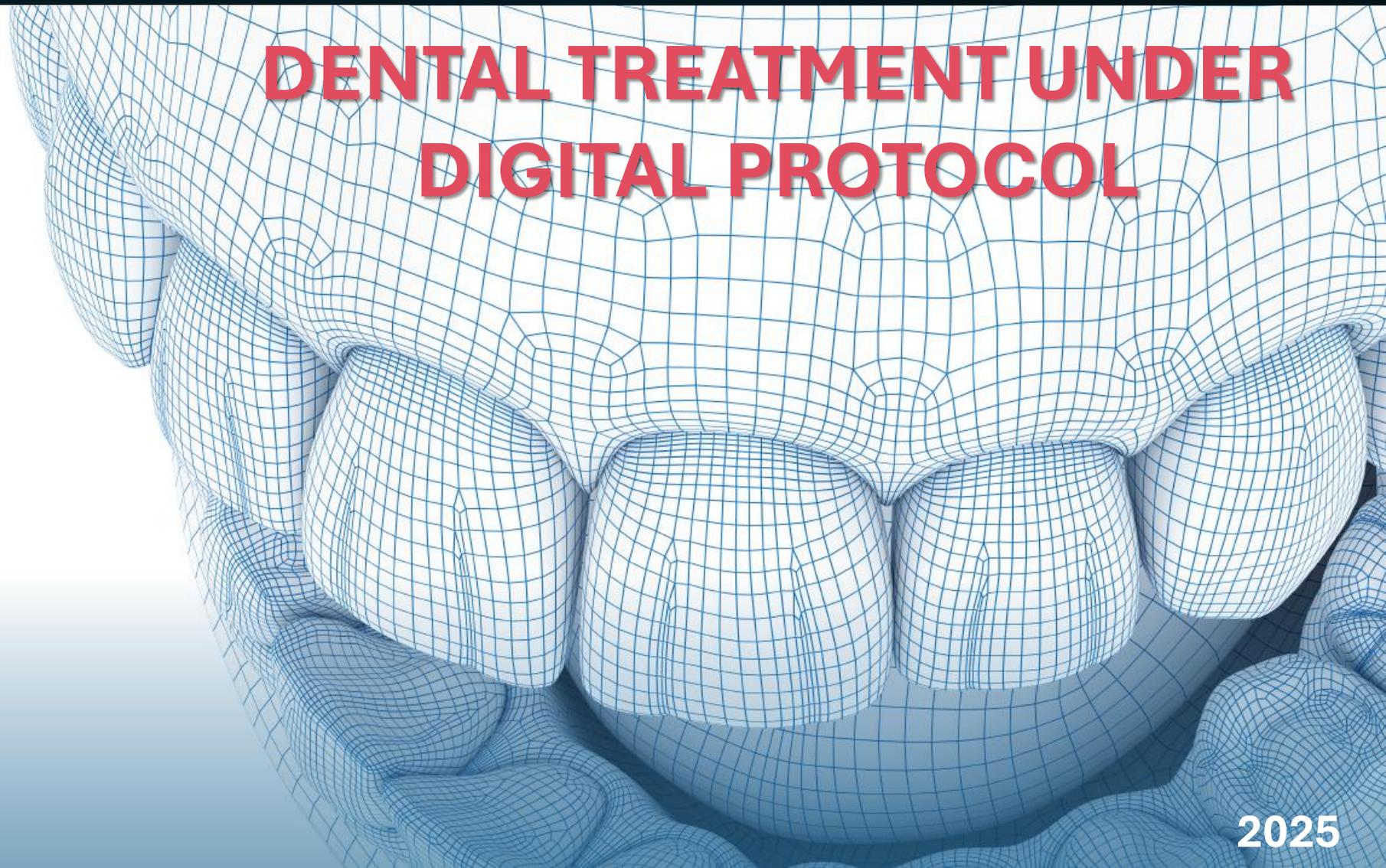


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# DENTAL TREATMENT UNDER DIGITAL PROTOCOL



2025

# DENTAL TREATMENT UNDER DIGITAL PROTOCOL

- 1 Summary
- 2 Consultation and Diagnosis
- 3 Treatment Plan and Objectives
- 4 Wax-up + Mock-up / Scan and CAD Design
- 5 Final Restorations (materials and adhesion details)
- 6 Results and Clinical Conclusions



# DENTAL TREATMENT UNDER DIGITAL PROTOCOL

## 1 Summary

- The patient, C.L., aged 16, presented for aesthetic and functional rehabilitation of both dental arches, reporting generalized wear, gingival asymmetry, and occlusal discomfort.
- Clinical and imaging evaluation revealed coronal volume loss, irregular incisal alignment, and gingival height discrepancies disrupting the aesthetic line of the smile.
- The treatment plan aimed to achieve morpho-functional balance and predictable aesthetic integration through a conservative, fully additive (prepress) approach.

### Treatment Stages

- Aesthetic analysis and digital wax-up
- Intraoral mock-up validation
- Gingival recontouring using diode laser
- Final intraoral scanning and CAD design
- Fabrication and adhesive cementation of full-ceramic Amber Press restorations (lithium disilicate).

**All procedures were performed without any tissue reduction, maintaining complete enamel integrity. The treatment achieved natural aesthetic integration and three-dimensional occlusal stability, confirmed during the postoperative follow-up**



## 2 Consultation and Diagnosis

### Clinical Evaluation

The extraoral examination revealed a normal facial symmetry, but a slightly descending smile line on the left side and an uneven gingival exposure during smiling.

### Intraoral Analysis

- Moderate incisal and occlusal wear, with reduced crown height.
- Gingival zenith discrepancies between central and lateral incisors.
- Enamel surface dullness with microcracks.
- Angle Class I occlusion, with partially compromised canine guidance.

### Periodontal Evaluation

A thin gingival biotype was identified, with no signs of active inflammation but with passive gingival overgrowth in the upper lateral region. This situation required crown lengthening using a diode laser to harmonize the gingival contour and expose the anatomical crown length.

### Prosthetic and Functional Evaluation

The occlusion showed premature contacts in the posterior region and a slight reduction in vertical dimension, with compensatory muscular adaptation. Radiographic evaluation confirmed the integrity of both roots and alveolar bone, allowing for a fully restorative treatment plan without the need for endodontic or implant procedures.

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# DENTAL TREATMENT UNDER DIGITAL PROTOCOL

## 2 Consultation and Diagnosis

### Diagnosis

- Generalized dental wear with moderate loss of crown height
  - Anterior gingival asymmetry
  - Slight occlusal plane discrepancy
    - Thin gingival biotype
- Angle Class I occlusion with incomplete anterior guidance



# DENTAL TREATMENT UNDER DIGITAL PROTOCOL

## 3 Treatment Plan and Objectives

No.	Stage	Specialist	Description / Objective
1	Initial Consultation and Treatment Plan	Prosthodontist	Complete clinical examination, esthetic and functional analysis, and establishment of a conservative therapeutic plan. Diagnosis: generalized dental wear, gingival asymmetry, and loss of crown volume.
2	Initial Scan for Digital Wax-Up and Photographic Documentation	Prosthodontist	Digital scanning of both arches and reference photographs for proportional and esthetic analysis. Data were transferred to the laboratory for digital wax-up modeling and design validation.
3	Intraoral Mock-Up, Gingival Lengthening, and Minimally Invasive Preparation	Prosthodontist	Intraoral transfer of the digital wax-up for esthetic and functional validation, followed by diode laser crown lengthening to achieve gingival symmetry. Selective preparation of maxillary and mandibular teeth, final scan, and fabrication of direct provisionals (13–23).
4	Fabrication and Adhesive Cementation of Full-Ceramic Restorations	Prosthodontist	Fabrication of Amber Press (lithium disilicate) full-ceramic crowns for teeth 17–27 and 36–47. Adhesive cementation with Variolink Esthetic Dual under Optragate isolation. Verification of marginal fit and occlusal contacts.
5	Postoperative Control and Occlusal Adjustment	Prosthodontist	Functional and esthetic reassessment 24 hours after cementation. Minor occlusal adjustments, verification of anterior guidance, and fabrication of a protective night guard. <b>Final outcome:</b> harmonious esthetic integration and stable occlusion.

# DENTAL TREATMENT UNDER DIGITAL PROTOCOL

## 4 Wax-up + Mock-up / Scan and CAD Design

### Digital Wax-up

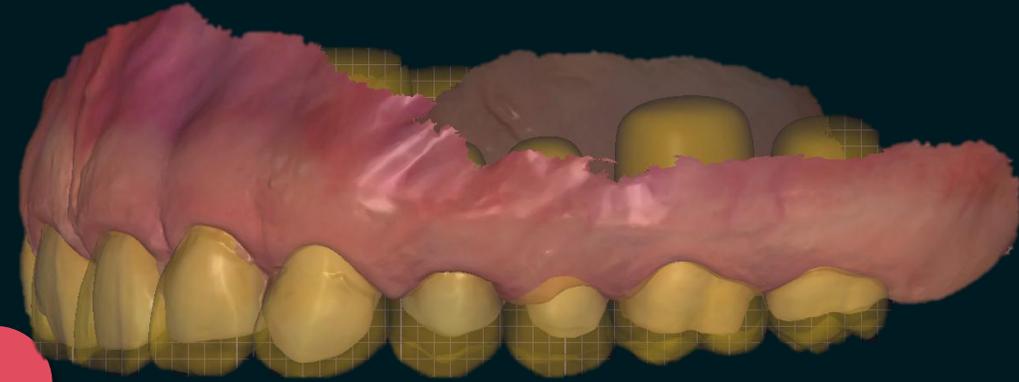
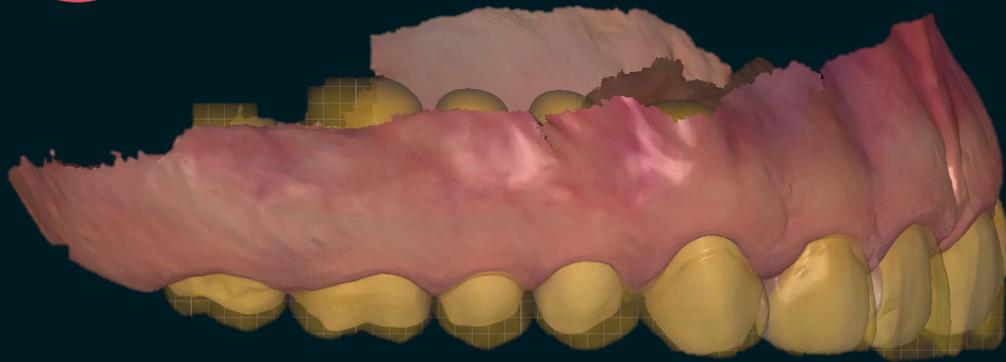
- The restorative design was carried out entirely digitally in collaboration with Laboratory, using data obtained from the initial intraoral scan and reference facial photographs.
- Through the 3Shape Dental System, a three-dimensional analysis of dental proportions, occlusal plane, and smile line was performed in relation to facial landmarks.
- The digital wax-up was conceived following dento-facial esthetic and occlusal functionality principles, aiming to restore natural proportions without additional enamel reduction.
- The virtual model was subsequently 3D printed to verify volumes and fabricate the transfer matrix used for the intraoral mock-up.

### Intraoral Mock-up

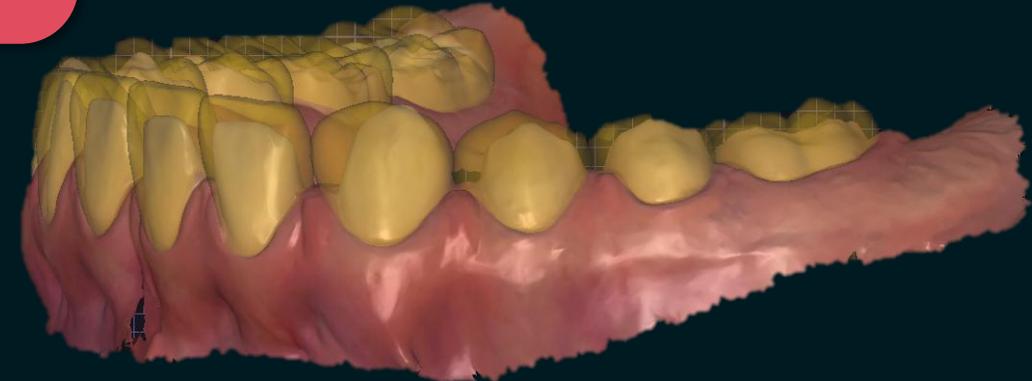
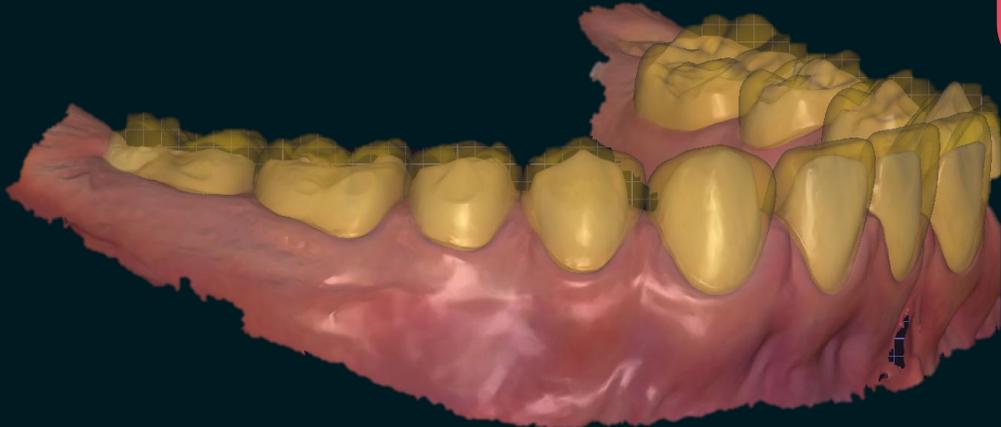
- The mock-up was created by directly transferring the digital wax-up into the oral cavity using a transparent silicone matrix and a light-cured provisional resin.
- This stage enabled aesthetic and functional validation of the proposed design — verifying vertical dimension, phonetics, and anterior guidance.
- To achieve optimal gingival symmetry in the anterior zone, controlled crown lengthening with diode laser was performed on teeth 1.1–1.5, guided by the validated mock-up margins. The procedure ensured uniform exposure of clinical crowns and harmonization of the smile line, without significant tissue trauma.
- The patient approved the final shape, with only minor adjustments made to the incisal contours. The validated mock-up subsequently served as a guide for selective preparation and final intraoral scanning, ensuring maximum predictability during the laboratory phase.

# DENTAL TREATMENT UNDER DIGITAL PROTOCOL

## 4 Wax-up + Mock-up / Scan and CAD Design



Digital  
Wax-up



# DENTAL TREATMENT UNDER DIGITAL PROTOCOL

4

Wax-up

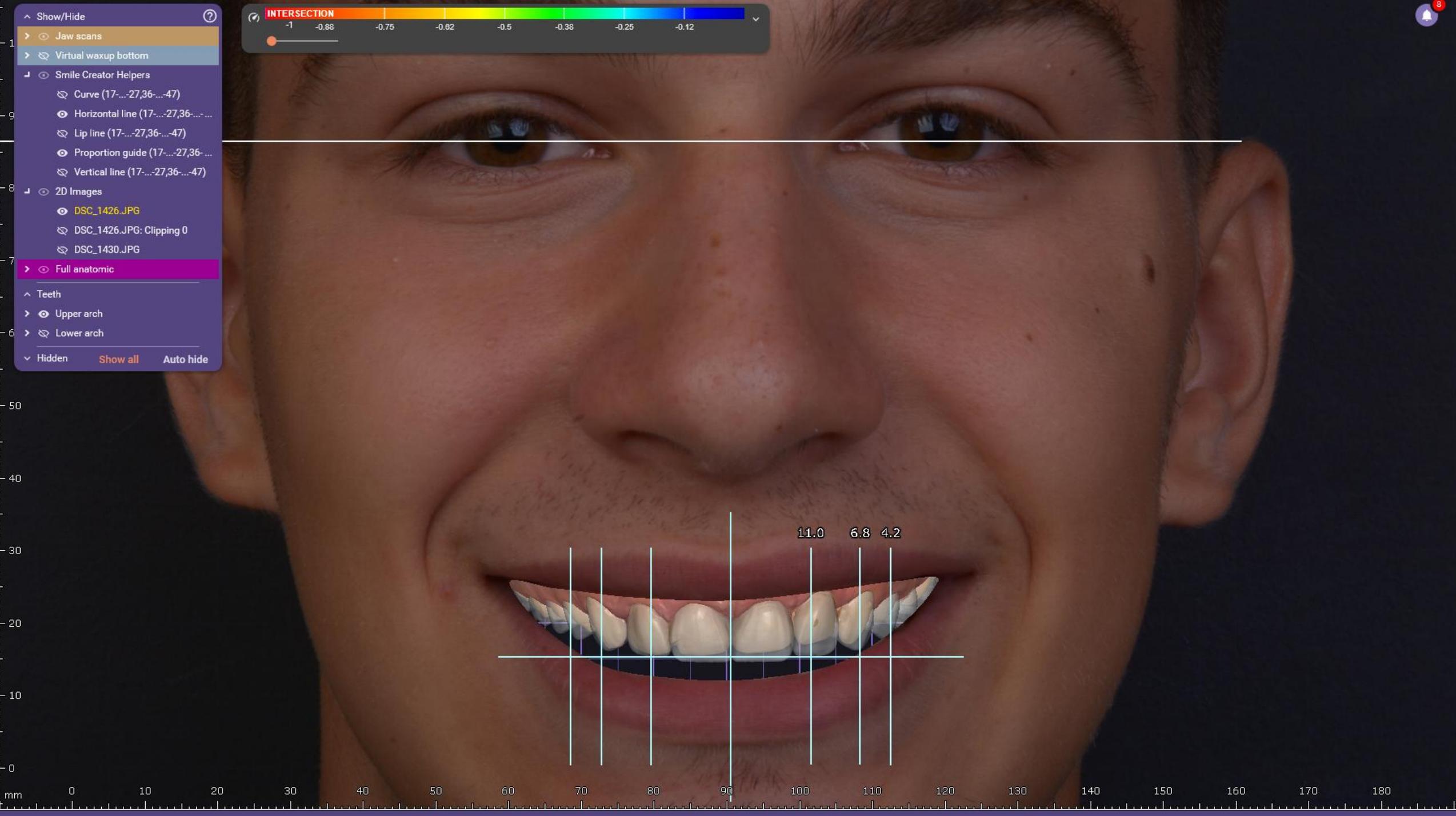
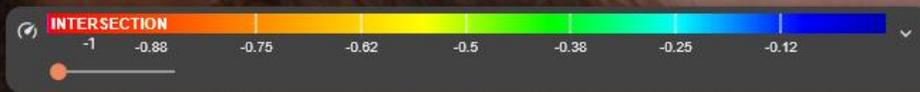


Digital  
Wax-up

^ Show/Hide ?

- > Jaw scans
- > Virtual waxup bottom
- Smile Creator Helpers
  - > Curve (17-...-27,36-...-47)
  - > Horizontal line (17-...-27,36-...-47)
  - > Lip line (17-...-27,36-...-47)
  - > Proportion guide (17-...-27,36-...-47)
  - > Vertical line (17-...-27,36-...-47)
- 2D Images
  - > DSC\_1426.JPG
  - > DSC\_1426.JPG: Clipping 0
  - > DSC\_1430.JPG
- > Full anatomic
- Teeth
  - > Upper arch
  - > Lower arch

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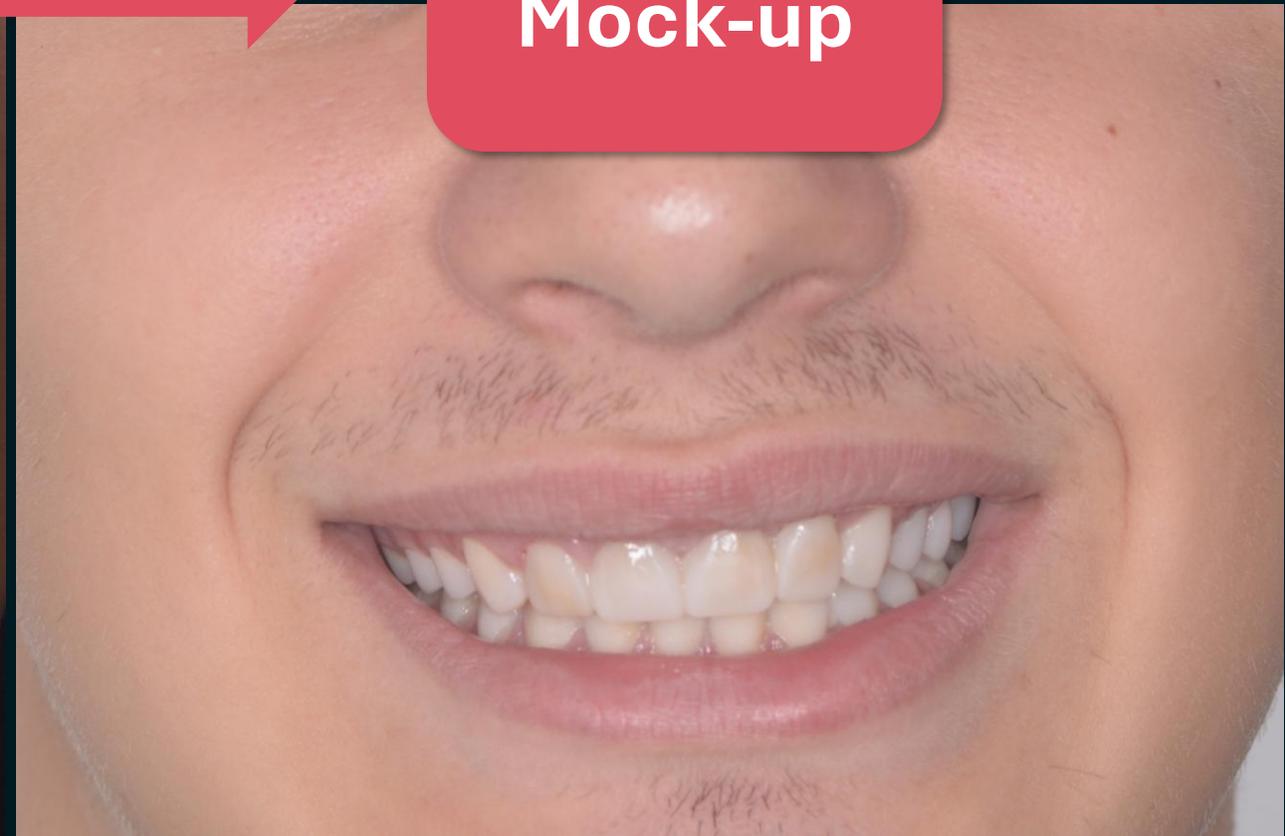


# DENTAL TREATMENT UNDER DIGITAL PROTOCOL

## 4 Wax-up + Mock-up / Scan and CAD Design

Digital  
Wax-up

Intraoral  
Mock-up



# TRATAMENT STOMATOLOGIC SUB PROTOCOL DIGITAL

## 4 Wax-up + Mock-up / Scanare și Design CAD

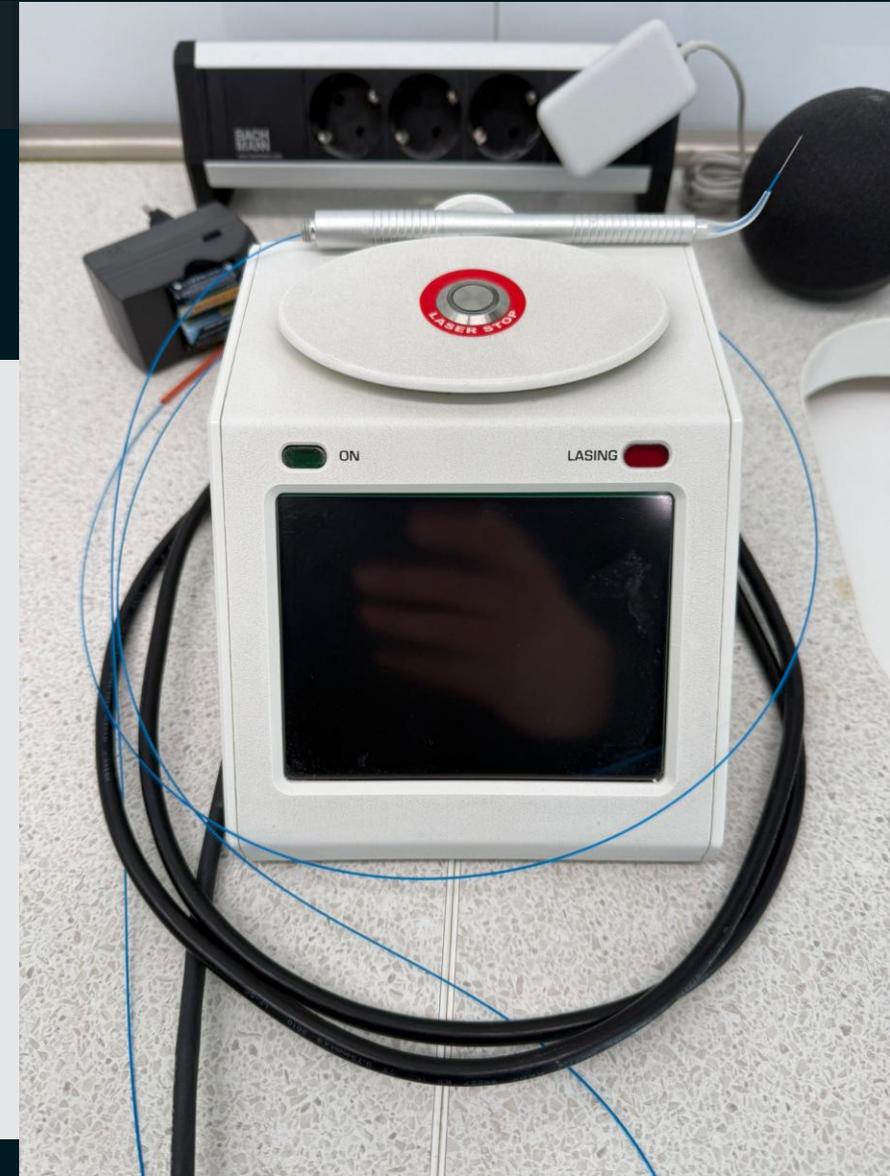
Mock-up  
intraoral



## 4 Wax-up + Mock-up / Scan and CAD Design

### Final scan and CAD Design

- After completing the crown lengthening procedures, the final intraoral scan was performed using the 3Shape TRIOS system, under relative isolation with Optragate.
- Both arches were recorded in maximum intercuspation, generating high-precision STL files.
- The digital data were used for the CAD design of lithium disilicate restorations (Amber Press), with simultaneous verification of:
  - marginal adaptation,
  - cement space distribution,
  - occlusal and interproximal contacts.
- The CAD stage ensured accurate transposition of the clinically validated design, reducing adaptation errors and significantly shortening laboratory time.



## 5 Final Restorations (materials and adhesion details)

### Restorations Fabrication

- The final restorations were fabricated in collaboration with laboratory, using the Amber Press system (HASS Corp., Korea)—a pressed lithium disilicate characterized by controlled translucency and high mechanical strength (~400 MPa).
- The CAD design, derived from the STL files obtained through final intraoral scanning, was precisely processed, faithfully reproducing the contours validated clinically through the mock-up.
- A prepless protocol was selected, ensuring marginal adaptation exclusively on enamel to preserve tissue integrity and optimize adhesion.
- Each restoration was individually verified on the 3D printed model and subsequently intraorally, to confirm occlusal and interproximal contacts as well as color integration (shade B1).



### Adhesive Cementation

- Cementation was performed under relative isolation using Optragate, in a completely dry field. The procedure followed a strict adhesion protocol:
  1. Internal etching of the ceramic surface with 5% hydrofluoric acid for 20 seconds;
  2. Silane application with Monobond Plus (Ivoclar Vivadent);
  3. Dual-curing resin cement application using Variolink Esthetic Dual (Ivoclar Vivadent) on the conditioned enamel surfaces.
- Insertion of the restorations was done under controlled pressure, ensuring uniform cement film thickness under polarized light.
- Excess cement was removed using dental floss and a fine brush, followed by two-step light curing (tack-cure + complete polymerization for 40 seconds per segment)..

# TRATAMENT STOMATOLOGIC SUB PROTOCOL DIGITAL

## 5 Restaurări finale (cu detalii de materiale și adeziune)







## 6 Rezultate și concluzii clinice

- Restaurările au prezentat adaptare marginală perfectă, integrare cromatică naturală și stabilitate ocluzală tridimensională.
- Biotipul gingival s-a menținut stabil, fără recesiuni sau semne inflamatorii.
- Controlul de 24 h și cel de 1 lună au confirmat funcționalitate optimă și confort masticator complet.

### Concluzii

- Abordarea minim invazivă prepless a permis conservarea integrală a smalțului, cu adeziune predictibilă și durabilă.
- Planificarea CAD și validarea estetică prin mock-up au garantat controlul precis al formei și proporțiilor înainte de faza definitivă.
- Alungirile coronare ghidate de mock-up au restabilit armonia gingivală fără sacrificiu tisular excesiv.
- Fluxul digital a fost utilizat ca instrument de precizie clinică, nu ca scop în sine — facilitând comunicarea medic-tehnician și obținerea unui rezultat natural, stabil și reproductibil.

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