Extracting Teeth in Preparation for Dental Implants

Authored by
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LEARNING OBJECTIVES
After participating in this CE activity, the individual will learn:
• Tooth removal techniques which employ burs as adjunctive aids.
• Clinical issues associated with tooth extractions in preparation for dental implants.

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Disclosure: Dr. Cavallaro reports no disclosures.

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Disclosure: Dr. Ben Greenstein reports no disclosures.

INTRODUCTION
The atraumatic removal of a tooth enhances patient comfort and preserves bone. Traditionally, the sequence for tooth removal after anesthesia consists of severing gingival fibers by running a periosteal elevator in the sulcus. Then an elevator is used to loosen the tooth, and forceps are employed to luxate it buccolingually, thereby expanding the alveolar socket and facilitating its removal. However, a tooth may be difficult to extract due to root length, root dilaceration, gnarled or bulbous roots, and thickness of supporting bone, ankylosis, or subcrestal fracture. Furthermore, if a site is to receive an implant, a tooth must be removed atraumatically to avoid fracturing walls of the alveolus, especially a thin buccal plate in the aesthetic zone. This article discusses tooth removal techniques which employ dental burs as adjunctive aids. In addition, various issues associated with extractions in preparation for dental implants are addressed.

DIAGNOSIS
Prior to extracting a tooth, a medical and dental history should be reviewed. Then a clinical oral examination is performed, and the sulcus is assessed by “walking” the periodontal probe circumferentially around the tooth to detect deep probing depths, infraosseous defects, and bone dehiscences. The radiograph is inspected to assess for atypical findings (eg, an apical fenestration of bone, which manifests itself as an apical radiolucency). These determinations are particularly important if a site is to receive a dental implant. In this regard, Evian et al delineated the following classification of extraction sockets for immediate implant placement.

• Type I: The bony socket is intact, and the soft-tissue form is undisturbed.
• Type II: The bony socket is intact in the coronal aspect of the socket, but a fenestration is present in the apical area. The soft tissue remains intact and undisturbed.
• Type III: Bone loss is present in the coronal aspect of the socket. The soft tissue remains intact and undisturbed.
• Type IV: Bony defects exist in conjunction with soft-
tissue deformity. Often, the severity of this defect precludes implant placement and requires site development prior to implant placement.

Type I sockets after extraction require no additional therapy (ie, bone grafting) prior to or at the time of implant placement. An exception to this remark is the possible need for hard- or soft-tissue grafting to preserve tissue contour. The other socket categories need to be managed at the time of extraction or subsequently when implantation occurs. Numerous articles have addressed these issues.2,3

From another perspective, before extracting a tooth in the aesthetic zone that manifests recession, one must consider if an implant is going to be inserted to replace the extracted tooth, because a hopeless tooth may not be a useless tooth; it can be used via orthodontic extrusion to help correct soft- and hard-tissue deformities.4

**Dimensions of the Buccal and Lingual Plates of Bone**

In general, the buccal plate of bone is thinner than the lingual bony plate (Table 1) and is more prone to being fractured during tooth extractions. This is of particular concern in the aesthetic zone, because a buccal bone fracture may result in gingival recession. Furthermore, even if a labial plate fracture does not occur upon tooth extraction, its thinness renders it prone to resorption after tooth removal.

**Injection Techniques**

To reduce discomfort during anesthetic injections, the following approaches can be considered: administer nitrous oxide, apply topical anesthetic, instruct the patient to take 4 ibuprofen tablets (200 mg) an hour before the procedure, distract the patient by shaking his or her cheek during initial tissue penetration by the needle, use a 30-gauge needle, and inject anesthetic solution slowly. When administering a nasopalatine injection, inject first on the buccal surface and then penetrate through the papilla to anesthetize the palatal tissue, because this is a sensitive area to inject. In general, when administering an infiltration injection, inject supraperiosteally and withdraw the needle one mm after touching the bone. An injection administered under the periosteum raises it and can cause pain later.

With respect to mandibular block injections, the location of the mandibular foramen may differ among individuals and this may influence success of block injections.6,7 Among adult cadaveric mandibles, the foramen was found above the occlusal plane 2.5% to 23.5% of the time.6,7 Therefore, many block injections given at the level of occlusion will be ineffective. It is advisable to inject patients at 6 to 10 mm coronal to the occlusal plane, which usually accounts for anatomical variations.8 To achieve anesthesia for posterior extractions, buccal infiltration is also performed to anesthetize the long buccal nerve. If there are symptoms of a good block injection, but the patient is still symptomatic, infiltrate the lingual of the molar teeth, since there may be further innervation from C2 and C3 (cutaneous colic nerve of the cervical plexus).9

<table>
<thead>
<tr>
<th>Table 1. Thin Buccal Plate: Slightly Thicker Lingual Plate5</th>
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<tbody>
<tr>
<td><strong>Maxilla</strong></td>
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<tr>
<td>2.23 mm (Molar)</td>
</tr>
<tr>
<td>1.62 mm (Premolar)</td>
</tr>
<tr>
<td>1.59 mm (Anterior)</td>
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<tr>
<td><strong>Mandible</strong></td>
</tr>
<tr>
<td>1.98 mm (Molar)</td>
</tr>
<tr>
<td>1.20 mm (Premolar)</td>
</tr>
<tr>
<td>0.99 mm (Anterior)</td>
</tr>
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![Figure 1a. An extra-long carbide fissure bur (700XXL [Salvin Dental Specialties]) is very efficient for sectioning multirooted and single-rooted teeth.](image)

![Figure 1b. A diamond bur is also an efficient rotary instrument for sectioning teeth prior to extractions (No. 859 [Brasseler USA]).](image)
Burs
There are several different burs that may be useful during removal of teeth. In general, long fissure burs are used to section teeth (e.g., 700L, 700XXL [Salvin Dental Specialties]) (Figure 1a). A long slender diamond (No. 859 [Brasseler USA]) or 700XXL can also be inserted into the periodontal ligament (PDL) of teeth to sever Sharpey’s fibers (Figure 1b). This dramatically reduces retention of the root, and this technique often can be used to deliver roots that are subcrestal and which may be difficult to remove with an elevator.

EXTRACTING TEETH
Sectioning Anterior Teeth
There are a few methods for tooth removal that can help avoid damage to the buccal plate of bone. This is particularly important in the aesthetic zone. Patients present with either one of 2 extraction scenarios: a tooth with an intact crown, or one that is broken subgingivally. If the tooth is intact, a periosteum or small elevator can be used at a 20° angle (to avoid slippage) to facilitate extraction of the tooth. Work around the whole tooth and release periodontal fibers to the osseous crest. Place the instrument into the PDL and work it apically; it is possible to reach two thirds of the root length. However, this procedure can be time consuming and is not always effective. Do not use forceps until there is significant tooth mobility. If forceps are used on single-rooted teeth, rotate the tooth and do not luxate it buccopalatally.

There are other very effective and preferred methods that can be used to manage intact and broken teeth. Take a long, thin diamond and sink it into the PDL of the tooth on the mesial, distal, and palatal aspects (Figure 2). To preserve bone, it is preferable when creating a trough mesially, distally, and palatally to lean up against the tooth with the bur rather than the adjacent bone. Remember that the PDL is approximately 0.25 mm and the bur is usually thicker than that. This will provide room for a periosteum or a small elevator to deliver the root.

The slender diamond can also be used when the buccal plate is so thin that it is precarious to elevate the buccal aspect of the root. In this situation, cut mesiodistally into the tooth, leaving the buccal plate intact and a part of the buccal aspect of the root in place, which can be removed with a curette.
When extracting a long tooth such as a canine, the bur can be inserted into the PDL on the mesial, distal, and palatal for a substantial distance; ie, 10 mm or more. Avoid doing this on the buccal, because the buccal plate is thin and it may induce recession.

After extracting a tooth, all granulomatous tissue should be removed. Some clinicians advocate curetting socket walls to eliminate the PDL prior to placing immediate implants. Others use a No. 4 round bur in reverse or employ a Neumeyer finishing bur. However, if there is no pathosis, this does not need to be done. Sockets which are not curetted heal; hence, the need to curette before implant placement is questionable.

Other techniques that are used less frequently include the following: if the crown is intact, amputate it horizontally at the level of the free gingival margin. Drill into the pulp chamber with a high-speed, long, thin, pointed diamond (10-mm long, No. 859 diamond) and section the tooth buccolingually (Figure 3). Proceed as close to the apex as possible. Then, remove the sections by elevating the sectioned roots toward the center. This avoids destroying the buccal bone. Alternately, sectioning can be done mesiodistally (Figure 4). Then the roots are elevated into the space left by the bur, one at a time, to avoid fracturing the buccal bone plate. The decision to section buccolingually or mesiodistally has advantages and disadvantages. Mesiodistal sectioning is advantageous when the buccal plate is precariously thin and there is good interdental space. Buccolingual sectioning is preferable when there is adjacent root proximity or crowded teeth. When sectioning buccolingually, caution must be exercised not to damage the buccal plate. On the other hand, it allows for elevating toward the center. Conversely, sectioning mesiodistally avoids damaging the buccal bone with the bur, but the buccal part of the root will have to be carefully elevated in a palatal direction.

**Mesiodistal Sectioning of Maxillary Premolars**

This is illustrated in Figure 5.

**Sectioning of Posterior Maxillary and Mandibular Teeth**

Multirooted teeth such as molars should be sectioned prior to removal to avoid bone damage that can occur when
luxating a tooth buccolingually. Further, sectioning reduces the force that needs to be used to deliver a tooth; therefore, the patient is more comfortable and will not feel as much pressure. Additionally, sectioning multirooted teeth affords the opportunity to preserve the furcal bone. After an extraction, the site should be debrided if there is granulomatous tissue. The following techniques are recommended for sectioning maxillary and mandibular molars.

1. **Maxillary molars**—The crown is decoronated initially slightly coronal to the gingival margin. This facilitates access to the individual roots during sectioning and reduces the amount of debris if flaps are elevated after tooth sectioning. The maxillary furcations are located 4 mm from the cemento-enamel junction (CEJ) on the buccal and 4 to 6 mm interproximally (Table 2). Following detection of the furcations, guide cuts are made on the flat occlusal surface to correspond to their locations. This step ensures proper alignment during sectioning. Guide cuts are deepened and lengthened until they merge and separate the roots (Figure 6). If there is no bone loss, and the distance to the furcation is 4 mm from the CEJ, and the CEJ is around 2 mm coronal the bone crest, then the furcation is 2 mm apical to the bone crest, so cut deeply enough to section the tooth. The palatal root is separated from the buccal roots with a mesiodistal cut and the buccal roots are separated with a buccopalatal cut. Proximal furcations are best approached from the palatal aspect where wider embrasures permit access, especially on the mesial. Furthermore, the mesial furcation is more easily approached from the palatal, since the furcation is normally located two thirds of the way toward the palatal surface. The distal furcation is found midway between the buccal and palatal aspects.

After the roots are separated, they are delivered with an elevator. Sometimes, it is easier to use narrow-beaked forceps to remove the roots. If a root is resistant to movement, a thin diamond is inserted into the PDL around the root to facilitate its removal without fracturing any bone. Try to avoid reducing the amount of available furcal bone. In situations when the roots approximate the floor of the maxillary sinus, it is important to avoid direct apical pressure with instruments when removing individual separated roots.

<table>
<thead>
<tr>
<th>TOOTH</th>
<th>FURCA LOCATION</th>
<th>DISTANCE TO CEJ</th>
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<tbody>
<tr>
<td>Maxillary First Molar</td>
<td>Buccal</td>
<td>4 mm</td>
</tr>
<tr>
<td></td>
<td>Mesial</td>
<td>4 to 5 mm</td>
</tr>
<tr>
<td></td>
<td>Distal</td>
<td>5 to 6 mm</td>
</tr>
<tr>
<td>Maxillary Second Molar</td>
<td>Buccal</td>
<td>6 mm</td>
</tr>
<tr>
<td></td>
<td>Mesial and Distal</td>
<td>&gt; 6 mm</td>
</tr>
<tr>
<td>Mandibular First and Second Molar</td>
<td>Buccal</td>
<td>3 mm</td>
</tr>
<tr>
<td></td>
<td>Lingual</td>
<td>4 mm</td>
</tr>
</tbody>
</table>

**Table 2. Furcation Location Relative to the Cemento-Enamel Junction**

![Figure 6a](image-url) **Figure 6a.** Occlusal view of decoronated maxillary molar, tooth No. 3. It was reduced to the level of the free gingival margin. The white arrows indicate locations of the furcations of this molar tooth.

![Figure 6b](image-url) **Figure 6b.** A fissure bur has been used to separate this 3-rooted tooth into 3 separate parts. Each root will be removed individually.

![Figure 6c](image-url) **Figure 6c.** First the roots are gently elevated to determine that they have been totally sectioned. The distobuccal root was delivered first.

![Figure 6d](image-url) **Figure 6d.** Subsequently, gentle elevation and the application of a universal maxillary forceps deliver the mesiobuccal root.

![Figure 6e](image-url) **Figure 6e.** The palatal root was the last one to be removed using a straight elevator and forceps. Note that the circumradicular as well as the furcation bone is intact. This maxillary molar was extracted flaplessly with minimal trauma. Sometimes it is necessary to introduce the fine diamond bur into the periodontal ligament space around an individual root to facilitate its removal, which was done in this instance.
2. **Mandibular molars**—Similar to maxillary molars, mandibular molar crowns are severed horizontally, coronal to the CEJ, approximating the free gingival margin. Furcations are located and guide cuts are created, deepened, and connected. The position of the furcation is usually 3 mm from the CEJ on the buccal and 4 mm on the lingual (Table 2).\(^{13}\) After the tooth is sectioned, an elevator and forceps combination can be used to remove the roots (Figure 7). If a root resists movement, a No. 859 bur is inserted into the PDL and the bur is used on the proximal surface which is not adjacent to the furcal bone, because it may be used to support an implant.

**Vertical Releasing Incisions**

When performing extractions in the aesthetic zone, a flapless protocol is preferred in order to avoid disrupting the periosteal blood supply to the cortical bone, particularly on the buccal aspect, which is the thinner plate of bone. Vertical releasing incisions are sometimes needed to provide access to extract teeth or perform guided bone regeneration procedures to resolve bony dehiscences or fenestrations. One approach is to create a vertical releasing incision at the line angle, one tooth away from the lesion site (mesially or distally) to provide access; this will help avoid tearing an envelope flap. In general, vertical releasing incisions heal uneventfully and rarely leave a scar within the gingiva if primary closure is attained.

**Teeth Restored With Crowns**

Teeth restored with crowns or part of a fixed dental prosthesis may need to be extracted. It is prudent to sever connections between splinted crowns and sometimes remove the restoration prior to tooth removal. A diamond bur is useful to cut through porcelain, and carbide burs are helpful to sever metal alloys (Figure 8).

**Flap Versus Flapless Extractions**

As indicated, a flap is used in conjunction with an extraction for access or a bone regeneration procedure. When a flap is elevated and a tooth is extracted, there is, on average, 1.24 mm vertical bone loss (range 0.9 to 3.6 mm) and 3.79 mm horizontal bone reduction (range 2.46 to 4.56 mm) after 6 months.\(^{14}\)

Several investigators have suggested that tooth removal without flap elevation and implant placement decreased bone loss and recession in humans\(^{15}\) and animal experimental studies.\(^{16-18}\) However, others reported in humans\(^{19-21}\) and experimental studies\(^{22-24}\) that with a flapless protocol, the quantity of bone loss was similar, because tooth extraction eliminates the blood supply to the bone from the periodontal ligament.\(^{25,26}\) Regardless of these contradictory data, it is the authors’ judgment that if flaps are not elevated, especially in the aesthetic zone, there is a good chance there will be less gingival recession.
Treatment of Infected Sites
If a patient presents with an abscessed tooth, it is usually not necessary to carry out incision and drainage and place the patient on antibiotics before extracting the tooth. Removal of the tooth will provide drainage of the infected site. With respect to survival rates of immediately placed implants into fresh extraction sockets and healed ridges, they are similar (97.3% to 99%). This finding is also true with respect to immediate placement of implants into infected sites or locations with periapical lesions.

Protocol After an Extraction
After a tooth is extracted, always palpate the rim of the extraction socket to assess if there are any sharp edges. If present, remove them with a bur or chisel. In the mandibular posterior region, sometimes days to weeks after an extraction, a thin lingual shelf of bone perforates the lingual mucosa. This may protrude as a sharp point and irritate the tongue. When this occurs, use a round bur to smooth the bone. Anesthesia is usually not needed, since the exposed bone is poorly innervated. Repeat this procedure as needed during the next several weeks. Another option is to reflect a flap to gain access to the bone, but this is not usually necessary.

Complications
Perforation Into the Sinus
If a root extends into the sinus and is extracted, it may result in a perforation into the sinus. An opening into the sinus can be confirmed by occluding the patient's nostrils and having him or her blow gently (Valsalva maneuver). Air bubbles will appear in the socket if there is a perforation. If the hole is small (one to 2 mm), it can be ignored. The socket will fill with blood, a clot will form, and it will heal uneventfully. If the communication is a little larger, some resorbable barrier material (e.g., CollaTape) can be placed over the perforation and it should heal without incident. If the perforation is large (> 4 mm), several options are available. A bioreabsorbable barrier can be placed over the perforation. Bone can be placed on top of the barrier and a nonresorbable barrier (e.g., Cytoplast) can be placed over the bone graft and retained under the flap. This avoids having to attain primary flap closure. Another option is to perform flap advancement and attain primary closure; this may increase patient morbidity. Subsequently, if an oral-antral fistula develops, then it will be necessary to freshen the periphery of the fistula and close the fistula with flap advancement.

Sectioning a Single-Rooted or Multirooted Tooth
Sectioning single-rooted teeth either buccolingually or mesiodistally should be cautiously performed. When dividing a tooth mesiodistally, care should be taken not to damage the interproximal bone or roots of adjacent teeth. Similarly, when separating a tooth buccolingually, the clinician must proceed with extreme vigilance near the labial plate, which is often thin. Inadvertent fenestration of the labial plate will result in the need for a guided bone regeneration procedure. Furthermore, if teeth are positioned to the labial relative to the alveolar housing, buccolingual sectioning is not advisable (Figure 9).

Extreme care must be taken when sectioning mandibular molars, especially second (and third) molars. The lingual plate often becomes thinner in this area, especially for lingually tipped (erupted) teeth. Injudicious use of a bur during sectioning may result in perforation of the lingual plate of bone and damage to vital structures (e.g., lingual nerve). Sectioning may be halted prior to complete penetration of the lingual tooth structure and completed with a hand instrument (elevator). Alternately, when sectioning is mostly accom-
lished, the bur can be inserted into the lingual sulcus of the molar and dragged toward the buccal to permit the sectioning to be completed.

**Burning Bone**

When a bur is used to section a tooth, and in particular when it is inserted into the PDL, the handpiece must provide generous irrigation to avoid burning bone. If the bone is overheated, it will smell as if something is burning and it will appear discolored. Erikson and Albrektsson reported that bone can tolerate 44° to 47°C for one minute without impeding healing. To avoid or reduce burning of the bone during extractions, use copious irrigation, intermittent drilling pressures, and new burs that are sharp. If the periphery of the socket becomes discolored, gently remove it with a curette. It has been the authors’ experience that the socket will heal uneventfully if this occurs. Importantly, since the bur is an efficient cutting instrument, it is essential that the operator exercise patience when navigating the bur around the tooth.

**Controlling Bleeding Problems**

Bleeding after an extraction can originate from soft tissue or bone. To control hemorrhage, inject anesthetic with 1/50,000 epinephrine and apply direct pressure. To halt bone hemorrhaging, various techniques can be used: inject anesthetic with epinephrine directly into a nutrient canal and/or on gauze (twist the gauze so it fits into the socket) and hold it in place with a periosteal elevator; burnish the bone to try to occlude it; or place a bone graft material into a defect, which may obtund bleeding, or use a cautery unit (Geiger 150-S).

Rarely, post-extraction liver clots form. This is due to incomplete fibrin clotting and manifests as a slowly developing, red-brown mass. If a patient develops a liver clot and is not in the office, he or she may have difficulty controlling the bleeding. Instruct patients to wipe away the clot with a piece of gauze and to apply pressure for 10 minutes. If the patient cannot control the bleeding, have him or her return to the office and inject bleeding sites with 1/50,000 epinephrine, curette the oozing fibrin clot away, and suture the area.

**Dry Socket**

Symptoms of a dry socket usually commence 3 days after an extraction and may include radiating pain. This complication is due to clot necrosis. Sites prone to manifesting a dry socket are the mandibular molars (around 3% of the time). The etiology responsible for dry sockets is unknown. The reparative process is delayed, and is preceded by an extensive osteoclastic activity. Therefore, the site may lose more bone than normal. With respect to healing, granulation tissue starts growing into the alveolus through perforations in the lamina dura. The alveolar wound is gradually filled in from the bottom. After the socket fills with granulation tissue and is covered by epithelium, healing takes its normal course.

Management of a dry socket consists of anesthetizing the site, then irrigating the alveolus and inserting some sedative pastes with or without a collagen carrier. Sometimes this procedure needs to be repeated in several days.

**Ecchymosis**

Sometimes after an extraction, an ecchymotic area (black and blue spot) will be seen. This is due to bleeding that occurred under the flap or within the extraction socket. The hemorrhage may follow the fascial planes, and the ecchymosis may descend below the surgical site due to gravity. Color changes related to an ecchymosis follow an expected pattern as hemoglobin is resorbed. Initially, it looks reddish, which reflects blood. Within several hours, it appears black/blue or dark purple. By day 6, the color changes to green (biliverdin). At days 8 to 9, it is yellowish-brown (bilirubin). In 2 to 3 weeks, the discoloration is resolved. Ecchymosis requires no therapy besides reassurance for the patient.

**CONCLUDING REMARKS**

Utilization of burs to section and extract teeth facilitates faster, easier, and more efficient atraumatic tooth removal, increasing patient comfort and reducing clinician stress. Initially, the concept of placing a thin bur into the PDL may seem strange; however, if done with copious irrigation, gentle pressure, and patience, it is a benign procedure. Using burs reduces the challenge of extracting some teeth
Extracting Teeth in Preparation for Dental Implants

and makes it a more routine task.

Clinicians should at all times undertake procedures for which they are academically and clinically trained and experienced. If the perceived difficulty factors associated with an extraction create unease within the mind of a practitioner, then referral to a surgical specialist is prudent.

REFERENCES


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POST EXAMINATION QUESTIONS

1. In the classification of extraction sockets by Evian et al, in which socket type is the bony socket intact and soft-tissue form is undisturbed?
   a. Type I.
   b. Type II.
   c. Type III.
   d. Type IV.

2. Type I sockets after extraction require no additional therapy prior to or at the time of implant placement. Other socket categories need to be managed at the time of extraction or subsequently when implantation occurs.
   a. The first statement is true, the second is false.
   b. The first statement is false, the second is true.
   c. Both statements are true.
   d. Both statements are false.

3. In general, the buccal plate of bone is thinner than the lingual bony plate.
   a. True.
   b. False.

4. When administering a mandibular block injection, it is advisable to inject patients at ______ coronal to the occlusal plane to account for anatomical variations of the mandibular foramen.
   a. 2 to 4 mm.
   b. 4 to 6 mm.
   c. 6 to 10 mm.
   d. 10 to 14 mm.

5. After extracting a tooth, all granulomatous tissue should be removed. Even if there is no pathosis, the socket should always be curetted in order to ensure proper healing.
   a. The first statement is true, the second is false.
   b. The first statement is false, the second is true.
   c. Both statements are true.
   d. Both statements are false.
6. When sectioning an anterior tooth, mesiodistal sectioning is advantageous when the buccal plate is precariously thin and there is good interdental space. Buccolingual sectioning is preferable when there is adjacent root proximity or crowded teeth.
   a. The first statement is true, the second is false.
   b. The first statement is false, the second is true.
   c. Both statements are true.
   d. Both statements are false.

7. Furcations in maxillary molars are generally located ____ from the cemento-enamel junction.
   a. 2 mm.
   b. 4 mm.
   c. 6 mm.
   d. 8 mm.

8. In maxillary molars, the mesial furcation is normally located two thirds of the way toward the palatal surface. The distal furcation is found midway between the buccal and palatal aspects.
   a. The first statement is true, the second is false.
   b. The first statement is false, the second is true.
   c. Both statements are true.
   d. Both statements are false.

9. When a flap is elevated and a tooth is extracted, there is on average ____ vertical bone loss after 6 months.
   a. 0.74 mm.
   b. 1.24 mm.
   c. 1.88 mm.
   d. 2.45 mm.

10. Erikson and Albrektsson reported that bone can tolerate ____ °C for one minute without impeding healing.
    a. 40 to 43.
    b. 44 to 47.
    c. 47 to 49.
    d. 50 to 53.
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1. ☐ a ☐ b ☐ c ☐ d
2. ☐ a ☐ b ☐ c ☐ d
3. ☐ a ☐ b
4. ☐ a ☐ b ☐ c ☐ d
5. ☐ a ☐ b ☐ c ☐ d
6. ☐ a ☐ b ☐ c ☐ d
7. ☐ a ☐ b ☐ c ☐ d
8. ☐ a ☐ b ☐ c ☐ d
9. ☐ a ☐ b ☐ c ☐ d
10. ☐ a ☐ b ☐ c ☐ d

PROGRAM EVALUATION FORM
Please complete the following activity evaluation questions.

Rating Scale: Excellent = 5 and Poor = 0
Course objectives were achieved.
Content was useful and benefited your clinical practice.
Review questions were clear and relevant to the editorial.
Illustrations and photographs were clear and relevant.
Written presentation was informative and concise.
How much time did you spend reading the activity and completing the test?
What aspect of this course was most helpful and why?

What topics interest you for future Dentistry Today CE courses?