

What's New in Dentistry

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Sleep bruxism is caused by transient arousal during sleep. Many individuals grind their teeth while they sleep. In an effort to determine what triggers or stimulates the bruxing process, researchers evaluated the sleeping behavior of 9 patients with a history of sleep bruxism and compared them to a sample of 10 controls. Their data was published in the *Journal of Dental Research* (2003;82:284–288). Polygraphic recordings were made of all individuals, while they were sleeping in a sleep laboratory. During the night, the subjects were stimulated or aroused. The amount of bruxing activity as well as muscle activity were evaluated in both groups, and compared with the timing of the arousal or stimulation. The results showed that during sleep, when sleep bruxism patients received transient arousal, their muscle activity increased significantly. Audible tooth grinding occurred during 71% of the arousal episodes in the sleep bruxism patients, but no bruxing occurred in the control subjects. This study provides clear evidence that experimentally induced arousal is more frequently followed by increased muscle activity in sleep bruxism patients than in normal subjects, and that most of these episodes are accompanied by tooth grinding.

Disk displacement with reduction does not worsen over time with no treatment. It is estimated that over one-third of all adult individuals have disk displacement with reduction of the temporomandibular joint. The question is whether this problem should or should not be treated. A study published in the *Journal of Oral and Maxillofacial Surgery* (2003;61:32–34), evaluated the natural course of disk displacement with reduction over time with no treatment. The sample consisted of 24 subjects ranging in age from about 10 to 45 years of age. They were randomly selected from a sample of greater than 300 individuals with disk displacement. The subjects in this study agreed not to undergo any treatment for their disk displacement and were observed periodically for about two years. At the end of the experiment, they were evaluated for joint sounds, pain, and other temporomandibular joint diagnostic signs and symptoms. The results showed that the maximum amount of mouth opening and the amount of protrusion and lateral excursions did not change. Temporomandibular pain, which was present in 6 patients initially, decreased to only 2 patients after two years. Reciprocal clicking of the joint was reduced by 20% with no treatment. Originally, half the sample had muscle pain, but at the end of the experiment

only one individual had pain in the masticatory muscles. In conclusion, disk displacement with reduction does not worsen over time with no treatment.

Guided tissue regeneration shows good results for reducing severity of Class II furcations. A common type of adult periodontal defect is bone loss in the furcations of molars. Although class III furcation defects are typically untreatable with regenerative techniques, researchers and clinicians are optimistic about resolving class II furcation problems with guided tissue regeneration. A study published in the *Journal of Periodontology* (2003;74:3–9), evaluated the effect of regenerative techniques in resolving class II furcation defects in nine patients. In each patient, a flap was initially elevated, the defect was cleaned, and a membrane was placed across the site. Each patient had a control site of similar severity that was untreated and used for comparison. The results were evaluated after 6, 12, 18, and 24 months. Several periodontal parameters were measured over time. The results showed that there was a significant reduction in pocket depth in the sites that received the regenerative technique. This study has proven that substantial improvement in horizontal clinical attachment level and the possibility of complete closure of defects over 24 months with the use of guided tissue regeneration.

Immediate placement and restoration of anterior implants shows good success after one year. Single-tooth implants have become a popular choice for replacing missing teeth in adults. In the past, the implant was buried for four to six months in order to achieve maximum integration with the bone prior to crown placement. However, in recent years, immediate placement and restoration of single-tooth implants has been suggested and attempted. A recent study published in the *International Journal of Oral and Maxillofacial Implants* (2003;18:31–39), evaluated the success of immediate placement and restoration of single-tooth implants after one year. The sample consisted of 35 subjects. In all individuals, a failing anterior tooth either central, lateral, or canine was extracted, and an implant was immediately placed. At the time of the implant placement, a provisional restoration was placed on the implant. This provisional restoration was kept out of occlusal contact in either centric or eccentric positions of the mandible. The final impressions and crowns were placed after about five months. The patients were evaluated at three months, six months, and 12 months. Several parameters were observed,

including plaque index, gingival index, bone level and gingival margin heights. The results showed that none of the implants failed. All were successful at one year. Although the bone level changes were minimal, and the health of the tissues was good, in all situations, the gingival margin height around the immediate implant migrated apically about 1 millimeter on average.

Experimentally increasing the occlusal vertical dimension in animals results in significant relapse. A popular method of correcting deep anterior overbites is to place a maxillary bite-plate in order to open the posterior occlusion, and encourage the posterior teeth to erupt, thereby reducing the anterior overbite. This technique works well in growing individuals whose teeth are erupting during childhood and adolescence. However, will this process work in adults? Can a bite plate be used to increase the vertical dimension of occlusion in nongrowing adults? This

process was attempted experimentally in a sample of guinea pigs, and the results were published in the *Journal of Dental Research* (2003;82:127–130). The sample of experimental animals was divided into two groups. Half were used as controls, and in the other half, a bite plate was placed over the incisors, and the molars were allowed to erupt. Since guinea pigs have teeth that constantly erupt very rapidly, 3 mm of molar eruption occurred in one week. Then the bite plate was removed and the animals were monitored cephalometrically and compared with control animals that did not have the bite-opening appliance. These researchers found that in every experimental animal, shortly after the bite plate was removed, the vertical dimension rapidly reduced until it returned to the same vertical dimension as the control animals. Then, over time, it maintained itself at that level. The authors conclude that it is not possible to increase vertical dimension in these animals, because it is impossible to increase muscle length.