3D SYSTEMS

VSP® Orthognathics
Virtual Surgical Planning

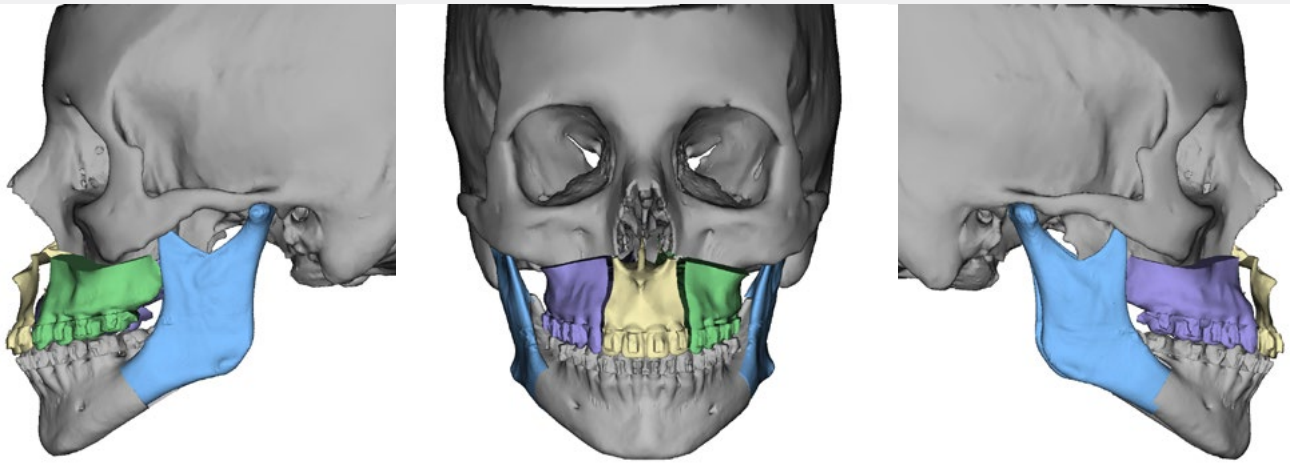
CASE REPORT

Surgeon and Patient Information

Surgeon Name:	Dr. David Bell D.D.S., M.D.	Patient Name:	[redacted]
Email Address:	david.l.bell@kp.org	Surgery Date:	7-30-2019
Phone Number:	559-448-7605	Rep Name:	[redacted]
WO#:	123524	Rep Contact:	[redacted]

Simulated Virtual Surgical Plan

Segmental LeFort I and BSSO



Surgeon Agreement

With respect to the patient case described above (the "Case"), I, the undersigned, request that 3D Systems, Inc., ("3DS"), provide certain products including, without limitation, templates, tools, surgical splints, guides and/or anatomical models (collectively, the "Products") and certain virtual surgical planning services (the "Services") for use in connection with the Products. I hereby acknowledge and agree as follows in connection with the Case:

- I have prepared the virtual surgical plan (the "Plan") for the Case and am solely responsible for the decisions made in the Plan and the surgical planning process.
- I hereby approve and accept the Products and Services provided by 3DS in connection with the Case and certify no changes are required.
- I acknowledge that, unless otherwise agreed in writing between myself and 3DS, all Products will be delivered non-sterile and that I am solely responsible for cleaning and sterilizing such Products prior to use.
- I have reviewed the Terms and Conditions set forth on the last page of this Case Report which are incorporated herein and agree to be bound by such Terms and Conditions.

Surgeon Signature

Date

Please copy this page, sign and date, and email or fax it to 3D Systems, Inc. Please note that if this Surgeon Agreement is not formally accepted prior to the surgery for the Case but the Products and Services are accepted, you nevertheless agree to pay for the Products and Services and to be bound by the Terms and Conditions.

Rev	Rev Date	Reason for Revision

3D Systems
5381 South Alkire Circle | Littleton, CO 80127 USA
Tel: 844 643 1001 (toll-free US/Canada) Tel: +1 720.643.1001 | Fax: +1 720.643.1009
www.3dsystems.com/healthcare | vsp@3dsystems.com

Movement Summary

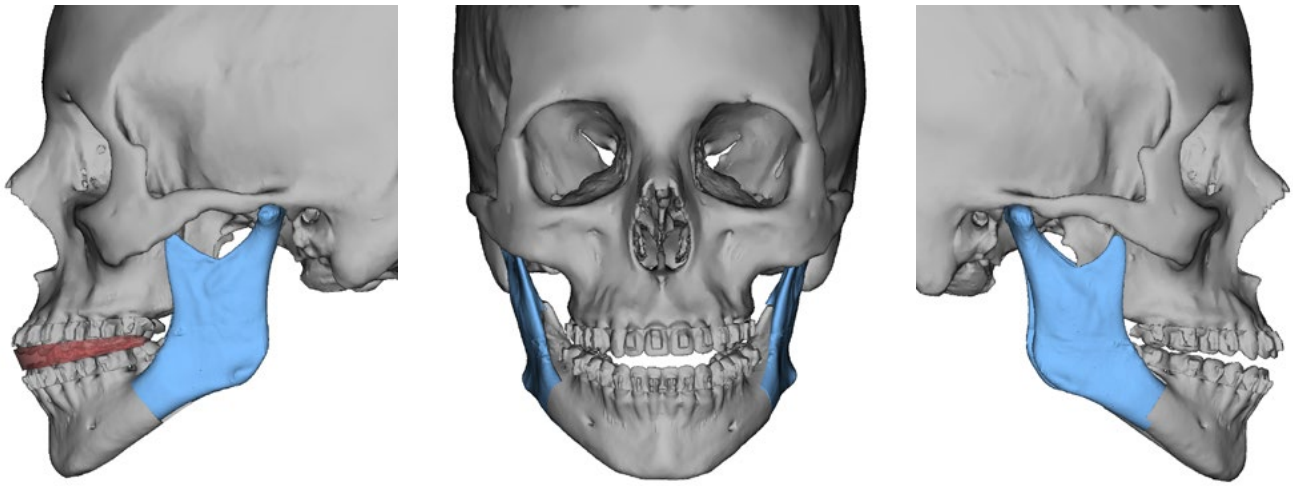
Below is a list of bony and occlusal anatomical landmarks and their summarized movements from preoperative position (with mandible auto-rotated close) to simulated postoperative position.

Point	Name	Anterior/Posterior	Left/Right	Up/Down
ANS	Anterior Nasal Spine	7.71mm Anterior	1.47mm Right	2.59mm Down
A	A Point	6.44mm Anterior	1.67mm Right	2.15mm Down
ISU1	Midline of Upper Incisor	2.00mm Anterior	2.51mm Right	3.03mm Down
U3L	Upper Left Canine	2.46mm Anterior	1.62mm Right	2.55mm Down
U6L	Upper Left Anterior Molar (mesiobuccal cusp)	3.40mm Anterior	0.08mm Left	1.54mm Down
U3R	Upper Right Canine	1.69mm Anterior	2.45mm Right	0.67mm Down
U6R	Upper Right Anterior Molar (mesiobuccal cusp)	2.34mm Anterior	3.16mm Right	0.78mm Up
ISL1	Midline of Lower Incisor	0.91mm Posterior	0.49mm Right	0.32mm Up
L6L	Lower Left Anterior Molar (mesiobuccal cusp)	0.99mm Posterior	0.51mm Right	0.09mm Down
L6R	Lower Right Anterior Molar (mesiobuccal cusp)	0.68mm Posterior	0.54mm Right	1.90mm Up
B	B Point	1.37mm Posterior	1.32mm Right	0.42mm Up
Pog.	Pogonion	1.68mm Posterior	1.84mm Right	0.41mm Up

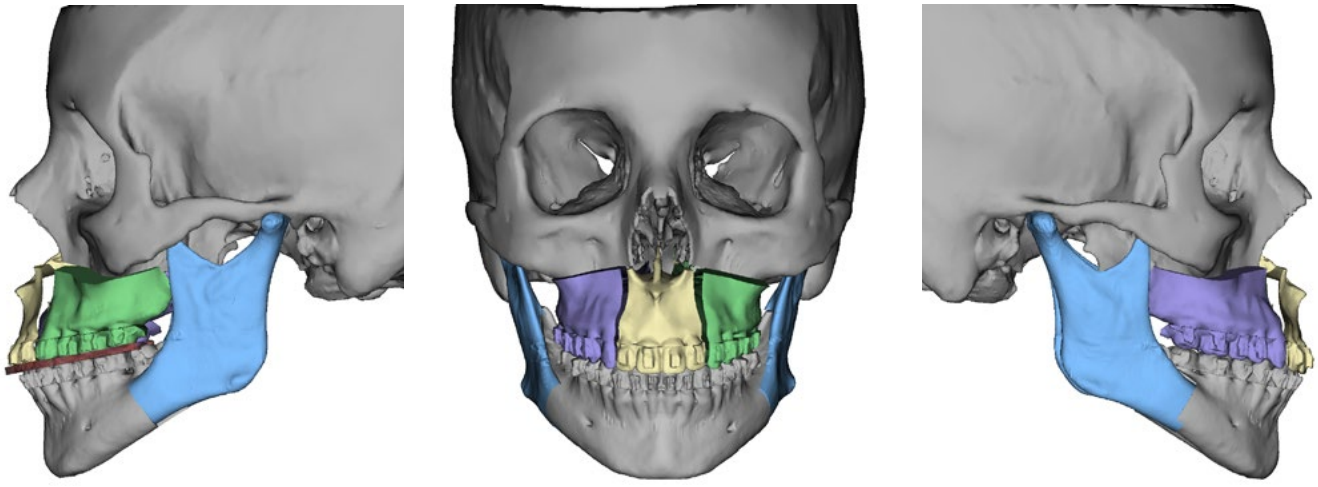
Virtual Planning Work Flow

Preoperative Position

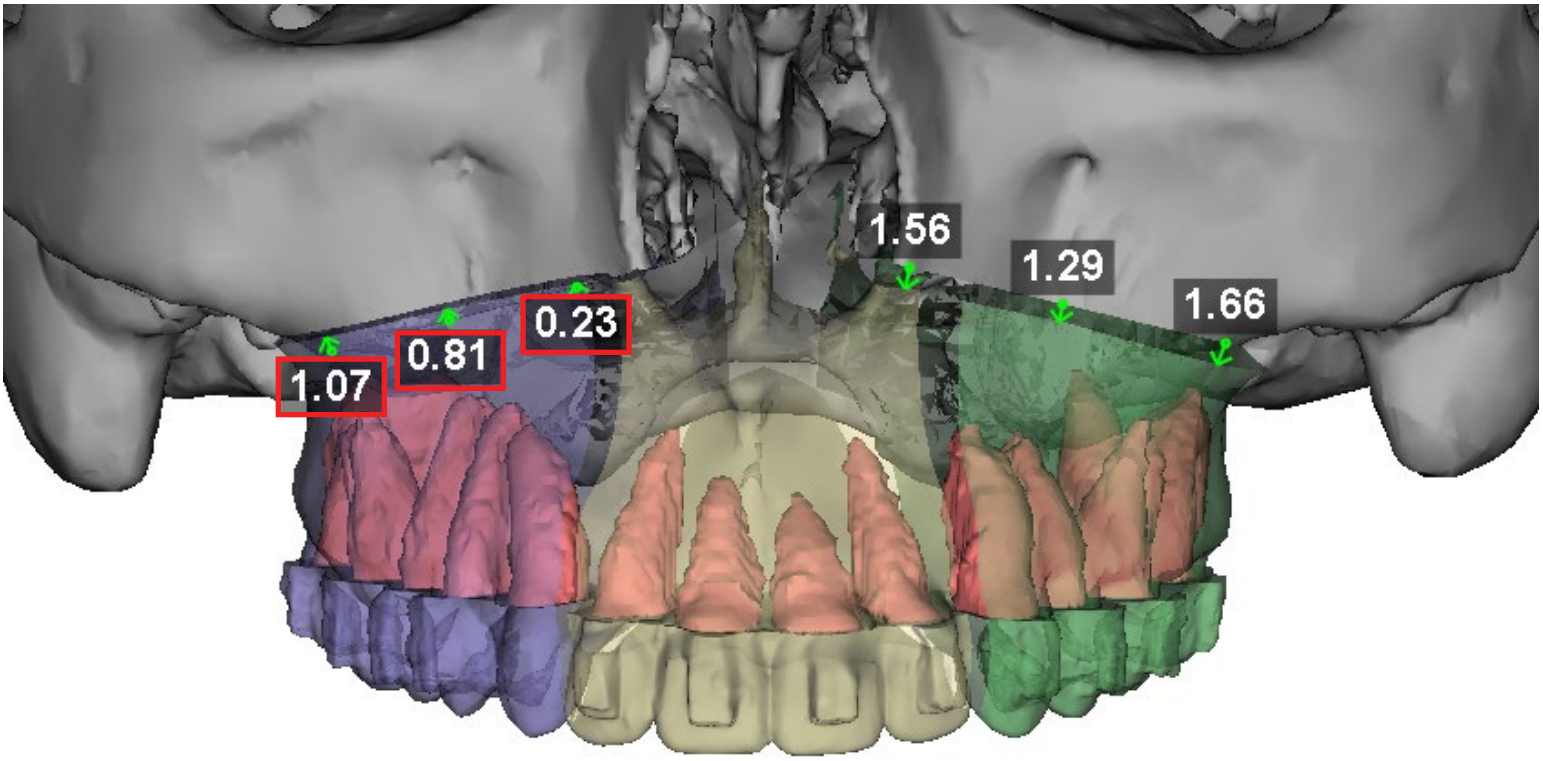
Intermediate Position



Postoperative Position

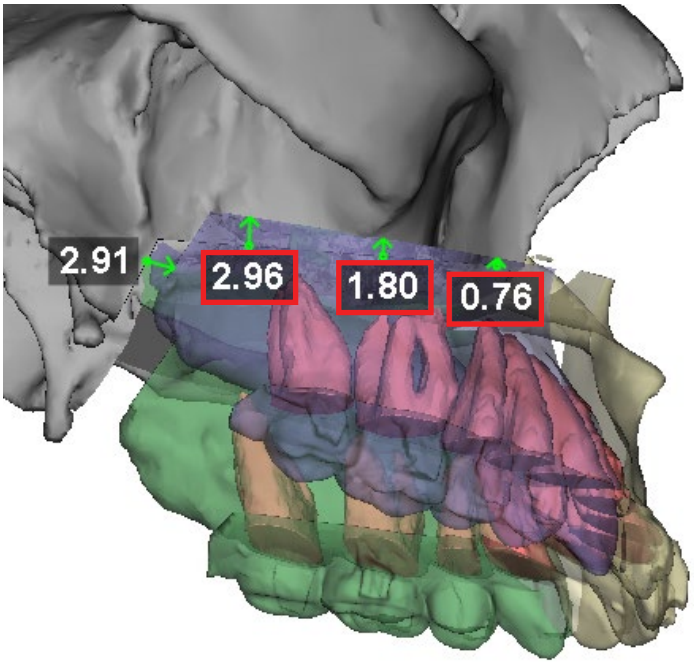


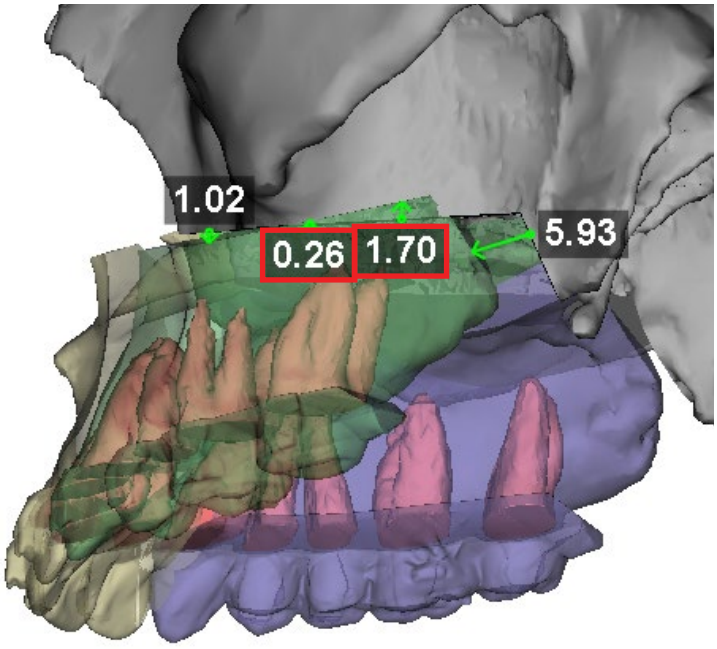
LeFort Overlap Analysis



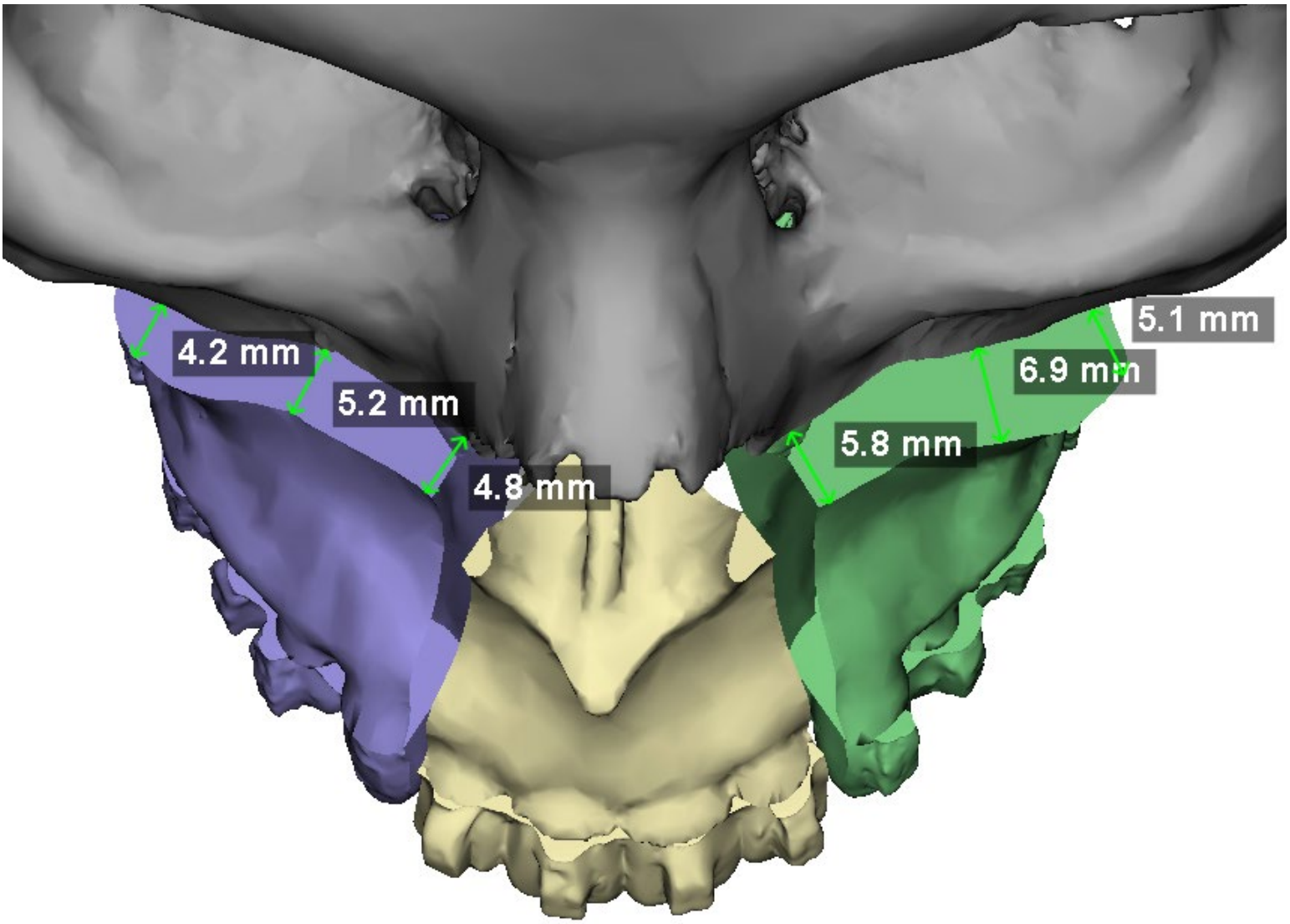
Measurements outlined in red indicate an overlap.

Measurements are approximate.



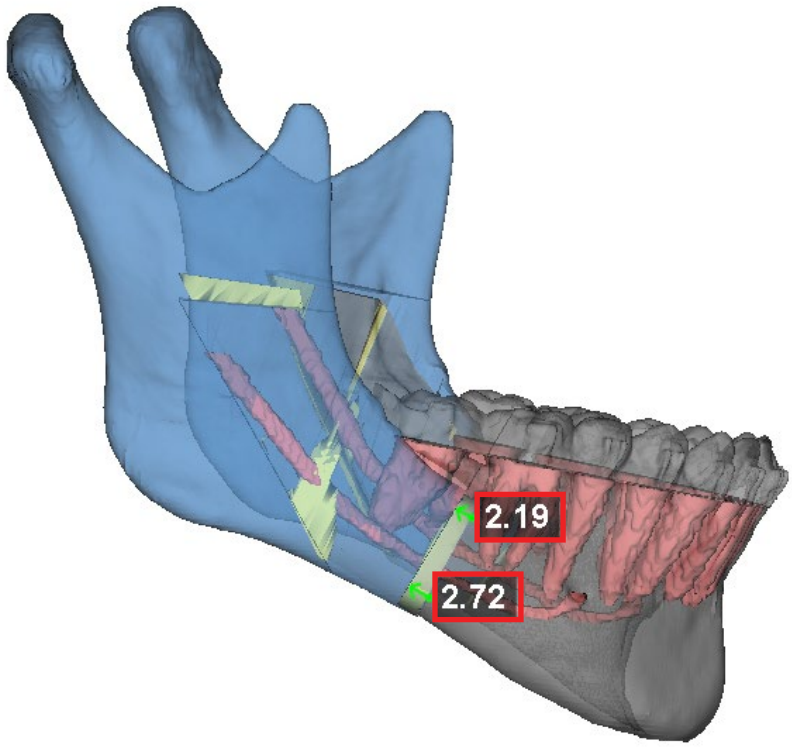


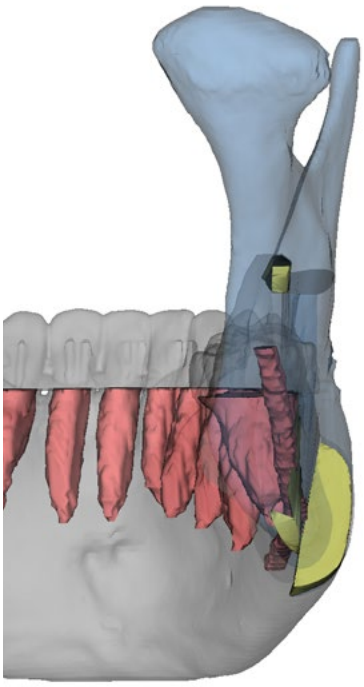
LeFort Advancement



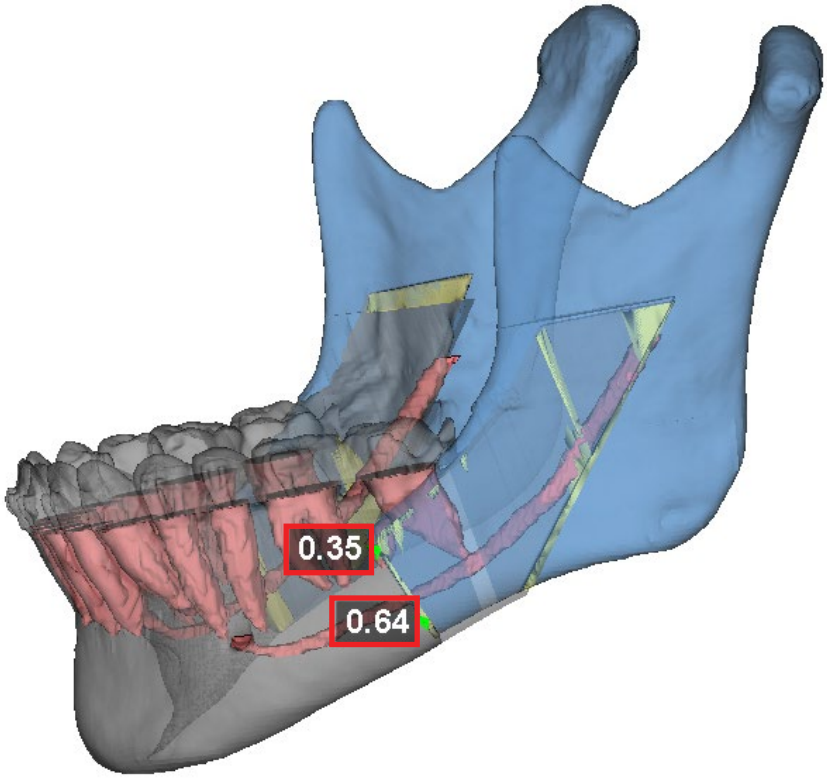
Measurements are approximate.

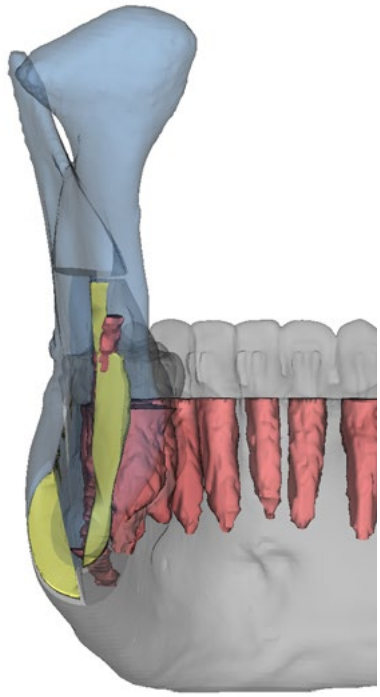
Proximal Segment Overlap Analysis





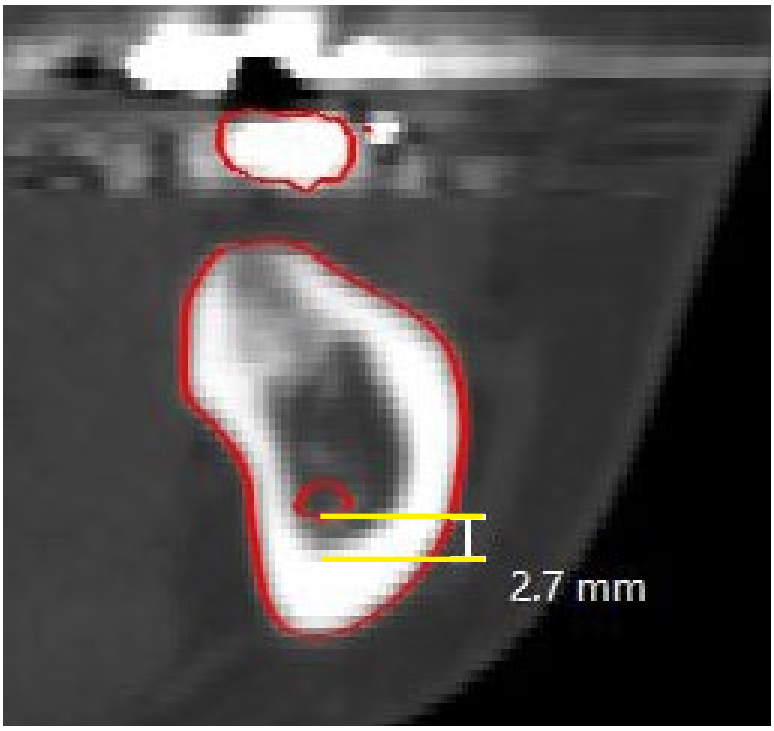
Measurements outlined in red indicate an overlap.
Measurements are approximate.

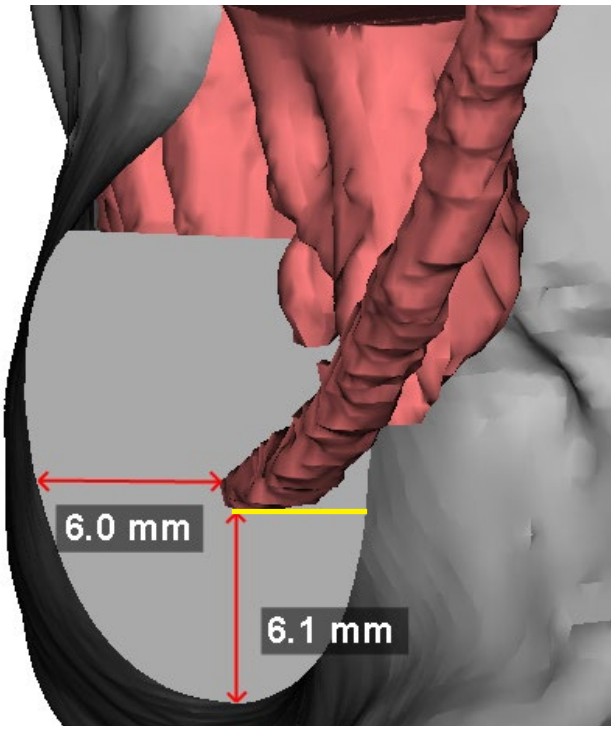




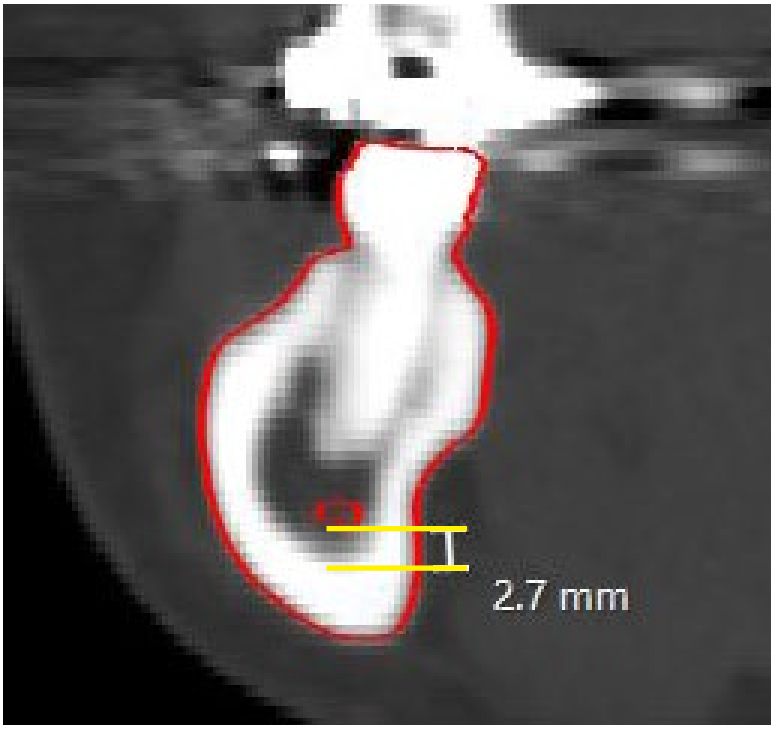
Nerve to Distal Mandible Measurements

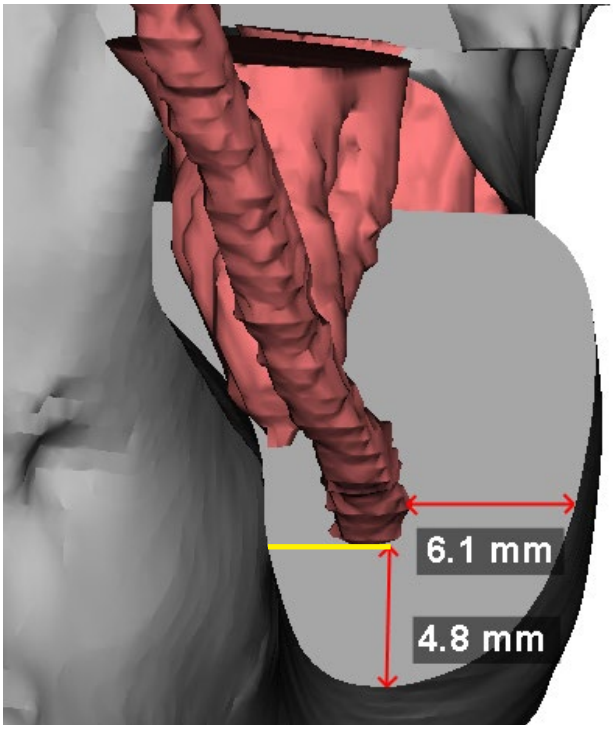
Patient's Left





Patient's Right



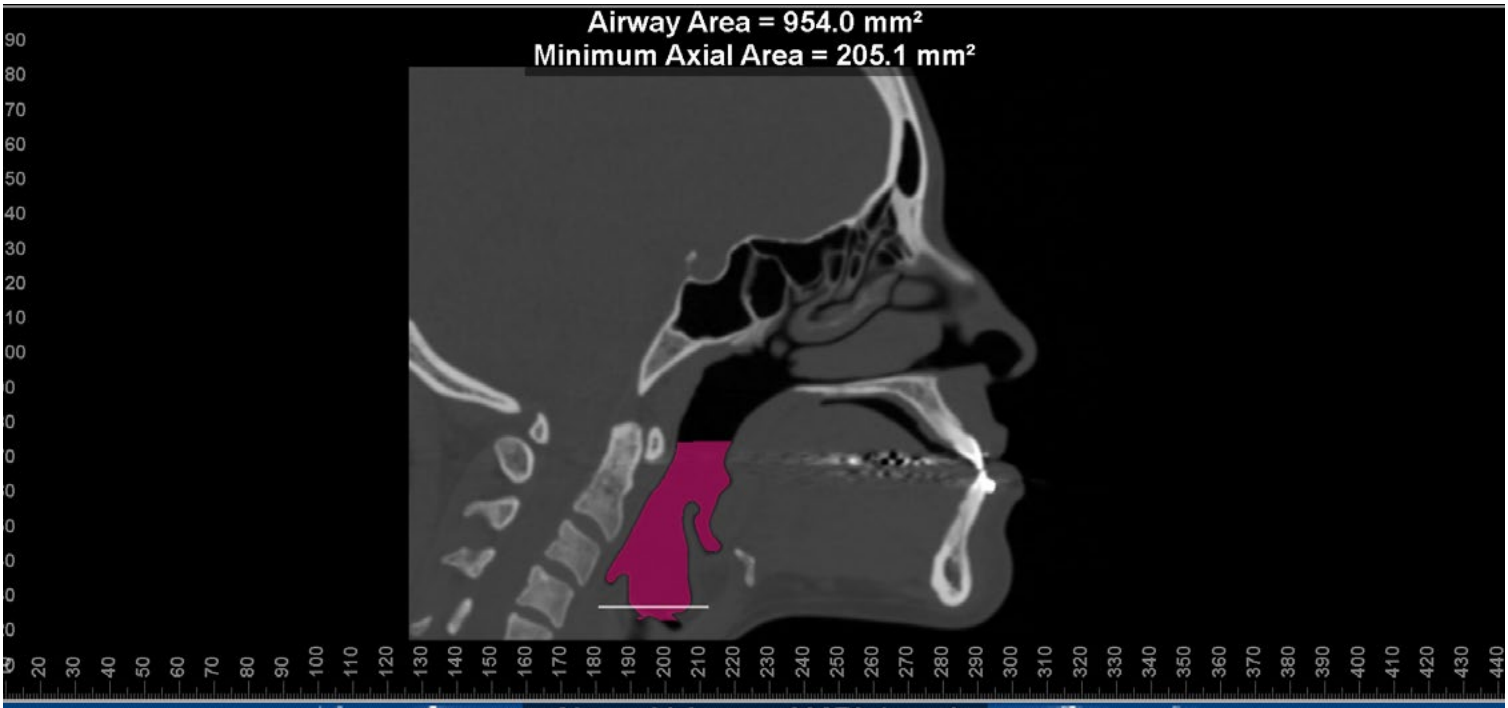


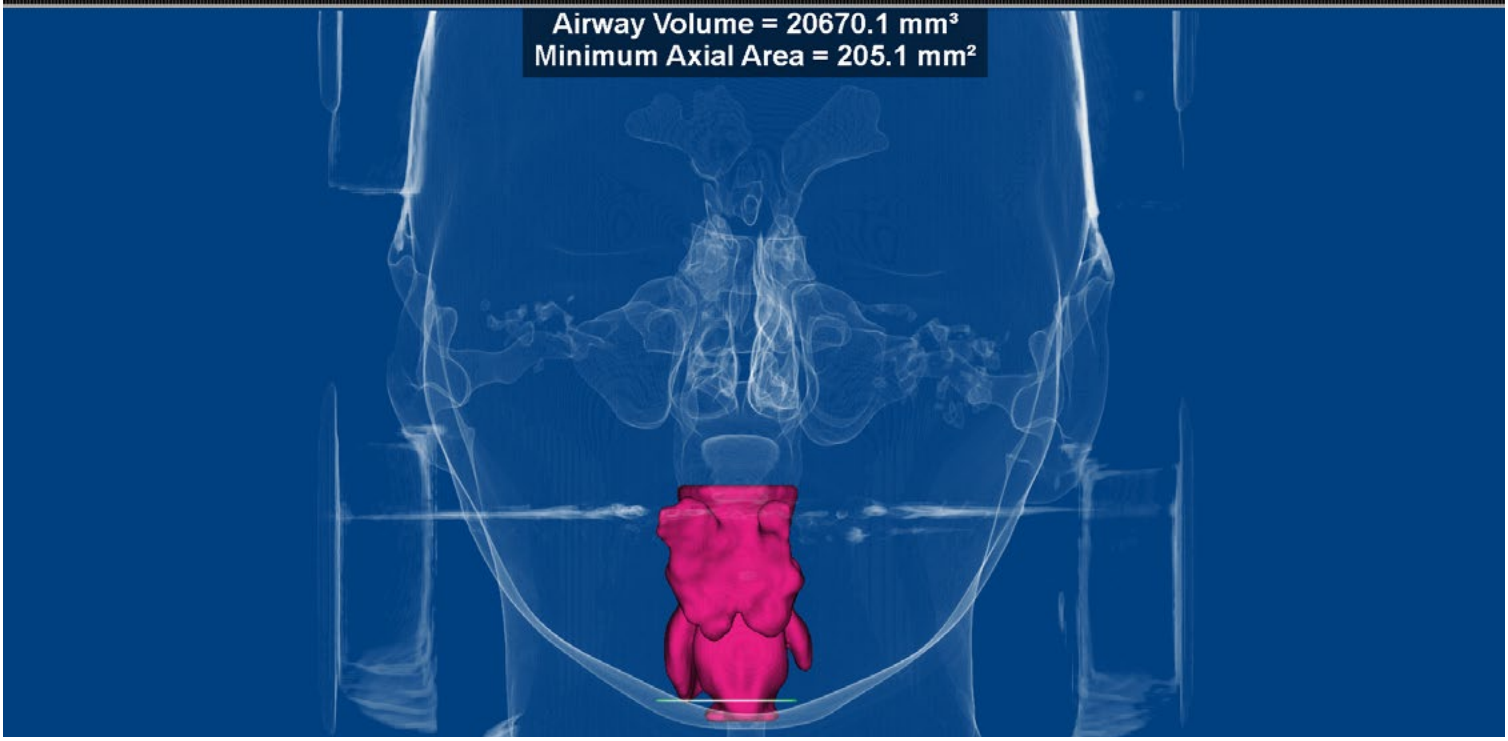
Note: Measurements are made in a coronal slice based on scan orientation.

Note: Measurements are made based on osteotomy plane.

Measurements are approximate.

Airway Analysis

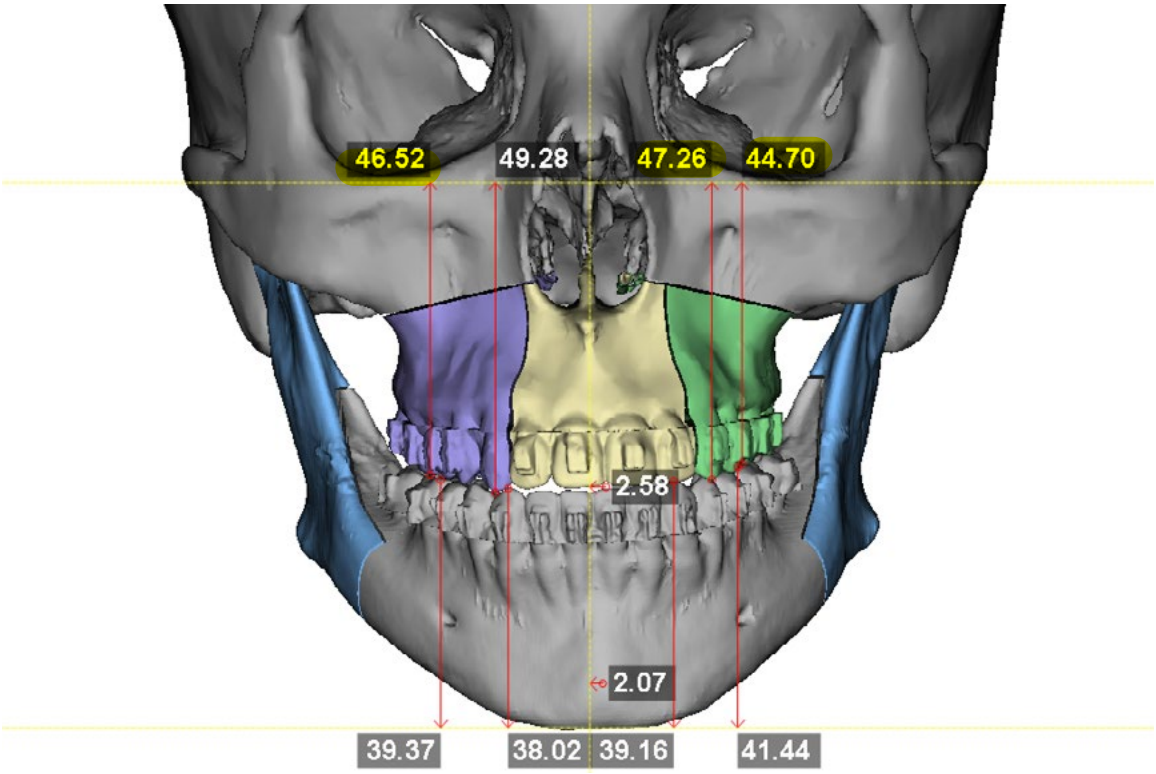




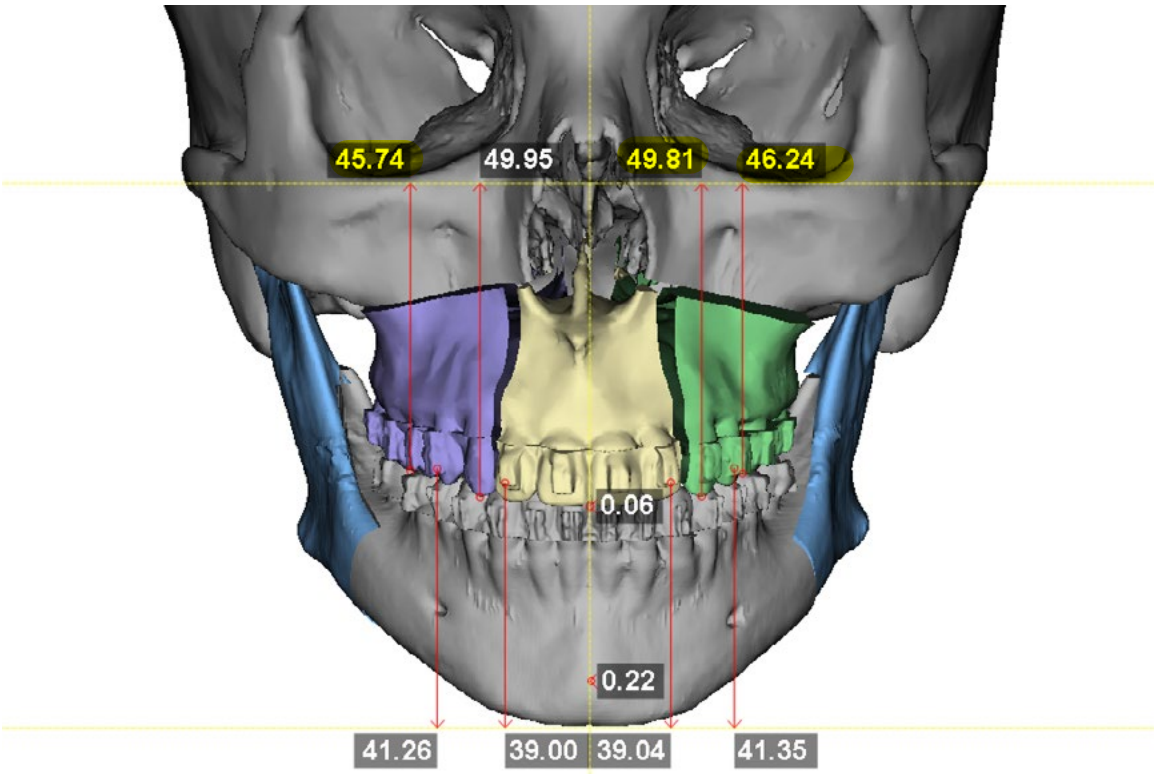
The analyzed airway volume is represented in pink and the minimum axial area at any point throughout the analyzed airway is represented by the white line. This area is the smallest 2-dimensional slice across a true horizontal.

Cant Analysis

Preoperative Position

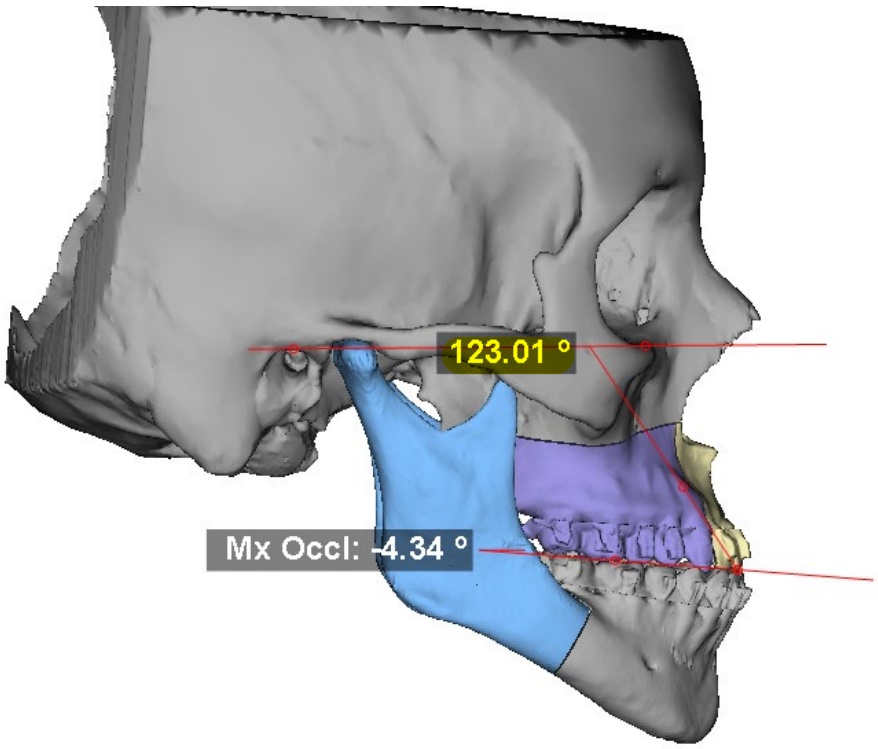


Postoperative Position

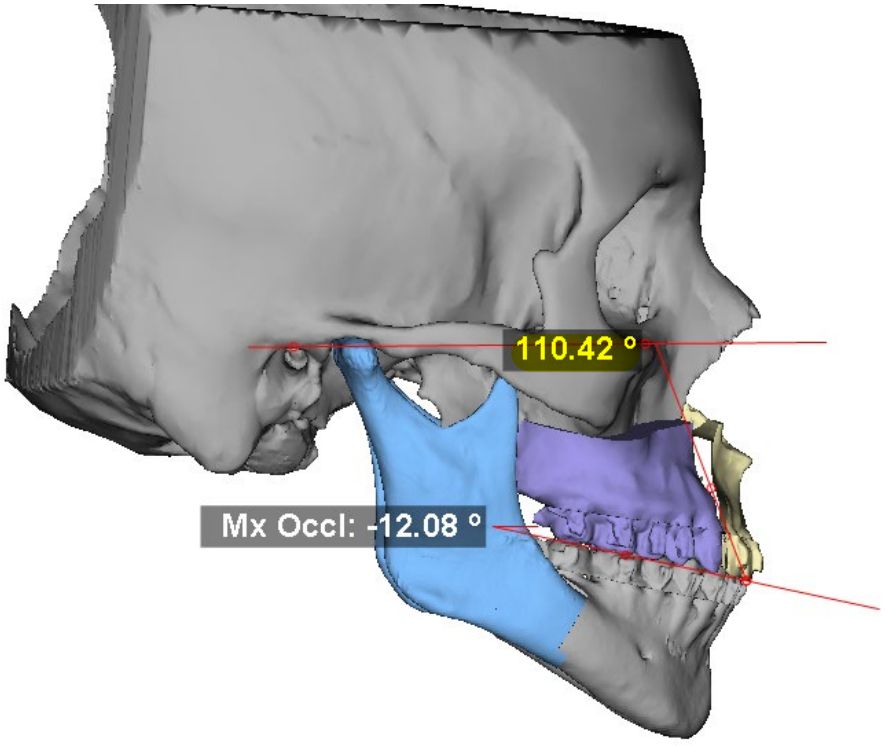


Occlusal Plane Angle Analysis

Preoperative Position



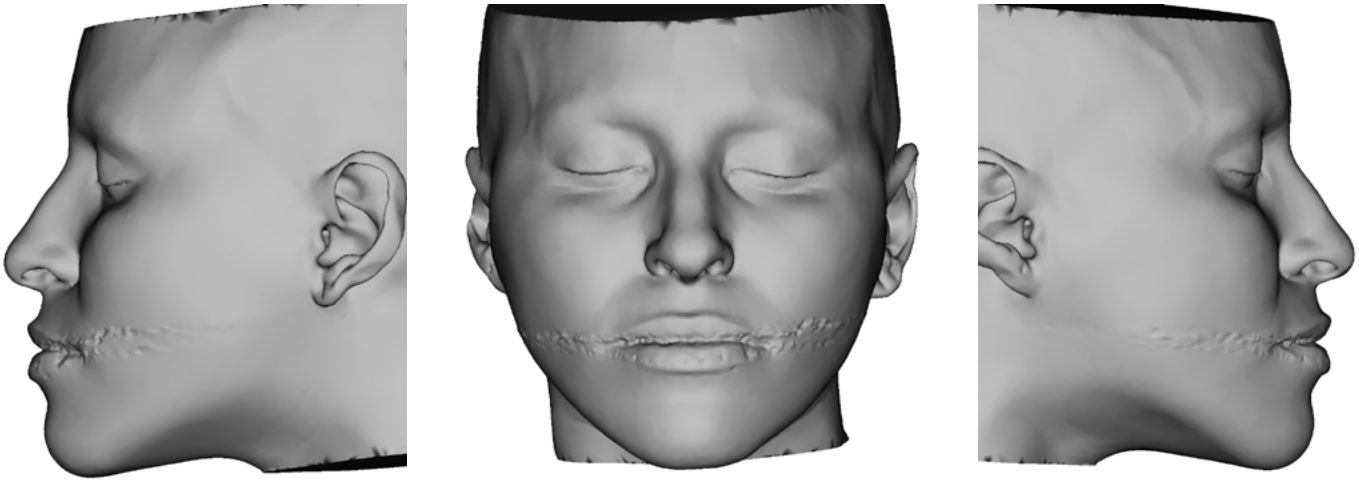
Postoperative Position



Soft Tissue Analysis

Preoperative Position

Postoperative Position



Soft tissue simulation is for reference only and may not reflect what will be seen after the time of surgery.

Occlusal Overlap Color Map