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Learning Objectives

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

1. Fabricate a full-arch maxillary splint to achieve a position of equilibrium in treatment of TMD.
2. Discuss the options for management of hyperdivergent skeletal Class III patients.
3. Describe a digital system for guided insertion of palatal miniscrews.
4. Compare the stability of three-dimensionally printed orthodontic models with that of conventional plaster casts.

Article 1

Burns, R.H. Jr.: *TMD Splint Construction* (pp. 384-389)

1. Conventional gnathological theory holds that centric relation is achieved when the condyles are fully seated in:
 - a) their most superior and anterior positions within the articular fossae
 - b) centric occlusion
 - c) a position of physiological equilibrium
 - d) a guided position within the intra-articular joint space
2. The most common cause of TMD is:
 - a) external trauma
 - b) compression of the joint space
 - c) asymmetrical seating of the condyles
 - d) skeletal malocclusion
3. As the condyle is forced posteriorly by stress-induced parafunction:
 - a) the intra-articular joint space widens

- b) it reaches a position of equilibrium
 - c) the convexity of the condylar head encroaches on the disc
 - d) it is fully seated within the articular fossa
4. During seating of the author's splint, it is important to:
 - a) guide the mandible with a random hinge movement
 - b) relax the masticatory musculature
 - c) avoid any mandibular movements that could compress the intra-articular joint space
 - d) all of the above

Article 2

Kim, M.J.; Ahn, H.W.; Kim, S.H.; Chung, K.R.; and Nelson, G.: *Nonsurgical Camouflage Treatment of Skeletal Class III Malocclusion Using the Biocrete Reverse-Curve Technique* (pp. 390-401)

5. Skeletal Class III malocclusion is usually accompanied by:
 - a) a transverse discrepancy
 - b) proclined upper incisors
 - c) retroclined lower incisors
 - d) all of the above
6. The main wire used in the Biocrete reverse-curve (BRC) technique is an .017" × .025":
 - a) Biocrete C-expander
 - b) Biopassive reverse-curve archwire
 - c) Titanol Spee reverse-curve nickel titanium archwire
 - d) Titanol Spee accentuated-curve nickel titanium archwire

7. In the BRC sliding technique, Class III elastics are used for:

- a) progressive distalization of the mandibular dentition
- b) bodily distalization of the entire mandibular dentition
- c) maintenance of the interpremolar width
- d) extrusion of the upper molars and lower anterior teeth

8. The C-tube miniplate has all of the following advantages except:

- a) promotion of parallel expansion with minimal dental tipping
- b) a placement site that avoids anatomical structures and root contact
- c) enough stability to anchor mandibular distalization and molar uprighting
- d) provision of anterior anchorage for better vertical control

Article 3

Lo Giudice, A.; Rustico, L.; Campagna, P.; Portelli, M.; and Nucera, R.: *The Digitally Assisted Miniscrew Insertion System: A Simple and Versatile Workflow* (pp. 402-412)

9. The anterior palatal region has been recommended as a safe area for miniscrew insertion because of its:

- a) adequate bone depth
- b) absence of fragile anatomical structures
- c) excellent recorded survival rates
- d) all of the above

10. The digital workflow described by the authors of this article uses:

- a) Meshmixer software
- b) Blue Sky Plan software
- c) 3D Slicer software
- d) OnyxCeph software

11. Design of a digital palatal miniscrew requires all of the following measurements except:

- a) screw body length extension
- b) screw apical body diameter
- c) infraosseous dimension

- d) abutment diameter

12. Vertical “windows” can be designed in the anterior or posterior regions of the surgical guide tubes to:

- a) permit easy removal of the guide
- b) facilitate miniscrew insertion in patients with Class III malocclusion
- c) help monitor the progress of miniscrew insertion
- d) all of the above

Article 4

Hanson, M.S.; Cozad, B.E.; English, J.D.; and Kasper, F.K.: *Effects of Accelerated Aging on 3D-Printed Orthodontic Model Accuracy* (pp. 413-418)

13. In this study, the surface scans of typodonts were digitally prepared using Geomagic Control software and:

- a) Meshmixer software
- b) Blue Sky Plan software
- c) 3D Slicer software
- d) OnyxCeph software

14. The 3D-printed and plaster models were artificially aged using:

- a) Geomagic Control software
- b) ultraviolet radiation
- c) gamma radiation
- d) a laser scanner

15. Compared with the 3D-printed models, the plaster casts demonstrated:

- a) greater dimensional deviations
- b) lesser dimensional deviations
- c) equivalent dimensional deviations
- d) dimensional changes within the accepted level of clinical tolerance

16. The authors attributed the plaster casts’ loss of orthodontic stone to:

- a) deposition of stone particles
- b) improper storage
- c) excessive exposure to radiation
- d) repeated exposure to water spray