What’s New in Dentistry
Vincent Kokich, DDS, MSD

Sealants effective at reducing occlusal caries long term. In the past, caries prevention in children has been enhanced by applying either sealants or fluoride varnish to the occlusal surfaces of permanent teeth during early childhood. However, are these adjuncts effective at reducing the risk of occlusal caries in children long term? A study published in the Journal of Dental Research (2005;84:1138–1143) compared the use of sealants and fluoride varnishes in a sample of children during a 9-year period. This clinical trial was conducted on three groups of children 6 to 8 years old. The sample consisted of a control group (n = 45), a group that received occlusal sealant (n = 37), and a group that received fluoride varnish (n = 38). These children were evaluated every 6 months during the next 3½ years. At these follow-up visits, the sealant was reapplied when it had been lost, but the fluoride varnish was reapplied every 6 months. No reapplication of these materials occurred over the next 5½ years. Then these children were re-evaluated to determine whether there were any differences in caries incidence in the first molars. Interpretation of these results showed that 9 years after the beginning of the study, the incidence of dental caries in the first molars of the control group was 76%, of the sealant group was 26%, and of the fluoride varnish group was 56%. These findings imply a 65% reduction in caries for the sealant group vs the control group and a 27% reduction in caries for the varnish group vs the control group. The authors concluded that the caries prevention effect is longer with a sealant than a fluoride varnish. When the fluoride varnish was not applied on a regular basis, its caries prevention potential was reduced.

Osteoporosis associated with reduction in alveolar crestal height in women. Osteoporosis is a skeletal disorder characterized by compromised bone strength with an increased risk of fracture. This anomaly affects many aging individuals, especially postmenopausal women. Historically, periodontitis has been described as an infection-mediated process characterized by resorption of the alveolar bone. However, is there any association between alveolar crestal bone loss in periodontitis patients who have osteoporosis? A study published in the Journal of Periodontology (2005;76:2116–2124) was designed to assess the association between alveolar crestal height and skeletal bone density in a large group of well-characterized postmenopausal women. The sample consisted of 1,341 postmenopausal women aged 53 to 85 years. Their alveolar crestal height and their bone density were assessed and compared to determine whether any association existed between these two parameters. The odds of a worse alveolar crestal height increased by 39%, 59%, and 230% for those women in the low, moderate, and osteoporotic groups (respectively) compared with those of women in the control group with normal bone density. Therefore, the odds ratio for the low, moderate, and osteoporotic groups were 2.66, 2.31, and 3.57 (respectively) more likely to have reduced alveolar crestal height compared with the control group. In conclusion, the authors found a strong and consistent association between bone density and alveolar crestal bone height in postmenopausal women.

Early placement of single-tooth implants enhances papilla heights short term. When single-tooth implants are used to replace a missing maxillary anterior tooth, the esthetic success of the restoration is directly affected by the appearance of the surrounding gingiva. One of the most important aspects is the presence of papillae between the implant and the adjacent natural tooth. In addition, the papillae should be at the same height as those papillae between adjacent and contralateral nonrestored natural teeth. In the past, implants were traditionally placed in the alveolus and allowed to integrate for 4 to 6 months before placing the final restoration on the implant. Currently, researchers are suggesting that early rather than delayed restoration of the implant is possible without jeopardizing the long-term success of the implant. However, is there any esthetic advantage to early vs delayed restoration of an implant? Would it be easier to maintain the papillae between the implant and the adjacent natural tooth if the single-tooth implant were restored earlier rather than later? A study published in the International Journal of Oral and Maxillofacial Implants (2005;20:753–761) evaluated the interproximal papillae after placement of single-tooth implants with either an early or a delayed restoration protocol. The
sample consisted of 45 patients who were randomly allocated to either an early or a delayed group. Each subject received an implant that was restored either an average of 10 days (early group) or 3 months (delayed group) after implant placement. Their interproximal papilla dimensions were evaluated up to 18 months after restoration. Interpretation of the results revealed that the incidence of a deficient papilla was seven times greater at baseline for the delayed group than for the early restoration group. However, the soft tissue fill in the interproximal spaces had improved significantly from baseline at the 18-month follow-up in both groups. The authors concluded that early restoration of single-tooth implants may be preferable to delayed restoration in terms of early generation of interproximal papillae but that no difference in papilla dimensions was seen after 18 months between the early and delayed groups.

New nociceptiv trigeminal inhibition splint is not more effective than a conventional maxillary occlusal splint. A common treatment for facial myalgia that results from clenching or bruxism and often accompanies certain temporomandibular disorders (TMD) is to recommend the use of a maxillary occlusal splint, or night guard. Studies have shown that these simple appliances can reduce muscle pain in nearly 80% of subjects. These appliances generally cover all of the maxillary teeth and typically are flat to allow the patient to move their mandible freely when the mandibular dentition occludes with the splint. Recently, however, a new splint design has been suggested. It is small, contacts only the maxillary and mandibular anterior teeth, and places the mandible in a slightly protruded and open position. This new splint is called the NTI splint. Proponents of this new splint design suggest that it is superior to the traditional maxillary splint in reducing symptoms of TMD. Is this claim true? A study published in *Acta Odontologica Scandinavica* (2005;63:218–226) compared the effectiveness of both splints in a double-blind randomized parallel clinical trial. The sample consisted of 40 subjects who were selected from a pool of TMD patients. One group was given a standard maxillary occlusal splint. The other group was given the NTI splint. One operator treated all patients. A separate, blinded examiner assessed joint and muscle tenderness by palpation and jaw opening before splint therapy and after 2 weeks, 6 weeks, and 3 months of splint use during the night. Interpretation of the results revealed reduced muscle tenderness upon palpation, less self-reported TMD-related pain and headache, and improved jaw opening for both splint groups. There were no differences noted between the two splint designs after 3 months. The authors concluded that there was no difference in treatment efficacy noted between the standard flat plane maxillary occlusal splint and the NTI splint.

Obesity is significantly associated with periodontitis in women. Overweight and obesity affect a large portion of the population in developed and developing countries, and their prevalence has increased in recent years. In fact, obesity has been recognized as a major public health problem, and evidence exists for its role as a major risk factor for a number of diseases, such as cardiovascular diseases, diabetes mellitus, cancer, osteoarthritis, and gallbladder disease. However, is there any adverse affect of obesity in the oral cavity? A recent study published in the *Journal of Periodontology* (2005;76:1721–1728) evaluated the association of periodontal health and the prevalence of periodontitis in a sample of overweight and obese subjects. The overall sample for this study comprised 700 subjects aged 30 to 65 years. Overweight and obesity were assessed by body mass index and World Health Organization criteria. In this sample, 60% of male subjects and 65% of female subjects were either overweight or obese. The prevalence of periodontitis in the overall sample was 50% for male subjects and 35% for female subjects. The prevalence of male subjects with periodontitis was similar for overweight and obese individuals compared with that of normal-weight individuals. For female subjects, however, there was a positive correlation between the body mass index and the occurrence of periodontitis, with a significantly higher prevalence of periodontitis in obese individuals than in normal-weight individuals. The authors concluded that obesity is significantly associated with periodontitis in adult nonsmoking women.