After completing this course, the participant will have:
2. An understanding of the influence that physical activity may have on the pain experienced and analgesic consumption by orthodontic patients after separator placement.
3. An awareness of the therapeutic effects on maxillary protraction comparing the rapid expansion versus the rapid expansion and constriction protocols.
4. A familiarity with the differences in transverse changes between tooth-borne and bone-borne palatal expanders.

**Article 1: Evaluation of root and alveolar bone development of unilateral osseous impacted immature maxillary central incisors after the closed-eruption technique**, by Xiangru Shi et al

1. The purpose of this study was to evaluate root and alveolar bone development in unilateral osseous impacted immature maxillary central incisors using periapical radiographs before and after closed-eruption treatment compared with naturally erupted contralateral immature maxillary central incisors.
   True
   False

2. The study sample comprised 244 patients who were treated consecutively by one operator.
   True
   False

3. The authors reported some alveolar bone loss and thin alveolar bone surrounding the roots.
   True
   False

4. The authors concluded that unilateral impacted immature maxillary central incisors develop fully and to the same stage as do control contralateral incisors after closed-eruption treatment.
   True
   False

**Article 2: Effect of physical activity level on orthodontic pain perception and analgesic consumption in adolescents**, by Satpal S. Sandhu and Jasleen Sandhu

5. The objective of this study was to assess the effect of baseline physical activity level on orthodontic pain perception and analgesic consumption after orthodontic separator placement in adolescents.
   True
   False

6. The study assessed pain and analgesic consumption at one baseline time point and seven follow-up time points.
   True
   False

7. The authors reported that the high-activity group experienced significantly less pain and less analgesic consumption compared with the low-activity group.
   True
   False

8. The authors concluded that physical activity has little influence on orthodontic pain perception and analgesic consumption in adolescents undergoing orthodontic treatment.
   True
   False
Article 3: Effect of maxillary protraction with alternating rapid palatal expansion and constriction vs expansion alone in maxillary retrusive patients: A single-center, randomized controlled trial, by Weitao Liu et al

9. The objective of this retrospective study was to investigate the effects of facemask protraction combined with alternating rapid palatal expansion and constriction (RPE/C) vs rapid palatal expansion (RPE) alone in the early treatment of maxillary retrusive patients.
   True
   False

10. The study sample comprised 2 groups of 16 subjects each.
   True
   False

11. The authors reported that the protocol of hyrax RPE/C and facemask maxillary protraction might positively affect the forward movement of the maxilla compared with the RPE alone in the early treatment of maxillary retrusive patients.
   True
   False

12. The authors concluded that even though the differences between the groups were statistically significant for forward movement of the maxilla and rotation of the palatal and mandibular planes, these may not be clinically relevant, since they were less than 1 mm and 1°, respectively.
   True
   False

Article 4: Comparison of transverse changes during maxillary expansion with 4-point bone-borne and tooth-borne maxillary expanders, by Mennatallah Ihab Mosleh et al

13. The purposes of this study were to evaluate and compare the dentoskeletal changes concurrent with 4-point bone-borne and tooth-borne rapid maxillary expanders in growing children.
   True
   False

14. The therapeutic changes in the study sample were assessed using cone-beam computed tomography.
   True
   False

15. The authors reported that the dental expansion and the buccal rolling of the first premolar and the first permanent molar were minimal in the tooth-borne rapid maxillary expander group.
   True
   False

16. The authors concluded that the study showed significant transverse increases in facial and maxillary widths for the bone-borne maxillary expander group and in nasal width for the tooth-borne maxillary expander group.
   True
   False