Smoking Cessation Improves Perio Health

Tobacco is a significant health problem, estimated to kill more than five million people per year and accounts for one in 10 deaths worldwide. Smoking is a risk factor for cancer, lung disease, cardiovascular disease and periodontal disease. Smokers are two to seven times more likely to have periodontal disease than non-smokers. Despite great efforts at smoking cessation, many dental research studies report only 10 to 20 percent success rates.

Researchers at the University of Sao Paulo in Sao Paulo, Brazil evaluated the effects of smoking cessation on periodontal parameters following non-surgical therapy. The one-year study began with 93 subjects and finished with 52 subjects. Subjects all received thorough non-surgical therapy and oral hygiene instructions over several appointments. They were seen every three months for maintenance visits and further smoking cessation counseling. The smoking cessation program included four one-hour sessions, scheduled weekly. The multidisciplinary team provided information, counseling, nicotine replacement drugs and motivational interviewing to establish individualized programs to fit each person’s needs and wants.

Thirty percent of the 52 subjects did quit smoking. Although very disappointing to the researchers, this is better than other studies have reported. Both quitters and non-quitters showed improved oral health at one year. A gain of 0.5mm in clinical attachment level was shown in the quitter group compared to the non-quitters. In fact, the non-quitters showed an increase in attachment loss at three months, with no changes from baseline at six and 12 months.

Clinical Implications: Smoking cessation should be part of periodontal therapy.


Blood Group Secretor Status Influences Periodontitis

There are four human blood groups: O, A, B and AB. Researchers have shown a difference in periodontal disease experience depending on blood type. Within blood groups a person might also be considered a secretor if they produce blood group reactive substances and secrete them into saliva. Blood group O secretes H antigen, groups A, B and AB secrete A antigen, B antigen or A and B antigens. The blood reactive antigens are found on the surface of mucins, erythrocytes and other cells and cause selective adherence of bacteria to tooth surfaces and thus biofilm formation.

Researchers at Jaipur Dental College in India evaluated a group of 90 patients equally divided into three groups: periodontally healthy, chronic gingivitis and chronic periodontitis. They collected subgingival plaque samples, unstimulated saliva and blood to determine if secretor status influenced oral health.

Of this group, 44 were secretors and 46 were non-secretors. The majority of secretors belonged to the healthy group, while the majority of non-secretors belonged to the periodontitis group. There were equal numbers of each in the gingivitis group. Plaque and gingivitis scores were higher in the non-secretor group compared to secretors.

Bacterial counts in both subgingival plaque samples and saliva samples were higher for P. intermedia and P. gingivalis in non-secretors. Blood group antigens secreted in the saliva appear to inhibit bacterial aggregation and thus biofilm formation. Secretors provide a protective effect that protects against periodontal disease.

Clinical Implications: Based on these findings, it might be important to learn the blood type and secretor status of patients, since non-secretors are more prone to bacterial accumulation and therefore periodontal disease.

**Bacteria Remain After Full-mouth Extraction**

Placing implants in a mouth with periodontally involved teeth allows bacteria to move to the new implant sulcus. Depending on the immune response, peri-implantitis might or might not occur.

When bacterial culturing is used to determine the presence or absence of bacteria in the mouth, it was reported that full-mouth extraction leads to an eradication of periodontal pathogens. When the pockets were gone, so were the periodontal pathogens. With newer microbiologic techniques to detect oral pathogens using DNA testing, reports suggest just the opposite.

Researchers at Catholic University Leuven in Leuven, Belgium used several methods to test for oral bacteria prior to full-mouth extraction and after implant placement. They selected 10 patients with advanced periodontitis. Half were smokers, three were women, seven were men and they ranged in age from 47 to 65 years. Bacterial samples were taken from subgingival plaque, the tongue and saliva. Culturing and DNA testing were both done.

The teeth were extracted and six months later implants were placed. Three to six months later, abutments were placed. Plaque samples and clinical indices were measured at one and three weeks, and 12 months after abutment placement.

Bacterial levels were high prior to tooth extractions. The levels for the amount of bacteria were much lower after implant placement, however the same bacteria were present. Levels for two bacteria remained very similar throughout, Aa and Pi. The crevice around the implants was pristine to begin, but within one week was colonized by all the usual suspects, but in much fewer numbers, except for Aa.

**Clinical Implications:** Aa survives at established levels even without teeth.


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**Green Tea Decreases Acid Levels of Saliva and Plaque**

Green tea contains bioactive compounds of the catechin family, a group of flavonoids (phenolic compounds). Catechins have anti-inflammatory, anticariogenic, antioxidant and antibacterial properties.

Researchers at EL-Azhar University in Cairo, Egypt evaluated the effects of rinsing for five minutes with green tea extract on salivary and plaque pH levels and S. mutans counts. Testing was done on a random sample of 25 patients visiting the dental school clinic, 13 males and 12 females ranging in age from 21 to 46 years. Subjects received a complete clinical exam and plaque and saliva samples were taken. Bleeding scores were calculated by passing a piece of unwaxed floss between the teeth in the anterior region and the premolars (18 interproximal sites).

The study protocol included several steps. First was a two-minute rinse with 10 percent sucrose solution. Seven minutes later, plaque and saliva samples were taken followed by a water rinse. One hour later subjects rinsed with two percent green tea for five minutes and then waited 20 minutes before rinsing again with a 10 percent sucrose solution for two minutes. Seven minutes after that, plaque and saliva samples were taken.

After the first sucrose rinse, the pH dropped from 7 to under 5. Following the green tea rinse, the pH dropped from 7 to 6.5. S. mutans count increased after the sucrose rinse and dropped after the green tea rinse. Bleeding also reduced following the green tea rinse.

**Clinical Implications:** Green tea extract can be used in rinses and toothpaste to reduce bacteria and maintain a neutral pH in the mouth.

Three patient factors influence the effectiveness of manual toothbrushing: dexterity, frequency and duration of brushing. A fourth factor is toothbrush design, which is in a constant state of change by toothbrush companies wanting to sell more toothbrushes at higher prices with new designs and bristle configuration.

Researchers at Ponta Grossa State University in Ponta Grossa, Parana, Brazil compared three toothbrushes in a group of 27 nine- to 10-year olds. Toothbrush 1 (Colgate Classic), the conventional toothbrush has straight bristles and straight bristle tuft arrangement. Toothbrush 2 (Colgate Extra Clean) has bristles cut on different planes, and all tufts are in straight alignment. Toothbrush 3 (Colgate 360 degree) has bristles on different planes and bristle tufts are arranged in straight and circular patterns.

For 21 days prior to starting the study, all subjects brushed daily with Toothbrush 1 and Colgate fluoridated toothpaste under supervision, but with no instructions. In a cross-over study design, each student brushed with all three toothbrush designs, based on group assignment. Ten students were assigned to each test group and began the first 15-day period of brushing with one of the three brushes. This was followed by a seven-day washout period with all children using Toothbrush 1. This pattern was followed for all three brushes. Plaque and gingivitis levels were recorded at the end of each 15-day test period.

No significant differences between the three toothbrushes were seen. All three toothbrushes showed similar plaque and gingivitis scores.

Clinical Implications: The conventional, simple toothbrush design is as effective as more expensive, complex bristle designs.


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Both caries and periodontal disease are bacterial infections, with many other factors influencing who experiences these diseases. Genetics as well as habits learned at home influence the future health or disease of children.

Clinicians in a Brazilian periodontal practice established a preventive program for the children of their patients in an attempt to prevent caries and periodontal disease. Parents were diagnosed with gingivitis (G), chronic periodontitis (CP) or aggressive periodontitis (AP). Fifty children ages three to 13 years joined the program. The children had no caries and no evidence of bone loss. They received oral hygiene instructions and maintenance visits every six to 12 months, similar to their parents. Parents were instructed to perform toothbrushing and flossing for children eight years old and younger. The children were divided into three groups, based on their parent's periodontal diagnosis: G, CP or AP.

A total of 30 children were still being seen 20 years later, 16 females and 14 males from 23 to 33 years of age. Recall intervals averaged six months. There were no significant clinical differences between the three groups and no gingivitis.

Sixty percent (18 children) experienced no dental caries, 10 percent (three children) had one lesion, 3.5 percent (one child) had two lesions, 20 percent (six children) had three lesions, and 6.5 percent (two children) had four lesions. Seven of the total lesions were initial, not through the enamel and 16 were through the enamel.

Clinical Implications: Oral hygiene instructions and regular maintenance prevented gingivitis and bone loss in these children and helped more than half the group prevent dental caries.