

What's new in dentistry

As orthodontists, we are often unaware of the technical and methodological advances in other dental specialties. However, many of these new experimental developments may ultimately become accepted dental therapy and influence the diagnosis and treatment of our orthodontic patients. Therefore, as part of the dental community, we must keep abreast of current information in all areas of dentistry. The purpose of this section of The Angle Orthodontist is to provide a brief summary of what's new in dentistry.

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OCCLUSAL FORCES INCREASE AFTER JAW SURGERY—A concern of any maxillary or mandibular surgery is the potential interference with chewing or mastication. During the immediate postoperative interval, the ability to masticate food is diminished as occlusal forces are reduced. But what happens to maximum occlusal force long-term after surgery? Does it increase or continue to exist at a decreased level? That question was addressed in a study published in the *Journal of Oral and Maxillofacial Surgery* (1996;54:1080-1086). In this investigation, a sample of 117 patients received a variety of maxillary, mandibular, and combined surgical procedures. Prior to the operation, the maximum voluntary bite force of each patient was calculated. This same parameter was evaluated 6 months and again 3 years after the surgery. The patients were grouped depending on the type of surgery they had undergone. This study shows that immediately following all types of surgery, maximum bite force decreased. However, after 3 years, it had increased to a level that was greater than the patient had shown prior to surgery. There were no significant differences in the amount of bite force increase between the different types of surgeries. In all cases, males had higher bite forces than females before and after surgery and their maximum bite force recovered more quickly after surgery.

FIVE-YEAR SUCCESS RATE OF SINGLE TOOTH IMPLANTS NOW AVAILABLE—Osseo-integrated implants have been used in Sweden for the past 30 years and in the United States for over 10 years. In the U.S., early implants were placed to support dentures and multiple units of fixed prosthetics. More recently, implants have been used as single-tooth replacements for congenitally missing teeth. Long-term data has not been available for these single tooth implants until recently. A paper published in the *International Journal of Oral and Maxillofacial Implants* (1996;11:450-455) suggests that single tooth implants have a very high success rate. This study was a 5-year prospective international multicenter evaluation of 107 Nobelpharma implants placed in 92 patients. The success rates for these single-tooth implants were 96.6% in the maxilla and 100% in the mandible. No problems were observed in the gingival or bony support for these fixtures. The greatest problems encountered were abutment screw loosening, which improved when gold screws were used to anchor the crowns.

FLUORIDE TOOTHPASTE EFFECTIVE IN REDUCING DENTIN SENSITIVITY—Many adult orthodontic patients have gingival recession causing exposure of cementum and dentin. This may result in tooth sensitivity. In order to combat the sensitive teeth, patients often use special desensitizing toothpaste. However, a recent study published in the *Journal of Periodontology*

(1996;67:373-742) suggests that a fluoride toothpaste may produce the same effect. In this study, a sample of 56 patients was subdivided into three groups. Two desensitizing toothpastes were compared with a commercially available fluoride toothpaste. The patients used the toothpaste for up to six weeks. A double blind format was employed to compare the groups. The results of this study showed that the fluoride toothpaste worked as well as the desensitizing toothpaste at reducing tooth sensitivity. Since many adults are at greater risk for cervical caries with gingival recession, it is suggested that a fluoride toothpaste may be better in order to combat sensitivity and reinforce the dentin to avoid cervical dental decay.

MANUAL TOOTHBRUSH AND SONICARE EQUIVOCAL AT REDUCING POCKET DEPTH

Electric toothbrushes have become popular in the U.S. Many orthodontic patient prefer electric toothbrushes to remove plaque from around bands and brackets. The Sonicare toothbrush uses ultrasonic action of the bristles to dislodge plaque from enamel and orthodontic appliances. It has been shown to be extremely effective compared with other types of electric toothbrushes and manual brushing. However, does its effectiveness improve periodontal health in those patients with deep pockets? This question was addressed in a study published in the *Journal of Periodontology* (1996;67:900-908.) In this investigation, 40 patients with a minimum of three teeth having pocket depths of 5 mm to 7 mm were evaluated. In a double blind format, half the sample used a manual brush and the other half used a Sonicare. The patients were instructed in the method of using the brushes and the effect was assessed after 8 weeks. This study showed that probing depth, bleeding index, and plaque index within the periodontal pockets were the same with either the Sonicare or manual

toothbrush. However, the Sonicare altered the type and amount of crevicular fluid found in the gingival crevice around the periodontally involved teeth. This produced healthier periodontium. However, pocket depth was not reduced significantly compared with the manual toothbrush.

ELECTRICAL STIMULATION OF THE SOFT PALATE STOPS SNORING

—Millions of Americans have problems with snoring during sleeping. In some individuals, snoring can be a characteristic of obstructive sleep apnea. Sleep apnea is a health hazard and can be a problem in some orthodontic patients. In fact, some dental appliances that posture the mandible anteriorly are suggested to reduce the incidence of snoring. However, some of the evaluations of the effectiveness of these appliances are questionable. A recent study published in the *Journal of Prosthetic Dentistry* (1996;76:273-281) evaluated the effect of electrical stimulation of the soft palate on snoring. The sample consisted of seven individuals who had significant sleep apnea and snoring problems. All patients were evaluated at a sleep clinic at a university hospital in the U.S. An acrylic palatal plate containing two stimulating electrodes in the posterior-most part of the acrylic was inserted. After the patients were asleep and the snoring started, the soft palate was given an electrical stimulus. The amount of current was raised until the snoring stopped but before the patients were awakened. Then the stimulus was stopped. The researchers found that the snoring commenced again after the stimulus was removed. Researchers successfully eliminated the snoring by raising the electrical stimulus. Although the success rate was low because of the small sample, these researchers believe that electrical stimulation of the soft palate may be a way to reduce snoring in susceptible individuals in the future.