

## What's New in Dentistry

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**Bone grafting after tooth extraction promotes ridge preservation.** Today, implant replacement is a common method of restoring an edentulous space created by tooth extraction. In some cases, these implants can be placed at the time of extraction. However, for a variety of reasons, it is sometimes advantageous to delay implant placement for several months. During this delay, the alveolar ridge width tends to diminish because of bone resorption, which may necessitate bone grafting prior to implant placement. However, another possibility would be to place a bone graft at the time of tooth extraction to preserve the alveolar ridge width. But is this a worthwhile procedure? A study published in the *Journal of Periodontology* (2008;79:1370–1377) evaluated the success of bone grafts placed at the time of tooth extraction. The sample for this study consisted of 40 subjects who required tooth extraction because of severe aggressive periodontal disease. They were randomly divided into two groups: graft and nongraft. In those subjects in the graft group, bone graft material combined with collagen membrane was placed in the extraction socket at the time of tooth extraction. In the nongraft group, nothing was placed in the tooth socket. The two groups were compared after 7 months to determine any differences in ridge width. The results of this study showed that the bone graft sites displayed significantly less narrowing of alveolar ridge width than the nongrafted sites. In addition, biopsies taken from the grafted sites showed significantly more bone trabeculation than the control or nongrafted sites. The authors conclude that bone grafting combined with collagen membrane is a valuable method of preserving the alveolar ridge width after tooth extraction in implant patients.

**Oral appliances are effective at treating nonsevere sleep apnea.** Chronic sleep apnea affects many adults throughout the world. A common treatment for this situation is continuous positive airway pressure (CPAP), using a machine that keeps oxygen flowing to the lungs in affected subjects, especially during sleep. However, the CPAP machine can be annoying to the spouse or partner of the apneic individual. Another method of opening the airway is to use an oral appliance that positions the mandible forward during sleep. But is an oral appliance as effective as CPAP?

That question was explored in a study published in the *Journal of Dental Research* (2008;87:882–887). The purpose of this study was to compare the effectiveness of CPAP and oral appliances in reducing the number of apneic episodes in patients with sleep apnea. The sample consisted of 103 subjects with confirmed sleep apnea. They were randomly assigned to one of two groups: CPAP or oral appliance. Polysomnography was performed prior to the beginning of the experiment and after 8 to 12 weeks of using either of the two techniques. Based on this evaluation, the authors found that CPAP was effective in 82% of the subjects. Statistical comparison showed that the difference was not significantly different. However, the authors did find that the oral appliance therapy was much less effective in those subjects whose apneic index was greater than 30 (moderate to severe sleep apnea). Thus, the authors conclude that oral appliances can be an effective method of reducing the number of apneic episodes during sleep for those individuals with nonsevere sleep apnea.

**Regular flossing reduces the number of periodontal pathogens.** The most commonly used adjunct to maintain oral hygiene is a toothbrush. Although some individuals complement their oral hygiene by using dental floss to remove interproximal bacteria, it is likely that the vast majority of children and young adults do not use dental floss. How important is dental flossing, especially in children and young adults? That question was addressed in a study published in the *Journal of Periodontology* (2008;79:1426–1433). To ensure the accuracy of their assessment, these researchers used a sample of 51 twin pairs between the ages of 12 and 21 years of age. The sample was randomly divided into two groups: toothbrush alone and toothbrush plus flossing. Initially, before beginning the treatment, each subject's oral flora was evaluated, and the types and numbers of all oral bacteria were calculated and categorized. After a 2-week study period, the subjects were evaluated again to determine the effect of the two different cleaning regimens on the levels and types of oral bacteria. The results of this study showed that the numbers of periodontal pathogens and caries-producing bacteria were significantly reduced in the group that flossed com-

pared with the group that did not floss. However, those oral bacteria that are not associated with periodontal disease or dental caries were overabundant in the flossing group compared with the nonflossing subjects. The authors conclude that routine flossing is an effective method of reducing the numbers of periodontal and caries-producing oral microbes in adolescents and young adults.

**Prevalence of mild tooth erosion in adolescents is relatively high.** Tooth erosion is defined as the loss of dental hard tissue due to the chemical influence of acids without bacterial involvement. Tooth erosion becomes pathologic when it results in pain, endodontic problems, loss of function, or compromised esthetics. The difference between acceptable and pathologic tooth erosion is really dependent on the subject's age and the degree of erosion present. In a young individual with a rapidly progressive erosive process, the negative effect of the tooth erosion could be significant. Therefore, it would be beneficial to know the prevalence and progression of tooth erosion in a young adolescent sample. This investigation was accomplished and published in the *Journal of Dental Research* (2008;87:731–735). The sample for this study consisted of more than 600 children who had been enrolled in a study to monitor the amount of tooth erosion in Europe. The goal of this study was to determine the prevalence, progression, and distribution of tooth erosion in a sample of 12-year-olds over an 18-month period. At baseline, the prevalence of tooth erosion was 32%, and this prevalence increased to 43% over the 18-month observation period. This increased prevalence was seen more in boys than in girls over that period of time. The prevalence of children with deep enamel erosion was about 2% at baseline and increased to about 11% after 18 months. In those children with tooth erosion, mandibular molars and the lingual surfaces of the maxillary anterior teeth were predominantly affected. The authors conclude that severe tooth erosion was not found in their study population,

but the prevalence and progression of mild erosion was relatively high among adolescents and should be closely monitored by dentists and/or orthodontists.

**Periapical radiographs are more reliable than panoramic radiographs for detecting periodontal bone loss.** Radiographs are routinely taken by all dentists prior to dental treatment. These radiographs help to identify root position, root length, unerupted teeth, anomalies, and interproximal bone levels. Although periapical radiographs were routinely taken in the past, with the advances in panoramic radiography, many dental practitioners rely on panoramic radiography alone to make a diagnosis regarding alveolar bone heights and other periodontal assessments. But is the alveolar bone level that is interpreted from a panoramic radiograph accurate when compared with a periapical image of the same patient? That question was answered in a study published in the *Journal of Periodontology* (2008;79:1141–1149). The purpose of this investigation was to compare the accuracy of alveolar bone level interpretation using panoramic and periapical radiographs in a sample of subjects with aggressive periodontitis or severe chronic periodontitis. The sample consisted of more than 100 subjects who had a confirmed diagnosis of active periodontitis. Panoramic and full-mouth periapical radiographs were available for all of the subjects. These radiographs were compared to assess their accuracy in identifying the level of the alveolar crest at various sites in this study group. The results showed that the panoramic radiographs were not consistently accurate at identifying the distance from the CEJ to alveolar crest. The greatest area of magnification or distortion was found in the maxillary molar and premolar regions. The least distortion was found in the mandibular incisor area. The authors conclude that panoramic radiographs should not be substituted for periapical radiographs to assess relative interproximal bone level relationships in subjects with either aggressive or severe chronic periodontitis.