Clean Kiss Ingredients Research

- Human genome screen to identify the genetic basis of the anti-inflammatory effects of Boswellia in microvascular endothelial cells. Roy, Sashwati;Khanna, Savita;Shah, Hiral;Rink, Cameron;Phillips, Christina;Preuss, Harry;Subbaraju, Gottumukkala V;Trimurtulu, Golakoti;Krishnaraju, Alluri V;Bagchi, Manashi;Bagchi, Debasis;Sen, Chandan K; Institution: Laboratory of Molecular Medicine, Department of Surgery, The Ohio State University Medical Center, Columbus, Ohio 43210, USA. Publication: DNA and cell biology, 2005
The Nutrition Connection

Why is Periodontal disease much more common among 60 year olds than 20 year olds, even though 60 year olds can be more dental savvy and brush regularly? The difference is likely in the body’s ability to fight off the attacks of bacteria and chemicals.

When bacterial infections, such as Periodontal Disease occur, our immune systems attacks the invading organisms with a network of cells, tissues and organs all working together. As we age, the body is less able to assimilate nutrients required to maintain an optimal immune system so it is very important to eat more fruits and vegetables and properly supplement our diet. This gives us anti-oxidants that prevent cell oxidation and lower the occurrence of disease, aging and even cancer. Cell Oxidation is like metal rusting, weakening the cell wall and damaging DNA. Anti-oxidants prevent cell oxidation and support the immune system.

Research at Loma Linda University in May 2001, showed that a nutritional supplement alone, without any other dental treatment, was able to significantly lower the bleeding and tissue damage caused by periodontal disease. The key supplement ingredients were Grapeseed Extract, CoQ10 (Ubiquanone) and Folate. It is valuable to examine these elements because they are not normally found in your daily multi-vitamin.

**Proanthocyanidin (grape seed extract)**

How can the French and Italians, who drink red wine be so healthy even with a pasta and fat laden diet? The wine has Proanthocyanidin, found in red grapes. Grapeseed extract contains Proanthocyanidin with 20-50X the antioxidant power of Vitamin C or E. Naturopaths, the branch of healthcare that focuses on treatment using natural products rather than drugs, have found Grapeseed extract to be a natural anti-histamine that combats allergies without drowsiness. It is a natural anti-inflammatory that can reduce CRP and reduce inflammatory diseases while improving the circulatory system.

Grapeseed extract can prevent periodontal bacteria from colonizing in gum tissue and on teeth and prevents the aggression of destructive enzymes. The anti-oxidant action destroys free-radicals that attack gum tissue.

**Coenzyme Q10 (CoQ10)**

CoQ10 improves the healing response. Vital to all natural processes from cellular energy, immune system function, to heart function and blood pressure, CoQ10 is used in medicine for treatment of congestive heart failure, neurodegenerative disorders such as Parkinson’s disease and cancer treatment through tumor suppression. During pregnancy, a woman makes 50% more CoQ10 to aid in placenta development. Since statin drugs lower the body’s production of CoQ10, it is important those taking statin drugs supplement with CoQ10. Clinical studies show that people with gum disease tend to have low levels of CoQ10 in their gums, CoQ10 may improve symptoms of dry mouth. CoQ10 will help damaged gum tissue heal so bacteria cannot hide under the gum line.

**Folate and folic acid** are necessary for the production and maintenance of new cells, especially important during rapid cell division and growth (i.e. infancy and pregnancy). Folate and folic acid are needed to make DNA and RNA, the building blocks of cells, and help prevent changes to DNA that may lead to cancer. Both adults and children need folate and folic acid to make normal red blood cells and prevent anemia.

Although both are forms of a water-soluble B vitamin, Folate occurs naturally in food. Folic acid is the synthetic form found in supplements and fortified foods. To become bioavailable (absorbed by the body), both Folate and Folic Acid must be converted to l-methylfolate. Unfortunately, about 20% of the population fail to convert folic acid and thus do not receive the full nutritional benefits. When the body does not convert enough folic acid to L-methyl folate, excess levels of homocysteine may accumulate. Hundreds of published studies have linked excessive homocysteine with common age-related problems. Clean Kiss Anti-Inflammatory Support™ uses Folic Acid as L-Methyl Folate for easy absorption and maximum cell protection for all.

Since the 1991 Loma Linda study, Clean Kiss has included the following periodontal support supplementation:
**Vitamin B12 (as Methylcobalamin)**

Research suggests about 25 percent of American adults are deficient in Vitamin B12, and nearly half the population has suboptimal blood levels. B vitamins are used in sugar metabolism. A high-sugar diet (like the one in USA) may deplete vitamin B12 while simultaneously increasing periodontitis risk. Also, B vitamins, like B12, are involved in wound healing, and decreased intake may delay the repair of gums.

**Rhodiola Rosea**

A powerful natural substance that normalizes hormonal control of the neuro-endocrine-immunologic system (an all-encompassing system directing how the immune system and brain interact with hormones). It is a powerful antioxidant - helps quench free radicals and defend against oxidative damage in our body, increases cellular energy by stimulating the fuel for the cell’s mitochondria. Rhodiola Rosea stimulates the production of natural killer cells that protect against infection. It eventually stops both over and underproduction of inflammation signals.

**Astaxanthin**

Powerful antioxidant that promotes tissue health. By far the most powerful carotenoid antioxidant when it comes to free radical scavenging: Astaxanthin is 65 times more powerful than vitamin C, 54 times more powerful than beta-carotene, and 14 times more powerful than vitamin E. It's also far more effective than other carotenoids at "singlet oxygen quenching," which is a particular type of oxidation. It is 550 times more powerful than vitamin E, and 11 times more powerful than beta-carotene at neutralizing singlet oxygen. Astaxanthin crosses both blood-brain barrier AND blood-retinal barrier (beta carotene and lycopene do not), which brings antioxidant and anti-inflammatory protection to your eyes, brain and central nervous system. Astaxanthin differs from other carotenoids is that it cannot function as a pro-oxidant! Most importantly, it uniquely protects the entire cell from damage—both the water-soluble part and the fat-soluble portion of the cell. Other antioxidants affect just one or the other. This is due to Astaxanthin’s unique physical characteristics that allow it to reside within the outside cell membrane while also protecting the inside of the cell.

**Curcumin and Tumeric Extract**

Inhibits the bacteria that cause cavities, gum disease, and inflammation. Protects against free radical damage as a strong antioxidant. Water- and fat-soluble extracts of turmeric and its curcumin component exhibit strong antioxidant activity and enhances cellular resistance to oxidative damage, keeping cells healthier.

Curcumin reduces inflammation by lowering histamine levels and possibly by increasing the production of natural cortisone by the adrenal glands. It reduces both acute and chronic inflammation.

It has been shown to prevent platelets from clumping together, which in turn improves circulation and reduces clotting. Turmeric's protective effects on the cardiovascular system include lowering cholesterol.

Curcumin potentially helps to prevent new cancers that are caused by chemotherapy or radiation therapy used to treat existing cancers. It effectively inhibits metastasis (uncontrolled spread) of melanoma (skin cancer) cells and may be especially useful in deactivating the carcinogens in cigarette smoke and chewing tobacco. Curcuma inhibits the growth of a variety of bacteria, parasites, and pathogenic fungi and helps heal infection.

Curcumin decreases the formation of pro-inflammatory cytokines and protects the liver from a number of toxic compounds such as carbon tetrachloride (CCl4), galactosamine, acetaminophen (paracetamol), and Aspergillus.

**Bromelain**

Shown effective for removing necrotic tissues and for treating various wounds. Reduces inflammation and is also an antioxidant.

**Boswellia serrate**

The form we use is the most potent inhibitor of the enzyme responsible for inflammation. Powerfully supports immune, gastrointestinal and cell health. Boswellia also inhibits the breakdown of connective tissue and builds up new connective tissue. It may support a healthy immune response.
Holy Basil
Holy Basil inhibits the bacteria that cause cavities, gum disease, and inflammation.

Chlorella 50 mg
Captures dietary mercury and a bioavailable source of both Iron and Vitamin B12.

Scutellaria Baicalensis Georgi (E)(skullcap)
Is anti-viral, bacterial, fungal and anti-inflammatory. Blocks viruses, bacteria, and fungi from multiplying. Scutellaria is most effective against Candida, Streptococcus group, Staphylococcus, and others. Increases the production of collagen in the gums, which helps reverse gingivitis and prevent periodontal disease.

Bone Support
Bone Support is also needed because once bone is lost, it is nearly impossible to replace except via bone grafting. Mineral supplements are not easily absorbed into the body and ingredients must support each other to achieve re-mineralization of teeth and strengthening of bones. The Clean Kiss Bone Support formula balances minerals so they work together to protect both teeth and bones (see chart).
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<th>Ingredient</th>
<th>Plaque Calculus</th>
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INTRODUCTION
An advocate is “one who speaks, pleads, or argues in favor of.” Every day, 12,500 Americans turn 50 years old. Two in every 3 will contract heart disease; one in 4 will become diabetic; and 6 of 10 will manage more than one disease which doubles needed doctor visits, worsening our present physician shortfall. At least 50% have periodontitis, a bacterial infection that can cause chronic inflammation. Patients are twice as likely to become diabetic if they have periodontitis and at least double their chance for cardiovascular disease. Because 70% of Americans will see their dentist this year, dentists have the opportunity, as health advocates, to co-manage care with a patient’s physician. Here’s how it can be done.

MINI CASE REPORTS
A Case As Treated in the Office of Walter Below, DDS
A 61-year-old male patient of record in the dental practice of Dr. Walter Below (Westlake, Ohio) was found to have nine 4.0-mm periodontal pockets with 10 bleeding sites. The standard of care for a diagnosis of Type II periodontitis would have been treating this patient with scaling and root planing (SRP), with 3-month periodontal maintenance follow-up appointments. However, Dr. Below looked deeper and discovered a way to reduce health risks before serious symptoms could erupt.

The patient’s updated health history revealed mitral valve prolapse, high blood pressure, and that statins with daily baby aspirin had been previously prescribed by the patient’s physician. The patient did not have any further appointments scheduled with his physician.

His family medical and dental histories revealed that his mother had suffered from stroke, diabetes, cancer, and hypertension, then died from heart disease at age 70. His father had a history of heart disease, diabetes, and hypertension before dying from a heart attack at age 68. His father had periodontal disease and both parents had tooth loss.

The patient tested positive for pathogenic red bacteria: Porphyromonas gingivalis (PG), Tannerella forsythia (TF), and Treponema genticola (TD). A blood sample was sent for analysis and later showed C-reactive protein (CRP) was at 6.3 mg/L, indicating 6 times more inflammation than normal. The glycated hemoglobin (A1c) was measured at 6.3% (elevated). The patient’s physician was directly contacted and requested that the patient appoint with him before leaving the dentist’s office that day.

Both the dentist and physician then co-managed this patient’s care for 6 months. The physician continues to monitor medications and heart function and has recommended a diabetic workup. Periodontal therapy included laser bacterial decontamination before deep SRP to remove plaque and calculus without bacteremia. Laser assisted periodontal therapy (LAPT) was used to remove necrotic gum tissue to promote healing and kill pathogenic bacteria. To keep the bacteria in remission postoperatively, home care was replaced with Disease Control Kits (CloSYS rinse and toothpaste [Rowpar Pharmaceuticals]; Oralbiotic Research’s Hydrabrush and Oral Care Technologies’ Hydrofloss; and periodontal formula by Avalon Laboratories and Osteogenesis from Telos Labs).

A Case As Treated in the Office of Bradley Parker, DDS
A 50-year-old female patient of record in the dental practice of Dr. Bradley Parker (San Bruno, Calif) was found to have 14 probe scores
higher than 3.4 mm with 17 bleeding sites. The updated patient health history revealed that the patient had a heart attack 5 years prior at age 45. She was diagnosed as prediabetic and prescribed Metformin and had high blood pressure with no prescribed medication. She did not have a next-scheduled appointment with her physician.

Her family medical and dental histories revealed that her father had a heart attack with bypass surgery and died from heart disease in his 60s. Her mother had a history of diabetes and died in her 70s. Both parents were hypertensive. Her mother also had gum disease and tooth loss, resulting in dentures.

The patient tested positive for pathogenic red bacteria (PG, TF, TD). A CRP score of 3.7 mg/L is 300% higher inflammation than normal. The Arc of 7% showed elevated glycated hemoglobin at diabetic level despite current medication.

Initially, the physician was not available to discuss this case before the patient's scheduled treatment consultation appointment, and, in addition, the patient had also initially declined the suggested periodontal therapy.

However, after successfully contacting the physician and after being presented a co-management plan by her dentist and physician, she began 6-month perio therapy including SRP, LAPT, and the Disease Control Kit as described above. She also returned to her physician for a diabetic workup and for medication management.

**KEY ADVOCACY COMPONENTS**

*Updated health history*—Often skipped, this step asks the patient's age at occurrence and if a future appointment to manage medications has been scheduled with the physician.

*Detailed family health history*—If the parents had inflammatory diseases, the patient could be going down the same path.

*Blood pressure*—Hypertension is the second highest reason patients visit their physician,9 and recent research supports inflammation as a cause.10 Imagine the impact dentistry can have on health if periodontal therapy can eliminate a key cause of high blood pressure!

*Full periodontal probing*—Six or more periodontal sites measuring 4.0 mm warrant an enzyme test for red bacteria.

*Enzyme test for red bacteria (BANA test [Ora-tec])**—This low-cost test takes 5 minutes to scan the most dangerous pathogenic "red" complex bacteria: PG, TF, and TD.

*Blood sample sent for A1c and CRP testing*—In-office finger stick test is sent to outside lab for processing.

*Set separate review of findings/treatment plan appointment*—The combination of personal and family health histories, plus blood pressure, enzyme pattern, and Arc and CRP testing bridges the connection between mouth and body and requires a focused appointment to review and treatment plan.

*Periodontal therapy with SRP using laser decontamination, laser assisted periodontal therapy and Disease Control Kits* (as described previously)—The 100 practices I work with confirm this combination has the best outcomes for removing plaque, calculus, necrotic tissue, and controlling bacteria long term.

*Co-management with physician*—Even if the Arc or CRP test is normal, you may choose health advocacy if the patient has more than 6 probe sites greater than 3.4 mm, tests positive for red bacteria, and has any combination of the following: high blood pressure, medication for any inflammatory disease, or at-risk immediate family health history. Physician consultants are best performed before the patient returns for the “review of findings” appointment. It gives the call urgency for the physician and power to the importance of case acceptance for the patient.

**THE AUTHOR'S VIEW**

*Assuming that one hygienist sees about 1,200 patients yearly*:

Applying statistics, the hygienist can help prevent 7 heart attacks, alert 34 patients with high Arc, reduce Arc in 22 patients, and even save 2 lives of diabetics who put periodontal disease in remission. Multiply this by 174,100 US hygienists for a potential health impact of 7,4 million lives, before even considering other inflammatory diseases!

After reviewing hundreds of practices, I find that only about 10% of patients with tissue damage measuring at least 4.0 mm (pockets) get treated for periodontal disease. Instead, the patients are “watched” as inflammatory causing bacteria increases their risk for heart attack, stroke, diabetes, cancer, even pre-term birth, the patients all the while believing pink toothbrush bristles are nothing to worry about.

These are not isolated cases from 2 special practices. No matter your insurance partners, if you do not get more than 50% of physicians agreeing to co-manage your patients, it is probably because you simply need to learn how.

How many patients can you help avoid serious systemic diseases caused by inflammation? You won't know if you don't look.✨

**References**


Ms. Meditz is a dental practice systems analyst with more than 30 years of experience in coaching new technologies, protocols, and systems for dental practitioners. She recently founded the Health Care Professionals Wellness Network (hcwpwellnet.com), which promotes collaboration between health-care professionals for healthcare reform. Since 2007, she has co-developed new periodontal protocols for Centers for Dental Medicine (centersfordentalmedicine.com) and is presently the director of development. Contact Ms. Meditz and mention this article, and receive a free one-hour consultation. She can be reached at (866) 546-5444.

Disclosure: The Dentist to Physician Patient Advocacy program described above is part of paid services designed for and offered by both Centers for Dental Medicine and Health Care Professionals Wellness Network. Both Drs. Walter Below and Bradley Parker are current clients of Centers for Dental Medicine and Leona Meditz and have received no compensation for sharing their results. The patients described are current patients of record for each respective dentist.
The Oral Systemic Connection
A New Collaboration Between Medicine and Dentistry

Diamond Age Systems
2009

A collection of recent announcements from the medical profession pertaining to the collaborative partnership between physicians and dentists relative to the Oral Systemic Connection and its impact on patient health.
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Introduction

Since Donna Shalayla’s announcement from the surgeon general’s office in the year 2000 stating:

“The terms oral health and general health should not be interpreted as separate entities. Oral health is integral to general health; this report provides important reminders that oral health means more than healthy teeth and that you cannot be healthy without oral health.”

studies have demonstrated an association between periodontal diseases and diabetes, cardiovascular disease, stroke, and adverse pregnancy outcomes; hundreds of research papers have appeared in dental and medical literature connecting periodontal disease to systemic disease.

Only recently, however, have major non-dental entities, representing the insurance industry, cardiology and diabetes actually taken the stand that physicians should evaluate gum conditions and discuss visiting the dentist with their “at risk patients” and that dentists should discuss related systemic illness with their patients. These announcements are included here for your reference.

Summary of Key Points

The following is a summary of the key points of the papers:

1. An Examination of Periodontal Treatment and Per Member Per Month (PMPM) Medical Costs in an Insured Population, BMC Health Services Research, August 16, 2006.
   a. “Yet, at least 20 percent of an at-risk population is not getting regular preventive dental treatment. This number rises to 35 percent in older populations.”
   b. “At-risk members are identified as those with diabetes, heart disease and pregnant women who have not seen a dentist in 12 months or more.”
   c. “Aetna refers 67,000 at Risk Patients to dentists”- The Aetna Dental Medical Integration Program
d. Aetna-Columbia Study showed perio patients treated earlier had lower systemic health costs for Cardio/Diabetes related illnesses.
e. Aetna Internal Analysis show results have been sustained.
f. DMI Program- 67,000 medically at risk members defined as Cardio/Diabetes/Pre-Term Birth
g. Aetna DMI program motivates At Risk members to seek dental care!

2. Healthy Gums and a Healthy Heart: The Perio Cardio Connection

PublicRelations@perio.org [mailto:PublicRelations@perio.org] On Behalf Of
American Academy of Periodontology; Tuesday, June 02, 2009
a. Consensus Paper-American Journal of Cardiology- reaches 30,000 Cardiologists
b. Inflammation is a major risk for heart disease and Periodontal Disease may increase the inflammation level throughout the body
c. Physicians should evaluate the mouth for signs of periodontal disease
d. Dentists should discuss heart health and family history

3. The Mission of the American Diabetes Association: Embargoed until: Friday, June 6
a. American Diabetes Association States that Periodontal Disease Causes Diabetes
c. Severity of periodontal disease is associated with higher levels of Insulin Resistance
d. Intensive Periodontal Treatment reduces A1c
e. 51% of Insulin Resistant Patients genetically susceptible to high inflammatory response
f. Type II Diabetics have a 3 times greater mortality rate if they have Periodontal disease
g. Physician should ask patients if they have seen their dentist- if they have had perio treatment.
h. “In an analysis of the National Health and Nutrition Examination Survey of the U.S. population data from 1988-94, we recently found that people with periodontal disease were twice as likely to have insulin resistance as those without such disease,” said Dr. Taylor.
An Examination of Periodontal Treatment and Per Member Per Month (PMPM) Medical Costs in an Insured Population, BMC Health Services Research, August 16, 2006

Aetna’s Integrated Dental Medical Program Motivates Nearly 67,000 Medically at-Risk Individuals to Seek Preventive Dental Care

--20 Percent of Working Population with at Least One Chronic Condition Still Skipping the Dentist Every Year--

HARTFORD, Conn. -- (BUSINESS WIRE) -- Aetna (NYSE: AET) has been aggressive in supporting not only the clinical connections between oral and systemic health but also member awareness, education and outreach in order to motivate members with chronic conditions to seek appropriate dental care. Last year Aetna’s Dental/Medical Integration (DMI) program became a standard offering at no additional cost for plan sponsors with both dental and medical benefits with Aetna. In 2008, nearly 67,000 medically at-risk members sought dental care after being enrolled in Aetna’s Dental Medical Integration program. At-risk members are identified as those with diabetes, heart disease and pregnant women who have not seen a dentist in 12 months or more.

"The association between oral health and systemic health is consistently demonstrated in clinical studies, and the findings are positively impacting the treatment and management of patients," said Mary Lee Conicella, DMD, national director of clinical operations for Aetna Dental. “Yet, at least 20 percent of an at-risk population is not getting regular preventive dental treatment. This number rises to 35 percent in older populations."

Aetna Dental launched its DMI program in 2006 following a published research analysis it conducted with Columbia University College of Dental Medicine which found that high-risk individuals that sought earlier dental care lowered the risk or severity of their condition and subsequently, lowered their overall medical costs. A 2008 internal analysis performed by Aetna proved that these results have been sustained.

"It is the right combination of automation and education that enabled us to impact such a significant number of members," said Alan Hirschberg, head of Aetna Dental. “Aetna’s technology makes it possible for us to automatically identify members by condition, gender and age. With that information we can make our educational outreach relevant and meaningful. We know the program will only work if our members take advantage of it."
Aetna's DMI program is offered at no additional charge to all plan sponsors with an existing Aetna medical plan in conjunction with any of Aetna’s dental plans (DMO, DPPO, or Dental Indemnity). Aetna has also incorporated educational content into existing disease management programs for chronic conditions.

* Based on 2008 DMI dental PPO and DMO activity. At-risk is defined as members with heart disease, diabetes and pregnancy who have not recently seen a dentist.

About Aetna

Aetna is one of the nation’s leading diversified health care benefits companies, serving approximately 37.2 million people with information and resources to help them make better informed decisions about their health care. Aetna offers a broad range of traditional and consumer-directed health insurance products and related services, including medical, pharmacy, dental, behavioral health, group life and disability plans, and medical management capabilities and health care management services for Medicaid plans. Our customers include employer groups, individuals, college students, part-time and hourly workers, health plans, governmental units, government-sponsored plans, labor groups and expatriates. For more information, see www.aetna.com and Aetna's Annual Report at www.aetna.com/2008annualreport.
Healthy Gums and a Healthy Heart: The Perio-Cardio Connection

Newly released clinical recommendations encourage cardiologists to examine the mouth and periodontists to ask questions about heart health.

From: PublicRelations@perio.org [mailto:PublicRelations@perio.org] On Behalf Of American Academy of Periodontology
Sent: Tuesday, June 02, 2009 1:38 PM
To: PressReleases@lists.perio.org

CHICAGO – (June 1, 2009) – Cardiovascular disease, the leading killer of men and women in the United States, is a major public health issue contributing to 2,400 deaths each day. Periodontal disease, a chronic inflammatory disease that destroys bone and gum tissues that support the teeth affects nearly 75 percent of Americans and is the major cause of adult tooth loss. And while the prevalence rates of these disease states seems grim, research suggests that managing one disease may reduce the risk for the other.

A consensus paper on the relationship between heart disease and gum disease was recently published concurrently in the online versions of two leading publications, the American Journal of Cardiology (AJC), a publication circulated to 30,000 cardiologists, and the Journal of Periodontology (JOP), the official publication of the American Academy of Periodontology (AAP). Developed in concert by cardiologists, the physicians specialized in treating diseases of the heart, and periodontists, the dentists with advanced training in the treatment and prevention of periodontal disease, the paper contains clinical recommendations for medical and dental professionals to use in managing patients living with, or who are at risk for, either disease. As a result of the paper, cardiologists may now examine a patient’s mouth, and periodontists may begin asking questions about heart health and family history of heart disease.

The clinical recommendations were developed at a meeting held earlier this year of top opinion-leaders in both cardiology and periodontology. In addition to the clinical recommendations, the consensus paper summarizes the scientific evidence that links periodontal disease and cardiovascular disease and explains the underlying biologic and inflammatory mechanisms that may be the basis for the connection.

According to Kenneth Kornman, DDS, PhD, Editor of the Journal of Periodontology and a co-author of the consensus report, the cooperation between the cardiology and periodontal communities is an important first step in helping patients reduce their risk of these associated diseases. “Inflammation is a major risk factor for heart disease, and periodontal disease may increase the inflammation level throughout the body. Since several studies have shown that patients with periodontal disease have an increased risk for cardiovascular disease, we felt it was important to develop clinical recommendations for our respective specialties. Therefore, you will now see cardiologists and periodontists joining forces to help our patients.”
For patients, this may mean receiving some unconventional advice from their periodontist or cardiologist. The clinical recommendations outlined in the consensus paper advise that periodontists not only inform their patients of the increased risk of cardiovascular disease associated with periodontal disease, but also assess their risk for future cardiovascular disease and guide them to be evaluated for the major risk factors. The paper also recommends that physicians managing patients with cardiovascular disease evaluate the mouth for the basic signs of periodontal disease such as significant tooth loss, visual signs of oral inflammation, and receding gums.

While additional research will help identify the precise relationship between periodontal disease and cardiovascular disease, recent emphasis has been placed on the role of inflammation - the body’s reaction to fight off infection, guard against injury or shield against irritation. While inflammation initially intends to have a protective effect, untreated chronic inflammation can lead to dysfunction of the affected tissues, and therefore to more severe health complications.

“Both periodontal disease and cardiovascular disease are inflammatory diseases, and inflammation is the common mechanism that connects them,” says Dr. David Cochran, DDS, PhD, President of the AAP and Chair of the Department of Periodontics at the University of Texas Health Science Center at San Antonio. “The clinical recommendations included in the consensus paper will help periodontists and cardiologists control the inflammatory burden in the body as a result of gum disease or heart disease, thereby helping to reduce further disease progression, and ultimately to improve our patients’ overall health. That is our common goal.”

To learn more about gum disease, locate a periodontist, or to find out if you are at risk for periodontal disease, visit perio.org or call (800) FLOSS-EM (800/356-7736).
PERIODONTITIS ASSOCIATED WITH DEVELOPMENT OF TYPE 2 DIABETES AND ITS COMPLICATIONS

ORAL DISEASE TREATMENT CAN HELP CONTROL HIGH GLYCEMIC LEVELS

The Mission of the American Diabetes Association
Embargoed until: Friday, June 6
Contact: Diane Tuncer, (703) 299-5510
Colleen Fogarty (703) 549-1500 ext. 2146
4:15 pm PDT NEWS ROOM: June 6-10, 2008:
Room 250, Moscone Convention Center
(415) 978-3508; Fax: (415) 978-3524

San Francisco, CA (June 6, 2008) – Critical links between periodontal (gum) disease and the development of type 2 diabetes, as well as the development and progression of its complications, were reported here today in the first ever symposium presented by dentists to diabetes experts at the American Diabetes Association’s Annual Scientific Sessions at its 68th such event.

“One of the many complications of diabetes is a greater risk for periodontal disease,” said Maria E. Ryan, DDS, PhD, Professor of Oral Biology and Pathology, and Director of Clinical Research, School of Dental Medicine, Stony Brook University, New York, in a recent interview. “If you have this oral infection and inflammation, as with any infection, it’s much more difficult to control blood glucose levels.” Intensive periodontitis treatment significantly reduces levels of A1C, a measure of glucose control over the prior two to three months. These links between oral and systemic health may start even before clinical diabetes begins. “We have found evidence that the severity of periodontal disease is associated with higher levels of insulin resistance, often a precursor of type 2 diabetes, as well as with higher levels of A1C, a measure of poor glycemic control of diabetes,” she said.

The importance of these findings were emphasized by her colleague, George W. Taylor, DrPH, DMD, Associate Professor of Dentistry, Schools of Dentistry and Public Health, University of Michigan. “Several recent studies have shown that having periodontal disease makes those with type 2 diabetes more likely to develop worsened glycemic control and puts them at much greater risk of end-stage kidney disease and death,” he reported.

“Given the numerous medical studies showing that good glycemic control results in reduced development and progression of diabetes complications, we believe there is the potential that periodontal treatment can provide an increment in diabetes control and subsequently a reduction in the risk for diabetes complications,” said Dr. Taylor.

Nearly 21 million Americans have diabetes, a group of serious diseases characterized by high blood glucose levels that result from defects in the body’s ability to produce
and/or use insulin. Diabetes can lead to severely debilitating or fatal complications, such as heart disease, blindness, kidney disease, and amputation. It is the fifth leading cause of death by disease in the U.S. Type 2 occurs mainly in adults who are overweight and ages 40 and older.

Periodontal (gum) disease is an infection and chronic inflammatory disease of the tissues surrounding and supporting the teeth. It is a major cause of tooth loss in adults. In periodontitis, unremoved plaque hardens into calculus (tartar), gums gradually begin to pull away from the teeth, and pockets form between the teeth and gums. However, people often do not know they have periodontal disease because it is usually painless.

**Periodontitis Associated with Insulin Resistance and Diabetes Severity**

“In an analysis of the National Health and Nutrition Examination Survey of the U.S. population data from 1988-94, we recently found that people with periodontal disease were twice as likely to have insulin resistance as those without such disease,” said Dr. Taylor. This result was found after controlling for other characteristics that would be associated with insulin resistance, such as obesity, lipids, exercise, and other markers of inflammation, such as CRP, and whether or not they had diabetes.

In an unpublished study at the General Clinical Research Center at Stony Brook University, a group of individuals who were by one measure – RD values (a measure of glucose uptake and insulin sensitivity) – insulin resistant, and likely had pre-diabetes, also had their oral health assessed. Their degree of insulin resistance directly correlated with the severity of their periodontal disease.

“"The inflammation from the oral cavity may be contributing to the insulin resistance in this patient population,” said Dr. Ryan.

“Also measured in this group were levels of cytokines, such as IL-1 beta, which are pro-inflammatory mediators involved in the long-term diabetes complications. "**Genetic testing revealed that 50% of the insulin resistant patients had an IL-1 polymorphism – in contrast to 20% in the overall population,** meaning that they are genetically susceptible to an excessive inflammatory response, and this 50% was the group that had high levels of insulin resistance and more severe periodontal disease,” she said.

The presence of the IL-1 polymorphism fits with one theory of how periodontitis worsens glycemic control in type 2 diabetes.

“We think periodontitis may adversely affect glycemic control because the pro-inflammatory chemicals produced by the infection – such as IL-1-beta, IL-6, and TNF-alpha – could **transfer from the gum tissue into the bloodstream** and stimulate cells to become resistant to insulin,” said Dr. Taylor. “Then insulin resistance prevents cells in the body from removing glucose from the bloodstream for energy production.”
**Periodontitis Associated with Diabetes Complications**

Dr. Taylor reported on studies at the University of Michigan and elsewhere demonstrating the association between periodontitis and the complications of type 2 diabetes.

“A recent set of observational studies of the Pima Indians in the Southwest, a population with a very high rate of type 2 diabetes, investigated whether those with periodontitis are more likely to develop poorer glycemic control,” said Dr. Taylor. “We found that those with periodontitis were more than four times as likely to develop worsened glycemic control after two years of follow-up.”

Studies of Pima Indians published by others have shown a higher risk of diabetes complications in those with periodontal disease. For example, one showed that residents of the Gila River Indian Community with severe periodontal disease were at more than three times the risk of death due to diabetic nephropathy or ischemic heart disease than those with no, mild, or moderate periodontal disease over 11 years.

**Periodontal Treatment Can Improve Diabetes Control**

“Just as periodontal disease makes diabetes worse, the reverse also appears to be true, with improvements in periodontal disease benefiting diabetes control,” said Dr. Taylor. “We conducted an NIH-funded, randomized clinical trial in 46 people with type 2 diabetes and, 15 months after routine periodontal treatment, found a statistically significant reduction of 0.67% in A1C levels,” said Dr. Taylor.

“We recently published a randomized, placebo-controlled, 30-patient study done at the General Clinical Research Center at Stony Brook University showing that a sub-antimicrobial dose of doxycycline, during and after root planing, as part of a 9-month course of treatment, significantly reduced A1C by 1% and also reduced proteinuria, a marker of diabetic kidney disease, and CRP, a marker of inflammation,” said Dr. Ryan. “It also significantly reduced pocket depths associated with periodontitis and enabled gains in clinical attachment, while reducing signs of inflammation, such as bleeding upon probing or brushing.” Two confirmatory 3-month studies of this program developed at Stony Brook have been conducted, at Columbia University and Buffalo University with 150 patients, and presented at International Association for Dental Research meetings.

“When glycemia has been difficult to control, the physician might consider asking patients when they last saw their dentist, whether periodontitis has been diagnosed and, if so, whether treatment has been completed,” said Dr. Ryan. “A consultation with the dentist may be appropriate, to discuss whether periodontal treatment has been successful or whether a more intensive approach with oral or sub-antimicrobial antibiotics is in order because, just as it is difficult to control diabetes while the patient has an infected leg ulcer, the same applies when there’s infection and inflammation of the gums.”

The American Diabetes Association is the nation’s leading voluntary health organization supporting diabetes research, information and advocacy. Founded in 1940, the Association has offices in every region of the country, providing services to hundreds of communities. For more information, please call the American Diabetes Association at 1-
800-DIABETES (1-800-342-2383) or visit www.diabetes.org. Information from both these sources is available in English and Spanish.

Symposium, Friday, 4:15 pm

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The Mission of the American Diabetes Association is to prevent and cure diabetes and to improve the lives of all people affected by diabetes. call 1-800-DIABETES (1-800-342-2383) online www.diabetes.org The Association gratefully accepts gifts through your will. 1701 North Beauregard Street Alexandria, VA 22311 Tel: 703-549-1500

Diabetes Information National Office

NOTE TO EDITOR:
Visit http://www.diabetes.org/adablog to read blog posts from the Association’s Scientific Sessions from former USA Today reporter, Anita Manning.