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Learning Objectives

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

1. Prescribe the Invisalign mandibular advancement feature for early treatment of skeletal Class II patients.
2. Compare the AdvanSync 2 with other fixed functional appliances used to correct Class II, division 1 malocclusions in non-growing patients.
3. Discuss a protocol for orthodontic treatment of patients with severe TMD.
4. Review current digital options for production of traditional laboratory-made appliances.

Article 1

Giancotti, A.; Cozza, P.; and Mampieri, G.: *Aligners and Mandibular Advancement: A Comprehensive Option for Phase I Treatment of Class II, Division 1 Cases* (pp. 513-524)

1. The first step in Phase I treatment of a Class II patient with mandibular retrusion is usually to:
 - a) expand the maxillary arch
 - b) level and align the maxillary dentition
 - c) advance the mandible
 - d) coordinate the archforms
2. In the Invisalign mandibular advancement protocol, mandibular retrusion is addressed by adding:
 - a) eruption compensation for the premolars
 - b) bilateral wings as customized extensions
 - c) Power Ridges
 - d) attachments on the upper anterior teeth
3. With weekly aligner changes, the amount of mandibular advancement that can be achieved in eight weeks is about:

- a) 2mm
- b) 6mm
- c) 10mm
- d) 16mm

4. The optimal treatment timing for achieving skeletal effects is during the:

- a) deciduous dentition
- b) prepubertal phase
- c) pubertal growth phase
- d) permanent dentition

Article 2

Izhar, A.; Dahiya, M.; Singh, G.; and Goyal, V.: *Treatment Effects of a Fixed Functional Appliance in Non-Growing Class II Patients* (pp. 525-536)

5. The AdvanSync 2 appliance is activated by:
 - a) turning the jackscrew
 - b) attaching different sizes of elastics
 - c) adding spacers of different diameters
 - d) changing the telescoping rods
6. Even in a non-growing patient, a functional appliance can stimulate condylar growth and remodel the glenoid fossa by:
 - a) synchronizing with orthodontic camouflage
 - b) applying tensile strain to the condyle
 - c) eliminating protective co-contraction of the antagonist muscles
 - d) promoting the formation of a "pseudodisc"
7. The AdvanSync 2 avoids the usual tendency of a fixed functional appliance to procline the lower incisors by:
 - a) placing the vertical force vector posteriorly
 - b) reactivating adaptive condylar growth
 - c) being combined with fixed appliances

d) remaining passively in place after completion of upper molar distalization

8. Advantages of the AdvanSync 2 over similar devices include all of the following except:

- a) ability to be used simultaneously with full fixed appliances
- b) smaller, more esthetic design
- c) ease of placement
- d) ease of oral hygiene around the molars

Article 3

Park, J.H.; Moon, D.N.; Lee, S.M.; and Lee, G.H.: *Orthodontic Treatment of a Patient with Severe TMD* (pp. 537-550)

9. Temporomandibular disorder is commonly associated with:

- a) morphological and functional deformities
- b) abnormalities of the intra-articular disc position and structure
- c) dysfunction of the associated musculature
- d) all of the above

10. A stabilization splint establishes an ideal occlusal scheme for a mutually protected occlusion by:

- a) contracting the inferior lateral pterygoid muscles
- b) applying tensile strain to the condyle
- c) eliminating protective co-contraction of the antagonist muscles
- d) repositioning the mandible anteriorly

11. When a stabilization splint is used, formation of a "pseudodisc" on the posterior band of the disc helps to:

- a) seat the condyle in the most forward and upward position in the articular fossa
- b) eliminate protective co-contraction of the antagonist muscles
- c) reposition the mandible anteriorly
- d) all of the above

12. The Golgi tendon reflex is a protective feed-

back mechanism that controls the tension of an active muscle by:

- a) eliminating protective co-contraction
- b) stretching the elevator muscle spindles
- c) readapting multiple stretched ligamentous attachments
- d) relaxing the muscle before the tension becomes strong enough to cause damage

Article 4

Huanca Ghislanzoni, L. and Negrini, S.: *Digital Lab Appliances: The Time Has Come* (pp. 562-569)

13. For digital bands, the authors recommend a thickness of:

- a) .3-.4mm
- b) .6-.7mm
- c) .032"-.036"
- d) .32"-.36"

14. Laser-sintered metal is brittle and prone to breakage because it:

- a) requires rapid prototyping
- b) cannot be designed in the form of a pad
- c) is composed of melted powder
- d) must be produced in a thin layer

15. Compared with conventional bands, digital bands have the advantage of:

- a) not requiring preliminary separators
- b) being custom-made on demand
- c) not requiring an inventory of different sizes
- d) all of the above

16. Although acrylic appliances can be three-dimensionally printed, the authors recommend:

- a) laser sintering
- b) milling
- c) rapid prototyping
- d) vacuforming