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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ROUTINE CLEANINGS MAY NOT BE NECESSARY TO PREVENT ATTACHMENT LOSS IN NONSUSCEPTIBLE PATIENTS. Most orthodontists recommend routine maintenance or professional cleanings for their adult patients during active orthodontic treatment. It has been accepted philosophy that routine professional maintenance for dental or orthodontic patients will help prevent periodontal disease. But that philosophy has been challenged recently. A study published in the *Journal of Periodontology* (1997;68:1033-1042) evaluated the effect of no dental therapy and no professional cleanings on the progression of periodontal disease. The sample for this study consisted of 398 Chinese subjects who lived in a small town that had no dentist and no opportunity for professional cleaning, and where most of the people did not own a toothbrush. The periodontal health of these subjects was originally evaluated in the 1980s. The same subjects were reevaluated in 1997. During the 10-year interval between examinations, the subjects had virtually no dental care. The results of the follow-up exam were surprising. The average attachment lost over the 10-year period was slightly over 1 mm. Only a few subjects experienced significant attachment loss and most remained about the same. The authors compared their study with a previous study that looked at long-term periodontal health in a population of subjects that had routine cleanings. On average, there was no difference in the amount of attachment loss between the two groups. In conclusion, it seems that routine maintenance does not have an effect on reducing attachment loss in nonsusceptible subjects. That is the distinction. If patients are resistant to the pathogenic bacteria that produce periodontal disease, then they will probably not have attachment loss, even if they have no professional cleanings or maintenance. Unfortunately, periodontists do not know who is and who is not susceptible. Therefore, recommending routine cleanings for orthodontic patients is still a good plan.

PLACEMENT OF IMPLANTS IN FRESH EXTRACTION SITES SHOWS HIGH SUCCESS RATE. Occasionally, individuals will severely traumatize the maxillary anterior teeth and lose a central incisor as a result. If this happens in a young adult with no other restorations, it doesn't seem appropriate to consider a conventional bridge. A resin-bonded bridge may only last 10 years before it needs to be replaced. An emerging restorative trend in this type of situation is an implant. In the past, implant placement was delayed to allow healing of the soft tissue. However, waiting may result in ridge resorption that could compromise implant success. Recently, surgeons have been placing implants immediately after the extraction. But will this technique be as successful as delayed placement? This question was addressed in an article in the *Journal of Periodontology* (1997;68:1110-1116). The sample consisted of 49 subjects. A total of 95 immediate implants were placed in these patients and evaluated after 4 to 7 years. The success rate was 95%. Four implants were lost during healing and one was lost after the uncovering. However, all the implants that were restored and placed into occlusion were successful. Several studies have evaluated the success rates for delayed implant

placement. Their results are about the same as those reported in this study. Therefore, if a patient can be evaluated by the surgeon soon after a traumatic injury, the timing of implant placement in the future may be immediate rather than delayed.

HIGH FREQUENCY OF NEUROSENSORY DISTURBANCE AFTER NERVE TRANSPOSITION DURING IMPLANT PLACEMENT. Implants are now used routinely to replace missing teeth. In most situations, the underlying nerves do not present an obstacle during implant placement. However, when implants are placed in the mandibular posterior region to replace premolars or molars, the inferior alveolar nerve may lie in the path of the implant. In order to avoid damaging the nerve during implant placement, surgeons have devised techniques to move the inferior alveolar nerve. However, a study published in the *International Journal of Oral and Maxillofacial Implants* (1997;12:463-471) showed a high degree of neurosensory disturbance after this type of surgery. The sample consisted of 15 patients who had a total of 21 inferior alveolar nerve transposition surgeries. During the procedure, the nerve was moved laterally out of the path of the implant. The patients were evaluated with neurosensory skin tests up to 5 years after the surgery. The results showed that over 50% of the individuals had some neurosensory disturbance. However, many of the patients were unaware of the problem. Even though nerve transmission had been slightly affected by the surgery, patients said that they would go through the procedure again. In conclusion, nerve transposition surgery to facilitate implant placement will produce neurosensory disturbance nearly half the time, but the disturbance may not be noticeable to patients.

LIP MOVEMENT BEFORE AND AFTER MAXILLARY OSTEOTOMIES. Orthodontists are aware of the undesirable changes that can occur in lip posture after maxillary osteotomy. Some of the adverse changes in lip fullness can be avoided with the proper surgical techniques. Several studies have documented the static effect of maxillary surgery on lip posture, but no studies have attempted to document the dynamic changes that occur in lip movement after maxillary osteotomy. However, a study published in the *Journal of Oral and Maxillofacial Surgery* (1997;55:1044-1048) used a video camera to capture the movement of the lips during smiling before and after maxillary surgery. The sample consisted of 20 patients. Ten patients had surgery to intrude the maxilla and 10 had maxillary advancement surgery. The authors determined five points on the upper lip and alar base that could be identified before and after surgery. The patients were asked to smile several times and the images were photographed with a video camera. The researchers factored in the amount of magnification and superimposed the pre- and postoperative images. The results showed that significant changes occurred in the movement of certain points on the upper lip after maxillary surgery. In addition, the changes induced by maxillary impaction surgery were different than those induced by maxillary advancement. In general, the point that moved the least with either surgery was the center of the upper lip. The points that moved the most were the corners of the lips. Generally, anterior repositioning of the maxilla resulted in an increase in lip movement during smiling, while superior positioning of the maxilla caused a decrease in facial and lip movement during smiling.

OXIDIZING AGENT REDUCES STAINING FROM PERIDEX. In recent years, researchers have shown that chlorhexidine mouthrinses, such as Peridex, have a strong bactericidal effect on the microorganisms found in plaque. The chlorhexidine prevents plaque accumulation and attachment loss in patients who are susceptible to periodontal breakdown. However, chlorhexidine stains the teeth, and the stain is difficult for patients to remove. As a result, many patients avoid using Peridex. A recent study in the *Journal of Dental Research* (1997; 76:1596-1601) reported reduced staining when an oxidizing agent was used in conjunction with the Peridex. The sample consisted of 48 beagle dogs, divided into four groups. In the control group, water was used as a mouthrinse twice a day. In the second group, the oxidizing agent monoperoxyphthalic acid (MPA) was used as a mouthrinse. In the third group, chlorhexidine was used twice daily. In the final group, chlorhexidine and MPA were used alternately. After 28 days, the amount of staining was evaluated. The use of chlorhexidine alone produced the typical staining seen in humans. However, the sequential use of MPA followed by chlorhexidine resulted in a 75% reduction in staining. The authors did not report how the MPA reduced staining, but the results were significant nonetheless. In the future, it is hoped that a product such as MPA will be commercially available to patients who use Peridex.