

What's New in Dentistry

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Lesions of endodontic origin increase the risk of coronary heart disease in young adults. Several epidemiologic investigations have uncovered relationships between chronic periodontal disease and coronary heart disease. Apical periodontitis is an acute or chronic inflammatory lesion around the apex of a tooth caused by bacterial infection of the pulp canal system. Despite numerous differences between chronic inflammatory disease of periodontal and endodontic origins, both have common bacteria that are associated with the disease process. Could lesions of endodontic origin also increase the risk of coronary heart disease? A study published in the *Journal of Dental Research* (2006;85:996–1000) evaluated this association among 700 male participants in a Veteran's Administration dental longitudinal study. At baseline and every 3 years for up to 32 years, participants received complete medical and dental examinations, including full-mouth radiographs. Special statistical regression models estimated the relationship between lesions of endodontic origin and the time to coronary heart disease diagnosis. Among those participants who were younger than 40 years, lesions of endodontic origin significantly increased the risk of coronary heart disease. Among those participants who were older than 40 years, no statistically significant association was observed. These findings are consistent with past research that suggests relationships between chronic periodontal inflammation and the development of coronary heart disease, especially among younger men.

Implants placed in grafted maxillary sinuses are highly successful. Many adults who have been missing maxillary posterior teeth for many years have atrophic alveolar ridges, which will not allow implant placement. However, the maxillary sinus in this region can be grafted with either autogenous or allogenic bone, and the implant can be placed into the grafted bone. But will these implants be as successful as those placed in nonatrophied alveolar ridges over the long-term? A study published in the *International Journal of Oral and Maxillofacial Implants* (2006;21:94–102) evaluated this possibility in a sample of more than 700 patients. The purpose of this prospective study was to determine the long-term survival rates of implants with roughened surfaces placed immediately into maxillary

sinus grafts in patients with 1 to 5 mm of residual bone. A total of 2132 microtextured screw-type (n = 1374) or hydroxyapatite-coated cylinder-type (n = 758) implants were immediately placed into the grafted sinuses of these patients. The implants were restored and monitored for up to 9 years. The cumulative survival at 9 years was 97.9%, and out of this group, 20.4% had been placed in 1 to 2 mm of residual alveolar bone. The authors reported that initial implant stability was achieved through a combination of meticulous condensation of the particulate bone graft material around the implants, the frictional interface of the roughened implant surfaces and the host tissues, and selection of an appropriate graft material. This study clearly shows that implant placement into maxillary sinus grafts can be a predictable option for patients with at least 1 to 2 mm of vertical residual bone height.

Professional flossing in children reduces caries risk. As orthodontists, we typically encourage our young patients to floss regularly during orthodontic treatment. However, most orthodontic patients never use dental floss, despite the orthodontist's encouragement. Would regular flossing actually reduce the caries risk? A systematic review of dental flossing and interproximal caries was published in the *Journal of Dental Research* (2006;85:298–305). This article identified six trials involving more than 800 subjects, aged 4 to 13 years. There were differences among these studies, which helped to determine the type of flossing routine that would be the most effective. Professional flossing performed on school days for 1.7 years on predominantly primary teeth in children was associated with a 40% caries risk reduction. When flossing was performed professionally every 3 months, there was no reduction in caries risk. In studies in which young adolescents self-performed flossing for 2 years, there was also no reduction in caries risk. Thus, this systematic review shows that although self-flossing and intermittent professional flossing have failed to show an effect, professional flossing in children on a regular basis is highly effective in reducing interproximal caries risk.

Little evidence to support the theory of abfraction lesions in teeth. Tooth wear refers to the pathological loss of tooth tissue by a disease process other

than dental caries. Noncarious cervical lesions (cervical wear) are defined as the loss of tooth substance at the cemento-enamel junction. Terms also used to describe these situations are *cervical erosion/abrasion lesions* and *abfractions*. The term *abfraction* describes a theoretical process whereby occlusal forces create stresses in enamel and dentin along the cervical area and predispose it to erosion and abrasion. But does this process really occur? A critical review published in the *Journal of Dental Research* (2006;85:306–312) examined this question. These authors performed a MEDLINE search for references related to these topics. This review critically examined the literature on abrasion, erosion, abrasion, and abfraction. Attrition is defined as the loss of enamel or dentin by tooth-to-tooth contact. Erosion is the loss of dental hard tissues by chemical action not involving bacteria. Acids originating in the stomach as well as extrinsic sources such as carbonated soft drinks can cause erosion. Abrasion is the loss of tooth substance from factors other than tooth contact. Abfraction means “to break away.” Since many cervical lesions in teeth cannot be explained by toothbrush abrasion or erosion alone, some believe that when teeth are loaded in a horizontal direction, the effect of the stress becomes concentrated in the cervical region, which causes flexure that results in weakening of the enamel in this area, causing cracking and breaking away of the enamel and dentin. Based on their exhaustive search of the literature and their critical review of the published articles on this top-

ic, the authors of this study confirm that erosion and abrasion are important in the development of wedge-shaped lesions along the cervical margins of teeth, but as yet, there is insufficient evidence to confirm that abfraction truly exists.

Increased intake of dairy products lowers risk of periodontitis. Recent research has established an inverse association between calcium intake and periodontitis prevalence. Dairy products are rich sources of calcium. Does an increased intake of dairy products lower the prevalence of periodontal disease? That question was examined in an article published in the *Journal of Periodontology* (2006;77:289–294). This study evaluated more than 12,000 individuals who had participated in the Third National Health and Nutritional Examination Survey. Individuals who had at least one site with an attachment loss of greater than 3 mm and a probing depth of greater than 4 mm were considered to have periodontitis. The intake of dairy products in the sample of subjects was related to the presence of periodontal disease. Based on this protocol, the prevalence of periodontitis was 41% lower for individuals in the highest quintile of intake of dairy products than those in the lowest quintile. After adjusting for known and suspected periodontitis risk factors, individuals in the highest quintile of intake of dairy products were 20% less likely to have periodontitis than those in the lowest quintile. The results of this study show an inverse association between the intake of dairy products and the prevalence of periodontitis.