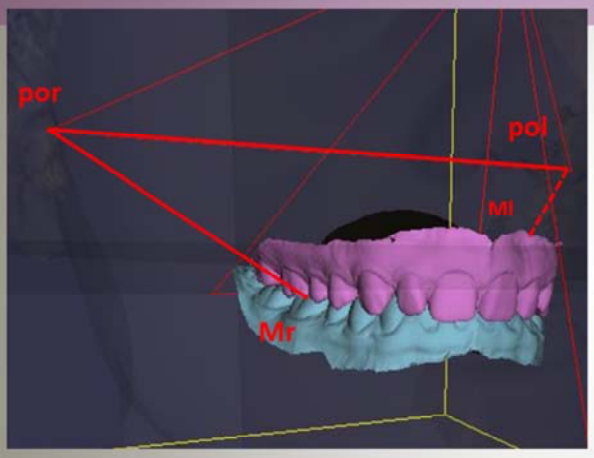
In questo modo si può valutare la simmetria della posizione dei molari a destra e a sinistra. Si può riscontrare la asimetria della posizione dei molari nei 48% dei casi.

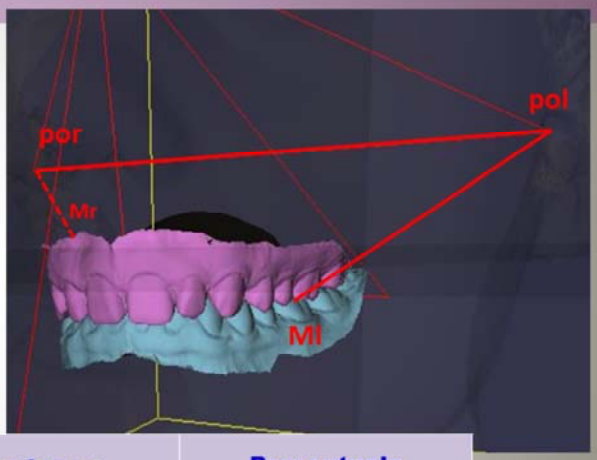
Diapositiva 113

E.V.2 p

Talalaeva Evgeniya Vladimirovna; 01/11/2012

Grado di asimmetria della posizione dei molari per il vettore po-M a desra e a sinistra



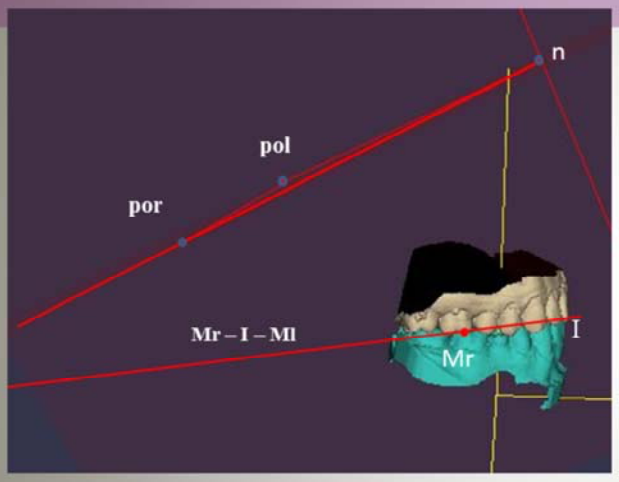


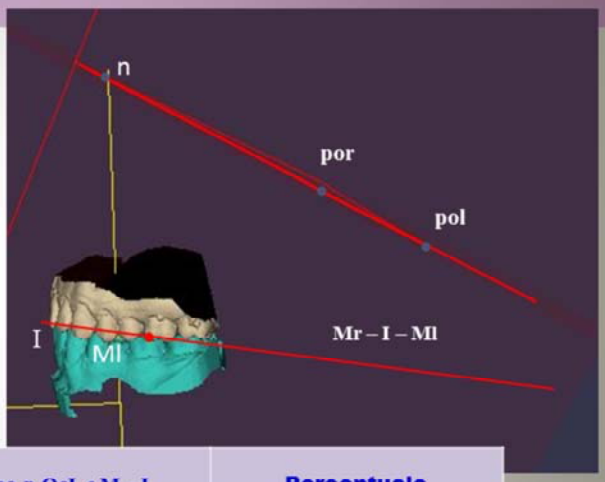
Lunghezza dei vettori po-M (a destra e a sinistra) è simmetrica nel 32% dei casi, mentre nel 68% dei casi è asimmetrica che indica la posizione asimmetrica dei molari nel piano sagittale

Lunghezza	Percentuale
Simmetria	32%
Asimmetria meno di 2.5 mm	32%
Asimmetria più di 2.5mm	36%

Nel piano sagittale la posizione dei primi molari superiori è asimmetrica nei 68% dei casi e nei 36% dei casi questa essimmetria è più di 2,5 mm

Analisi del modello 3D delle arcate dentarie





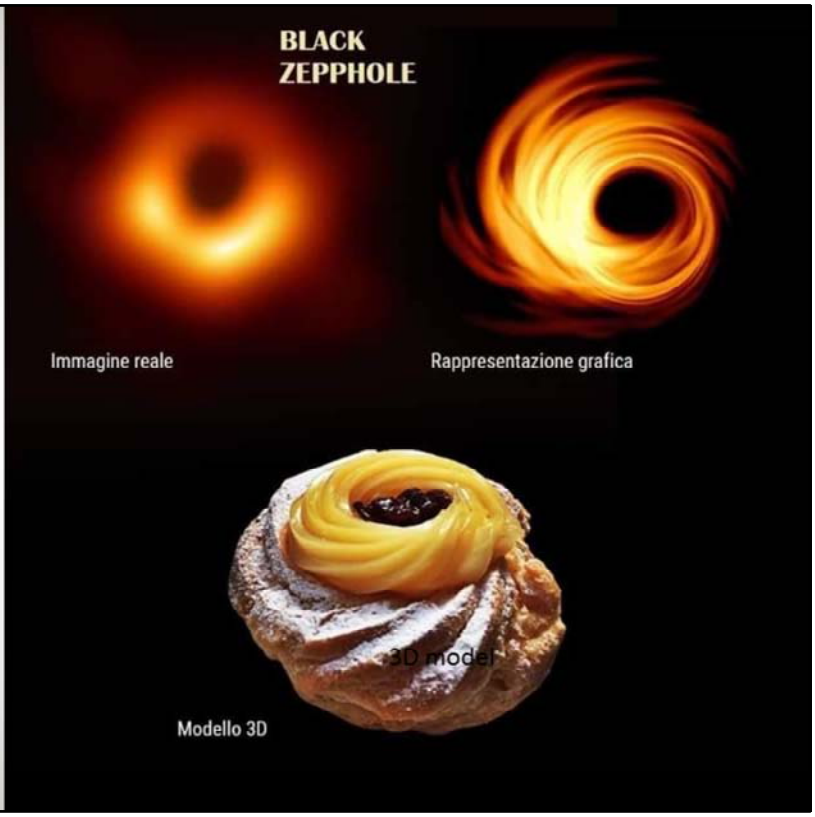
L'inclinazione del piano occlusale è simmetrico a destra e sinistra nel в 52% dei casi, mentre nel 48% è asimmetrico

∠po-n-OcL *e* M – I	Percentuale
Simmetria	52%
Asimmetria meno di 5°	32%
Asimmetria più di 5°	16%

Anche l'inclinazione del piano occlusale è simmetrico solo nei 52% dei casi.

Uno dei problemi con il tradizionale traciato cefalometrico è che non abbiamo la possibilità di differenziare le misurazioni per il lato destro e quello sinistro. Questo quadro di discrepanza delle olive e dei margini del corpo mandibolare è molto tipico della teleradiografia laterale

Thank You


BLACK
ZEPPHOLE
Immagine reale
Rappresentazione grafica
3D model
Modello 3D