Factors Influencing Tongue Coating

Tongue coating forms on the middle and posterior portion of the tongue in people with periodontal disease as well as healthy individuals. Oral causes account for 76 percent of oral malodor. Tongue coating alone accounts for 43 percent of oral malodor, along with gingivitis and periodontitis accounting for 18 percent. Since tongue coating is a significant cause of oral malodor, more needs to be learned about what causes it.

Researchers at the Catholic University Leuven in Leuven, Belgium evaluated 96 patients seeking care at its halitosis clinic. Subjects were instructed by letter to refrain from eating onions, garlic or spicy food for two days before their appointment and to refrain from drinking coffee or alcohol or smoking cigarettes for 12 hours before the appointment. They were also asked to refrain from using chewing gum, mints, drops, scents or mouthrinses on the morning of their appointment.

They were asked to complete a written questionnaire relating to general health, oral hygiene habits, ENT problems and diet. The clinical examination included an organoleptic (smelling of the breath) test and an evaluation of tongue coating both visually and by weighing the scrapings from the back of the tongue. Sulphur compounds were measured using OralChroma, gas chromatography. Quality and quantity of saliva were also measured.

Clear correlations were established between organoleptic scores, tongue coating scores, the weight of tongue coating scrapings and the objective measure of volatile sulphur compounds using the OralChroma machine. Those who smoked, did not clean between their teeth and preferred soft foods had more tongue coating and higher oral malodor scores.

Clinical Implications: Tongue coating is indicative of oral malodor and influenced by poor oral hygiene.  


Sleep Apnea and Periodontal Disease

Chronic periodontitis (CP) is linked to many systemic diseases, without any cause and effect studies yet published. Both CP and obstructive sleep apnea (OSA) are associated with a systemic inflammatory response. A study of 68 subjects by Australian researchers published in 2009 suggested a link between OSA and CP.

Researchers at Taipei Medical University in Taipei, Taiwan evaluated a much larger group to determine if there was a link between OSA and CP. The Longitudinal Health Insurance Database of Taiwan includes records of one million individuals. From this database, researchers selected more than 7,000 patients who were diagnosed with OSA through a sleep study. A group of 22,000 age-, gender- and country location-matched controls with no diagnosis of OSA were also identified.

In Taiwan insurance records also provide information about the diagnosis and treatment of periodontal disease. From this information it was possible to determine who also had CP. The average age of the subjects evaluated was 48 years and 62 percent were males. After adjusting for several influencing factors, including smoking, alcohol use, hypertension, cholesterol levels, diabetes and obstructive pulmonary disease, a significant difference was detected between the groups. In the group with OSA, 34 percent were diagnosed with CP compared to 23 percent in the control group. These findings do not suggest a cause and effect relationship between CP and OSA, but rather a link between the two conditions. Something not mentioned in the article is the link between mouth breathing and both CP and OSA.

Clinical Implications: The odds ratio of 1.75 makes those with a diagnosis of chronic periodontitis 1.75 times more likely to experience obstructive sleep apnea.  


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Bacteremia from Flossing and SRP Similar

Infective endocarditis (IE) is a rare but serious infection of the heart. Viridians streptococci bacteria (VAB) are the primary oral bacterial associated with IE. Prophylactic antibiotics are recommended for those at risk when undergoing invasive dental procedures like scaling and root planing (SRP). New research suggests that toothbrushing might be just as risky as SRP when considering a bacteremia.

Researchers at the University of Sydney, Australia compared bacteremia levels following SRP and flossing in a group of 30 people with chronic periodontitis. Full-mouth flossing was completed at the first visit and one quadrant of SRP at the second visit. Blood samples were taken at baseline and at 30 seconds and 10 minutes after flossing. Blood samples were taken five minutes after starting SRP and again at 30 seconds and 10 minutes after completing SRP. A gingival index and plaque index were taken on all subjects immediately after baseline blood draws.

Flossing was done with waxed floss, moving the floss up and down three times on each proximal tooth surface. SRP was done under local anesthesia using both an EMS power scaler and Gracey curettes.

The incidence of total bacteremia was 30 percent in the flossing group and 33.3 percent in the SRP group. VSB bacteremia was 27 percent in the flossing group and 20 percent in the SRP group. These differences are not statistically different. However, the fact that both flossing and SRP result in similar incidence of bacteremia scores is problematic since the recommendations for prophylactic antibiotics only apply to invasive dental procedures.

Clinical Implications: It might be time to rethink prophylactic antibiotic recommendations.

CHX Gel vs. Rinse for Peri-implant Mucositis

Peri-implant mucositis is a reversible infection in the marginal tissue surrounding implants. It is characterized by bleeding, swelling and inflammation with no bone loss. If left untreated, it can progress to peri-implantitis and irreversible bone loss. Chlorhexidine (CHX) in gel or rinse is often used to control these infections.

Researchers at the University of Milan in Milan, Italy compared the use of a 1% CHX gel and a 0.2% CHX mouthrinse to treat peri-implant mucositis in a group of 23 patients. All implant sites showed evidence of bleeding on probing, plaque accumulation and bone loss.

Average age of the patients was 62 years, with a range from 43 to 87. Subjects all received instrumentation and were randomly assigned to either the gel (13 subjects) or the mouthrinse (10 subjects) and instructed to use their assigned product twice daily for 10 days. Clinical indices were evaluated at 10 days, one month and three months.

At 10 days, each group showed significant reductions in plaque and bleeding. Seventy percent of sites in the gel group and 90 percent of sites in the mouthrinse group were healed. Healing remained stable through the three months of the study. The differences between groups were not statistically significant.

This study used a 0.2% rinse, stronger than the typical U.S. rinse of 0.12%. The gel provided a localized application of the CHX while the mouthrinse was more generalized throughout the mouth.

Clinical Implications: CHX gel and mouthrinse both work well for peri-implant mucositis.

Antimicrobial Power Scaler Coolant as Effective as Water

Power scalers are as effective as hand instruments for the removal of subgingival deposits. It has been suggested that using an antimicrobial coolant solution would enhance healing. This combination of power scaling with an antimicrobial combines two treatments within one and as such might save time. Both povidone iodine and chlorhexidine have been tested in power scalers and to a lesser extent, essential oil solutions.

Researchers at the University of Ghent and the Free University of Brussels, both in Belgium, compared clinical outcomes after power scaling with either Listerine or water as the coolant. Patients with at least one pocket in each quadrant measuring 6mm with bleeding upon probing were included in the study. A total of 29 patients completed the three-month study: 17 in the Listerine group and 18 in the water group. Subjects all received two 90-minute instrumentation visits, using only an EMS Piezon Master 600 power scaler. Subjects were also instructed in toothbrushing and interdental cleaning using interdental brushes or toothpicks. All were provided with a manual toothbrush, toothpaste and proximal cleaning aids.

The test group was treated with full strength Listerine as the coolant in the power scaler. The control group was treated with water as the coolant.

At three months, both groups showed significant healing with 50 percent reduction in bleeding, probing depth reductions of 1mm and attachment gains of 0.5mm. Deep pockets reduced 2.5mm in both groups.

Clinical Implications: Listerine used as a coolant solution with a power scaler provides no added benefit over water when used to treat chronic periodontitis.

Clinical Implications: People with good oral hygiene will experience no added benefit from daily rinsing with Listerine.


Essential Oil Rinse Used for Perio Maintenance

To be successful, periodontal treatment should be followed by frequent periodontal maintenance visits with the dental hygienist and effective daily oral hygiene. Many antimicrobials are suggested to enhance the benefits of mechanical plaque removal.

Researchers at the University of Ghent in Belgium compared Listerine mouthrinse with a placebo rinse in a group of periodontal maintenance patients over a three-month period. Subjects were instructed to rinse twice daily. There were 23 in the test group and 21 in the placebo group who completed the full study. Baseline clinical indices included plaque, bleeding, gingivitis, probing depths and clinical attachment levels. Subgingival bacterial samples were taken from the deepest pocket in each quadrant and analyzed. Measurements were taken at baseline and repeated at three months.

Differences between groups were not statistically significant. The test group began with healthy gingiva at 80 percent of sites and at three months this was 96 percent. In the placebo group, it began at 91 percent and increased to 97 percent. Bacterial load was similar at baseline and three months for both groups. Despite no clinical evidence of benefit, patients in both groups reported feeling refreshed after rinsing. Nearly 60 percent of subjects reported they would continue using a mouthrinse and would recommend a mouthrinse to family and friends. The strong taste gave subjects the perception of clinical benefits, even though the clinical evidence does not support this.