

1. Missing posterior teeth in multiple quadrants in young females is highly correlated with temporomandibular disorders. (JDR 2009;88: 942-945)
A. True
B. False
2. Miniscrews that penetrate root surfaces during placement do not usually cause significant damage. (AO 2010; 80-1: 123-129)
A. True
B. False
3. Surface treatment of mini-screws by acid etching or sandblasting can provide greater removal torque value immediately after placement compared to machine surface. (AJODO 2009;136:708-714)
A. True
B. False
4. Miniscrews can be very effective for unilaterally intruding maxillary posterior teeth to level a canted maxillary occlusal plane. (AJODO 2009;136: 868-877)
A. True
B. False
5. Cooperation during orthodontic treatment is more closely related to the patient's motivation for treatment versus the parent's motivation. (AJODO 2009; 136: 780-787)
A. True
B. False
6. Tooth transposition is a rare phenomenon (< 1%) that occurs primarily in the maxilla and is more commonly found unilaterally. (AO 2010; 80: 275-285)
A. True
B. False
7. Autotransplanted teeth with complete root formation have a poorer survival rate than autotransplanted teeth with incomplete root formation.
A. True

B. False

8. In a recent study, researchers showed that the prevalence of white spot lesions for patients undergoing orthodontics is <30%, even after 12 months of treatment.

A. True

B. False

9. A recent study has shown that the American Board of Orthodontics discrepancy index is significantly associated with the duration of treatment in a university graduate orthodontic clinic.

A. True

B. False

10. Apical root resorption is associated with comprehensive orthodontic treatment.

A. True

B. False

11. There is no difference in the forces generated by nickel titanium closed coil springs made by different manufacturers.

A. True

B. False

12. Using miniscrews to level the maxillary occlusal plane in patients with vertical and lateral skeletal asymmetries has the potential to avoid the need for maxillary surgery.

A. True

B. False

13. A recent study looked at palatal expansion stability and found that the intermolar width is more stable than interpremolar width long term.

A. True

B. False

14. Orthodontic websites with doctors dressed in scrubs or laboratory coats are more attractive to prospective patients than sites with informal photographs.

A. True

B. False

15. The use of demineralized bone matrix in the secondary alveolar grafting procedure reduces the graft revision rate by almost 50%.

A. True

B. False

16. When miniscrews are placed by inexperienced surgeons, there is 20% risk of damaging the roots of adjacent teeth.

A. True

B. False

17. According to a recent clinical article by Dr. Burrow, a patient with an anterior deep bite may require upper incisor extrusion, rather than intrusion, to create the proper smile esthetics.

A. True

B. False

18. Delegating tasks to staff members usually reduces the quality of your practice.

A. True

B. False

19. Implementing the American Board of Orthodontics objective grading system in an orthodontic residency program can improve the quality of treatment of orthodontic patients.

A. True

B. False

20. Surgically-assisted rapid maxillary expansion produces nearly complete skeletal movement with little or no dental tipping when using a tooth-borne expansion device.

A. True

B. False

21. Takada et al. found the cheek pressure to be higher and tongue pressure to be lower on the shifted side in subjects with mandibular asymmetry.

A. **True**

B. False

22. In a recent study, researchers found that in >50% of cases, following extraction of maxillary impacted third molars, the periodontal probing distal to the second molar became deeper.

A. True

B. **False**

23. A recent study has shown that bisphosphonate-treated animals show a slight reduction in bone formation rate, but not total elimination of bone formation, around miniscrews.

A. **True**

B. False

24. A recent systematic review that evaluated the treatment of Class II furcation defects in adults has shown that regenerative treatment is more effective than open flap debridement.

A. **True**

B. False

25. Mandibular lip bumper therapy increases the likelihood of mandibular second molar impaction and ectopic eruption.

A. **True**

B. False

26. Cervical maturation stages can accurately predict peak mandibular growth.

A. True

B. **False**

27. Incisor inclination can dramatically affect smile esthetics judged from a profile view.

A. **True**

B. False

28. The use of rapid maxillary expansion in the early mixed dentition can be an effective method to increase the rate of eruption of palatally displaced maxillary canines.
- A. **True**
- B. False
29. Temporary anchorage devices (TADs) are such effective sources of anchorage because of their osseointegration into bone.
- A. True
- B. **False**
30. TADs give us an opportunity to manage anchorage in all three planes of space.
- A. **True**
- B. False
31. Sinus perforation and subsequent infection is common sequelae of placement of TADs in the maxilla.
- A. True
- B. **False**
32. Oral surgeons are better qualified to place TADs because of the need for operating room conditions for placement.
- A. True
- B. **False**
33. Anterior extrusion with TADs is the most stable way to close an anterior open bite.
- A. True
- B. **False**
34. After tooth intrusion, a rest period allows for complete recovery of any pulpal changes.
- A. True
- B. **False**
35. The long-term success of canine autotransplantation is associated with age at the time of the procedure.

A. **True**

B. False

36. Extraction of mandibular second premolars significantly improves the angulation of erupting mandibular third molar.

A. **True**

B. False

37. A bone graft after mandibular sagittal split osteotomy and set-back of >10mm produces a more stable result than without the bone graft.

A. **True**

B. False

38. Researchers have recently shown that a tooth root can be ground and used as an alveolar grafting material in experimental animals.

A. **True**

B. False

39. Zygomatic bone anchors reduce the molar anchorage loss during canine retraction from 1.5 mm to approximately 0.6 mm.

A. **True**

B. False

40. The thickness of the gingiva at the alveolar crest affects marginal bone stability around single-tooth implants.

A. **True**

B. False

Truly Light-Force Mechanics (4 questions)

41. Which following statement about tooth movement is false?

A. On the tension side, bone deposition occurs, both with weak and strong forces.

B. On the tension side, old bone was unchanged and easily distinguishable from new bone, both with weak and strong forces.

- A. **On the pressure side, root resorption occurs, both with weak and strong forces.**
- B. On the pressure side, strong forces lead to undermining resorption.
42. Which of the following statements about tooth movement is false?
- A. On the tension side, with strong forces used, bone was equally deposited and tooth surface remained free of root resorption.
- B. **On the pressure side, with strong forces used, bone underlying over-compressed areas was resorbed .**
- C. On the pressure side, with strong forces used, active resorption occurred with the tooth beside the over-compressed areas which is called the undermining resorption
- D. On the pressure side, with strong forces used, active resorption occurred with the bone underlying the over-compressed areas.
43. Which of the following statements about tooth movement is false?
- A. Light pressure greater than 26 g/cm² strangulates the capillaries of the periodontal tissues.
- B. **30-36 g/cm² is the same pressure found in the blood capillaries of the periodontal ligaments .**
- C. Collapsing a blood vessel, leads to their suffocation and buildup of necrotic tissue at the pressure areas.
44. Which of the following statements about tooth movement is false?
- A. Oxygen is the trigger mechanism for remodeling of the periodontium.
- B. **Optimum force is to stimulate cellular activity and completely occluding blood vessels.**
- C. If the force totally occlude blood vessels, a hyalinized avascular necrotic area is formed.
- D. The necrotic area must revascularize before teeth start to move.

Surgical and orthodontic management of impacted maxillary canines (6 questions)

45. About one third of impacted maxillary canines are positioned labially or within the alveolus, and two thirds are located palatally.

A. **True**

B. False

46. If the tooth were impacted in the center of alveolus, or the crown were positioned significantly apical to the mucogingival junction, closed eruption techniques would be recommended.

A. **True**

B. False

47. If there were insufficient gingiva in the area of the impacted canine, an apically positioned flap would predictably produce more gingiva.

A. **True**

B. False

48. Due to the healing of the apically positioned flap to the mucosa adjacent to the impacted tooth, the impactions tend to reintrude after orthodontic treatment.

A. **True**

B. False

49. According to Ericson and Kurol, if the periapical radiographs showed that the crown of the permanent canine were positioned over the root of the maxillary lateral incisor but not past the mesial surface of the root, self-correction of the ectopic canine may occur if the deciduous canine were removed.

A. **True**

B. False

50. If the palatal impaction was covered with bone due to insufficient bone removal, the tooth could still erupt easily even the dental follicle is deflated.

A. True

B. **False**

Congenitally missing mandibular second premolars: Clinical options (5 questions)

51. The radiograph showed that the bone level between the deciduous molar and the adjacent permanent teeth were flat, that indicated the deciduous tooth was not ankylosed.
- A. **True**
- B. False
52. If a deciduous second molar becomes ankylosed while the patient is young and undergoing significant facial growth, the deciduous molars should be extracted to prevent a significant ridge defect.
- A. **True**
- B. False
53. If an implant will be placed in the narrow alveolar ridge over second premolar area, it might be advantageous to push the first premolar into the second premolar position to create space for single-tooth implant in the first premolar area.
- A. **True**
- B. False
54. If an implant is used to move adjacent teeth and close edentulous space, the timing of implant loading must be delayed until the implant had fully integrated with surrounding bone.
- A. True
- B. **False**
55. If a patient who is missing second premolar and first permanent molar, it could place a single-tooth implant in the appropriate position as an anchor to close any space and this implant can be restored.
- A. **True**
- B. False

Inheriting the Unhappy Patient: An Interdisciplinary Case Report (13 questions)

56. If there were crown length discrepancies between maxillary anterior teeth, the clinician should determine the position of the CEJs and sulcular depth of these teeth in order to choose periodontal surgery or orthodontic intrusion techniques.
- A. **True**
- B. False
57. The intruded teeth must be held in that position for at least two months in order to allow the principal fibers of the periodontal ligament to become reoriented.
- A. True
- B. **False**
58. If the interproximal contact of maxillary central incisors was parallel with the long axis of the face, a maxillary dental midline can deviate up to 4 mm from the facial midline before laypersons would regard the change as unesthetic.
- A. **True**
- B. False
59. The alveolus has the capacity to remodel as the tooth and its surrounding socket wall are moved into the edentulous ridge which were at least half the width of the tooth.
- A. **True**
- B. False
60. How long is the retention time of intruded teeth?
- A. At least 1 months
- B. At least 2 months
- C. At least 3 months
- D. **At least 6 months**
61. Among the interdisciplinary team , who is usually responsible for the construction of the diagnostic wax-up?
- A. **Orthodontist**
- B. Surgeon
- C. Restorative dentist

D. Periodontist

62. How to correct crown length discrepancies between maxillary anterior teeth?

A. Periodontal surgery

B. Orthodontic intrusion

C. **Both of the above**

D. None of the above

63. If the CEJs are at the same level, but the sulcus depths differ, then the crown length discrepancy should be corrected with gingival surgery.

A. **True**

B. False

64. If the sulcus depths of contralateral teeth are similar and the CEJs are at different levels, then the crown length discrepancy should be corrected with orthodontic intrusion or extrusion.

A. **True**

B. False

65. If the interproximal contact is parallel with the long axis of the face, how much deviation of maxillary midline would be regarded as unesthetic before layperson?

A. 1 mm

B. 2 mm

C. 3 mm

D. **4 mm**

66. If the edentulous ridge were at least half the width of the tooth being moved into that ridge, then the remodeling process would probably be successful.

A. **True**

B. False

67. Construction of a diagnostic wax-up to simulate the occlusion that would be produced is mainly for patient. If the dentist is capable and experienced of the interdisciplinary case, diagnostic wax-up may not be necessary.

- A. True
- B. False**

68. When should crown lengthening procedure be carried out for an patient with altered active eruption?

- A. Before brackets placement**
- B. During orthodontic treatment
- C. After debunking

David Sarver, Esthetic analysis(8 questions)

69. Sarver's Classification of Appearance and Esthetic Analysis is comprised of three components: Macro-, Mini- and Micro-esthetic divisions.

- A. True**
- B. False

70. The core of Sarver's new Treatment Optimization approach is to keep the good stuff and eliminate the bad.

- A. True**
- B. False

71. Microesthetic analysis includes such assessments as gingival display on smile, inappropriate gingival heights and buccal corridors.

- A. True
- B. False**

72. Microesthetic analysis includes assessment of tooth proportion in height and width, gingival shape and contour.

- A. True**
- B. False

73. Each of the following methods can correct an open bite.

- Extrude the posterior segment (via a bite plate, bite turbos,etc)
- Intrude the maxillary incisors

- Intrude the mandibular incisors
- Flare the maxillary and/or mandibular incisors

A. **True**

B. False

74. The etiologies of a gummy smile are:

- Vertical maxillary excess
- Short philtrum height
- Excessive smile curtain
- Short anterior crown height
- Uprighted or detorqued upper incisors

A. **True**

B. False

75. For the treatment of short lower facial heights, we tend to open the bite with posterior dentoalveolar intrusion in order to increase facial height while attaining the functional goals.

A. True

B. **False**

76. To decrease gingival display through maxillary incisor intrusion, we would open the bite and decrease the gumminess of one's smile but also negatively affect his/her consonant smile arc.

A. **True**

B. False

ABO CRE(13 questions)

77. The ABO Objective Grading System for scoring dental casts and panoramic radiographs contains eight criteria: alignment, marginal ridges, buccolingual inclination, occlusal relationships, occlusal contacts, overjet, interproximal contacts, and root angulation.

A. **True**

B. False

78. In the anterior region, the incisal edges and lingual surfaces of the maxillary anterior teeth and the incisal edges and labial-incisal surfaces of the mandibular anterior teeth were chosen as the guide to assess anterior alignment.

A. **True**

B. False

79. In the maxillary posterior region, the mesiodistal central groove of the premolars and molars is used to assess adequacy of alignment.

A. **True**

B. False

80. In the mandibular arch, the central groove of the premolars and molars are used to assess proper alignment.

A. True

B. **False**

81. Marginal ridges are used to assess proper horizontal positioning of the posterior teeth.

A. True

B. **False**

82. The buccolingual inclination is used to assess the buccolingual angulation of the posterior teeth.

A. **True**

B. False

83. The occlusal relationship is used to assess the relative anteroposterior position of the maxillary and mandibular posterior teeth.

A. **True**

B. False

84. Occlusal contacts are measured to assess the adequacy of the posterior occlusion.

A. **True**

B. False

85. Overjet is used to assess the relative transverse relationship of the posterior teeth and the anteroposterior relationship of the anterior teeth.

A. **True**

B. False

86. Interproximal contacts are used to determine if all spaces within the dental arch have been closed.

A. **True**

B. False

87. Root angulation assessment is used to evaluate how well the roots of the teeth have been positioned relative to one another by the use of finishing cast.

A. True

B. **False**

88. The relative angulation of the roots of the maxillary and mandibular teeth are assessed on the panoramic radiograph .

A. **True**

B. False

89. The greater value these indicators score in the ABO-CRE scores, the better treatment quality this case has achieved.

A. True

B. **False**

ABO DI(9 questions)

90. Case difficulty can often be subjective; however, it is related to case complexity, which can be quantifiable.

A. **True**

B. False

91. The smaller value these indicators score in the Discrepancy Index(DI), the greater complexity this case presents.
- A. True
- B. False**
92. DI is an objective method to describe the complexity of the treatment for a patient based on observations and measurements taken from standard pretreatment orthodontic records, including casts and cephalometric and panoramic radiographs.
- A. True**
- B. False
93. Overjet is scored as the distance between the lingual incisal edge of the most forwardly positioned maxillary incisor to the labial incisal edge of the most forwardly positioned mandibular incisor.
- A. True**
- B. False
94. For anterior open bite, if the maxillary and mandibular incisors are in an edge-to-edge relationship (overbite = 0), then 1 point is scored.
- A. True**
- B. False
95. For each maxillary posterior tooth in lingual crossbite, 2 points are scored.
- A. True
- B. False**
96. For each maxillary posterior tooth in complete buccal crossbite, from first premolar to third molar, 1 point is scored .
- A. True
- B. False**
97. If the SN-GoGn angle is between 27° and 37°, no points are scored.
- A. True**
- B. False

98. If the IMPA angle is greater than 90° , 1 point is scored for each degree above 90° .
- A. True
 - B. False**
99. The first step in implant treatment planning is:
- A. Determination of available bone
 - B. Determination of soft tissue quality
 - C. Determination of the extension and limits of the new planned restoration**
 - D. None
100. In a complete maxillary implant rehabilitation the first step is
- A. Place implants
 - B. Determination of the middle line and occlusal plane of the planned restoration**
 - C. Determination of available bone
 - D. None
101. The ideal 3 dimensional position of the implant is
- A. At the level of the existing bone
 - B. At 2 mm from the cervical contour of the planned crown in apical direction and 3 mm in palatal direction
 - C. At 3 mm from the cervical contour of the planned crown in apical direction and 2 mm in palatal direction**
 - D. At the level of the CEJ of the adjacent teeth
102. The soft tissue could be sculptured prosthetically by guiding the soft tissue during the healing process and by:
- A. Supporting the soft tissue
 - B. Removing soft tissue
 - C. Compressing soft tissue
 - D. All are correct**
103. The ideal depth of the ovate pontic into the soft tissue for final restoration is:

- A. 3 mm
- B. 0 mm
- C. 2.5 mm
- D. 1.5 mm**

104. The height of peri-implant papilla in single-tooth restorations is dependent of:

- A. The type of implant
- B. The type of abutment
- C. The interproximal bone height of the adjacent teeth**
- D. The implant abutment connection

105. The dimension of the biological width around dental implants is proximally:

- A. 1 mm
- B. 2 mm
- C. 3 mm**
- D. 4 mm

106. To determine if a maxillary case could be for a fixed restoration, with natural size crowns and soft tissue around, the distance from the maxillary central incisor to the level of the remaining bone in the analysis need to be:

- A. 10.5 mm
- B. 11 mm
- C. 14 mm**
- D. 17 mm

107. The ideal palatal position of an implant from the cervical contour is approximately 2mm because:

- A. Is the same in natural dentition
- B. To create and adequate emergence profile
- C. To make sure that abutment can fit in the prosthetic area for future restoration
- D. To maintain adequate thickness of buccal bone and prevent its resorption**

108. In the implant abutment connection, one advantage of the internal cone connection is:
- A. The absence of micro movements
 - B. The absence of micro leakage
 - C. No pumping effect
 - D. All are correct**
109. In a maxillary edentulous patient, with available bone to place implants, but with a distance between the incisal edge of the maxillary central incisor to the level of the existing bone of 19 mm and without lip support, the ideal treatment plan could be:
- A. Fixed restoration
 - B. Fixed detachable
 - C. Overdenture**
 - D. None
110. In a maxillary edentulous patient, with available bone to place implants, but with a distance between the incisal edge to the maxillary central incisor to the level of the existing bone of 17 mm and with lip support, the ideal treatment plan could be:
- A. Fixed restoration
 - B. Fixed detachable**
 - C. Overdenture
 - D. None
111. Working with CAD/CAM abutments (Atlantis), how many emergence width options (or degree of compression in the soft tissue) are possible?
- A. 1
 - B. 2
 - C. 3
 - D. 4**
112. The best strategy for management of type 2 extraction socket is:
- A. Immediate implant placement without bone graft

- B. Immediate implant placement with bone graft
- C. Delayed implant placement after allowing for healing of the socket naturally
- D. Delayed implant placement after socket repair with ice cream cone technique.**

113. In socket preservation grafting, the best method for filling the socket is:

- A. Thorough condensation of the bone graft material
- B. Loose placement of bone graft to allow many spaces between bone graft particles**
- C. Leaving the socket unfilled to heal naturally
- D. Filling the socket with a block graft from the chin or ramus.

114. In socket preservation grafting, the best method for managing the tissues around the socket is:

- A. To reflect a flap, releasing the flap to achieve primary coverage over the socket
- B. Placing the bone graft particles in socket without any membrane coverage
- C. Placing the bone graft particles in socket with membrane coverage of the socket opening**
- D. Leaving the socket unfilled with membrane coverage of the socket opening.

115. According to Araujo, et al (J Clin Periodontol 2005; 32: 212–218),

- A. Significant ridge resorption occurred during the first 8 weeks following the extraction
- B. More pronounced resorption occurred at the buccal crestal area
- C. The buccal crest started higher than the lingual, but the relationship reversed after bone remodeling
- D. All of the above**

116. According to Lasella, et al (J Periodontol 2003; 74: 990–999),

- A. After tooth extraction, the group with socket preservation bone grafting and the group with no socket preservation bone grafting both lost ridge width
- B. After tooth extraction, the group with socket preservation bone grafting lost less ridge width than the group with no socket preservation bone grafting

C. Histologic study showed more vital bone (65%) in the group with socket preservation bone grafting than the group with no socket preservation bone grafting (54%)

D. All of the above

117. According to Albrektsson, et al (1985) and Eriksson, et al. (1982, 1984), which of the following statements are correct regarding the relationship between temperature of bone during osteotomy and its vitality:

A. Heating bone to 47° C for 1 min significantly reduces amount of bone growth

B. Heating bone to 44° C for 1 min has no significant effects in bone formation

C. The recommended temperature for bone during osteotomy is 42° C or lower.

D. All of the above

118. According to Botticelli et al. (J Clin Periodontol 2004; 31: 309), when implants are placed in cylindrical surgical defects in dog mandible where the buccal bone wall during defect preparation was intentionally removed, the following healing pattern is observed.

A. At the buccal aspects, healing is incomplete

B. At the buccal aspects, the dimension of the defect is reduced by the limited amounts of new bone formation extending from the lateral and apical borders of the defect

C. This defect model is similar to type 2 extraction socket

D. All of the above

119. What are properties of cone beam computed tomography (CBCT) scan?

A. X-ray beam is projected on a flat panel detector

B. Less radiation dose than medical spiral (helical) CT scan

C. The X-ray beam consists of a focused cone

D. All of the above

E. None of the above

120. Stereolithographic surgical guides have following properties:

A. Can have 3 forms of support: bone-supported, tooth-supported soft tissue-supported

B. Can increase the precision of implant placement

- C. Require careful pre-treatment positioning of implants during virtual planning
- D. The guides lack anatomic landmarks
- E. All of the above**

121. Finite element analysis of three designs of an implant-supported molar crown (Geramy, et al 2004) has shown that:

- A. Compared with regular diameter (3.5mm) implants, wide diameter (5mm) implants reduce stresses by almost 2/3.
- B. Compared with one regular diameter (3.5mm) implants, two regular diameter implants used in restoration of one molar reduce stresses the most.
- C. All of the above**
- D. None of the above

122. What are some considerations in replacement of mandibular molars?

- A. Bone quality in the mandibular molar area is usually quality 2 or 3.
- B. Placement of the implants in mandibular molar is limited by the position of the inferior alveolar nerve inferiorly
- C. Implants with a supra-crestal platform have a disadvantage relative to bone-level implants because the supra-crestal platform will limit the space for developing an emergence profile.
- D. All of the above**
- E. None of the above

123. What are some important considerations in socket preservation?

- A. Folding the margins of the membrane inward to be positioned below the gingival margin.
- B. Securing the membrane with sutures so that the position is maintained during the healing period
- C. Selection of a membrane which can maintain protection over the graft material until granulation tissue and/or mucosa covers the graft material
- D. All of the above**
- E. None of the above

124. What are some properties of polytetrafluorethylene (PTFE) membranes?
- A. Favorable tissue response, which will allow the membrane to stay in patients for extended periods
 - B. PTFE is non-resorbable membrane, which has the advantage that it can maintain protection over the entire healing period
 - C. Ease of handling of PTFE since it can be molded into the proper shape to cover the socket
 - D. All of the above**
 - E. None of the above
125. The typical healing period using the socket preservation technique for type 1 extraction sockets include:
- A. Approximately 4 weeks of healing time is required for the bone graft to be covered by granulation tissue and/or mucosal coverage and for that reason the membrane is typically removed after 4 weeks
 - B. Approximately 3 months of healing time is required for sufficient osteogenesis around bone graft to support implant placement
 - C. For extraction sockets which are too large or those with anatomic defects (such as communication with maxillary sinus), additional healing period will be required
 - D. All of the above**
 - E. None of the above
126. Multiplanar formatting (MPR) of three-dimensional images by CT or CBCT can
- A. MPR formatting can generate coronal, axial, sagittal, panoramic or cross-sectional views
 - B. Cross-sectional view is the most helpful view for implant site planning since it reveals the facial and lingual bones which is not otherwise detectable by 2D imaging.
 - C. MPR formatting allows for dynamic planning of implant sites because it is possible to view the same aspect of the anatomy in multiple views
 - D. All of the above**
 - E. None of the above

127. Which of the following statements are true of the scan prosthesis (radiographic template) include:

- A. Allowing for capturing of the planned prosthesis into the diagnostic imaging
- B. The availability of prosthetic landmarks during virtual planning will provide an opportunity to position the implant both relative to anatomic structures (alveolar bone and adjacent teeth) as well as to the planned restoration
- C. Scan prosthesis can be made using a radio-opaque duplicate of existing restoration or by adding radio-opaque material (temporary cement, bis-acrylic material, bite registration material, etc) to existing restoration provide that the existing prosthesis is similar in position to the planned restoration
- D. All of the above**
- E. None of the above

128. Which of the following are important considerations in socket preservation bone grafting?

- A. Packing the bone graft material tightly to make sure the entire socket is fully occupied by dense bone graft
- B. The best solution for re-hydrating bone graft material is local anesthetic because it can also provide comfort for patients
- C. If bone graft material falls into the floor of the mouth and becomes contamination with saliva and plaque, it is OK to pick it up and place it into the socket because the body's immune system will decontaminate the bacteria
- D. All of the above**
- E. None of the above

3 Kokich canine substitution

129. The treatment options that exist for replacing missing lateral incisors includes

- A. canine substitution.
- B. a tooth-supported restoration.
- C. a single-tooth implant.
- D. all of the above.**

130. The primary consideration among all treatment plans should be
- A. function.
 - B. esthetics.
 - C. conservation.**
 - D. cost.
131. The specific dental and facial criteria that must be evaluated before choosing canine substitution as the treatment of choice for replacing missing maxillary lateral incisors includes:
- A. malocclusion and amount of crowding.
 - B. canine shape and color.
 - C. age and gender of the patient.
 - D. A and B.**
132. How many types of malocclusions permit canine substitution?
- A. one.
 - B. two.**
 - C. three.
 - D. four.
133. To establish a normal overbite and overjet relationships, what must often be reduced
- A. The teeth directly posterior to the malocclusion.
 - B. The anterior tooth size excess that is created in the maxillary arch.**
 - C. The posterior tooth size that is created in the mandibular arch.
 - D. The teeth directly anterior to the malocclusion.
134. Depending on the amount of incisal edge wear of the canine, it may be necessary to restore which edges to recreate normal lateral contours?
- A. distolateral and mesiobuccal
 - B. lingual and labial
 - C. mesioincisal and distoincisal**

D. distolingual and mesiobuccal-lingual

135. A significant amount of what reduction is generally required for the orthodontist to vertically position the canine in the appropriate lateral incisor location?

A. **incisal and palatal**

B. lingual and labial

C. incisal only

D. labial only

136. The orthodontist should place the brackets according to gingival margin height rather than

A. incisal edge.

B. cusp tip.

C. lingual angle.

D. **A and B.**

137. Typically, the brackets on the canines should be placed at a distance from what margin that will erupt these teeth into the appropriate lateral incisor vertical position?

A. labial

B. lingual

C. **gingival**

D. interproximal

4 PPAD200109

138. The removable pontic must be reinserted within how many minutes to prevent gingival tissue collapse?

A. **10 minutes.**

B. 30 minutes.

C. 60 minutes.

D. 360 minutes

139. The removable ovate pontic described in this article:

- A. Should be removed only for hygiene purpose.
- B. Must be placed immediately following implant placement.
- C. Must not be in contact with the underlying implant healing abutment.
- D. All of the above.**

140. If the failing tooth possesses a normal gingival architecture, how much facial gingival tissue recession can be expected following immediate implant placement?

- A. 1 mm.**
- B. 2 mm.
- C. 3 mm.
- D. 4 mm.

141. A normal and stable gingival-to-osseous relationship around the tooth has the facial dimension of:

- A. 1.5 mm.
- B. 3 mm.**
- C. 4.5mm.
- D. 6mm.

142. For single tooth implant-supported restorations, the interproximal tissue is determined by:

- A. The adjacent tooth support.
- B. The size of the gingival embrasure.
- C. The interproximal bone level of the adjacent tooth.**
- D. All of the above.

143. Which periodontal form is most prone to development of an unaesthetic “black triangle?”

- A. Thin and flat.
- B. Thick and flat.
- C. Thin and scalloped.**

D. Thick and scalloped.

144. All of the following objectives have been attributed to atraumatic tooth extraction EXCEPT:

A. Maintenance of aesthetics.

B. Preservation of the bony plate.

C. The achievement of primary closure.

D. Preservation of the gingival architecture.

145. Maintaining gingival architecture following implant placement is governed by:

A. The surgical concept.

B. The prosthodontic concept.

C. The osseointegrated concept.

D. All of the above.

146. How much facial gingival tissue recession can be expected when ovate pontic is used for conventional fixed partial denture following tooth removal?

A. Approximately 1 mm.

B. Approximately 2 mm.

C. Approximately 3 mm.

D. Approximately 4 mm

147. Primary implant stability can be achieved by:

A. Engaging the implant to the labial plate.

B. Engaging the implant against the palatal wall.

C. Engaging the bone 1 mm beyond the apex.

D. All of the above.

5 Kan EDS

148. According to immediate implant criteria, which kind of Biotype is the best for esthetics?

A. Thick gingiva with short and square tooth

- B. Thin gingiva with square tooth
- C. Thick gingiva with scallop papilla
- D. Thin gingiva with scallop papilla
- E. None of above

149. According to recent reports, THICK BIOTYPE is characterized by ?

- A. Low smile line
- B. Short and narrow tooth
- C. High Scallop interdental papilla
- D. Flat interproximal gingival contour**
- E. All of above

150. The extraction defect assessment techniques include many parts, Except ?

- A. Document the biotype
- B. Record the gingival margin
- C. Check smiling line**
- D. Assess the surrounding bone
- E. All above is included

151. Which situation allows for Predictable immediate implant placement?

- A. Thin biotype with intact bone
- B. Thick biotype with pristine bone
- C. Thick biotype with Periodontal mobility III tooth
- D. A and B**
- E. B and C

152. Which is Not the benefits of Orthodontic Extrusion?

- A. minimizes the gap between implant body and socket wall
- B. augments the overlying gingival tissue
- C. enhance the potential of healing

D. **increase the challenge of atraumatic extraction**

E. enhance primary stability

153. According to Miller's gingival recession classification, Miller class II stands for?

A. Recession extends beyond MGJ, but no periodontal attachment loss in the interdental area

B. Recession does not extend to MGJ

C. Recession extends beyond MGJ with periodontal attachment loss in the interdental area

D. Recession extends to MGJ without periodontal attachment loss in the interdental area

E. **a+d**

154. According to Tarnow's papillary height classification, Class I stands for?

A. Interdental papilla fills embrasure space

B. **Interdental papilla lies between contact point and interproximal CEJ**

C. Interdental papilla lies between interproximal CEJ and facial CEJ

D. Interdental papilla lies apically to facial CEJ

E. Interdental papilla lies beyond MGJ

155. For esthetic zone, which procedure is Not a favorable method for increasing soft tissue amount?

A. SCTG with vertical incision

B. SCTG with envelop method

C. **FGG**

D. Orthodontic extrusion

E. Coronally Positioned Flaps with connective tissue graft

156. In modern Implantology, the key points should include?

A. Proper diagnosis, treatment planning and interdisciplinary approach

B. Understanding of the anatomy of the hard and soft tissue involved

C. Extract hopeless tooth right after diagnosed

- D. **a+b**
- E. a+b+c

6 PPAD200903

157. What is thought to be one of the primary disadvantages of cross-linked membranes?

- A. Difficult clinical handling.
- B. Reduced barrier time.
- C. **Critical behavior towards soft tissue integration.**
- D. Expensive.

158. When does the biodegradation of the bilayered collagen membrane start?

- A. **After four to six weeks.**
- B. After four to six months.
- C. After one year.
- D. There is no biodegradation.

159. How much bone should be located on the buccal site of an implant in the aesthetic zone?

- A. 0.5 mm.
- B. 1 mm.
- C. 1.5 mm.
- D. **At least 2 mm.**

160. On what general principle is the GBR/GTR technique based?

- A. Regeneration of bone by growth factors.
- B. **Exclusion of nonosteogenic soft tissue cells by a membrane.**
- C. Addition of bone particles
- D. None of the above.

161. What is the major disadvantage of nonresorbable membranes?

- A. Difficult clinical handling.

- B. Lack of scientific data.
- C. Risk of exposure and severe tissue loss.**
- D. Not commercially available anymore.

162. According to the authors, uncovered implant threads may have what affect on the outcome of an implant-supported restoration?

- A. Failure of the definitive restoration.
- B. Prevent primary stability.
- C. Soft tissue recession.**
- D. None of the above.

163. What is the rationale for positioning the bilayered collagen membrane with its rough surface towards the soft tissue?

- A. Improved soft tissue integration.**
- B. Improved regenerative result.
- C. Improved stabilization of the graft.
- D. Easier to apply.

164. What is the rationale for using the cross-linked membrane as the first layer on the bone?

- A. Better stability.
- B. Prolonged barrier time.**
- C. Higher soft tissue integration.
- D. None of the above.

165. Why is GBR needed for implant placement in the anterior zone?

- A. Implant needs to be protected with bone.
- B. Higher chances for osseointegration of implant.
- C. To optimize tissue levels following tooth extraction.**
- D. It is not needed.

166. According to the authors, what is one of the most important factors for successful GBR?

- A. **Primary wound closure.**
- B. Location of GBR/GTR.
- C. Technique.
- D. Implant system.

7 PPAD200808

167. What traditional challenges have been associated with screw-retained restorations in partially edentulous patients?

- A. Potential for increased implant-abutment joint opening and screw loosening.
- B. Potential for aesthetic and/or structural compromise of the prosthesis.
- C. Potential for marginal gaps between cast abutments and implants, often resulting in soft-tissue inflammation.
- D. **All of the above are correct.**

168. Which factors have greatly reduced the traditional complication of screw loosening?

- A. Screw-retained abutments and nanocomposite material.
- B. Improved hybrid composite materials and greater tolerances at the implant-abutment interface.
- C. **Improved manufacturing tolerances at the implant-abutment interface and torque limits for screw tightening.**
- D. Friction-fit screws and composite filler materials.

169. For what types of restorations may composite restorative materials be used?

- A. Provisional restorations.
- B. Definitive restorations.
- C. **Both A and B are correct.**
- D. None of the above is correct.

170. What must a working cast contain for indirect construction of a composite prosthesis?

- A. Implant replicas with their dimensions clearly labeled on the working cast.
- B. Replicas of the patient's implants and surrounding soft tissues.**
- C. Adjacent dentition with clearly identified anatomical landmarks.
- D. None of the above is correct.

171. Which two components can greatly facilitate fabrication of a screw-retained, single-tooth restoration?

- A. Composite denture tooth and adequate screw tightening.
- B. Composite denture tooth and precontoured abutment.**
- C. Flowable composite material and precontoured abutment.
- D. Precontoured abutment and appropriate composite filler material.

172. What advantages between the mating geometry of the implant and abutment can a virtual "cold-weld" provide?

- A. Eliminate abutment rotational micromovements, vibration, and tipping associated with screw loosening.
- B. Shield the abutment screw from excessive occlusal forces.
- C. Transfer occlusal stresses into the body of the implant, where they are dispersed in bone.
- D. All of the above are correct.**

173. What is an advantage of using a nanocomposite material technique?

- A. Nanocomposite has a wear coefficient comparable to enamel.
- B. This technique allows screw retention in situations with abnormal screw accesses.
- C. Nanocomposite absorbs the shock of occlusion better than porcelain thereby transferring less force to the implant and interface.
- D. All of the above are correct.**

174. What alternative components can eliminate the need for opaquing?

- A. Precontoured or custom zirconia abutment.**
- B. Use of metal primer.
- C. Sandblasting the abutment head.

D. Applying a thin coat of bone cement to the abutment head.

175. Which of the following areas is contraindicated for use of microfilled composite resins?

- A. **Heavy, stress-bearing, posterior jaw locations.**
- B. Any location in the highly visible “ aesthetic zone” of the maxillary jaw.
- C. Mandibular central incisor location.
- D. All of the above are correct.

176. What types of fillers do nanocomposite materials contain?

- A. Polyclusters of nanosilica particles fused with polymer-based resins.
- B. **Nanomers and nanoclusters of primary zirconia/silica nanoparticles fused together with silane.**
- C. Cross-linked nanomers infiltrated with alumina nanoparticles and silica clusters
- D. None of the above is correct.

8 PPAD200701

177. Different slowly resorbing biomaterials incorporated into the alveolar implant gap do which of the following?

- A. Support the soft tissue.
- B. Improve the aesthetic result.
- C. Preserve the dimension of the alveolar crest.
- D. **All of the above.**

178. Which part of the new implant design will prevent marginal soft tissue recession from occurring?

- A. **The rough collar.**
- B. The rough body.
- C. The polished collar.
- D. The machined body.

179. The least marginal cervical bone loss is achieved when the platform of the implant is placed at which level?
- A. Below the bony crest.
 - B. At the bony crest.
 - C. Above the bony crest.**
 - D. The level makes no difference.
180. New implants with microthreads or grooves up to the collar can do which of the following?
- A. Prevent interdental bone resorption.**
 - B. Activate the osseointegration process.
 - C. Has no significant influence on cervical bone.
 - D. Both A and B.
181. Immediate placement of the implant atraumatic extraction is considered favorable to preserve the bony envelope. This statement is correct for which of the following situations?
- A. Thin biotype.
 - B. Thick biotype.**
 - C. Both A and B.
 - D. Neither A nor B.
182. The forced-eruption concept applied before extraction and implant placement is mainly recommended in which of the following?
- A. Thin biotype.
 - B. Thick biotype.
 - C. Enhancing coronal hard and soft tissue.
 - D. Both A and C.**
183. The predictability of the aesthetic outcome does not depend upon which of the following?
- A. Patient's age.**

- B. Surgical trauma.
- C. Patient's biotype.
- D. Understanding the biological implications.

184. Which of the following does incision flap design at implant placement and/or implant position determine?

- A. The interproximal bone level.
- B. The final aesthetic outcomes.
- C. The healing type of the mucosa.
- D. **All the above.**

9 PPAD200805

185. Which of the following imaging modalities for implant diagnostics has the highest accuracy on all levels?

- A. **MSCT**
- B. CBCT
- C. Plain film
- D. Panorex

186. Which of the following is the primary advantage of CBCT scanners when compared to MSCT?

- A. **Cost of the unit.**
- B. radiation.
- C. Size of the unit.
- D. Duration of imaging required.

187. Which of the following types of surgical implant guided support is generally not feasible?

- A. Bone-supported
- B. Mucosal-supported.
- C. Tooth-supported.

D. Tooth-bone-supported.

188. The purpose of an accurate scanning appliance is to:

- A. Help establish the prosthetic outcome prior to surgery.
- B. Allow the surgeon to accurately relate a patient's anatomy to final tooth position.
- C. Assist in the informed consent process about the requirements necessary for the team to achieve the patient's desired goal.

D. All of the above.

189. Which of the following is the best place to begin the paradigm shift into computer-guided implantology?

- A. Immediate load prosthetic cases where surgical guidance will be used.
- B. Single-tooth immediate provisional implant cases that require the use of a surgical guide.

C. Utilization of CT scans and guided implant placement software for improved preoperative decision making.

- D. Implant surgery cases that involve more than one fixture.

190. Multi-slice CT scanning systems provide:

- A. Lengthy imaging session durations.

B. Thin or collimated rays of ionizing radiation that allow controlled imaging to tissue structure.

- C. No usage of collimated rays and may expose the tissues outside of the area of interest to minimal radiation.

- D. None of the above.

191. Which is the greatest limitation of CBCT scanners when compared to MSCT?

- A. Time involved in imaging a patient.

- B. Maintenance and associated cost for unit upkeep.

C. Inaccurate Hounsfield measurements.

- D. Radiation exposure required to image a patient.

192. Which of the following is a drawback to utilizing computer-guided implantology?

- A. Reduced surgical time.
- B. More accurate implant placement.
- C. Increased time demanded during diagnostic planning.**
- D. Enables a more enhanced informed consent process.

193. What is collaborative accountability?

- A. A philosophical mantra that embraces the team concept and is centered around the patient's outcome.
- B. A paradigm shift in leadership roles for implant dentistry whereby the restorative dentist drives treatment by setting performance standards that the team must follow.
- C. Preoperatively based treatment planning using 3D diagnostic information to make treatment decisions, enhance the informed consent, and provide more accurate prosthetically directed implant placement.
- D. All of the above.**

194. Image acquisition using cone beam technology is generally less spatial because it provides:

- A. Cross-sectional slices.**
- B. Panoramic slices.
- C. Axial slices.
- D. None of above.

10 PPAD200702

195. Platelet-rich fibrin (PRF) can be used in conjunction with allogenic bone or synthetic bone substitutes. This will minimize the number of surgeries.

- A. Only the first statement is true.
- B. Only the second statement is true.
- C. Both statements are true.**
- D. Neither statement is true.

196. Titanium, aluminum, and zirconium oxides are the only materials that will allow adhesion to:

- A. The junctional epithelium.
- B. Hemidesmosomes.
- C. Connective tissue fibroblasts.
- D. All the above.**

197. Adding a connective tissue graft during implant placement or at the time of implant exposure will:

- A. Provide resistance to inflammatory recession.
- B. Prevent resorption of the cortical plate and peri-implant gingival recession.
- C. Convert a thin biotype into a thick biotype.
- D. All the above.**

198. Prosthetic procedures should avoid multiple connections/disconnections of prosthetic components. They should also involve biocompatible materials transmucosally.

- A. Only the first statement is true.
- B. Only the second statement is true.
- C. Both statements are true.**
- D. Neither statement is true.

199. Nowadays, the final abutment should be connected and left undisturbed. This is particularly true in patients with thick biotypes.

- A. Only the first statement is true.**
- B. Only the second statement is true.
- C. Both Statements are true.
- D. Neither statement is true.

200. In order to retain hard/soft tissue around the implant, the transmucosal abutment should be:

- A. Oversized.
- B. Divergent.
- C. Convex.

D. Concave.

201. The negative profile of the abutment submergence profile will NOT:

A. Thicken the soft tissue.

B. Improve the biotype.

C. Violate the biological width.

D. Enhance the aesthetic result.

202. Biomaterials for prosthetic components should be limited to:

A. Titanium.

B. Aluminum.

C. Zirconium oxides.

D. All of the above.

203. What statement about the switch platform concept is NOT correct?

A. It allows the formation of the biological space partially on the platform.

B. It changes the biological space formation in horizontal and vertical components.

C. It enhances cervical bone preservation.

D. It achieves peri-implant soft tissue recession.

204. Different morphological changes have occurred in implant design and on surfaces. Which of the following statements is correct?

A. Micro-grooves inside the thread activate the osseointegration process.

B. Micro-grooves at the collar are one of the most effective designs to maintain the marginal bone level against functional loading.

C. Both A and B

D. None of the above.

11 PPAD199901

205. Which of the following is / are true with regard to the osseous scallop in a typical patient?

A. Averages 3 mm from facial to interproximal

- B. Does not mimic the gingival scallop.
- C. Follows the shape of the CEJs of the teeth.
- D. All of the above.

206. The gingival scallop is characterized by which of the following?

- A. It mimics the osseous scallop.
- B. It is 1.5 mm to 2.5 mm greater than the osseous scallop.**
- C. It is unrelated to the underlying bone.
- D. It remains the same whether a tooth is present or not.

207. Which of the following is responsible for the height of the papilla?

- A. A different biological width interproximally and facially.
- B. Different types of gingiva interproximally and facially.
- C. The volumes of the gingival embrasures between the teeth.**
- D. The gender of the patient.

208. Which of the following is true about the height of the papilla following extraction?

- A. It can be maintained if the gingival embrasure is controlled at the time of extraction.**
- B. It is not dependent upon the presence of teeth.
- C. It remains unchanged.
- D. IT will always reform as long as the definitive restoration has the correct shape.

209. Which of the following influence(s) the predict-ability of papilla maintenance?

- A. Controlling the embrasure at the time of extraction.
- B. The height of bone on the teeth adjacent to the extraction.
- C. The type of gingival tissue at the time of extraction.
- D. All of the above.**

210. Which of the following is valid with regard to the pontic placed at the time of extraction?

- A. It should be undercontoured compared to the natural tooth.

- B. It should extend 2.5 mm apical to the free gingival margin into the extraction site.**
- C. It should not be polished so it accumulates plaque and promotes tissue swelling.
- D. It should not extend into the extraction site.

211. Four weeks postextraction, the pontic:

- A. Should be left unchanged.
- B. Should be polished.
- C. Should be shortened 1 mm to 1.5 mm apical to the free gingival margin.**
- D. Should be shortened to the level of the free gingival margin.

212. Which of the following is / are true about the manner the pontic is supported?

- A. The adjacent teeth must be prepared and a provisional fixed partial denture must be placed.
- B. The pontic can be bonded to the adjacent teeth.**
- C. The pontic must be made on a provisional partial denture.
- D. All of the above.

213. Tissue modification is characterized by which of the following?

- A. It depends on when the pontic was placed following extraction.**
- B. It is different for males versus females.
- C. It is the same for all patients.
- D. It will return to pre-extraction levels over time.

12 PPAD200904

214. Immediate loading is more predictable on full arches than single implants because:

- A. Cross-arch splinting**
- B. Anatomic variability of implant sites
- C. Different implant types are used
- D. All of the above

215. The degree of labial alveolar crest height lost due to bone remodeling following tooth-extraction will depend on:

- A. Whether the extracted tooth is located in the mandible or the maxilla
- B. Prescription of appropriate corticosteroids
- C. The patient's eruption sequence
- D. Periodontal biotype**

216. Placement of an implant into an extraction socket will prevent bone resorption

- A. True
- B. False
- C. Remains controversial**
- D. None of the above

217. The mechanisms of failure for immediately loaded implants often include which of the following:

- A. Micromotion
- B. Excessive fibrous tissue proliferation along the implant surface
- C. Inadequate bone-to-implant contact
- D. All of the above**

218. According to published studies, what is the minimum insertion torque required for immediate loading of single implants?

- A. 1.5 Ncm
- B. 45 Psi
- C. 90 Ncm
- D. 45 Ncm**

219. What is the advantage of immediate provisionalization following implant placement into an extraction socket?

- A. Improved patient management
- B. Support of the supra-crestal soft tissue
- C. Maintenance of papilla and peri-implant tissue levels
- D. All of the above**

220. What is the principal advantage of using a transitional custom abutment?
- A. **Enhanced control of restorative contours and emergence profile**
 - B. Time saving
 - C. Cost efficiency
 - D. Allows use of a cemented provisioned
221. What is the purpose of initiating the osteotomy with the precision drill?
- A. Enhanced visibility
 - B. Allows drilling at much faster speeds
 - C. **Precise drilling on the incline of a socket wall**
 - D. No need to use subsequent drills
222. How is the drilling sequence modified to enhance primary stability if the implant does not have a conical apex?
- A. Undersize the osteotomy by not using the final drill at all
 - B. **Underprepare the apical 1/3 of the osteotomy by using the final drill to 2/3 the implant length**
 - C. Reverse the drilling sequence
 - D. None of the above
223. Why is the implant oriented towards the palate, leaving a labial gap of 1 mm to 2 mm?
- A. To avoid touching the labial gingival margin.
 - B. To ensure that the abutment screw will exit through the lingual surface.
 - C. **To avoid trauma to the buccal plate throughout the implant procedure**
 - D. To provide sufficient space for a grafting material

13 PPAD200802

224. Why is collaboration between the implant surgeon, restorative dentist, and dental technician important?
- A. Input from all members of the treatment team is beneficial for an optimal result.

- B. Replacement of missing teeth in the aesthetic zone requires the totality of the implant team's skill and experience.
- C. Both A and B are correct.**
- D. Neither A nor B are correct.

225. The facial outline of the maxillary central incisor cements/enamel junction:

- A. Is symmetrical.
- B. Has an apical curvature zenith that is located mesial of the midline.
- C. Has an apical curvature zenith that is located distal of the midline.**
- D. Is not important for the implant-supported crown.

226. Differences between natural teeth and implant crowns include:

- A. An osseous architecture that follows the CEJ and supports the overlying soft tissue.
- B. A curvilinear CEJ versus a rotational restorative platform.
- C. Insertion of connective tissue fibers into dentin versus a zone of a vascular connective tissue in direct contact without insertion to the implant surface.
- D. All of the above.**

227. One result from establishing biologic width around a dental implant restoration is:

- A. Bone resorbs approximately 2 mm apically and 1.4 mm laterally from the implant-crown interface.**
- B. Biologic width only is applicable to natural dentition and does not account for bone loss surrounding dental implants.
- C. Bone loss found surrounding the implant's coronal platform caused solely by adverse mechanical forces applied to the implant restoration.
- D. Excessive placement of the implant-crown interface apical to the crestal bone will not result in the loss of alveolar bone with gingival recession.

228. The outline of the facial gingival margin is dictated by the location of the CEJ relative to the root surface.

- A. This statement is true.**
- B. This statement is false.

229. Which of the following statements are true?

- A. **Periodontal techniques to correct gingival defects surrounding implant supported crowns are less predictable than natural teeth.**
- B. The vascular and connective tissue structures surrounding implants complicate regenerative surgical procedures.
- C. The maintenance of the proximal papilla is less predictable between adjacent implant crowns placed adjacent to natural teeth.
- D. All of the above.

230. In the presence of sufficient keratinized gingival:

- A. Facial convexity tends to move gingival apically.
- B. Concavity tends to encourage incision migration.
- C. Highly scalloped, thin biotype facial gingival is more favorable than thick biotypes.
- D. **Both A and B are correct.**

231. One advantage of the technique described in this article is:

- A. Increased treatment time.
- B. Precise control over the facial gingival outline and emergence profile.
- C. **That the provisional crown is necessary to develop the final soft tissue contours.**
- D. The need to transfer the soft tissue contours to the master cast.

232. A major role for the provisional implant crown in the aesthetic zone is to:

- A. Maximize the volume of keratinized tissue.
- B. **Precisely determine the final facial and proximal gingival contours.**
- C. Restore full occlusal function.
- D. Serve as a guide for the surgeon during periodontal corrective procedures.

233. The definitive implant crown is initially luted using provisional cement because:

- A. Excess surrounding soft tissue prevents complete seating of the definitive crown.
- B. The patient can evaluate the appearance by the patient prior to final cementation.
- C. The establishment of the facial gingival contour position is unpredictable.

D. **Both A and B are correct.**

14 PPAD200101

234. Which of the following aspects should be considered in order to clearly isolate the three-dimensional arrangement of tooth color?

A. Chromaticity.

B. Value.

C. **Characterization.**

D. All of the above.

235. What is the chromatic chart?

A. A color card.

B. An enamel shade.

C. **A means of communicating the parameters that contribute to the creation of tooth color.**

D. All of the above.

236. Which shade is statistically closest in average chromaticity to natural dentition?

A. **Shade A.**

B. Shade B.

C. Shade C.

D. Shade D.

237. Enamel luminosity remains consistent throughout life. This statement is:

A. True.

B. **False.**

238. The reproduction of intensive enamel stains are of particular importance in teeth with high value. This statement is:

A. **True.**

B. False.

239. The mamelon effect occurs as a result of:

- A. Incisal opacity.
- B. Dentinal translucency.**
- C. Dentinal structure and enamel translucency.
- D. All of the above.

240. The characterization of the mamelons facilitates:

- A. Creation of the mamelon effect.
- B. Illumination of the incisal edge.
- C. Reduction of the internal value of the incisal area.
- D. Augmentation of the internal value of the incisal area.**

241. Which aspect of natural dentition causes opalescence?

- A. Dentin.
- B. Stains.
- C. Enamel.**
- D. None of the above.

242. The chromatic chart should be compiled from the dehydrated tooth. This statement is:

- A. True.
- B. False.**

243. The proteinaceous layer:

- A. Causes light reflection.
- B. Is transparent.
- C. Controls luminosity through the internal diffusion of light.**
- D. None of the above.

15 PPAD200901

244. Prior to completing the preparation design, the clinician must:

- A. Remove any existing caries.

- B. Determine if any functional complications exist.
- C. Determine if any parafunctional complications exist.
- D. All of the above.**

245. Restorative material selection should:

- A. Allow use of a material that will mimic the biomechanics of the original tooth form.
- B. Ensure placement of a restoration that delivers optimal structural integrity.
- C. Both A and B are correct.**
- D. Neither A nor B are correct.

246. Traditional preparation designs required:

- A. Equal tooth reduction for veneers and crowns when placing these restorations adjacent to one another.
- B. Minimal tooth reduction for the veneered restoration and additional reduction for the crown.**
- C. Aggressive tooth preparation designs for all six anterior dentition, regardless of the type of restoration being delivered.
- D. All of the above.

247. How do biomimetic protocols enable the use of minimally invasive dental procedures?

- A. By providing equidistant preparation parameters for both porcelain veneers and crown restorations.
- B. By enabling the use of adhesive restorations that provide both strength and aesthetics.
- C. Both A and B are correct.**
- D. Neither A nor B are correct.

248. Porcelain is described as:

- A. Crystalline structures in a glassy matrix.
- B. An aesthetic, brittle restorative material.
- C. Both A and B are correct.**
- D. Neither A nor B are correct.

249. Material sciences have enabled the use of:

- A. Porcelain materials with optimal stiffness for reliable function.
- B. Ceramics with ideal surface characteristics for optimum performance.
- C. Both A and B are correct.**
- D. Neither A nor B are correct.

250. Because dentin structures can break down over time, it is imperative to:

- A. Maintain a solid bond in the enamel structures.**
- B. Provide a thorough dentin bond.
- C. First use an acid etchant to enable optimal bond in the dentin.
- D. Sand blast the interior aspect of the porcelain restoration to enable proper bonding.

251. Approximately 1 mm of porcelain material is generally required for contemporary restorations. Preparation designs for both crowns and veneers must provide an even thickness to ensure restorative success.

- A. Both statements are true.
- B. Both statements are false.**
- C. The first statement is true, the second statement is false.
- D. The first statement is false, the second statement is true.

252. Adhesion of minimally invasive restorations must be limited to:

- A. Placement within the dentin structures.
- B. Retention within the enamel structures.
- C. Placement primarily within the dentin and some enamel.
- D. The restorative material of choice.**

253. Collagen demineralization is:

- A. Imperative for restorative success.
- B. Avoided using a three-step etching system.
- C. Maintained during initiation of the total etch procedure.

- D. **Maximized to a resealable distance when the dentin etch is limited to 15 seconds.**

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254. Which is a common aesthetic concern of the soft tissue frame?

- A. Gingival recession
- B. Papilla loss
- C. Scars in the aesthetic zone
- D. **All of the above are correct**

255. What is the purpose of the ABF?

- A. **To maintain soft tissue level during surgery**
- B. To graft the missing bone in cases of bone fenestration
- C. To immediately restore the smile
- D. All of the above are correct

256. In which of the following cases is soft tissue preservation most predictable?

- A. In the presence of thick, flat periodontium
- B. **In the presence of thin, scalloped periodontium**
- C. Both A and B are correct
- D. None of the above is correct

257. When are the primary incisions made?

- A. **Prior to tooth extraction**
- B. Following tooth extraction
- C. At the same time as extraction
- D. None of the above is correct

258. Which incision is made first?

- A. **The horizontal incision**
- B. Both vertical incisions

- C. Only one of the two total vertical incisions
- D. An incision parallel to the papilla

259. When is the ABF applicable?

- A. During single tooth replacement**
- B. When three or more adjacent teeth require augmentation
- C. During multiple alternative implant-placement
- D. During cases involving significant osseous resorption

260. Where are the vertical incisions made?

- A. In the keratinized gingival
- B. In the mucosa
- C. Parallel to the papilla
- D. One is made in the mucosa, the other in the gingiva**

261. For primary stability, a minimum of ____ of bone apical to the sulcus is necessary.

- A. 1 mm
- B. 2 mm
- C. 3 mm
- D. 4 mm**

262. When are the bone defects filled?

- A. Prior to implant placement
- B. Following implant placement**
- C. Concurrently with implant placement
- D. Prior to creation of the ABF

263. Which incisions are closed first during suturing?

- A. It is inconsequential
- B. Only one of the two vertical incisions
- C. The vertical incisions**

- D. The horizontal incision.

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264. What is the Serial Extraction Protocol (SEP)?

- A. **A clinical methodology wherein natural tooth abutments support a fixed interim prosthesis.**
- B. A clinical methodology by which patients are rendered edentulous as an interim measure.
- C. A series of clinical steps in which natural tooth abutments provide support for a removable interim prosthesis.
- D. A clinical methodology by which patients are treated with an immediate implant-supported restoration.

265. Which of the following is NOT a complication potentially associated with the SEP?

- A. Structural compromise.
- B. Endodontic complications may occur.
- C. **Interim edentulism must be endured by the patient.**
- D. Fracture of the interim support teeth or prostheses.

266. Aesthetics and patient confidence can be bolstered using the SEP to:

- A. Provide the patient with partial edentulism during treatment.
- B. Prepare the abutment teeth, followed by relining and insertion of the interim prosthesis.
- C. **Enable delivery of an immediately loaded, fixed, definitive restoration with optimal aesthetics.**
- D. None of the above.

267. Why is a sequential treatment approach required when using the Class 2 SEP?

- A. Following extraction of the remaining dentition, the definitive prosthesis is loaded.
- B. Hopeless teeth must temporarily remain to retain the interim prosthesis.
- C. The initially-placed implants are to retain the provisional restoration.
- D. **Both B and C are correct.**

268. Which of the following procedures may require the use of a more complex protocol?
- A. Sinus lift.
 - B. Bone grafting.
 - C. Ridge augmentation.
 - D. **All of the above.**
269. The Class 1 SEP allows the clinician to:
- A. Extend the duration of treatment to facilitate tissue healing.
 - B. **Place the necessary implants without the need for a second set of implants.**
 - C. Perform necessary tissue grafting procedures prior to provisionalization.
 - D. Position a single implant-supported restoration for provisionalization prior to second stage surgery.
270. Which of the following is part of the final phase of the SEP?
- A. Insertion of the interim prosthesis.
 - B. Preparation of the abutment teeth.
 - C. Immediate or delayed surgery, depending on the clinician's preferred technique.
 - D. **Positioning of a sufficient number of implants to create the final restoration in sections.**
271. Provisional implants may be required for all of the following reasons EXCEPT:
- A. **They result in fewer locations for the placement of final implants.**
 - B. To Permit removal of posterior teeth.
 - C. They may be placed in locations not requires by definitive implants.
 - D. They permit the extraction of teeth that were formerly being retained to support the interim prosthesis.
272. The need to utilize a removable prosthesis or function during complete edentulism is:
- A. Required only during full-arch reconstruction using the SEP.
 - B. Precluded by the use of a fixed interim prosthesis using the SEP.

- C. Necessary only when placing an SEP Partial Prosthesis during replacement of an arch segment.
- D. None of the above.**

273. The amount of abutment teeth required to support the interim prosthesis is:

- A. A minimum of two.**
- B. A minimum of three.
- C. A minimum of four.
- D. A minimum of five.

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274. Periodontal recession is often associated with which of the following?

- A. Root decay
- B. Aesthetic problems
- C. Abrasion of the enamel/cementation**
- D. All of the above

275. Which of the following best describes Miller's Class II condition?

- A. Recession without loss of the interproximal bone**
- B. Recession with loss of the interproximal bone
- C. Recession not reaching the MBG
- D. None of the above

276. What factors determine the choice of the surgical technique?

- A. The depth of the buccal vestibule
- B. The depth and width of the recession
- C. The quality of the keratinized gingiva
- D. All of the above**

277. Which of the following prognoses is NOT correct?

- A. Total coverage for Class I and class II

- B. Partial coverage for Class III
- C. Partial coverage for Class IV
- D. No coverage for Class IV**

278. The amount of gingival recession that can be corrected depends on which of the following?

- A. The surgical technique
- B. The class of the recession
- C. The root surface preparation
- D. All of the above**

279. Which surgical technique is NOT described in this article?

- A. The epithelio-connective graft**
- B. The tunneling connective graft technique
- C. The connective graft covered with a lateral pedicle flap
- D. Both A and C

280. Which of the following procedures is the most traumatic for patient?

- A. The tunnel connective graft
- B. The coronally repositioned flap with PRF
- C. The coronally repositioned flap with EMD
- D. None of the above**

281. What is the main disadvantage of the tunnel connective graft technique?

- A. The minimum postoperative edema
- B. The necessity of two surgical sites**
- C. The slower time of the surgery
- D. The facility of graft harvesting.

282. Which is a contraindication to gingival recession surgery?

- A. The patient smokes

- B. Large and deep recessions
- C. Exposed root sensitivities
- D. All of the above**

283. If the recession is not progressing, which is the best treatment option?

- A. Regular examinations
- B. Adequate home maintenance
- C. Both A and B**
- D. Neither A nor B

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284. One goal of EMD and PRP is the thickening of the gingiva. Another goal is achieving perfect chromatic integration.

- A. Only the first statement is true.
- B. Only the second statement is true.
- C. Neither statements is true.
- D. Both statement are true.**

285. What clinical parameters do the tunnelling and coronally repositioned flaps using EMD have in common?

- A. Postoperative edema.
- B. High partial dissection.**
- C. Shorter time of the procedures.
- D. All of the above.

286. The subepithelial CTG procedure is the most predictable technique available to achieve root coverage. It can be performed without an additional donor site.

- A. Only the first statement is true.**
- B. Only the second statement is true.
- C. Neither statements is true.
- D. Both statement are true.

287. Which of the following is NOT a characteristic of the PRP procedure?
- A. Excellent adaptation.
 - B. Harmonious gingival.
 - C. Multiple surgical sites.**
 - D. Minimal postoperative edema.
288. The techniques discussed in this paper can be used to correct which if the following recession classes?
- A. Classes I and II.**
 - B. Classes I through III.
 - C. Classes I and III.
 - D. Classes II and III.
289. Disadvantages to the EMD procedure include which of the following?
- A. Increased cost.
 - B. Sensitive mucogingival surgery.
 - C. Both of the above.**
 - D. Neither of the above.
290. The PRF membrane was prepared from the patient's blood without an anticoagulant. Which of the following biological reaction does not apply to the PRF?
- A. It stimulates type I collagen synthesis.
 - B. It accelerates and enhances periodontal regeneration.
 - C. It makes the procedure much longer and more painful.**
 - D. It induces minimum edema postoperatively.
291. Which of the following describes the potential of EMD?
- A. Formation of new connective tissue.
 - B. Formation of new bone.
 - C. Formation of new periodontal ligament.
 - D. All of the above.**

292. When using the PRF membrane without a coagulant, which of the following is eliminated?

- A. **Donor site.**
- B. Rapid tissue healing.
- C. Patient comfort.
- D. Both B and C.

293. Why can implants NOT be placed in zones of periodontitis?

- A. Poor fit.
- B. Improper bone level.
- C. **The risk of contamination.**
- D. None of the above.

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294. In what year were CAD/CAM restorations first introduced to the dental market?

- A. 1995.
- B. **1987.**
- C. 1983.
- D. 1990.

295. CAD/CAM restorations were developed as an alternative to which of the following?

- E. Pressed ceramics.
- A. Refractory ceramics.
- B. Indirectly fabricated CAD/CAM crowns and bridges.
- C. **All of the above.**

296. Using current CAD/CAM system software, the clinician can manipulate the restoration from which angle or position?

- A. Mesial and/or distal.
- B. Occlusal, buccal, and/or lingual.

C. **Both A and B.**

D. Neither A nor B.

297. Which CAD/CAM design method involves the duplication of the patient's existing tooth morphology?

A. Correling.

B. Duplication.

C. **Correlation.**

D. None of the above.

298. In this case study, restorations were designed starting from which tooth?

A. The first premolar.

B. **The second premolar.**

C. The second molar.

D. None of the above.

299. To obtain the optical impression, how was the infrared camera placed in relation to the powdered preparations?

A. Above and parallel.

B. **Above and perpendicular.**

C. Below and parallel.

D. Below and perpendicular.

300. Since the correlation method utilized a digital image of the patient's occlusal morphology, the resulting proposal was?

A. **Extremely precise.**

B. Somewhat precise.

C. Not at all precise.

D. None of the above.

301. What was placed prior to the bonding of the restorations to prevent soft tissue fluid seepage?

- A. Retractory syringe paste.
- B. Syringe protraction paste.
- C. Syringe retraction paste.**
- D. Protractory syringe paste.

302. Using the CAD/CAM system can be described as which of the following?

- A. Conservative.
- B. Durable.
- C. Aesthetically equivalent to natural dentition.
- D. All of the above.**

303. What 2003 CAD/CAM advancement enabled more efficient design of a given restoration?

- A. Three-dimensional imaging.
- B. Flat-panel monitors.
- C. Two-dimensional imaging.
- D. Faster processing.**

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304. Restorative space management (RSM) alone can be predictably performed in:

- A. Only Class I case types.
- B. Only Class II case types.
- C. Both Class I and Class II types.**
- D. Neither Class I nor Class II case types.

305. RSM therapy alone can be predictably performed in type III and IV case types. RSM type IV cases can be treated as Class I or Class II postorthodontic treatment.

- A. The first statement is true, the second statement is false.
- B. The first statement is false, the second statement is true.
- C. Both statements are true.
- D. Both statements are false.**

306. Class III case types should consider what type of adjunctive therapy?
- A. Periodontal.
 - B. Orthodontics.
 - C. Endodontic.
 - D. **All of the above.**
307. Class IV case types always require:
- A. **Orthodontic therapy.**
 - B. Periodontal therapy.
 - C. Endodontic therapy.
 - D. None of the above.
308. Adjunctive orthodontics is a predictable way to alter _____ soft tissue profiles.
- A. Midfacial.
 - B. Interproximal.
 - C. **Both A and B.**
 - D. Neither A nor B.
309. RSM can be predictably accomplished without case planning. RSM can be predictably accomplished without a clinically applicable diagnostic waxup.
- A. The first statement is true, the second statement is false.
 - B. The first statement is false, the second statement is true.
 - C. Both statements are true.
 - D. **Both statements are false.**
310. A diagnostic waxup with associated preparation guides is recommended in which case types.
- A. Class I and Class II.
 - B. Class III and Class IV.
 - C. Class I, Class II, and Class III.
 - D. **Class I, Class II, Class III, and Class IV.**

311. This case type could require tooth mutilation, as well as significant periodontal therapy.

- A. Class I.
- B. Class II.
- C. Class III.
- D. Class IV.**

312. Golden proportion is the ratio between:

- A. Central and lateral incisors.**
- B. Canines and the first premolar.
- C. The first and second premolars.
- D. All of the above.

313. Tooth proportion is defined as:

- A. Width divided by length.**
- B. Length divided by width.
- C. Width plus length.
- D. Length minus width.

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314. What are the etiologic factors mentioned that may lead to recession:

- A. Trauma and abfraction.
- B. Trauma and inflammation.
- C. Trauma, inflammation, and thin periodontal biotype.**
- D. Thin periodontal biotype.

315. Amelogenin and oily calcium hydroxide suspension (OCHS) may be used for:

- A. Sinus elevation.
- B. Root coverage.**
- C. Hard-tissue augmentation.

D. Ride preservation.

316. According to this article, comprehensive oral rehabilitation means:

A. Do whatever you need to maximize your practices cash-flow.

B. Talk to your patient and treat him based on his demands only.

C. Consider other dental specialties in your treatment approach to maximize the aesthetic and functional treatment outcome.

D. None of the above.

317. Enamel matrix derivative is:

A. Emdogain, an amelogenin.

B. An amelogenin but not emdogain.

C. An OCHS.

D. A root conditioner.

318. Tunneling may be best described as:

A. Atraumatically harvesting a palatal donor site graft.

B. Inserting a soft tissue graft over a dehiscence type defect.

C. Undermining the patient's soft tissue to maximize blood supply and enhance aesthetics.

D. None of the above.

319. Factors that may predispose a periodontium to develop recession are:

A. Thin periodontal biotype and dehiscences.

B. Thin periodontal biotype, dehiscences, absence of attached keratinized tissue and occlusal trauma.

C. Thin periodontal biotype, dehiscences and absence of attached keratinized tissue.

D. Thin periodontal biotype and occlusal Trauma.

320. After connective tissue grafting, the clinician should wait how long before placing the preparation margin into the sulcus?

A. 1 month.

- B. 2 months.
- C. 3-6 months.**
- D. 12 months.

321. Porcelain-fused-to-metal crowns in the aesthetic zone may be aesthetically designed by?

- A. Reducing minimal dentin.
- B. A buccal chamfer.
- C. A buccal ceramic shoulder.**
- D. None of the above.

322. Harvesting thick grafts from the palate may lead to:

- A. Improved healing.
- B. Greater morbidity.
- C. Greater periodontal soft tissue thickness at the recipient site.
- D. Both B and C are correct.**

323. Miller Class III recession may be best explained as:

- A. Recession beyond the interproximal bone.
- B. Recession without bone loss.
- C. Recession in the presence of bone loss.**
- D. None of the above.

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324. The successful restoration of endodontically treated teeth most closely depends on:

- A. Gingival levels
- B. Remaining tooth structure**
- C. Spacing between adjacent teeth
- D. Patient preference

325. Placement of an endodontic post and core:

- A. Strengthens the tooth
- B. Weakness the tooth**
- C. Has no effect on the tooth
- D. None of the above

326. The placement of a dowel is indicated for clinical situations in which there is no less than what amount of healthy tooth structure supragingivally?

- A. 0.5 mm
- B. 1.0 mm**
- C. 2.0 mm
- D. 2.5 mm

327. Orthodontic extrusion with crown lengthening is indicated when sufficient supragingival tooth structure is :

- A. Not present for a post-and-core restoration
- B. Present for a post-and-core restoration but gingival and/or bone levels are not ideal
- C. Not present for a post-and-core restoration but gingival and/or bone levels are ideal
- D. Not present for a post-and-core restoration and gingival and/or bone levels are not ideal**

328. When a nonvital tooth is unsalvageable and must be extracted, treatment options include:

- A. Restoration with a fixed partial denture(FPD) using an ovate pontic.
- B. Restoration with an FPD using implant therapy.
- C. Both A and B.**
- D. None of the above.

329. The following can be expected after extraction followed by restoration with an FPD:

- A. Gingival shrinkage at the extraction site.
- B. Bone resorption.
- C. A black triangle between the pontic and adjacent teeth.

D. All of the above.

330. Nonvital anterior teeth can be replaced using the following techniques:

- A. Implant therapy
- B. Orthodontic extrusion
- C. Crown lengthening without orthodontic extrusion

D. All of the above

331. The armamentarium for functional and aesthetic treatment and/or replacement of nonvital anterior teeth offers many alternatives for clinical situations where sufficient tooth structure is not available. When sufficient tooth structure remains supragingivally and it is necessary to place a core for crown retention, crown lengthening with orthodontic extrusion remains the restoration of choice.

- A. The first statement is true, the second statement is false.
- B. The first statement is false, the second statement is true.
- C. Both statements are true

D. Both statements are false

332. All of the following are factors to be considered in selecting adjunctive therapy except:

- A. Gingival levels
- B. Caries**
- C. Crown-root ratio
- D. Patient preference

333. When existing gingival levels are ideal, rapid orthodontic extrusion without crown lengthening:

- A. Weakens crown-root relationships
- B. Increases gingival levels
- C. Allows for a ferrule effect**
- D. Decreases gingival levels

24 PPAD200707 chu A Biometric Approach to Predictable Treatment of Clinical Crown Discrepancies

334. Which of the following is a potential disadvantage to usage of the Golden Proportion?

- A. It is only applicable to a confined segment of the patient population.
- B. Clinicians are often less satisfied with aesthetics resulting from the Golden Proportion usage.
- C. Patients report being less satisfied with the results when clinicians apply the Golden Proportion
- D. All of the above.**

Ans: d Practical Procedures & AESTHETIC DENTISTRY P402Vol. 19, No. 7

The clinical reality, however, is that intra-arch tooth relationships used as guidelines for smile designs (eg, the Golden Proportion) are applicable to a confined segment of the patient population. In addition, dentists have been found to be less pleased with aesthetic outcomes with smiles designed using the Golden Proportion, and patients have been found to dislike such a proportion relationship. Therefore the only tangible parameter in aesthetic dentistry is individual tooth size and proportion.

335. What is the width-to-length proportion the author applies to individual teeth?

- A. 76%.
- B. 77%.
- C. 78%.**
- D. 79%.

Ans: c Practical Procedures & AESTHETIC DENTISTRY P405 Vol. 19, No. 7 since the gauge is mathematically set at 78% W/L proportion.

336. According to the author, which of the following is considered the foundation of smile design?

- A. Periodontium structure.
- B. Individual tooth size.
- C. Dental arch structure.
- D. Proportion of mandibular maxillary teeth.**

Ans: d Practical Procedures & AESTHETIC DENTISTRY P409Vol. 19, No. 7

The creation and use of instruments such as these not only allows the restorative dentist to be an artist, giving expression to the restoration itself, but also provides the clinician with the opportunity to become an architect, incorporating numerical values of anatomic tooth dimensions and proportions into aesthetically pleasing smile makeovers.

337. Which of the following is a factor that affects tooth proportion?

- A. Developmental anomalies.
- B. Age.
- C. Gender.
- D. All of the above.**

Ans: d Practical Procedures & AESTHETIC DENTISTRY P403Vol. 19, No. 7

Standardized individual tooth size and proportions fall within a given range around mean values, however, and gender differences exist between anterior tooth groups.

338. The use of “nonstandard” proportions to treat teeth with an abnormal size relative to accepted width and height values often yields:

- A. Aesthetically pleasing results.
- B. Longer chairtime for the patient during treatment.
- C. Unaesthetic, unnatural results.**
- D. b and c only.

Ans: c Practical Procedures & AESTHETIC DENTISTRY P402Vol. 19, No. 7

In daily practice, the clinician’s use of “nonstandard” proportions to treat teeth with abnormal size relative to accepted width and height values can yield narrow or square teeth that are unnatural in size and shape and fail to achieve the aesthetic expectations of either the patient or clinician.

339. RSM refers to:

- A. Restorative space management.**
- B. Restorative space movement.
- C. Restrictive space management.
- D. Restrictive space movement.

Ans: a Practical Procedures & AESTHETIC DENTISTRY P406Vol. 19, No. 7

Tooth size is a critical facet in aesthetics and has clinical relevance in restorative dentistry, orthodontics, periodontics, and implant dentistry. This is especially true and pertinent in the more complex restorative space management (RSM) case types, in which orthodontic therapy alone may be inadequate to address all the needs of the patient.

340. What are the most common width-to-length measurements for canine?

- A. 8.5 mm to 11mm.
- B. 7.5 mm to 9.5mm.**

- C. 6.5 mm to 8.5 mm.
- D. 5.5 mm to 7.5 mm.

Ans: b Practical Procedures & AESTHETIC DENTISTRY P406Vol. 19, No. 7

The most common width/length numbers for the lateral, canine, and central incisors are 6.5/8.5, 7.5/9.5, and 8.5/11 mm, respectively.

341. Why is tooth-size correction more difficult in natural dentition than in removable prosthodontics?

- A. Teeth may exhibit width/length discrepancies.**
- B. Size correction can only be completed as the last step in restorative treatment.
- C. There are no standard measurement gauges available.
- D. Tooth-size correction is more difficult in removable prosthodontics than in natural dentition.

Ans: a Practical Procedures & AESTHETIC DENTISTRY P402Vol. 19, No. 7

This task is simplified in removable prosthodontics, in which selection of the proper tooth size and form is the primary step before their arrangement within the dental arch or tooth setup. With the natural dentition, this task is infinitely more difficult, since the dilemma is such that existing teeth may exhibit altered width and/or length discrepancies due to developmental anomalies, changes resulting from the aging process, or prior restorative procedures. Therefore, correction may require combination therapies such as orthodontics and/or periodontics prior to aesthetic restorative dentistry.

342. Which of the following instruments have been used as reference standards to diagnose and correct tooth size discrepancies?

- A. Calipers.
- B. Periodontal probes.
- C. Millimeter rulers.
- D. All of the above.**

Ans: d Practical Procedures & AESTHETIC DENTISTRY P405Vol. 19, No. 7

These gauges enable clinicians to diagnosis and correct tooth size discrepancies. The present armamentarium for such diagnosis consists of manual and digital calipers, Bouley gauges, millimeter rulers, and periodontal probes.

343. Which of the following must be established before any gauges are used?

- A. Tooth length.
- B. Tooth width.
- C. Incisal edge.**

- D. The height of curvature.

Ans: c Practical Procedures & AESTHETIC DENTISTRY P403Vol. 19, No. 7

Once the incisal edge position was established, the width of a tooth could be measured with the prototype instrument, and the notch on the short arm noted;

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344. The patient's facial asymmetries were a result of unaesthetic axial inclinations of the maxillary central incisors. The left maxillary teeth were also super-erupted and hung lower than the occlusal table.

- A. **Both statements are true.**
- B. Both statements are false.
- C. The first statement is true, the second statement is false.
- D. The first statement is false, the second statement is true.

345. The purpose of the trial equilibration performed on the stone models was to:

- A. Evaluate the records in maximum intercuspation.
- B. Determine the amount of tooth contour that would require removal.
- C. Ensure development of an improved anterior guidance.
- D. **All of the above.**

346. In order to relax the musculature prior to equilibration:

- A. The provisional restoration were modified into optimum anterior guidance.
- B. **A new night appliance was constructed.**
- C. Occlusal modifications were not made.
- D. The hinge axis was identified and improved.

347. In the case presented herein, the provisionalization phase allowed the patient to:

- A. Communicate her expectations on the desired shape of the final restorations.
- B. Adapt to changes in the phonetic interplay between the teeth and improved occlusal patterns.
- C. Evaluate any occlusal modifications that were made in the proposed restorations.
- D. **All of the above.**

348. While in centric relation, the patient was:
- A. Maintained in an equal-intensity position.
 - B. Observed with non-deflective occlusal stops around the arch.
 - C. Both A and B are correct.**
 - D. Neither A nor B are correct.
349. Which of the following is not considered a temporary anchorage device (TAD)?
- A. Creation of proper angulation.
 - B. Aesthetic integration of the restoration.
 - C. Both A and B are correct.**
 - D. Neither A nor B are correct.
350. A durable restorative material was required for this case because:
- A. The patient was a heavy bruxer.**
 - B. The underlying dentition were very opaque.
 - C. The patient was prone to tooth cracking.
 - D. None of the above.
351. The patient's preexisting condition was a result of:
- A. Failed preexisting PFM restorations.
 - B. Chipping and leakage of preexisting prostheses.
 - C. Unaesthetic coloration of the previous restorations.
 - D. All of the above.**
352. The patient's guidance was shallowed in order to:
- A. Ensure consistent force on the anticipated restorations.
 - B. Prevent potential degradation of the restorations as a result of the patient's history of destructive bruxism.**
 - C. Eliminate potential sensitivity and discomfort.
 - D. Restrict the degree of lateral movement performed.

353. Because the patient desired extreme symmetry that did not mimic natural tooth contours:
- A. The laboratory technician compensated for this exaggerated symmetry by varying surface texture, value, translucency, opalescence, chroma, and gloss in the definitive restorations.
 - B. The patient received unaesthetic, unnatural looking restorations that did not appear well-integrated with her facial structures.
 - C. The shape of the restorations were altered to create a more feminine appearance without the patient's approval, dismissing her desire for square shapes in lieu of more aesthetic, natural-looking prostheses.
 - D. **None of the above.**

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354. What is the survival rate of etched-porcelain veneers at 10 years?
- A. 40%.
 - B. 70%.
 - C. 95%.
 - D. **91% to 100%.**
355. High-strength alumina ceramics:
- A. **Are the ideal material for porcelain veneer restorations.**
 - B. Are indicated for use with the acid-etch technique.
 - C. Must be etched with phosphoric acid for five minutes.
 - D. None of the above.
356. According to the article presented herein, zirconia abutments must be tightened at a torque of:
- A. 10N.
 - B. 15N.
 - C. 25N.
 - D. **35N.**

357. Based on the case present herein, which type of treatment was most effective for the alumina restorations?

- A. The phosphoric acid-etch technique.
- B. Sand-blasting.**
- C. Silica coating.
- D. A generic acid-etch technique.

358. In order to facilitate predictable cementation, which adhesive technique was used?

- A. A dual-cured resin cement was used for the crowns, with a composite resin for the veneers.**
- B. A composite material was used for both the veneers and crowns.
- C. A composite material was used for the crowns and a dual-cured resin cement for the veneers.
- D. None of the above.

359. In the preparation for laminate veneers, the margin must be placed:

- A. In a subgingival position, consistently.
- B. In a supragingival position, consistently.
- C. Margin placement will vary if the emergence profile requires modification or the tissue structures require support for shape alteration.**
- D. All of the above.

360. What is the ideal material for porcelain veneer restorations?

- A. Zirconia-based ceramics.
- B. Alumina-based ceramics.
- C. Glass ceramics.**
- D. All of the above.

361. Which of these materials can be etched with an acid-base technique?

- A. Zirconia-based ceramics.
- B. Alumina-based ceramics.

C. **Glass ceramics.**

D. None of the above.

362. In order to deliver optimal aesthetics, the thickness of the alumina laminate veneers depicted herein were placed at:

A. **0.25 mm.**

B. 0.4 mm.

C. 0.6 mm.

D. 0.8 mm.

363. Based on the case depicted herein, the appropriate surface treatment for these restoration was:

A. An acid-etch technique with a silane agent, followed by bonding.

B. **A sand-blasting technique, followed by application of a silane agent prior to bonding.**

C. An acid-etch technique prior to bonding and silane application.

D. Use of a silica coating, alcohol, silane agent, and bonding.

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364. The two types of fractures that influence failures on zirconia crowns are mainly:

A. Outer cone cracks.

B. Inner cone cracks.

C. Radial cracks.

D. **Both A and B are correct.**

365. Outer cone cracks:

A. **Do not usually have clinical consequences in zirconia crowns.**

B. Are responsible for all failures seen in zirconia crowns.

C. Are not dependent on the radius of the opposing cusp.

D. Are related to the properties of the zirconia core.

366. Inner cone cracks:

- A. Are mainly responsible for the fractures seen on zirconia crowns.
- B. Initiate at the occlusal surface of the restoration.
- C. Are related to the properties of the veneering porcelain.**
- D. All of the above.

367. Alumina crowns fail mainly due to:

- A. Inner cone cracks.
- B. Outer cone cracks.
- C. Radial cracks.**
- D. Both A and B are correct.

368. Based on the results shown in the literature up to this point:

- A. Zirconia restorations can be used both anteriorly and posteriorly without reservations.
- B. Zirconia restorations should be used with caution posteriorly until additional evaluation is performed.**
- C. Zirconia restorations should be used with caution anteriorly until further testing is done.
- D. Zirconia restorations should not be used in clinical situations.

369. Crown lengthening can help the restorative process by:

- A. Providing adequate crown length to allow for proper tooth reduction.
- B. Exposing enough tooth structure for abutments to maintain adequate retention.
- C. Increasing the strength of zirconia restorations.
- D. Both A and B are correct.**

370. To diminish the risk of surface cracks on zirconia crowns, the practitioner can:

- A. Carefully adjust the occlusal surface of the restorations.
- B. Prevent the occlusal adjustment of the restorations.
- C. Adjust the opposing cusp if it is deemed to have a small radius.**
- D. All of the above.

371. For zirconia FPDs, the connector area should have a minimum diameter of:

- A. 2 mm.

- B. 3 mm.
- C. 4 mm.**
- D. 5 mm.

372. Airborne particle abrasion of zirconia restorations can:

- A. Improve the bonding of zirconia to tooth structure.
- B. Affect the luster of the restorations.
- C. Have an effect on the structural integrity of the restorations.
- D. Both A and C are correct.**

373. In order to improve the clinical performance of zirconia restorations, the following is required:

- A. Improved surface properties of the veneering porcelain.**
- B. Improved toughness of the ceramic cores.
- C. Improved stiffness of the ceramic cores.
- D. Both B and A are correct.

28 PPAD199809

374. With regard to the distance from the base of the contact area to the underlying crest of bone:

- A. The papilla is present virtually all the time at a distance of 6 mm.
- B. The papilla is present in only 56% of the sites at a distance of 7mm.
- C. It is inversely related to the presence or absence of interproximal papillae fill.**
- D. All of the above.

375. The predictable papilla length in implant therapy:

- A. Is the same as it is for natural dentition.
- B. Is approximately 4.5 mm between adjacent implants.**
- C. Is approximately 5.5 mm for natural dentition.
- D. b and c.

376. The primary phase in the diagnostic procedure for anterior soft tissue deficiencies includes all of the following except:

- A. **Treatment planning.**
- B. Identification of potential obstacles.
- C. Etiology of tooth loss.
- D. Evaluation of patient expectations.

377. Which of the following factors affect IHB?

- A. Agenesis.
- B. Endodontic failures.
- C. **Periodontal defects.**
- D. None of the above.

378. Which of the following factors require the greatest technical proficiency to remedy?

- A. Improper interdental/ interocclusal space.
- B. Lack of harmony among tooth shape, gingival contour, and lips.
- C. Deficiencies in the interproximal vertical component.
- D. **a and c.**

379. According to the authors, what is the most predictable approach to enhance the position of the IHB?

- A. Forces eruption.
- B. **Orthodontic intervention.**
- C. Surgical enhancement.
- D. Ridge augmentation.

380. A soft tissue graft is best utilized for:

- A. Reconstruction of a central papilla between 2 adjacent implants.
- B. Increasing the IHB of an implant for enhanced support.
- C. **Optimizing the emergence profile of pontics in ridge-deficient patients.**
- D. Vertical support of hard and soft tissue levels in the anterior region.

381. Orthodontic treatment is best utilized for:

- A. Reconstruction of a central papilla between a adjacent implants.
- B. Increasing the IHB of an implant for enhanced support.**
- C. Optimizing the emergence profiles of pantics in ridge-deficient patients.
- D. Vertical support of hard and soft tissue levels in the anterior region.

382. A hard tissue graft is best utilized for:

- A. Reconstruction of a central papilla between adjacent implants.**
- B. Increasing the IHB of an implant for enhanced support.
- C. Optimizing the emergence profiles of pontics in ridge-deficient patients.
- D. Vertical support of hard and soft tissue levels in the anterior region.

383. A combination periodontal/ orthodontic/ implant therapy is best utilized for:

- A. Reconstruction of a central papilla between 2 adjacent implants.
- B. Increasing the IHB of an implant for enhanced support.
- C. Optimizing the emergence profiles of pantics in ridge-deficient patients.
- D. Vertical support of hard and soft tissue levels in the anterior region.**

28 JCO2011 Jan CE testing

Article 1 (4 questions)

**Wilmes, B.; Nienkemper, M.; Ludwig, B.; Kau, C.H.; and Drescher, D.:
Early Class III Treatment with a Hybrid Hyrax-Mentoplate Combination
(pp. 15-21)**

384. Facemask treatment of young Class III patients:

- A. can often result in anterior crowding
- B. requires opening of the midpalatal suture
- C. frequently produces no skeletal effects because forces are applied only to the teeth
- D. both A and C**

385. The Mentoplate can be used in patients as young as 8 years old because:

- A. they are considered good cooperators
- B. they have low bone mineralization
- C. the appliance does not interfere with canine eruption**
- D. the appliance does not interfere with maxillary growth

386. In using this system, the authors have had success with skeletal anchorage:

- A. in the upper and lower buccal regions
- B. in the anterior palate and the mandibular buccal region
- C. in the anterior palate and the mental region**
- D. in the alveolar process and the mental region

387. Advantages of the Hybrid Hyrax-Mentoplate technique include:

- A. forces can be applied directly or indirectly to the skeletal structures
- B. no extraoral appliances are required
- C. simultaneous orthodontic tooth movement is possible
- D. all of the above**

Article 2 (4 questions)

Modoni, D.; Modoni, M.; Romano, G.; and Verdino, A.: Lower Molar Intrusion Using Skeletal Anchorage (pp. 22-24)

388. In the patient presented, two skeletal anchors for lower molar intrusion were placed:

- A. in the lingual cortical bone of the edentulous first molar space**
- B. in the crestal bone of the first molar space
- C. buccally and lingually, between the first and second premolar roots
- D. in the right retromolar region

389. Mesiodistal spacing for the planned prosthodontic implant was maintained using:

- A. an acrylic plate with metal clasps
- B. a resin pontic affixed with fiber-reinforced composite ribbon
- C. a resin pontic connected to a "Z" spring

D. a bonded segment of .019" x .025" stainless steel wire

390. The authors' technique requires the addition of lingual torque to the crown of the tooth being intruded:

- A. when miniscrews are placed in both buccal and lingual locations
- B. after a provisional crown has been placed on the antagonist tooth
- C. to ensure the vertical stability of the intruded tooth

D. to counteract buccal forces and control the tooth's buccolingual position

391. The authors suggest initiation prosthetic rehabilitation of a missing tooth during its intrusion of its antagonist tooth:

- A. after a provisional crown has been placed on the antagonist tooth
- B. to ensure the vertical stability of the intruded tooth**
- C. when the patient has esthetic concerns
- D. all of the above

Article 3 (4 questions)

Demito, C.F.; Rodrigues, G.V.; Ramos, A.L.; and Bowman, S.J.: Efficacy of a Fluoride Varnish in Preventing White Spot Lesions as Measured with Laser Fluorescence (pp. 25-29)

392. Periodic application of fluoride varnish during orthodontic treatment can reduce demineralization around brackets by as much as:

- A. 27-32%
- B. 30-50%**
- C. 65-75%
- D. 75-85%

393. A comparison of baseline and six-month readings from the authors' study shows that enamel demineralization:

- A. increased significantly in the unvarnished teeth
- B. increased significantly in the varnished teeth

C. did not increase significantly in either varnished or unvarnished teeth

D. Both A and B

394. Demineralization occurred most markedly:

A. in the gingival quadrant

B. in the occlusal quadrant

C. in the mesial quadrant

D. in the distal quadrant

395. Advantages of using fluoride varnish in orthodontic treatment include all of the following except:

A. it is less expensive than fluoride gels

B. application is easier than fluoride gels

C. only a single application is necessary

D. no patient compliance is necessary

Article 4 (4 questions)

Nazeer, A.M.: Correction of Anterior Crossbite and an Unesthetic Smile Arc in an Adult Patient (pp. 31-37)

396. Upper anterior proclination in a Class III patient can produce poor esthetics when:

A. simultaneous extrusion is carried out

B. the patient has an unusually low mandibular plane angle

C. the patients has a significant curve of Spee

D. the patient has a flat or reverse smile arc

397. To improve the esthetic outcome, the author utilized a protraction utility arch:

A. with 30 degree reverse tipback bends and labial anterior crown torque

B. with 30 degree reverse tipback bends and lingual anterior crown torque

C. with 30 degree tipback bends and labial anterior crown torque

D. with 30 degree tipback bends and lingual anterior crown torque

398. Class III adults with negative overjet:

- A. are predisposed to suffer from mandibular dysfunction
- B. may experience occlusal interference in a retruded mandibular position
- C. are likely to have reduced functional efficiency during chewing
- D. **all of the above**

399. The Class III patient presented in this case was unusual in that he had:

- A. **a full anterior crossbite, but only a mild class III skeletal pattern before treatment**
- B. wide buccal corridors on smiling before treatment
- C. attritional wear on his upper incisal edges
- D. Both A and B

29 JCO2011 Feb CE testing

Article 1 (4 questions)

**Ludwig, B.; Glasl, B.; Kinzinger, G.S.M.; Walde, K.C.; and Lisson, J.A.:
The Skeletal Frog Appliance for Maxillary Molar Distalization (pp. 77-84)**

400. The toothborne Simplified Molar Distalizer can produce side effects including:

- A. mesial rotation of the molars
- B. distal tipping of the molars
- C. **anterior protrusion**
- D. Both A and B

401. The Skeletal Frog uses the K Pendulum prescription with:

- A. **5-10 degree toe-in bends and 15-20 degrees of uprighting activation**
- B. 15-20 degree toe-in bends and 5-10 degrees of uprighting activation
- C. 15-20 degree toe-in bends and 200g of force in the spring arms
- D. 5-10 degrees of uprighting activation and 200g of force in the spring arms

402. The ideal location for the mini-implants used to anchor the Skeletal Frog is:

- A. just behind a line connection the mesial contact points of the first premolars

- B. about 6mm behind the incisal papillae
- C. within 3mm of either side of the midpalatal suture
- D. all of the above**

403. Advantages of the Skeletal Frog for molar distalization include all of the following:

- A. the all-metal framework is stable and rigid
- B. the appliance can be used in patients with metal allergies**
- C. the absence of a Nance button facilitates oral hygiene
- D. anterior protrusive forces are eliminated with the use of skeletal anchorage

Article 2 (4 questions)

Giancotti, A.; Mozzicato, P.; Germano, F.; and Arcuri, C.: Extraction of a Geminated Central Incisor (pp. 85- 90)

404. Diagnosis of dental fusion vs. gemination is best determined through:

- A. visual analysis of the tooth's size, shape, and structure
- B. radiographic examination of periodontal attachments
- C. radiographic examination of endodontic structures**
- D. counting the teeth in the region

405. An .016" x .022" step-down archwire was used to extrude the geminated tooth for:

- A. better alignment with the other incisors
- B. easier extraction after the orthodontic phase of treatment
- C. enhancement of the bony and periodontal tissues and improvement of the vertical bone level**
- D. all of the above

406. The patient received a de-proteinized bovine bone mineral graft:

- A. that was then covered with a resorbable collagen membrane
- B. to reduce the likelihood of periodontal pocketing
- C. because de-proteinized bovine bone is stable and non-resorbable

D. all of the above

407. A geminated tooth is often best treated by extraction because:

- A. the crown cannot be altered esthetically by grinding
- B. all double teeth are likely to be periodontally compromised
- C. dental caries are difficult to detect and treat in a double tooth

D. the dental elements of a geminated tooth share an endodontic system

Article 3 (4 questions)

Greenfield, R.L.: Clinical Application of a Modified Lip Bumper (pp. 99-111)

408. In the literature, lip bumpers have been shown to recover arch length by means of:

- A. leeway space maintenance
- B. leveling the curve of Spee
- C. negation of buccal muscle forces

D. Both A and B

409. In lip-bumper treatment, anterior regions of the dental arches are allowed to expand:

- A. from forces of the tongue**
- B. to overcome a hyperdivergent growth pattern
- C. from forces of the lips and cheeks
- D. through mechanical forces of the lip bumper's labial bow

410. The author's modification of the lip bumper places the labial shields at different heights:

- A. to produce varying amounts of molar extrusion and crown tipping**
- B. to make the appliance as comfortable as possible for the patient
- C. to make the appliance less visible when the patient smiles
- D. because small incremental adjustments can significantly alter appliance forces

411. To keep the molars well within the cancellous bone:

- A. expansion should be completed before distalization is started
- B. expansion should approximate the rate of molar distalization**
- C. distalization should be completed before expansion is started
- D. the lip bumper should be placed passively until after expansion is completed

Article 4 (4 questions)

Kook, Y.A. and Kim, Y.: Evaluation of Facial Asymmetry with Three-Dimensional Cone-Beam Computed Tomography (pp. 112-115)

412. The authors' method of evaluating asymmetry requires all of the following except:

- A. panoramic and posteroanterior radiographs**
- B. clinical facial and intraoral photographs
- C. an image from a cone-beam computed tomographic scanner
- D. imaging software with head-image reorientation and volume-clipping functions

413. By clipping the anterior portion of the face in the coronal section, the operator can visualize:

- A. the mandibular central incisors and the lower midline
- B. the maxillary central incisors and the upper midline
- C. the lower borders of the orbital floors**
- D. canting in the transverse dimension

414. By clipping the axial section of the maxilla, the operator can better visualize:

- A. the mandibular central incisors and the lower midline
- B. the maxillary central incisors and the upper midline**
- C. the lower borders of the orbital floors
- D. canting in the transverse dimension

415. Necessary adjustments to the 3D image are determined by consulting:

- A. the posteroanterior radiograph
- B. facial and intraoral photographs**

- C. the panoramic radiograph
- D. all of the above

JCO2011 March CE testing

Article 1 (4 questions)

Sugawara, J.; Aymach, Z.; Nagasaka, H.; Kawamura, H.; and Nanda, R.: Non-Surgical Correction of Skeletal Open Bite: A Goal-Oriented Approach Evaluated by CBCT (pp. 145-155)

416. The Skeletal Anchorage System can simultaneously distalize and intrude molars:
- A. using simple mechanics
 - B. while avoiding any undesirable tooth movements
 - C. without the need for multiple miniscrews in both buccal and palatal or lingual sites
 - D. all of the above**
417. This patient experienced molar intrusion at a rate of approximately:
- A. 1mm every three months
 - B. 1mm every six months**
 - C. 1mm every nine months
 - D. 1mm every 12 months
418. The authors' treatment goals for the patient included:
- A. 3mm upper molar intrusion and maximum distalization
 - B. 5mm upper molar distalization and maximum intrusion
 - C. 3mm upper and lower molar intrusion
 - D. 5mm upper molar distalization and 3mm intrusion**
419. Post-treatment CBCT analysis of the patient showed all of the following except:
- A. penetration of the nasal cavity by the upper molar roots
 - B. thickening of the mucous membranes over the upper molar roots
 - C. new bone formation covering the intruded upper molar roots**

- D. mild molar root resorption

Article 2 (4 questions)

Cao, J.; Wan, L.; Zhang, Z.; and Ma, S.: Orthodontic Closure of a Midline Diastema with an Infrabony Defect (pp. 156-159)

420. The reported incidence of maxillary midline diastemas in adults is:

- A. 15-20%
- B. 10-25%
- C. 5-10%
- D. **5-20%**

421. Bone substitutes are often grafted at the site of a significant midline diastema to avoid:

- A. the need for orthodontic space closure
- B. gingival recession and root exposure
- C. potential tooth loss
- D. **both B and C**

422. Compared to Bio-Oss bone-grafting material, Bio-Oss Collagen contains 10% purified porcine collagen, making it:

- A. more readily absorbed by the existing bone
- B. less readily absorbed by the existing bone
- C. **more pliable and easily molded**
- D. more biocompatible

423. The authors used principles of the Bioprogressive technique to:

- A. **limit the active treatment time for the upper right central incisor**
- B. prevent further labial tipping of the upper right central incisor
- C. complete the leveling and alignment stage more efficiently
- D. retract the six maxillary anterior teeth more efficiently

Article 3 (4 questions)

Ludwig B.; Glasl, B.; Kinzinger, G.S.M.; Lietz, T.; and Lisson, J.A.: Anatomical Guidelines for Minscrew Insertion: Vestibular Interradicular Sites (pp. 165-173)

424. Appropriate sites for interradicular placement of mini-implants generally lie:

- A. **between the crestal bone margin and the mucogingival border**
- B. between the dental proximal contact point and the crestal bone margin
- C. between the dental proximal contact point and the mucogingival border
- D. just apical to the mucogingival border

425. The authors conclude that an optimal amount of bone width for a 1.6mm-diameter mini-implant would be:

- A. less than 2.6mm
- B. 2.6-3.1mm
- C. **greater than 3.1mm**
- D. either b or c

426. Acceptable bone width between the maxillary second premolar and the first molar is found:

- A. 2.6-3.1mm apical to the contact point
- B. 3.1-5.5mm apical to the contact point
- C. 6mm apical to the contact point
- D. **8.5mm apical to the contact point**

427. If optimal bone width for mini-implant insertion is available only in the unattached gingiva, the authors suggest that:

- A. the mini-implant may be angled from the attached gingiva into the area of adequate bone
- B. placement in the central palatal bone may be considered
- C. a laser may be used to remove excess gingival tissue from the insertion site

D. **any of the above**

Article 4 (4 questions)

Rodriguez, H.L.: Unilateral Application of the Carriere Distalizer (pp. 177-180)

428. In the absence of a permanent canine, the Carriere Distalizer was bonded to this patient's maxillary:

- A. first and second molars
- B. **first premolar and first molar**
- C. lateral incisor and second premolar
- D. second premolar and second molar

429. When exfoliation of a deciduous molar occurs during treatment with the Carriere Distalizer:

- A. the Distalizer should be debonded until eruption of the permanent molar
- B. lighter distalizing forces should be applied
- C. **the Distalizer will be able to maintain the resulting leeway space**
- D. none of the above

430. Advantages of the Carriere Distalizer include all of the following except:

- A. **no patient compliance is necessary**
- B. the appliance is fairly inconspicuous in the patient's mouth
- C. the bonding of brackets may be unnecessary during the distalization phase
- D. the appliance can be used for unilateral distalization

431. In the patient presented here, controlled derotation of the upper right first molar:

- A. was delayed until after distalization was completed
- B. was finished using open-coil springs in combination with the Distalizer
- C. required the insertion of miniscrews for anchorage
- D. **was effected without the need for other appliances**

JCO2011 April CE testing

Article 1 (4 questions)

Breuning, K.H.: Efficient Tooth Movement with Early Full-Size Archwires (pp. 205-208)

432. Small round wires have a limited capability of correcting tooth positions in three dimensions due to their:

- A. light forces and flexibility
- B. low friction
- C. high incidence of breakage

D. play in the bracket slot

433. Burstone's "variable-modulus orthodontics" approach suggests planning a wire series:

- A. with increasing wire cross-section
- B. with increasing wire stiffness**
- C. with both increasing cross-section and increasing stiffness
- D. with increasing forces that do not require changing the biomechanics of the system

434. The author recommends using full-size initial archwires:

- A. when a force of 200g is adequate for tooth movement
- B. when wire deflection is less than 2.5mm**
- C. when using .022" brackets
- D. all of the above

435. Advantages of using full-size heat-activated superelastic initial wires may include:

- A. early control of torque
- B. reduced patient pain
- C. fewer wire changes

D. all of the above

Article 2

Guo, H.; Zhou, J.; Bai, Y.; and Li, S.: A Three-Dimensional Setup Model with Dental Roots (pp. 209-216)

436. Adverse consequences of improper or non-parallel root alignment can include:

- A. fenestration and dehiscence
- B. periodontal damage
- C. undesirable tooth movement under forces of occlusion
- D. **all of the above**

Article 2 (4 questions)

Guo, H.; Zhou, J.; Bai, Y.; and Li, S.: A Three-Dimensional Setup Model with Dental Roots (pp. 209-216)

437. In the authors' integration technique, excess base material is removed from the digitized dental models:

- A. to prevent the third molars from being obscured
- B. to prevent the CBCT-generated crowns from being obscured
- C. **along a plane defined by the three highest gingival apices**
- D. both a and c

438. The authors' integrated virtual model setup consists of:

- A. CBCT-generated crowns and digitized dental model roots
- B. CBCT-generated crowns and jaws
- C. digitized dental model crowns and roots
- D. **digitized dental model crowns and CBCT-generated roots and jaws**

439. Advantages of the authors' model integration system include all of the following except:

- A. **no impressions are needed**
- B. data can be used to print three-dimensional models for appliance fabrication

- C. post-treatment crown and root positions can be predicted
- D. the setup can be digitally moved back to the pretreatment occlusion

440. Historically, the bases of plaster study models were trimmed:

- A. parallel to the desktop or floor
- B. parallel to Frankfort horizontal**
- C. to provide 9 degrees of occlusal plane cant
- D. to flatten the occlusal plane

Article 3 (3 questions)

Paquette, D.E.: Importance of the Occlusal Plane in Virtual Treatment Planning (pp. 217-221)

441. According to Downs, the angle of the occlusal plane to Frankfort horizontal ranges from:

- A. 2-9 degrees
- B. 8-16 degrees
- C. 9-17 degrees
- D. 2-17 degrees**

442. The flat occlusal plane orientation in virtual models can negatively affect the clinician's diagnosis and treatment plan in regard to the patient's:

- A. incisor torque
- B. smile arc
- C. axial inclinations
- D. all of the above**

443. In a patient presenting with a 16 degree occlusal plane angle, a virtual setup with a flat occlusal plane will result in:

- A. a reverse smile arc
- B. a flat smile arc
- C. an overly accentuated smile arc**

- D. a gummy smile

Article 4 (4 questions)

Gilbert, A.: An In-Office Wire-Bending Robot for Lingual Orthodontics (pp. 230-234)

444. Because the LAMDA wire-bending robot makes only 1st-order bends:

- A. **the Hiro bonding system is used to accommodate the 2nd- and 3rd-order movements**
- B. the TARG bonding system is used to accommodate the 2nd- and 3rd-order movements
- C. the brackets must be bonded before designing the archwire
- D. the brackets should not already be bonded in cases involving significant crowding

445. A lingual archwire is designed on-screen after uploading:

- A. a digital intraoral occlusal photograph
- B. a digital photograph of the occlusal aspect of the patient's plaster model
- C. CBCT data of the dentition
- D. **either a or b**

446. The wire-bending robot can bend stainless steel and nickel titanium archwires in about:

- A. **five and six minutes, respectively**
- B. six and five minutes, respectively
- C. 10 and 11 minutes, respectively
- D. 11 and 10 minutes, respectively

447. Advantages of the LAMDA system include all of the following except:

- A. the wire-bending robot is affordable and compact compared to commercial
- B. systems an incorporated heater allows bending of nickel titanium wires
- C. **only a single CBCT scan is needed**
- D. archwires are designed and bent outside the patient's mouth

JCO2011 May CE testing

Article 1 (4 questions)

Breuning, K.H.: Efficient Tooth Movement with New Technologies for Customized Treatment (pp. 257-262)

448. Intraoral scanning technologies commonly used in dentistry have become more applicable in orthodontics due to the:

- A. ability to visualize the dental arches in occlusion
- B. incorporation of the palate in the scan**
- C. inclusion of the gingival structures
- D. reduction in scanning time

449. The accuracy of the Insignia system's digital study models is enhanced because:

- A. impressions are digitized using computed tomography (CT)**
- B. impressions are digitized by a cone-beam CT scanner
- C. the system imports intraoral scanning data
- D. the user can adjust the scanning data with a real-time, three-dimensional interface

450. The "Mantrough" feature of the Insignia digital setup system:

- A. analyzes the shape and size of the patient's mandibular cortical bone**
- B. allows the user to adjust the digital setup with a real-time, three-dimensional interface
- C. helps the clinician evaluate the patient's soft- and hard-tissue esthetic treatment goals
- D. designs accurate indirect bonding trays

451. "In-house customization," as described by the author, includes:

- A. differential slot sizes and robotic wire bending
- B. custom bracket torque and full-size wires
- C. full-size wires and self ligating brackets
- D. custom bracket torque and differential slot sizes**

Article 2 (4 questions)

Farronato, G.; Santamaria, G.; Cressoni, P.; Falzone, D.; and Colombo, M.: The Digital-Titanium Herbst (pp. 263-267)

452. Computer-aided design and manufacture of the Digital-Titanium (DTi) Herbst starts with:

- A. an intraoral scan with the occlusion modified to position the mandible forward
- B. cone-beam CT scanning of the patient's oral region with the mandible positioned forward
- C. virtual models produced from structured-light scans of the patient's silicone impressions
- D. **virtual models produced from structured-light scans of the patient's plaster casts**

453. The authors' Herbst appliance variation uses splints rather than bands:

- A. so that no dental supports are needed
- B. **to reduce the risk of appliance breakage**
- C. so that lingual slots can be added for a lingual or transpalatal arch if desired
- D. both a and b

454. On contact with oxygen, grade 5 titanium forms a thin titanium dioxide film that protects the material from:

- A. variations in temperature
- B. variations in pH
- C. oxidation
- D. **all of the above**

455. Benefits of the DTi Herbst include all of the following except:

- A. **reduced cost**
- B. ease of oral hygiene
- C. fabrication from hypoallergenic materials
- D. precise fit for better stability

Article 3 (4 questions)

Venkateswaran, S.; Rao, V.; and Krishnaswamy, N.R.: En-Masse Retraction Using Skeletal Anchorage in the Tuberosity and Retromolar Regions (pp. 268-273)

456. Advantages of miniscrew placement in the tuberosity and retromolar areas include all of the following except:
- A. no risk of inadvertent root contact
 - B. avoidance of surgical procedures needed to place and remove miniplates
 - C. lower risk of miniscrew failure**
 - D. ability to load miniscrews immediately
457. Biomechanically, miniscrew placement in the tuberosity and lower retromolar regions is:
- A. ideal for intruding teeth
 - B. useful for en-masse retraction**
 - C. likely to cause rotation of the occlusal plane
 - D. feasible only for molar distalization followed by anterior retraction.
458. In this case, to ensure that retraction forces would pass through the centers of resistance of the molars:
- A. retraction was delayed until the maxillary molars were uprighted
 - B. retraction was delayed until four months after third-molar extraction
 - C. miniscrews were placed 6mm apical to the crest of the alveolar bone**
 - D. miniscrews were placed 10mm apical to the crest of the alveolar bone
459. The result of waiting four months to place the miniscrews in the extraction sockets was that:
- A. adequate bone remodeling had taken place to support the miniscrews
 - B. the miniscrews could be immediately loaded, reducing the risk of instability
 - C. the arches had been completely leveled, reducing the potential for binding and friction

D. all of the above

Article 4 (4 questions)

janson, G.; Araki, J.; Pinan, A.; Freitas, L.M.A.; and Freitas, M.R.: Late Expression of Class III Malocclusion (pp. 275-283)

460. After seven months of initial treatment, the patient exhibited a developing:

A. unilateral Class III relationship

B. bilateral Class III relationship

C. unilateral Class II relationship

D. bilateral Class II relationship

461. An unusual aspect of the case was:

A. bimaxillary growth well past the patient's active growth period

B. asymmetrical presentation of the Class III malocclusion over a period of several years

C. unilateral condylar hyperplasia

D. bilateral condylar hyperplasia

462. The authors recommend prevention of a potential late-developing Class III malocclusion by:

A. scheduling follow-up visits every three months until the end of growth

B. using a chin cup or functional appliance

C. prescribing intermaxillary elastics

D. both a and b

463. The patient's retreatment resulted in a less-than-ideal dental display due to:

A. lack of compliance with elastics wear

B. refusal to wear a chin cup

C. unusual mandibular overgrowth affecting the overbite and overjet

D. counterclockwise rotation of the occlusal plane from the use of Class III

- E. elastics

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Article 1 (4 questions)

Klempner, L.: Early Treatment of Skeletal Class III Open Bite with the Tandem Appliance (pp. 308-316)

464. Conventional facemask therapy in hyperdivergent open-bite patients can result in undesirable:
- A. downward and backward movement of the maxilla
 - B. downward and forward movement of the maxilla
 - C. clockwise rotation of the mandible**
 - D. counterclockwise rotation of the mandible
465. To ensure stability and retention of the lower Tandem component, the author recommends:
- A. bonding small composite buttons to the lower canines
 - B. placing C-clasps on the deciduous molars
 - C. adding a lower midline expansion screw
 - D. both A and C**
466. In Tandem Appliance therapy, closure of the bite is made possible by using:
- A. acrylic coverage of the lower premolars and molars**
 - B. light, 8oz Panther training elastics
 - C. heavy, 14oz Walrus elastics
 - D. a lower midline expansion screw
467. Advantages of the Tandem Appliance in Class III treatment include all of the following except:
- A. better patient cooperation than would be expected with a facemask
 - B. minimal compensatory dentoalveolar change**

- C. control of the vertical dimension with interocclusal acrylic
- D. ability to be used in patients with both hypo- and hyperdivergent growth patterns

Article 2 (4 questions)

Melsen, B.: Miniscrew Loosening (pp. 317-319)

468. Loosening of a miniscrew immediately after placement may be due to:

- A. insufficient or poor-quality bone at the placement site
- B. overturning the miniscrew during insertion
- C. application of an “unscrewing” force on the miniscrew
- D. **any of the above**

469. A loosened miniscrew that has been tightened will:

- A. be more stable than it was before
- B. remain stable if there was no overturning during insertion or tightening
- C. **remain stable only for a short period**
- D. immediately fail

470. The author suggests initial miniscrew loading with a spring or cantilever of a known force of:

- A. no more than 20-30cN
- B. **50cN**
- C. 100cN
- D. 150cN or higher

471. Compared to miniscrews with cylindrical bodies, conical miniscrews:

- A. provide better stability and perform better in pull-out tests
- B. provide less stability, but perform better in pull-out tests
- C. **provide better stability, but perform less well in pull-out tests**
- D. provide less stability and perform less well in pull-out tests

Article 3 (4 questions)

Cozzani, G.; Denotti, G.; Ferrara, S.; Petroni, P.; and Piras, A.: Closure of Central Incisor Spaces: A 16-Year Follow-Up (pp. 321-327)

472. A complicating factor in treatment of young patients with avulsed permanent teeth is:

- A. fracture of the alveolar process at the same time as the dental avulsion
- B. lack of adequate bone for immediate implant placement
- C. continued resorption of alveolar bone
- D. all of the above**

473. In this case, a space-closure treatment plan was chosen in part due to:

- A. the size of the patient's maxillary lateral incisors**
- B. the size of the patient's maxillary canines
- C. the absence of maxillary third-molar buds
- D. the presence of adequate bone in the anterior region

474. By today's standards, the case finish was somewhat deficient in regard to:

- A. height of the gingival margins of the relocated teeth**
- B. torquing-out of the relocated canines' roots
- C. torquing-in of the relocated first premolars' roots
- D. all of the above

475. Space closure was a good treatment choice for this patient for all the following reasons except:

- A. no reshaping of the anterior teeth was required**
- B. the patient's esthetic appearance was permanently improved fairly quickly
- C. the higher costs of lifetime prosthetic maintenance were avoided
- D. surgical grafting to ensure adequate bone depth for implants was unnecessary
- E. unnecessary

Article 4 (4 questions)

Jaiswal, A.K.; Dua, A.K.; Laxman, K.R.; Mascarenhas, R.; and Gandhi, S.: Nonsurgical Treatment of an Adult with Severe Anterior Open Bite (pp. 341-347)

476. A digit-sucking or tongue-thrust habit can affect the skeletal structures:

- A. in any patient with a hypodivergent growth pattern
- B. in any patient with a hyperdivergent growth pattern
- C. if the habits continue into adulthood**
- D. if the habits are started in the primary or mixed dentition

477. Dental open-bite cases that include a mild skeletal alteration can usually be treated with:

- A. surgery and extrusion of the incisors
- B. surgery and intrusion of the molars
- C. incisor intrusion and molar extrusion
- D. incisor extrusion and molar intrusion**

478. Miniscrews were placed in the palatal molar regions:

- A. to counteract intrusive forces from the reverse-curve wire in the premolar region
- B. to serve as indirect anchorage for upper molar intrusion
- C. to serve as direct anchorage for upper molar intrusion**
- D. all of the above

479. The authors placed a reverse-curve nickel titanium wire in the upper arch to:

- A. reduce the duration of anterior elastics wear**
- B. extrude the upper molars
- C. intrude the upper molars
- D. extrude the upper premolars

JCO2011 July CE testing

Article 1 (4 questions)

Lim, J.K.; Jeon, H.J.; and Kim, J.H.: Molar Distalization with a Miniscrew-Anchored Sliding Jig (pp. 368-377)

480. Disadvantages of using a conventional sliding jig for distalization include all of the following except:

- A. need for patient compliance
- B. anchorage loss from reactive forces
- C. expansion in the canine regions**
- D. rotation of the occlusal plane

481. Rapid molar distalization is possible with the miniscrew-supported sliding jig because:

- A. forces are applied directly to the teeth**
- B. leveling and alignment of the anterior region can be delayed until later in treatment
- C. no extrusive forces are applied to the molars
- D. patient compliance is not a prerequisite

482. Premolar root damage from screw contact is less likely with the miniscrew-supported sliding jig because:

- A. retraction forces are applied directly to the second premolar
- B. distalizing forces are applied directly to the first molar**
- C. screws are placed in the retromolar area only
- D. screws are relocated after 2mm of molar distalization

483. Biomechanical side effects of the miniscrew-supported sliding jig can include:

- A. canine intrusion
- B. canine extrusion
- C. canine expansion
- D. both A and C**

Article 2 (4 questions)

Jerrold, L. and Naghavi, N.: Evidence-Based Considerations for Determining Appointment Intervals (pp. 379- 383)

484. In cases of mild-to-moderate interdental distortion, low forces are best delivered over long periods of time with:
- A. multistranded stainless steel archwires
 - B. round stainless steel archwires
 - C. superelastic nickel titanium archwires**
 - D. copper nickel titanium archwires
485. A study of space closure by elastomeric chain and nickel titanium coil springs showed:
- A. significantly faster closure rates using elastomeric chain
 - B. significantly faster closure rates using nickel titanium coil springs
 - C. virtually the same closure rate with both systems**
 - D. inadequate residual force in either system beyond six weeks
486. Shorter appointment intervals are recommended for all of the following except:
- A. rapid maxillary expansion cases
 - B. extraction cases using sliding mechanics for space closure**
 - C. patients with periodontal disease
 - D. patients in the presurgical finishing phase
487. Longer appointment intervals can generally be considered for:
- A. impaction cases
 - B. patients undergoing treatment with non-compliance appliances**
 - C. extraction cases involving complicated space-closure mechanics
 - D. patients wearing headgear or elastics

Article 3 (4 questions)

Barry, M.K.: In-Office Digital Study Models (pp. 385-389)

488. A drawback of digital models produced from cone-beam computed-tomography scans using low levels of radiation exposure is that:

- A. **the digital models generally do not include adequate detail for clinical use**
- B. soft and hard tissues cannot be separated
- C. the digital files are too large to store using conventional media in the average practice
- D. all of the above

489. Benefits of intraoral scanning technology include all of the following except:

- A. scans are taken without radiation
- B. no impressions are needed to produce a digital study model
- C. **no physical working model is required to fabricate an appliance or retainer**
- D. high-resolution digital records are produced

490. Laser scanning of impressions can be more difficult if:

- A. anatomical details are deep and narrow
- B. the laser is reflected by surface moisture
- C. blue alginate is used
- D. **both A and B**

491. Stereolithography is a method of printing in three dimensions that uses:

- A. a “subtractive” technique to cut the material away from a block
- B. **ultraviolet (UV) light to selectively cure thin layers of liquid photo-resin**
- C. UV light to cure photo-resin laid down in a pattern, similar to ink-jet printer technology
- D. a printhead that lays a “binder” onto a bed of fine powder

Article 4 (4 questions)

Tai, K.; Park, J.H.; Hayashi, D.; and Miura, A.: Autotransplantation of Premolars in a Patient with Multiple Congenitally Missing Teeth (pp. 399-407)

492. An advantage of successful dental autotransplantation is that:

- A. normal function is generally recovered after only a single surgery
- B. alveolar bone induction continues after transplantation
- C. the patient experiences normal chewing sensations
- D. all of the above**

493. Pulp canal obliteration subsequent to dental transplantation:

- A. results from calcification of the root canal**
- B. results from necrosis of the vital pulp
- C. is an indication that the transplant will fail
- D. is extremely uncommon

494. Factors contributing to successful dental transplantation include all of the following except:

- A. preservation of the periodontal ligament and Hertwig's epithelial root sheath
- B. maintenance of adequate vertical and bucco-lingual dimensions of the recipient site
- C. immediate application of moderate-to-heavy orthodontic forces**
- D. immediate implantation of the donor tooth after extraction

495. Best results are obtained when a transplanted premolar has reached a growth stage of:

- A. at least 50% root development
- B. 50-75% root development
- C. 75-100% root development**
- D. complete root development and a closed apical foramen

496. Which surgical technique has been used for the treatment of gingival recession?

- A. Sliding pedicle grafts.
- B. Free gingival grafts.
- C. Subepithelial connective tissue grafts.
- D. All of the above.**

497. Which characteristic should a successful grafting technique provide?

- A. Aesthetic results.
- B. Predictable results.
- C. Minimal complications.
- D. All of the above.**

498. What feature distinguishes the utilization of vertical incisions for allograft placement from traditional tunnel techniques?

- A. Full-thickness gingival flap.
- B. Split-thickness gingival flap.**
- C. The mobility of the gingival flap.
- D. A suture is not required to pull the graft through the tunnel.

499. Utilization of the vertical incision technique facilitates:

- A. Detection of tissue tags.
- B. Graft positioning.
- C. Placement of the graft into the tunnel preparation.
- D. All of the above.**

500. The thickness of the acellular demal connective tissue allograft used is:

- A. 0.5 mm to 1 mm.
- B. 1 mm to 1.5 mm.
- C. 1.5 mm to 2 mm.**
- D. 2 mm to 2.5 mm.

501. What precaution must be taken prior to placement of the acellular dermal connective tissue allograft?

- A. The material must be rehydrated in saline for approximately 5 to 10 minutes.**
- B. The material must be tenderized with a small amalgam condenser.
- C. The material must be dehydrated under a bright light for 5 to 10 minutes.
- D. The material must be placed without altering the original shape of the allograft.

502. The smooth side of the acellular dermal connective tissue allograft represents:

- A. The basement membrane side.
- B. The connective tissue side.
- C. The epithelial side.**
- D. The more processed side.

503. The connective tissue side of the acellular dermal connective tissue allograft should be placed so that it is:

- A. Against the root surface.
- B. Against the bone.
- C. Exposed above the gingival flap.
- D. Adjacent to the inner surface of the gingival flap.**

504. Prior to graft placement, root eminences should be:

- A. Flattened
- B. Scaled and root planed.
- C. Both a and b.**
- D. None of the above.