

# CONTINUING EDUCATION

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## Learning Objectives

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

1. Describe a computer-aided protocol for insertion of palatal microscrews to anchor a horseshoe appliance.
2. Assess the potential for alveolar bone remodeling after orthodontic treatment.
3. Discuss the use of three-dimensional printers in private orthodontic practices and academic residency programs.
4. Compare methods for fixed-appliance treatment of hyperdivergent adult patients with severe skeletal anterior open bites.

## Article 1

De Gabriele, O.; Dallatana, G.; Vasudavan, S.; and Wilmes, B.: *CAD/CAM-Guided Microscrew Insertion for Horseshoe Distalization Appliances* (pp. 384-397)

1. The horseshoe appliance is indicated for any of the following cases except:
  - a) Class II with maxillary dental protrusion and excessive overjet
  - b) posterior crossbite
  - c) anterior open bite
  - d) occlusal canting
2. The clinician can control the line of force from a horseshoe appliance by:
  - a) changing the strength of the attached coil spring or elastomeric chain
  - b) extending the Beneplate toward the posterior end of the palate
  - c) varying the point of force application

- d) attaching the appliance to the second molars or second premolars instead of the first molars
3. In this technique, the surgical insertion guide is produced by:
    - a) rapid prototyping
    - b) machine milling
    - c) stereolithography
    - d) thermoforming
  4. Advantages of the Easy Driver protocol include:
    - a) safe and accurate microscrew positioning
    - b) avoidance of damage to the roots or neuromuscular bundles
    - c) lack of interference with planned orthodontic movement and natural growth
    - d) all of the above

## Article 2

Singh, S.: *Regeneration of the Anterior Palatal Alveolar Cortex after Treatment of Bimaxillary Protrusion* (pp. 398-412)

5. Excessive lingual retraction of the incisors can cause any of the following except:
  - a) irreversible distraction of the lingual cortex
  - b) dehiscence or fenestration
  - c) lip procumbency
  - d) root resorption
6. The barrier to orthodontic tooth movement of the maxillary anterior teeth is the:
  - a) palatal wall of the maxilla
  - b) lingual cortex of the mandibular symphysis
  - c) alveolar periosteum
  - d) both a and b
7. The remodeling capability of the alveolar process after orthodontic treatment is determined

primarily by the:

- a) osteogenic potential of the periosteum
  - b) ratio of bone to tooth movement
  - c) thickness of alveolar bone
  - d) quantity of fibers in the crestal region
8. The partial volume averaging effect is associated with:
- a) thickness of alveolar bone
  - b) imprecision in cone-beam computed tomography scans
  - c) overlapping of bony structures in lateral cephalograms
  - d) deterioration of periodontal structures

### Article 3

Poulos, E.; Barrons Olsen, J.; and Park, J.H.: *Trends in the Use of 3D Printing Technology Among Practicing Orthodontists and Orthodontic Residency Programs* (pp. 413-418)

9. In this survey, the proportion of practicing orthodontists who owned at least one 3D printer was:

- a) 5%
- b) 39%
- c) 41%
- d) 79%

10. The most popular printer brand among residency programs was:

- a) SprintRay
- b) Anycubic
- c) EasyRx
- d) Formlabs

11. Among practicing orthodontists who had not yet purchased 3D printers, the greatest barrier was:

- a) cost
- b) lack of training
- c) lack of space
- d) lack of time

12. Further acceleration in the use of 3D printing

technology was predicted by:

- a) 98% of both practicing orthodontists and residency program directors
- b) 100% of practicing orthodontists
- c) 90% of residency program directors
- d) both b and c

### Article 4

Valarelli, F.P.; Silva, M.F.A.; Imai, L.; Janson, G.; and Freitas, K.M.S.: *Strategies for Compensatory Orthodontic Treatment of Adult Skeletal Open Bite* (pp. 419-428)

13. Skeletal open bite often results in a vertical imbalance called:

- a) bimaxillary protrusion
- b) maxillary atresia
- c) long-face syndrome
- d) hyperdivergent pattern

14. Investigations of skeletal changes produced by rapid maxillary expansion have found:

- a) exacerbation of a skeletal open bite
- b) long-term correction of a posterior open bite
- c) transient opening of mandibular plane angle
- d) similar effects to those achieved with orthognathic surgery

15. The “drawbridge effect” refers to:

- a) retraction, uprighting, and extrusion of the upper and lower incisors
- b) extraction of the first permanent molars
- c) counterclockwise rotation of the mandible
- d) further opening of an anterior open bite

16. In the case shown here, lingual spurs bonded to the maxillary incisors:

- a) helped retract the upper anterior segment
- b) avoided tongue interpositioning
- c) promoted the “drawbridge effect”
- d) all of the above