What's New in Dentistry

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Temporomandibular joint signs and symptoms are not inherited. One possible etiology of certain temporomandibular joint signs and symptoms could be abnormal development of the joint or its parts. To assess whether joint structure and therefore joint disorders are genetically determined, a study published in the *Journal of Dental Research* (2000;79:1573–1578) compared the incidence of temporomandibular joint symptoms in a large series of twins. The sample consisted of 494 pairs of twins, which were divided into groups of monozygotic (identical) and dizygotic (fraternal) pairs. This extensive information was gathered over a 10-year period. The results showed that the monozygotic and dizygotic twins were no more similar than the normal population with respect to temporomandibular symptoms. The authors concluded that genetic factors do not influence temporomandibular traits in the general population. The researchers believe that environmental factors unique to each twin are the major determinants of the variation in temporomandibular symptoms in the greater population of individuals.

Severity of temporomandibular symptoms decreases over time. Orthodontists commonly treat adolescent patients, and some of these individuals may have preorthodontic temporomandibular joint symptoms, such as pain, joint noises, and limited mouth opening. If these patients are not treated, what happens to the incidence and severity of the symptoms over time? An investigation published in the *Journal of Orofacial Pain* (2000;14:310–319) evaluated a large sample of adolescent patients over a 20-year period to determine the answer to this question. The sample consisted of 135 subjects who had initially been examined at 15 years of age for the presence of any temporomandibular joint symptoms. These individuals were evaluated again at 35 years of age, and the presence and severity of symptoms was compared. The amount of opening, pain upon opening, joint noises, occlusion, habits, and other aspects were evaluated at both times. The results showed that at age 35, only 3 individuals out of the entire sample had moderate or severe signs of clinical dysfunction. Rarely did any of the younger patients develop severe problems at age 35. The second most important finding was the substantial fluctuation in temporomandibular signs and symptoms over the observation period. At 35 years of age, two-thirds of the sample said that they never or only occasionally had headaches, and the incidence of pain in the temporomandibular joint was less than 3%.

Alveolar bone loss is related to postmenopausal osteopenia. Postmenopausal women may undergo orthodontic treatment to correct tooth malposition. Some of these women may develop a reduction in bone mineral density during menopause because of alterations in the levels of circulating hormones. Can the alteration in bone mineral density negatively affect the alveolar bone, resulting in periodontal bone loss in these individuals? An investigation published in the *Journal of Periodontology* (2000;71:1492–1498) evaluated the relationship between systemic bone mineral density and periodontal disease. The sample consisted of 70 white women between the ages of 51 and 78 years. All of the subjects were postmenopausal and had their bone mineral density measured with an X-ray absorption meter. Alveolar bone loss was determined with intraoral radiographs. A correlation between the amount of bone loss and the value of the bone mineral density over time was determined. The results show that alveolar bone loss is significantly correlated with decreases in bone mineral density. The investigation concludes that postmenopausal osteopenia has a significant correlation with periodontal bone loss in women.

Child's decay rate reduced if mother chews xylitol gum. Newborn children do not have the main caries-producing bacteria, *Streptococcus mutans*, in their oral cavities at birth. Previous research has shown that mothers pass these bacteria on to their newborn children through their saliva. A study published in the *Journal of Dental Research* (2000;1885–1889) tested the use of xylitol gum in new mothers to reduce the incidence of caries in their newborn children. The sample consisted of 195 women who had recently given birth. Three months after delivery, the mothers were given xylitol chewing gum and asked to chew gum daily for 2 years. The average daily dose of xylitol was 6 to 7 g, with an average consumption frequency of 4 times per day. Then, the children of these mothers were evaluated at yearly intervals up to 5 years of age. The number of carious lesions in these children was calculated and compared with the standard number of decayed teeth for the average population. In children at the age of 5 years, the dentinal caries in the xylitol group was reduced by about 70% as compared with a sample of patients who had been subjected to fluoride. The authors concluded that maternal use of xylitol chewing gum could prevent dental caries in their children by prohibiting the transmission of *Streptococcus mutans* from mother to child.

Reasons for mandibular fracture after third-molar removal. If adults present for orthodontic treatment and still have impacted mandibular third molars, orthodontists will often recommend removal of the third molars before orthodontic therapy. But if the third molars are severely impacted and located low and near the gonial angle of the mandible, what is the incidence of fracture in these situations? What are the most common factors associated with mandibular fracture after third-molar removal? A study published in the *Journal of Oral and Maxillofacial Surgery* (2000;58:1110–1112) evaluated the incidence and etiology of mandibular fracture after third-molar extraction. Initially these researchers reviewed all the records of patients who had third molars removed in the oral surgery clinic at the University of Tubingen during a 4-year period. They found 6 patients who had mandibular fracture. Then, they made a complete diagnosis of the dental and skeletal characteristics of each individual. The results showed 4 similar characteristics. First, the fracture patients were predominantly men between the ages of 42 and 50 years. Second, the fracture did not occur during the surgery, but during the first 2 weeks after surgery. Third, all patients were completely dentulous. Finally, the impacted third molars were positioned low, near the lower border of the mandible.