

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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HIGH DEBONDING RATES FOR RESIN-BONDED BRIDGES — Maryland or resin-bonded bridges became popular in the 1970s and '80s for replacing missing anterior teeth. The obvious advantages include less tooth reduction and preservation of enamel. Now that these prostheses have been in use for several years, it's possible to determine their success rate. A study published in the *Journal of Dental Research* (1993;72:1244-1248) provides the most recent data. This study reports the debond rates of 164 resin-bonded bridges that had been cemented between 1974 and 1985. The overall survival rates were: one year - 89%; two years - 83%; and four years - 72%. These findings are similar to other published findings. The authors estimate that the median survival time for a resin-bonded bridge is about eight years.

BIMAXILLARY SURGERY HELPS SEVERE SLEEP APNEA — Several remedies have been proposed for the patient with sleep apnea. Occasionally, functional appliances which posture the mandible forward may provide relief by opening the nasopharynx. If this doesn't work, a palatopharyngoplasty is often performed to modify the shape of the soft palate. But what if neither of these therapies is successful? Is there any remedy for the patient with severe obstructive sleep apnea? Promising results of bimaxillary surgery were reported in the *Journal of Oral and Maxillofacial Surgery* (1993;51:742-747). Well-known researchers at Stanford University performed simultaneous max-

illary and mandibular advancement to move the entire facial skeleton forward, thus opening the posterior airway in 24 patients. Orthodontic treatment was performed in conjunction with the surgery. The success rate was 100%, with all patients showing significant resolution of sleep apnea symptoms. In the future, this aggressive treatment may become the standard for patients who have been treated unsuccessfully with other forms of therapy.

LONG-TERM STATUS OF IMPLANTS LOOKS PROMISING — Titanium implants were introduced in the United States in the early 1980s. However, Swedish researchers have been experimenting with the implants since the '60s and '70s. Most of these implants have been placed in edentulous patients to support dentures. Survival rates for these implants have been high. But what about the survival rates for single-tooth implants or implants used as abutments for fixed bridges? Today, many clinicians use implants to support fixed bridges. A study published in the *Journal of Periodontology* (1993;64:538-541) provides new data on the survival rate of implants used as abutments. The sample consisted of 460 implants. The periodontal health of these fixtures was evaluated after three years. The success rate was 93.9%. The average annual bone loss around the implants was 0.4 mm during the first year, falling to 0.03 mm during the second and third years. The long-term outlook for the success of implants as abutments for fixed bridges in partially edentulous patients is excellent.

PHYSICAL THERAPY IMPORTANT AFTER TMJ SURGERY — Arthroscopic surgery of the temporomandibular joint has become more common in recent years. In the past, a patient's jaw was immobilized after TMJ surgery to permit healing. More recently, some surgeons have suggested aggressive physical therapy to prevent the formation of adhesions after the surgical procedure. But what is the correct approach: immobilization or physical therapy? A study published in the *Journal of Oral and Maxillofacial Surgery* (1993;51:495-598) sheds new light on the controversial question. A group of 50 patients who had undergone temporomandibular joint surgery were evaluated. Half of the patients underwent a specific regimen of physical therapy. The other half served as controls. Their patients' range of mouth opening was measured at one week and eight weeks after surgery. A statistically significant increase in mouth opening after eight weeks was found in those patients who had received physical therapy. In conclusion, at least over the short-term, physical therapy improves the range of vertical mouth opening following TMJ surgery.

TEMPORALIS MUSCLE USED FOR JOINT RECONSTRUCTION — For years, oral surgeons have searched for a material that could be used to replace a severely damaged meniscus after temporomandibular surgery. Researchers and clinicians have used Proplast and Teflon, but these materials have demonstrated long-term complications. The ideal material would be autogenous, located near the TMJ, and would maintain its own blood supply. The temporalis fascia may be the answer. A study published in the *Journal of Oral and Maxillofacial Surgery* (1993;51:530-533) provides histologic data on seven patients who had received temporalis flaps to replace the TMJ disc. These patients were part of a larger sample of 81 patients who had undergone the same procedure. Reoperation and histologic sampling of the temporalis flaps in these patients showed that the tissue was still intact and in its proper position within the glenoid fossa. Microscopically, the muscular tissue was viable with normal appearing nuclei. Fibrous connective tissue was found between the muscle fibers. In conclusion, it appears that the temporalis muscle is a suitable substitute in patients requiring temporomandibular joint disc replacement.