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NOVEMBER 2019 LEARNING OBJECTIVES:

After completing this course, the participant will have:

1. Knowledge concerning the optimal force magnitude to attain orthodontic tooth movement with patient comfort and fewer adverse side effects.
2. An appreciation for the effect of miniscrew-supported Herbst appliances as compared with the standard Herbst appliances.
3. An awareness of the dependability of cervical vertebral maturation staging to assess the timing of the mandibular growth spurt.
4. Familiarity with changes in the zygomaticomaxillary complex that result from mini-implant assisted rapid maxillary expansion.

Article 1: Optimal force magnitude for bodily orthodontic tooth movement with fixed appliances: A systematic review, by Christina I. Theodorou et al

1. This review aimed to identify the force range that results in external root resorption and pain, which may be associated with orthodontic tooth movement.
 1. True
 2. False
2. The ultimate inclusion criteria for publications used in this systematic review were ones that were randomized controlled trials and randomized split-mouth studies.
 1. True
 2. False
3. The authors reported that no sound conclusions could be drawn regarding external apical root resorption and pain because of the limited amount of evidence.
 1. True
 2. False
4. The authors concluded that there is weak to moderate evidence showing that forces ranging between 20 cN and 100 cN were optimal for the rate of orthodontic tooth movement, patient comfort, and exhibiting fewer side effects.
 1. True
 2. False

Article 2: Herbst appliance anchored to miniscrews in the upper and lower arches vs standard Herbst: A pilot study, by Antonio Manni et al

5. The aim of this pilot study was to present the preliminary results of Class II malocclusion treatment using a skeletally anchored Herbst appliance with miniscrews inserted in the maxillary and mandibular arches to improve anchorage control and skeletal effects.
 1. True
 2. False
6. The study's sample comprised a treatment group of 13 patients with Class II division 1 malocclusion and treatment with a Herbst appliance attached to miniscrews and a control group of 13 Class II division 1 patients with standard Class II treatment using cervical headgear and Class II elastics.
 1. True
 2. False
7. The authors reported that anchorage reinforcement using miniscrews for the Herbst appliance demonstrated some flaring of the mandibular incisors.
 1. True
 2. False
8. The authors concluded that the orthopedic effect using miniscrew-supported Herbst appliance was not that successful.
 1. True
 2. False

Article 3: Diagnostic testing of cervical vertebral maturation staging: An independent assessment, by Kara M. Morris et al

9. The objective of this research was to evaluate the diagnostic reliability of the CVM method to diagnose the mandibular growth spurt using longitudinal records from alternative database using established diagnostic testing methods.
 1. True
 2. False
10. The study's sample comprised 43 subjects with at least 5 annual cephalometric films taken between 8 and 16 years of age.
 1. True
 2. False

11. The authors advised practitioners to use multiple methods with their known shortcomings to help inform growth modification timing.
 1. True
 2. False
12. The authors concluded that based on diagnostic reliability testing, the diagnostic capability of CVM for diagnosing mandibular growth spurt is dependable.
 1. True
 2. False
14. Cone-beam computed tomography images were taken of each subject before expansion, immediately after expansion, and 6 months later.
 1. True
 2. False
15. The authors reported that in the transverse dimension, the expansion of the zygomaticomaxillary complex was greater in the upper than in the lower portion, and the palatal expansion was similar in the anteroposterior portion.
 1. True
 2. False

Article 4: Three-dimensional changes for the zygomaticomaxillary complex after mini-implant assisted rapid maxillary expansion, by Kyeon-Tae Song et al

13. The aim of this study was to investigate 3-dimensional changes of the zygomaticomaxillary complex after surgical and mini-implant assisted rapid maxillary expansion.
 1. True
 2. False
16. The authors concluded that the 3-dimensional changes of the zygomaticomaxillary complex after mini-implant assisted rapid maxillary expansion showed expansion on a pyramidal shape from the coronal view, downward and forward displacement from the sagittal view, and parallel palatal expansion from the axial view.
 1. True
 2. False