

What's New in Dentistry

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Is periodontal disease associated with coronary artery disease? In recent years, conflicting evidence has been published regarding the association between coronary artery disease and periodontal disease. The predominant opinion has concluded that any association is unlikely. However, studies published on different populations suggest that atherosclerosis and thromboembolic events related to acute myocardial infarction could be linked to chronic oral infections. An investigation published in the *Journal of Periodontology* (2000;71:1882–1886) attempted to confirm this theory. The authors gathered 2 samples of cardiac patients. One group consisting of 60 patients with acute myocardial infarction was compared to 60 patients with chronic coronary heart disease. Patients from both groups were interviewed and received a thorough oral examination. There were no significant differences between the groups relative to gender, missing teeth, and restorations. However, there was a significant increase in the sites that exhibited bleeding upon probing in the acute myocardial infarction group compared to the chronic coronary disease patients. In addition, there was significantly more plaque on more teeth in the infarction group. The infarction group also had a higher concentration of total cholesterol and of low-density lipoprotein cholesterol compared to the chronic coronary disease group. In conclusion, this study has shown a strong association between poor periodontal health and acute myocardial infarction.

Resorbable plates and screws demonstrate encouraging long-term results. Traditionally, rigid internal fixation after orthognathic surgery has involved placing titanium manipulates and screws across the bony fragments to provide an immobile union while the bones gradually reunite. Rigid internal fixation has been a tremendous advantage for patients, because it allows them to resume normal mandibular function much more quickly after surgery. However, a major complaint from patients is the amount of metal that must remain after the bones have healed. However, in recent years researchers have been experimenting with the placement of bioabsorbable plates and screws made out of poly-L-lactide or polyglycolic acid. Early research showed that these plates could hold the bones together adequately, but would these materials actually resorb and be replaced by bone? That question was answered in a study published in the *Journal of Oral and Maxillofacial Surgery* (2001; 59:19–25). The authors gathered a sample of 12 subjects who had had maxillary or mandibular surgery and who had received resorbable manipulates and screws. These researchers then recalled these patients over the next 2 years after surgery and used follow-up radiographs and direct visual observation to determine the fate of the bioabsorbable screws. The results show that the resorbable materials held the segments together extremely well during initial healing, but more important, after 2 years, there were no microscopic traces of the resorbable screws and plates.

Pulpal blood flow recovers after LeForte osteotomy. During

LeForte osteotomy, the maxilla is completely separated from the skull and receives its only blood supply from the blood vessels in the palate. What happens to the blood flow to the pulps of the maxillary teeth when this type of surgery is performed? Previous studies have shown that at the time of surgery, the blood flow in the maxillary central incisors decreases precipitously. However, until now, there has been no documentation of what happens to maxillary incisor blood flow with time. A study published in the *Journal of Oral and Maxillofacial Surgery* investigated the blood flow changes that occur in the maxillary central incisors during the second and third weeks after surgery. A laser Doppler flowmeter was used to document blood flow. This apparatus uses a laser beam that bounces off circulating blood cells and calculates the blood flow. The sample consisted of 30 subjects, who were divided into 3 groups. One group had maxillary surgery, another had mandibular surgery, and a third had no surgery or orthodontic treatment. The results showed that the blood flow in the central incisors of the maxillary surgery group increased significantly during weeks 2 and 3 after surgery. There were no changes in blood flow in the mandibular surgery and nonsurgery groups. In conclusion, it seems that the body has a tremendous capacity to restore blood flow to the pulps of the maxillary central incisors after LeForte osteotomy.

Anteriorly displaced temporomandibular joint disks differ from normal disks. The articular disk in the temporomandibular joint plays a significant role as a stress absorber during function. However, occasionally the disk becomes displaced anteriorly and therefore does not function properly. If these displaced disks could be repositioned back into their proper position, would they again function as a stress absorber for the temporomandibular joint? That question was addressed in a study published in the *Journal of Oral and Maxillofacial Surgery* (2000;58:997–1000). The purpose of this study was to compare the elasticity of anteriorly displaced disks with normal disks. The sample consisted of 5 patients with severe internal derangement of the temporomandibular joint and an anteriorly displaced disk. During surgical repair of the joint, a portion of the displaced disk was removed, and the elasticity of the disk was evaluated using a strain gauge. Two normal disks were removed from a fresh cadaver, tested similarly, and compared to the elasticity of the displaced disks. The results showed histologically that more degenerative alterations, such as hyalinization, occurred in the displaced disks. In summary, in internal derangement of the temporomandibular joint, the instantaneous elastic modulus of the articular disk is similar to that in the normal disk irrespective of strain level. However, the relaxed elastic modulus at a strain smaller than 2% is significantly greater in the internally displaced disks than in the normal disks. In conclusion, displaced disks lose their significant function as a stress absorber in association with degenerative alterations, which is not observed in normal disks.