

# CONTINUING EDUCATION

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## Learning Objectives

After completion of this exercise, the participant will be able to:

1. Contrast the imaging technology used by three common intraoral digital scanners.
2. Describe a hybrid technique for open-bite treatment using partial fixed appliances and miniscrew anchorage in conjunction with clear aligners.
3. Customize aligner sequencing to close extraction spaces.
4. Fabricate an occlusal deprogrammer from thermoformed material.

## Article 1

Kravitz, N.D.; Groth, C.; Jones, P.E.; Graham, J.W.; and Redmond, W.R.: *Intraoral Digital Scanners* (pp. 337-347)

1. In triangulation imaging technology:
  - a) energy from white light is projected from the wand to a sensor
  - b) the angles and distances from known points are measured with projected laser light
  - c) laser light is projected through a filtering pinhole
  - d) two light sources are used to project three patterns of light
2. In parallel confocal imaging technology:
  - a) energy from white light is projected from the wand to a sensor
  - b) the angles and distances from known points are measured with projected laser light
  - c) laser light is projected through a filtering pinhole

- d) two light sources are used to project three patterns of light
3. A thin coating of opaque powder is required for triangulation imaging and for:
    - a) three-dimensional in-motion video
    - b) parallel confocal imaging
    - c) accordion fringe interferometry
    - d) all of the above
  4. Three-dimensional printing is made possible by a technology known as:
    - a) stereolithography
    - b) fused deposition modeling
    - c) selective laser sintering
    - d) any of the above

## Article 2

Giancotti, A.; Germano, F.; Muzzi, F.; and Greco, M.: *A Miniscrew-Supported Intrusion Auxiliary for Open-Bite Treatment with Invisalign* (pp. 348-358)

5. Excessive lower facial height with a hyperdivergent pattern is commonly associated with:
  - a) a clockwise rotation of the maxilla
  - b) a counterclockwise rotation of the mandible
  - c) excessive gingival display in smiling
  - d) both a and c
6. Molar extrusion seems to be prevented during aligner treatment by:
  - a) programming with ClinCheck
  - b) the use of appropriate attachments
  - c) the constant presence of the aligner material on the occlusal surfaces
  - d) the bowing effect

7. In the authors' technique, molar torque is controlled by:

- a) the aligners
- b) the bonded attachments
- c) a palatal bar
- d) a combination of labial and lingual mini-screws

8. Class II correction is achieved through the counterclockwise mandibular rotation induced by:

- a) molar intrusion with aligners
- b) molar intrusion with miniscrew-supported mechanics
- c) anterior extrusion with nickel titanium coil springs
- d) anterior extrusion with a wire auxiliary

### Article 3

Samoto, H. and Vlaskalic, V.: *A Customized Staging Procedure to Improve the Predictability of Space Closure with Sequential Aligners* (pp. 359-367)

9. Side effects of extraction space closure known as the "bowing effect" include:

- a) molar tipping
- b) increased overbite
- c) posterior disclusion
- d) all of the above

10. In the case shown here, aligners were changed:

- a) every seven to 10 days
- b) every two weeks
- c) every six weeks
- d) at varying intervals

11. During space closure with aligners, sequential retraction of the canines and incisors counteracts the bowing effect by:

- a) reducing the anchorage value of the posterior segment compared to the active segment
- b) increasing the surface area of aligners around the canine and incisor crowns
- c) supporting the occlusal plane of the aligners
- d) discluding the posterior teeth

12. Anchorage can be supplemented during space closure with aligners by:

- a) programming mesial-root-tip "gable bends" for the posterior teeth
- b) narrowing or modifying the archform to reduce anterior movement
- c) adding interarch elastics
- d) any of the above

### Article 4

Kontham, R. and Kontham, U.: *Easy Fabrication of an Occlusal Deprogrammer* (pp. 368-370)

13. The authors fabricate their occlusal deprogrammer from:

- a) a 1mm Essix sheet
- b) a 1.5mm Essix sheet
- c) a 1.5mm Biocryl sheet
- d) a 2mm Biocryl sheet

14. The anterior biteplane is made from:

- a) Essix material
- b) Biocryl material
- c) cold-cure acrylic
- d) acrylic powder

15. A patient can be considered deprogrammed if he or she:

- a) has a single point of contact with one of the mandibular incisors
- b) occludes on more than one spot
- c) occludes on the same spot repeatedly without any guidance
- d) produces multiple, diffuse marks on the biteplane

16. Advantages of the deprogrammer over conventional Hawley-type appliances include all of the following except:

- a) no need for wire bending
- b) no need for impressions
- c) better patient comfort and esthetics
- d) avoidance of unwanted tooth movement in cases where extended wear is required