

CONTINUING EDUCATION

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Learning Objectives

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

1. Discuss the orthodontic management of primary failure of eruption (PFE).
2. Compare a two-phase approach to other methods of treating skeletal Class III malocclusion.
3. Describe the challenges involved in treating older adults with severe dentofacial deformities.
4. Review clinical mitigation strategies for micro- and nanoplastic (MNP) exposure.

Article 1

Raby I, Gracia B, Pascual M, Morales R, Solé P. *Interdisciplinary management of severe skeletal Class III malocclusion in an adult patient: a four-year follow-up* (pp. 364-379).

9. The most common mandibular surgical procedure for skeletal Class III correction is:
 - a) Le Fort I osteotomy
 - b) genioplasty
 - c) bilateral sagittal split ramus osteotomy
 - d) distraction osteogenesis
10. In adult patients with severe dentofacial deformities, posterior occlusal support can be improved by beginning implant restorations:
 - a) before any other treatment
 - b) during presurgical orthodontics
 - c) at the time of orthognathic surgery
 - d) immediately after surgery
11. Orthognathic surgical patients in their 50s are particularly susceptible to:
 - a) osteonecrosis
 - b) nonunion complications

- c) infection
 - d) hardware issues
12. Nonunion and subsequent pseudarthrosis can be caused by:
 - a) occlusal instability
 - b) inadequate fixation
 - c) impaired vascularity in atrophic bone
 - d) any of the above

Article 2

Cremonini F, Cirulli V, Pepe F, Palone M, Lombardo L. *A two-phase approach for correction of skeletal Class III malocclusion: maxillary expansion and facemask therapy followed by 3D-printed nocturnal aligners* (pp. 380-393).

5. The most effective method of early treatment for skeletal Class III patients is:
 - a) clear aligner therapy
 - b) facemask therapy
 - c) surgical-orthodontic therapy
 - d) myofunctional therapy
6. The Alt-RAMEC protocol involves:
 - a) alternating segmental archwires
 - b) alternative Class III functional appliances
 - c) alternating rapid maxillary expansion and constriction
 - d) alternating wear of hybrid clear aligners
7. In the authors' two-phase approach, the first phase involves:
 - a) traditional rapid palatal expansion
 - b) the Alt-RAMEC protocol
 - c) facemask therapy
 - d) clear aligner therapy
8. NOXI aligners are designed to be worn:

- a) in alternation with a facemask
- b) for only 10 hours per day
- c) full-time for four weeks per tray
- d) over fixed appliances

Article 3

Tran Y, Mohd Hussaini H, Ali A, Farella M, Venugopal A. *The microplastic footprint of orthodontics* (pp. 402-408).

13. Humans are exposed to MNPs by any of the following routes except:

- a) immune dysfunction
- b) ingestion of contaminated food and water
- c) inhalation
- d) dermal contact

14. Polymeric removable appliances can fail due to fractures and surface degradation caused by:

- a) cyclic loading
- b) improper manipulation
- c) hygroscopic expansion
- d) heating and stretching

15. Chemical degradation of a polymer typically manifests as:

- a) increased surface roughness and erosion
- b) increased brittleness
- c) aerosolized debris
- d) plasticization

16. Removable appliances should be submerged in water for 24 hours before initial wear to avoid:

- a) aerosolization of MNPs

- b) hygroscopic expansion
- c) surface delamination
- d) leaching of bisphenol A

Article 4

Kravitz ND, Akyalçin S, Weissheimer A, Noble J. *Clinical management of primary failure of eruption* (pp. 409-414).

1. The teeth most commonly affected by PFE are the:

- a) maxillary canines
- b) permanent molars
- c) mandibular premolars
- d) third molars

2. Unlike ankylosis, PFE presents with:

- a) root-to-bone fusion
- b) resistance to orthodontic traction
- c) an intact periodontal ligament
- d) loss of periodontal ligament space

3. PFE is most often associated with mutations in the:

- a) *PTH1R* gene
- b) *H223R* gene
- c) progranulin gene
- d) *MTHFR* gene

4. The most common treatment of PFE involves:

- a) orthodontic movement of the affected tooth
- b) Le Fort I osteotomy
- c) luxation of the affected tooth
- d) extraction of the affected tooth