

## Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

### Comprehensive Periodontal Therapy: Treating the Patient... Not Just Their Pockets

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President & Founder

Healthy Smile Consultants

LIDHA: Septmber 21,2012

Educational Grant Supported by COLGATE



### Hygienists as Health Care Providers..

### RDH...Really Delivering Healthcare

- Assess risk factors
- Patient Education
- Refer to Specialists
- Be Part of your Patients' Health Care Team



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### Course Objectives

- Understand Comprehensive Periodontal Therapy is paramount to overall health/Treatment Modalities
- Recognize & define periodontal disease (PD) diabetes, cardiovascular disease and their risk factors
- Explain that PD & diabetes are bi-directional
- Identify the systemic ramifications of periodontal disease
- Discuss A1c as the common denominator
- Implement interdisciplinary collaboration
- You are a valued member of the health care team!

### COMPREHENSIVE TREATMENT?

- Assessing Risk Factors for Periodontal/Systemic Disease
- Educating Patients on the Inflammatory /Systemic Ramifications of Periodontal Disease
- Non Surgical Periodontal Therapy Strategies
- Recognizing Perio/Ortho Connection
- Educating and Screening Diabetes Patients using HBA1c readings
- CAMBRA "Caries Management for Risk Assessment"
- Oral Cancer Screening
- Communication with Medical Team
- Smoking Cessation

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Comprehensive Periodontal Therapy:  
A Statement by the American Academy of Periodontology\*  
Highlights relating to interdisciplinary collaboration

ESTABLISHING A  
DIAGNOSIS, PROGNOSIS, AND  
TREATMENT PLAN should  
include:

- Medical and dental consultation or referral for treatment, when appropriate.
- Consideration of risk factors including, but not limited to, diabetes and smoking, which play a role in development, progression, and management of periodontal diseases.

EVALUATION OF  
THERAPY:

- Should include professional management of those risk factors associated with development and/or progression of periodontal diseases including, but not limited to, smoking and diabetes.

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JPeriodontol • July 2011

### Diabetes and Periodontal Disease: A Two-Way Street

- Diabetes patients are at greater risk for developing infections
- Periodontal Disease (chronic infection) can impair diabetes control
- Management of periodontitis can result in a significant reduction in A1c
- Patients with Diabetes 2-3x more likely to have PD

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### Gum Disease Found to be Significant Public Health Concern

Sept 21, 2010/ PR News Wire-

- Prevalence of periodontal disease may be significantly higher than originally estimated.
- Research Published in the *Journal of Dental Research* from the CDC and AAP suggests the prevalence of periodontal disease may be underestimated by as much as 50%.

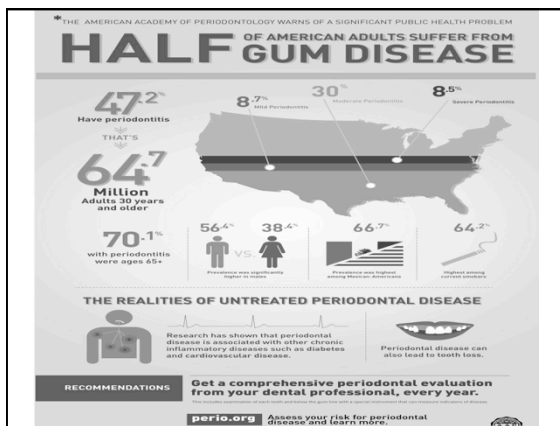
<http://www.ncbi.nlm.nih.gov/pubmed/20858782>

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### Prevalence of Periodontal Disease

- **HALF** the population over 30 has Periodontitis (PD)<sup>1</sup>
- bleeding<sup>2</sup>
- Periodontal disease is the most common cause of tooth loss among adults<sup>1</sup>
- Only 60% have any significant knowledge about the problem<sup>3</sup>

<sup>1</sup>Eke, et al. JDR 2012; <sup>2</sup>Albandar, Dent Clin North Am. 2005; <sup>3</sup>AAP Position Paper 2005



### IDENTIFYING RISK FACTORS

**Early Age Risk Factor Reduction = key to successful aging**  
(i.e. increased **quantity** and **quality** of years)



Lloyd-Jones DM, et al. Predictions of lifetime risk for cardiovascular disease by risk factor burden at 50 years of age. *Circulation*, 2006;113:791-79

### Risk Factor Assessment

#### Periodontal Disease

- Poor Oral Hygiene/Plaque
- Age
- Male Gender
- Smoking/Tobacco Use
- Genetics
- Hormonal Changes/Pregnancy
- Stress
- Medications
- Clenching/Grinding Teeth
- Diabetes/Systemic Diseases
- Poor Nutrition/Obesity
- Race
- Bacterial Cross Contamination

#### Diabetes

- AGE >45
- Obesity
- Race
- Genetics
- History of Gestational Diabetes
- Inactivity
- History of ↑ BP, ↑ lipids, CVD

11

<http://www.perio.org/>

**Assess Your Risk of Gum Disease**

**Could you be one of the millions of people who have gum disease and don't know it?**

Take the risk assessment test now

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### Diabetes Risk Test

- [www.diabetes.org/diabetes-basics/prevention/diabetes-risk-test/](http://www.diabetes.org/diabetes-basics/prevention/diabetes-risk-test/)

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**August 9, 2011**  
**Wall Street Journal**

#### ■ Dental Exams May Help Diagnose Diabetes



Of the 506 patients at a Manhattan dental clinic who were given blood-glucose tests, 21 were potentially diabetic and 161 were pre-diabetic.

Lamster, et al. **JDR** July 2011 vol. 90 no. 7

### CONCLUSION:

- Routine dental checkups can help to identify diabetic or pre-diabetic individuals so they can be referred to a physician for care.

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**December 27, 2011**  
**Wall Street Journal**

If Your Teeth Could Talk ...  
The Mouth Offers Clues to Disorders and Disease;  
Dentists Could Play Larger Role in Patient Care

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### RDH's as Detectives

"Estimated 6 million people have diabetes and don't know it. Several studies suggest that dentists could help alert them.

A 2009 Study from NYU found 93% of people with diabetes are at risk for periodontal disease according to the criteria established by the American Diabetes Association"

<http://www.nyu.edu/dental/news/index.html?news=224>


### Dr. Max Gomez WNBC Gum Disease Can Signal Other Problems



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Host Modulation Therapy and Periostat® (doxycycline hyclate 20 mg) (L4646) Level of Evidence – Strong



**Mouthing OFF**

Without good periodontal health, there cannot be good general health. Periodontal disease (commonly known as gum disease) can affect the state of your whole body. Over the past few years, studies have shown a definitive link between your oral health and your general health.

**Stroke**

- Those with adult periodontitis may have increased risk of stroke.

**Heart Disease**

- Those with adult periodontitis may have an increased risk of fatal heart attack...
- And are more likely to be diagnosed with cardiovascular disease.
- Bacteria from the mouth may cause clotting problems in the cardiovascular system.

**Respiratory Infections**

- Inhalating bacteria from the mouth and throat may lead to pneumonia.
- Dental plaque buildup creates a dangerous source of bacteria that can be inhaled into the lungs.

**Severe Osteopenia**

- Reduction in bone mass (osteopenia) is associated with gum disease and related tooth loss.
- Severity has been associated with tooth loss and postmenopausal women.

**Uncontrolled Diabetes**

- Chronic periodontal disease can disrupt diabetes control.
- Diabetes can contribute to bacterial overgrowth in the mouth.
- Smokers with diabetes increase their risk of tooth loss by twenty times.
- People with type 2 diabetes are three times as likely to develop periodontal disease than are nondiabetics.

**Premature or Low Birthweight Babies**

- Women with advanced gum disease may be more likely to give birth to an underweight or premature baby.
- Oral microbes can cross the placental barrier, exposing the fetus to infection.

Remember, there are a number of advanced oral care remedies available to control or eliminate periodontal disease, such as antiseptic mouth wash, flossing regularly, and certain medications...and you thought all you needed was a toothbrush!

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## Nation Shocked, Pays Tribute to Former President;

Theodore Roosevelt Dies Suddenly at Oyster Bay Home;

### EMBOLISM CAUSED DEATH

Blood Clot, Physicians Announce,  
Killed Col. Roosevelt in His Sleep

**Embolism Then Threatened His Life—  
Rheumatism Traced to Tooth Infected 20 Years Ago**

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Dr. David Satcher  
Former Surgeon General  
Oral Health America  
A Report of the Surgeon General, 2000

"...oral health and general health are inseparable"  
"oral health is integral to general health"

"YOU'RE NOT HEALTHY without good oral health."

Dr. C. Everett Koop  
Former U.S. Surgeon General  
Chairman, Oral Health 2000

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## Oral Health America: Key Concepts from Surgeon General's Report: May 2000

- That oral health means more than healthy teeth
- The mouth is a portal of entry for infections that can affect local tissues and spread systemically
- General health risk factors, such as tobacco use and poor dietary practices, also effect oral health
- Improvements in oral health depend on multidisciplinary and interdisciplinary approaches to research and on the ability of practitioners to apply that research effectively

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## The AAP 2020 Vision Statement: Beginning of interdisciplinary coordination


- Periodontists will treat patients with periodontal conditions related to systemic health
- We will see an increase in referrals of patients with systemic considerations
- We will collaborate more with medicine in patient care and research
- Medical protocols will include periodontal evaluation and management by Periodontists
- Our patients will have improved systemic health

\*AAP STATEMENT Released, 2003 goal for 2020

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## Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

 NEW YORK STATE

**JUNE 2005 NY: GOVERNOR PATAKI PROCLAIMS JUNE AS PERIODONTAL AWARENESS MONTH recognizing evidence presented by the NDCP**

- National Periodontal Disease Coalition (NPDC) formed in 2004 is made up of MD's, DDS, academics, insurance companies and public policy experts.
- Dr. Desvarieux' s research demonstrated strong evidence of a relationship between specific periodontal bacteria and carotid intima-media thickness, a leading predictor of stroke.
- "Despite the prevalence of periodontal disease among adults, it is still under-diagnosed and under-treated, putting patients at risk for systemic disease." Robert Klaus, CEO of Oral Health America.

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### Desvarieux

" Increasingly, we are seeing physicians talk to their patients about oral bacteria and gum disease. The boundaries that used to exist between medicine, dentistry and public health are beginning to crumble."

Moise Desvarieux, M.D., Ph.D., assistant professor of Epidemiology, Columbia University Medical Center

**Periodontal Disease and Atherosclerotic Vascular Disease: Does the Evidence Support an Independent Association? AHA POSITION STATEMENT APRIL 2012**

- \*There is an association between periodontal disease and atherosclerotic vascular disease.
- \*It has not been demonstrated that periodontal disease is a cause of atherosclerotic vascular disease
- \*It has not been demonstrated that periodontal disease is a cause of atherosclerotic vascular disease
- \*It is not confirmed that heart disease or stroke can be prevented, or the clinical course of atherosclerotic vascular disease modified, by therapeutic periodontal interventions

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Periodontal Disease and Atherosclerotic Vascular Disease: Does the Evidence Support an Independent Association? AHA POSITION STATEMENT APRIL 2012

" support an association between PD and Atherosclerotic Vascular Disease (ASVD) independent of known confounders. They do not, however, support a causative relationship.

Although periodontal interventions result in a reduction in systemic inflammation and endothelial dysfunction in short-term studies, there is no evidence that they prevent ASVD or modify its outcomes."

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**American Academy of Periodontology supports statement from American Heart Association;**

- Periodontal Disease Linked to Cardiovascular Disease...additional studies needed to determine causality.

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### AAP Bases Conclusions on:

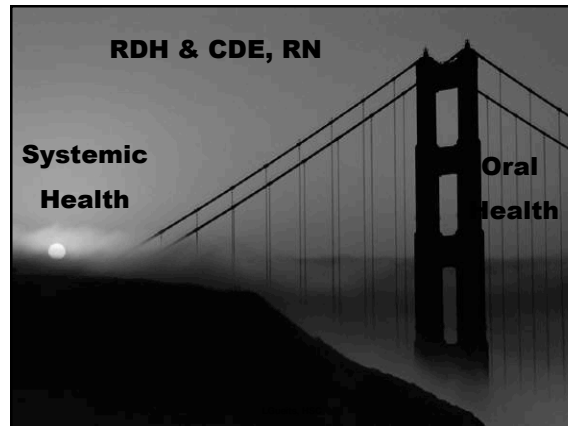
- **The American Journal of Cardiology and Journal Of Periodontology Editor's Consensus: Periodontitis and Atherosclerotic Cardiovascular Disease: Jperio July 2009**
- Periodontal disease and coronary heart disease incidence: a systematic review and meta-analysis. J Gen Intern Med. 2008 Dec;23(12):2079-86. Epub 2008 Sep 20.

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## Dynamic Duo's

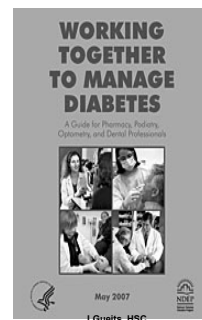
How dental hygienists and diabetes educators can form a formidable team  
by Lauren Ann Gueits, RDH,  
and Donna L. Jornsay, BSN, RN,  
CPNP, CDE



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[www.ndep.nih.gov/publications](http://www.ndep.nih.gov/publications)



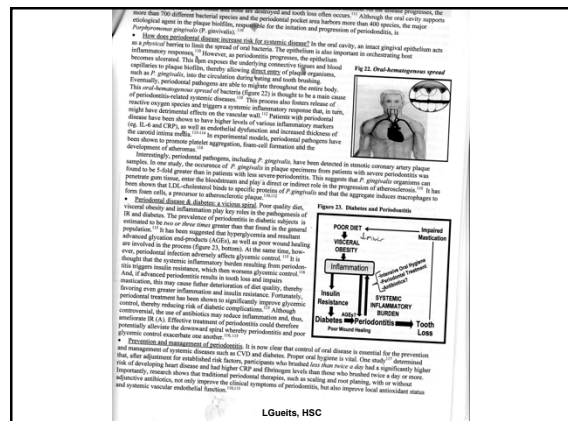
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## We are all on the same Health Care Team!!

**Credits and Acknowledgements**  
This material was developed by the National Diabetes Education Program's Pharmacy, Podiatry, Optometry, and Dental Professionals' Work Group. NDEP would like to acknowledge the following work group members for their work on the revision:

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# Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

## Institute for Natural Resources: Prevention and Management of Periodontitis

- “It is now clear that control of oral disease is essential for management/prevention of CVD/ Diabetes
- “Proper oral hygiene is vital”
- “Research shows that traditional periodontal therapies, such as SC/RP with or without adjunctive antibiotics, not only improve periodontitis, but also systemic vascular endothelial function.”

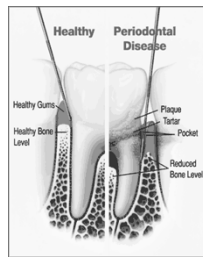
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- Inaba H, Amano: Roles of oral bacteria in CVD- from molecular to clinical cases: implication of periodontal diseases in development of systemic diseases: J Pharmacol Sci. 2010 113:103-109
- Tonetti MS, D’Aiuto F, Nibali L. Treatment of Periodontitis and endothelial function. N Engl J Med. 2007; 356:911-920

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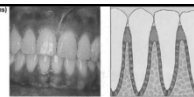
## PERIODONTITIS: A REVIEW

- “Perio” means around
- “dont” is the latin root for tooth
- “itis” mean inflammation
- Translates to inflammation around the support of the tooth
- Examples for patients tendonitis, tonsillitis, etc,
- It is an INFLAMMATORY DISEASE

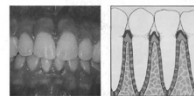


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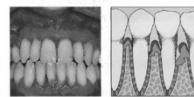
1. Normal, Healthy Gums (Gums)  
Healthy gums and bone anchor tooth firmly in place.



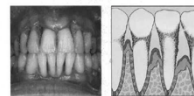
2. Gingivitis  
Plaque and its byproducts irritate the gums, making them tender, inflamed, and likely to bleed.



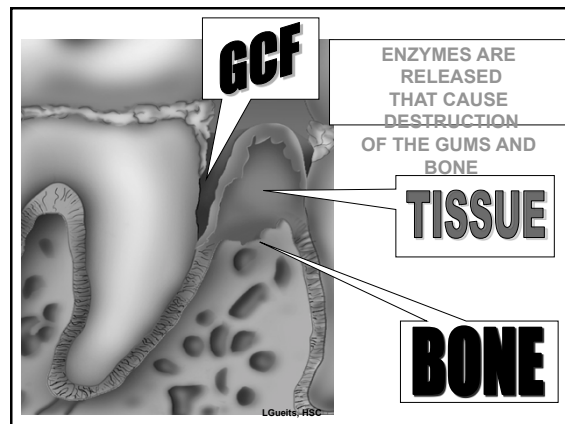
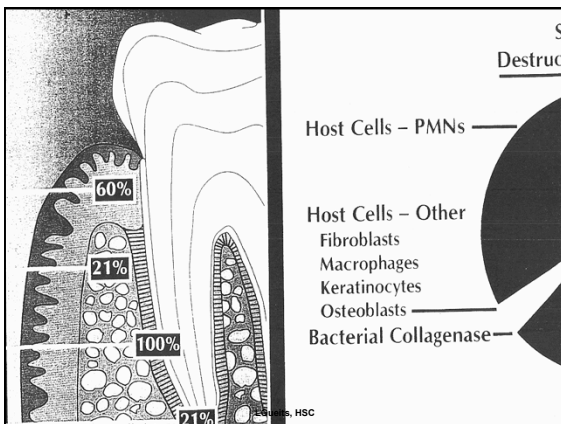
3. Periodontitis  
Unremoved, plaque hardens into calculus (tartar). As plaque and calculus continue to build up, the gums begin to recede (pull away) from the teeth, and pockets form between the teeth and gums.



4. Advanced Periodontitis  
The gums recede further, forming deep pockets and the periodontal ligament. Teeth - even healthy teeth - may become loose and need to be extracted.



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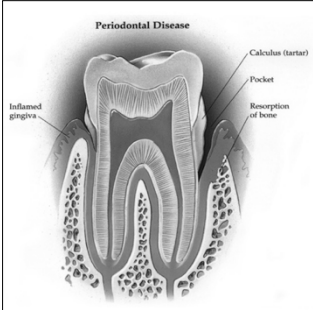


# Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

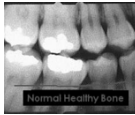
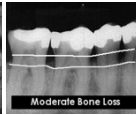

## Established Gingivitis/Periodontitis= Systemic Ramifications

**IL 6, TNF, PGE2  
PMN's, MMP'S**

**CRP, FIBRINOGEN  
SERUM ALPHA  
AMALOID A**




## Radiographic Stages of Periodontitis

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## Symptoms of Periodontal Disease

- Gums that bleed easily
- Red, swollen, tender gums
- Gums that have pulled away from the teeth
- Persistent bad breath or bad taste
- Permanent teeth that are loose or separating
- Any change in the way your teeth fit together when you bite
- May have no outward symptoms at all



## The Most Effective Way to Treat Periodontal Disease is to PREVENT it !!!

- **1<sup>st</sup> Line of Defense: Customized Care & GOOD ORAL HYGIENE**
  - Brush 2X Daily: Anti-gingivitis Toothpaste:
  - Floss/Interdental Devices: 1-2 X daily
  - Mouthwashes CHX, Essential Oils, Delmopinol
  - Xylitol
  - Probiotics
  - Oral Irrigators
  - Antioxidant rich diet/Smoking Cessation
- **2<sup>nd</sup> Line of Defense:**
  - Non Surgical Periodontal Therapy ( SC/RP, LAA)
  - 1- 6mos re-care/periodontal maintenance
- **3<sup>rd</sup> line of Defense:**
  - Systemic Low Dosage Doxycycline ( PERIOSTAT)


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## Types of Periodontal Disease

- Gingivitis
- Aggressive Periodontitis (acute)
- Chronic Periodontitis (Adult)
- Periodontitis as a Manifestation of Systemic Disease (Juvenile)
- Necrotizing Periodontal Diseases (HIV )

Source American Academy of Periodontology

## Periodontal Treatment Algorithms



**Mild/Early**

- Pockets 4-5mm (6mm or greater if edema and/or hyperplasia present)
- Inflammation Produces Bleeding On Probing
- Clinical Attachment Loss Detectable
- Incipient/Slight Alveolar Bone Loss (visualize radiographically)
- Furcations Intact

**Adult Periodontitis**

- Pockets 6-7mm (in addition to 4-5mm)
- Inflammation Produces Bleeding On Probing
- Clinical Attachment Loss Detectable
- Moderate Alveolar Bone Loss (primarily horizontal loss, visualize radiographically)
- Furcations Involved (Class I, Shallow Class II)

**Advanced Adult Periodontitis**

- Pockets ≥ 7mm (in addition to 4-7mm)
- Inflammation Produces Bleeding On Probing
- Clinical Attachment Loss Detectable
- Moderate to Severe Alveolar Bone Loss (vertical defects evident in addition to horizontal loss, visualize radiographically)
- Furcations Involved (Deep Class I to Class III)

1998 AAP Revised PD Classifications

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## Plaque Hypothesis Evolves: “Shift Happens”

“The non-specific plaque hypothesis of the 1950’ s, 1960’ s, and 1970’ s has evolved beyond the subsequent decades of the specific plaque hypothesis to a current view point which can be summarized by stating the....

**PERIODONTAL BACTERIAL FLORA IS NECESSARY BUT NOT SUFFICIENT FOR DISEASE”**

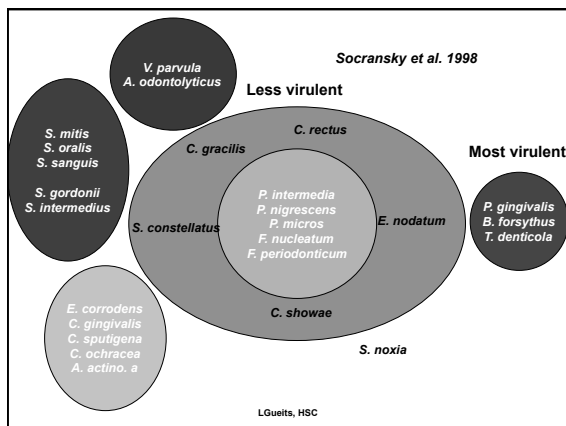
Dr. Steven Offenbacher, Periodontal Diseases:  
Pathogenesis, Annals of Periodontology Nov1996:1:821-878

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## What’s *Triggering* the “itis”? 4 types Bacteria out of over 500 species

- Etiologic Agents in Periodontitis
  - **Actinobacillus actinomycetemcomitans**
  - **Porphyromonas gingivalis**
  - **Tannerella forsythensis**
  - **Treponema denticola**

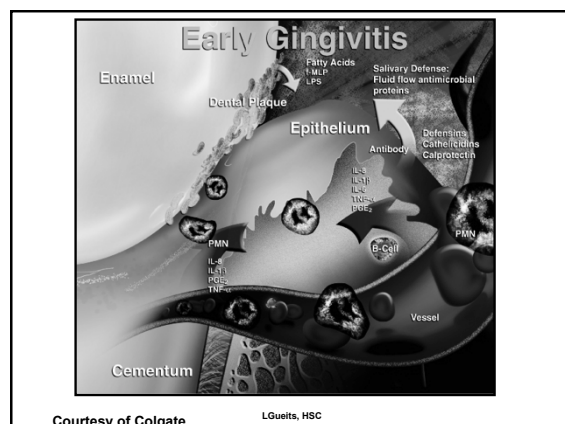
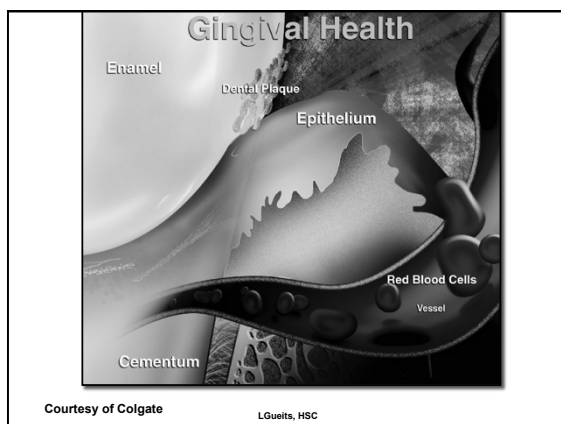
1996 World Congress HSC



## Inflammation and the Host Modulatory Response

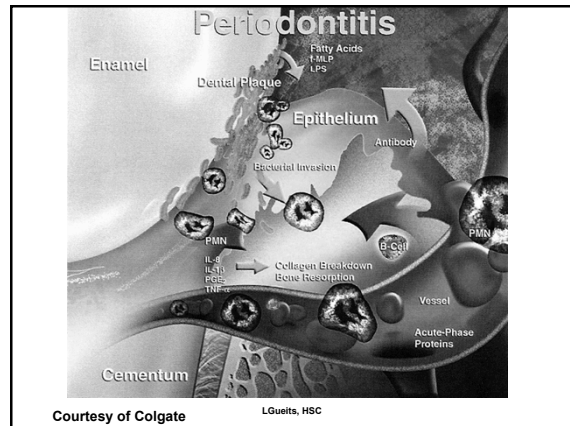
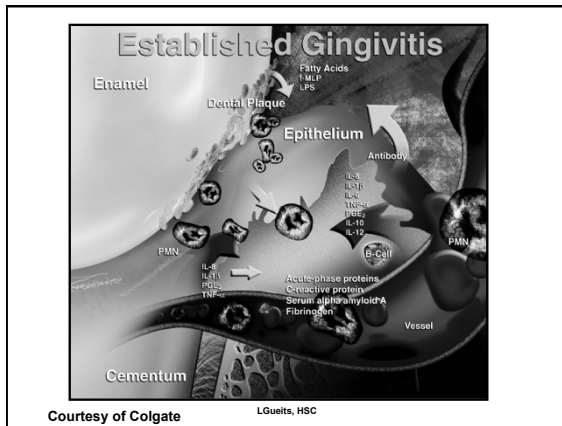
- **Host** : The gingival tissue
- **Modulate**: To keep in proper measurement or proportion
- **Response**: How the tissue reacts to the microbial bacterial challenge (biofilm) ....the inflammatory process begins

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## LET'S REVIEW INFLAMMATORY MARKERS DURING HOST INFLAMMATORY RESPONSE

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**Prostaglandins** - extremely active hormone-like substance found in many body tissues which can affect organ function

PGE-2: Induces bone resorption and MMP production

**Cytokines** - proteins secreted by cell for the purpose of system. Regulate the immune system

Interleukins (IL-1, IL-6)

Tumor necrosis factor - TNF

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\*Mealey BL, Oates TW. Diabetes Mellitus and Periodontal Diseases. J Periodontol 2006;77:1289-1303.

## Matrix Metalloproteinases

-Enzymes activated by metal ions  
-Elevation of MMP: Degrades collagen & connective tissue

- COLLAGENASE
- ELASTASE
- GELATINASE

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## Inflammatory Mediators ↑ 2-4 X in GFC of Diabetes Patients

- GCF = Serum Transudate
- ↑ levels of inflammatory mediators in blood
- = ↑ levels of inflammatory mediators in GCF

Salvi et al. Ann Periodontal 1998

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## Linking Diabetes to PD

- High Glucose in blood= High Glucose in GCF :
- Directly hinders the wound capacity of fibroblasts critical to wound healing and normal tissue turn over

Picarra et al. J Periodontal Res 1975

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Thus we suggest that insulin-dependent diabetes mellitus is a significant risk factor for more severe periodontal disease because, as compared to non-diabetics, diabetics subjects react with abnormally high degree of inflammation to an equivalent bacterial burden."

## PGE<sub>2</sub>, IL-1 $\beta$ , and TNF- $\alpha$ Responses in Diabetics as Modifiers of Periodontal Disease Expression

Glennett E. Salvi, V. J. Jansen D. Dieck, J. and Steven Offenbacher  
University of Iowa School of Dental Medicine Department of Periodontology and Paul T. Pomeroy, David J. Glavitsky, Department of Periodontology, Dental Research Center, University of North Carolina at Chapel Hill, School of Dentistry, Department of Periodontology, Dental Research Center, Chapel Hill, NC  
Department of Dental Surgery

**Abstract**  
Diabetes mellitus is a systemic disease that affects more than 12 million people in the United States and represents a risk factor for periodontitis with odds ratios of 2.1 to 3.1. New data support the concept that in diabetes have directly elevated the gingival crevicular fluid (GCF) neutrophil level, neutrophil activity, and clinical progression of 20 to 30% in non-diabetic diabetes mellitus (NIDDM) patients and 40% non-diabetic patients with normal gingivitis of periodontitis teeth and disease. Thus, we found that there was an unexpected high level of GCF neutrophils among the NIDDM subjects, even in the gingivitis and mild periodontitis patients. Further more, the GCF and neutrophil neutrophil responses were obviously elevated in diabetic patients with respect to periodontitis status. Gingivitis patients and mild periodontitis patients represented the low response group, and the moderate and severe periodontitis patients the high response group. Among highly these 4 periodontitis subgroups were placed in four 2 main groups for investigation: A and B. Group A (0 and group B (1-3) were 0-10% diabetes and respectively, higher GCF levels of both PMN and IL-1 $\beta$  were compared to non-diabetic controls with similar periodontitis status. Within the diabetic group, the GCF levels of these subjects were elevated 2-fold higher in group B subjects when compared to diabetic group A subjects when compared to non-diabetic controls. This

PGE<sub>2</sub>, IL1 beta, and TNF- $\alpha$  Responses In Diabetes As Modifiers Of Periodontal Disease Expression by Salvi G. E., Beck J.D., Offenbacher S.

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Con't p781

## Diabetes Alters Function of Immune Cells

- Neutrophils inhibited= Inhibits bacterial killing  $\uparrow$  PD Destruction
- Monocytes/Macrophages Hyper responsive = Produce  $\uparrow$  TNF- $\alpha$   $\rightarrow$  Impaired Glucose Control = HYPERGLYCEMIA

AAP Position Paper: 1999

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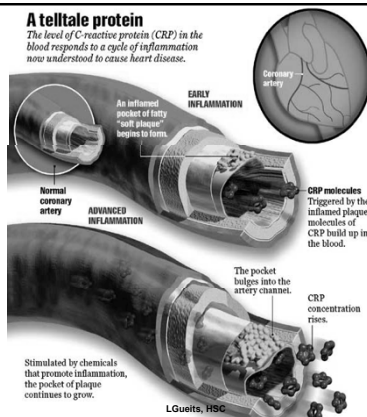
## What's all the Hype About C-Reactive Protein (CRP)?

- CRP is a marker of inflammation
- Stimulated by cytokines, measured in serum
- May be predictor Coronary Artery Disease & future events
- Chronic periodontitis signals liver to produce CRP
- High CRP= Risk Factor for Disease

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## A telltale protein

The level of C-reactive protein (CRP) in the blood responds to a cycle of inflammation now understood to cause heart disease.



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## CRP MARKER or MAKER of CVD?

- Periodontitis as an infection may stimulate the liver to produce C-reactive protein (CRP)
- Which in turn will form deposits on injured blood vessels. CRP binds to cells that are damaged and fixes complement, which activates phagocytes, including neutrophils. These cells release nitric oxide, thereby contributing to atheroma formation

Genco Periodontal disease and risk for myocardial infarction and cardiovascular disease. Cardiovasc Rev Rep. 1998;19:34-3

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## Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

### Conditions Associated with Increased or Decreased Levels of C-Reactive Protein

#### Increased Levels

- Elevated BP
- Elevated BMI
- Cigarette Smoking
- Diabetes
- Low HDL/High Trigs
- Chronic Infections
- Chronic Inflammation
- Periodontal Disease?

#### Decreased Levels

- Moderate Alcohol Intake
- Increased Activity/Endurance exercise
- Weight Loss
- Medications
  - Statins
  - Niacin
  - Host Modulatory Therapy Periostat (LDD)?

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### LABORATORY RESULTS:

#### C-Reactive Protein

#### Cardiovascular Disease RISK RANGE

- Normal CRP = 0
- Lower than 1.0 mg/L OK
- CRP 1.0 and 3.0 mg/L average risk
- CRP higher than 3.0mg/L increased risk

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### Brush... Floss or Die?

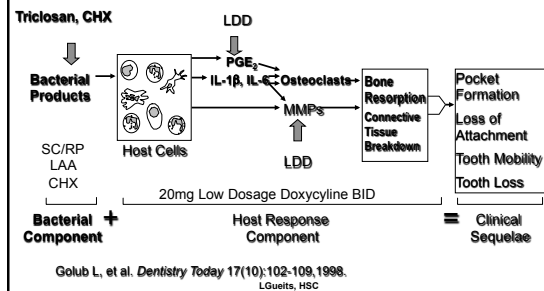
Toothbrushing, inflammation, and risk of CVD:  
results from Scottish Health Survey

British Medical Journal 2010;340C2451

- 11,869 subjects based on oral hygiene and CVE over and average of 8.1 year
- CRP and Fibrinogen were found to be elevated in those who brushed less than 2x a day
- Conclusions: Poor OH is associated with a significant increased risk of an adverse cardiovascular event.

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### Periodontal Breakdown Cascade



"Periostat has been shown to help stop the progression of periodontitis when used as directed as an adjunct to scaling and root planing, in a conscientiously applied program of oral hygiene and regular professional care."

—Council on Scientific Affairs, American Dental Association



#### Inventor of Periostat

Lorne M. Golub, D.M.D.,  
MSc, M.D. (Honorary)  
*Distinguished Professor*  
Department of Oral Biology  
and Pathology

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### Drug Interactions (Tetracycline Class Labeling)

- Warfarin
- Penicillin
- Oral contraceptives
- Calcium, iron, magnesium supplements
- Penthrane

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## Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

### Systemic Treatment of Periodontitis: Low Dosage Doxycycline 20 mg

- 20 mg BID (Formerly Periostat)      ■ Oracea 40 mg
- Only systemic drug FDA approved for treatment of periodontal disease      ■ Treats Rosacea
- Regimen: 9 month prescription

Neither drug acts as an antibiotic.  
Acting as an Enzyme Inhibitor.

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### Mechanisms of Inhibition of MMP's by Low Dosage Doxycycline

- Effects on cellular regulation:
  - Doxycycline reduce levels of cytokines and enzymes associated with inflammation and accelerated bone loss (e.g. TNF, IL-1, IL-6 Collagenase)
- Effects on collagen synthesis (creation or production of collagen):
  - Doxycycline increase collagen production by osteoblasts (bone building cells)
  - Doxycycline stimulate osteoblast activity & new bone formation

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### When to End Therapy

Duration of Periostat® Therapy is Determined by:

- Clinical results
  - Should have defined clinical endpoints
  - Determined on an individual case-to-case basis
  - Evaluations at 3 month intervals
- The clinician's risk assessment of the patient for further breakdown
- The patient's current periodontal stability

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### LDD Case Types

- Periodontal Disease
- "High Risk" Implant Cases
- Post Menopausal women
- Patients with Diabetes/Systemic Disease
- Smokers
- Periodontal trauma caused by malocclusion
- "Hail Mary Cases"

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### Phase IV Studies Medical - Diabetes Dr. Engerbretsen, Columbia University

- Does Periostat have an effect on measures of diabetic control?
  - 3 groups, 10pts / group
  - Typical hypoglycemic drug regimen
  - Mean baseline HbA1c 7.9% - 8.3%
    - SRP alone
    - SRP + 3 weeks 100mg/day doxy
    - SRP + 3 months Periostat
  - Follow up at 1 months and 3 months

### Phase IV Studies Medical - Diabetes Dr. Engerbretsen, Columbia University

- Data analysis suggests:
  - SRP alone or with 3 weeks of "high dose" doxy had no effect on diabetic control  
No change to slight increase in HbA1c
  - SRP + 3 months Periostat significantly reduced HbA1c
    - Mean reduction from 7.9% to 6.3%
    - $p < 0.005$  vs placebo /  $p < 0.05$  vs "high dose" doxy
- Status:
  - Paper presented at AADR (San Antonio, March 2003)

## Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

### Communicate with Health Care Team ...we are part of it!

- Provide patient with email/ written information to show their physician
- Correspond by email/ letter as to the benefits your treatment will provide
- Include brief data to support your statements
- Request lab reports, (Ex HBA1c, CRP)

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Dear Dr.Endocrinologist,

Joan Smith is a mutual patient. Recently we performed a routine periodontal scaling and examination. Ms. Smith has a history of having chronic adult periodontitis II. Periodontal disease is not curable but with strict home care regimes and quarterly periodontal scalings, can be controllable.

Recognizing that periodontal disease is a **chronic infection** that triggers the body's **inflammatory response**, we believe it is in our patient's best interest to start taking Periostat (doxycycline hyclate) 20mb BID. Periostat is a low dosage of doxycycline that acts as an enzyme suppressant rather than an antibiotic. The enzyme being suppressed is collagenase thus preventing the breakdown of collagen; the foundation of the periodontium.

Please do not hesitate to contact me should you have any questions

Sincerely,

Lauren Gueits, RDH

LGueits, HSC

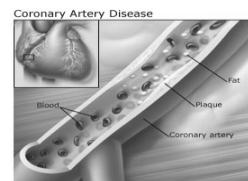
### Inflammation

- An Increased awareness of systemic consequences of Inflammation in all disease states by physicians, dentists and other health care professional will assist in alerting the public, of its impact on their overall health.
- Transition toward interdisciplinary management will increase to provide patients with the most comprehensive treatment possible.

Periodontal Disease and Atherosclerotic Cardiovascular Disease: Confounding Effects or Epiphenomenon? Chong, P.H et al: Pharmacotherapy 20 (7):805-818, 2000

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### CARDIOVASCULAR DISEASE



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### Epidemiology of CV Disease

- Affects 70.1 million Americans
- Number 1 cause of Death for men and women
- Causes more than 40% of all deaths in the US (950,000)
- Costs \$260 billion annually

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### Risk Factors for Coronary Artery Disease

- Age: male >45  
female >55
- Male Gender
- Hypertension
- Diabetes
- Hypercholesterolemia
- Smoking
- Obesity
- Sedentary Lifestyle
- Family history of early Coronary artery disease
- Cocaine/Ethanol Abuse
- High CRP

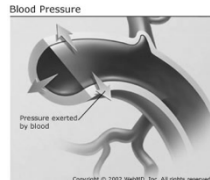
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## Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

### What Blood Pressure Is Considered Too High?

- Hypertension -140/90 (systolic/  
diastolic)
- Prehypertension - 120/80 and 139/89
- Normal – 120/80



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### Monitor Blood Pressure at Recare Appt. It's QUICK, EASY, Could be LIFE SAVING!!!!



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### Atherosclerosis

- Progressive build-up of fatty materials, cholesterol, cellular waste products, and other substances within the intima and inner media of arteries.
- Underlying cause of Myocardial infarction, transient ischemic attack, insufficient blood flow to extremities (claudication) and coronary artery disease

www.nlm.nih.gov/medline plus Medical Encyclopedia, Atherosclerosis Accessed July 26, 2005

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### Total Cholesterol Category

- Less than 200 Desirable
- 200 – 239 Borderline/ High
- 240 and above High
- LDL Less than 100 Optimal
- 100 – 129 Near optimal/above optimal
- 130 – 159 Borderline high
- 160 – 189 High
- 190 and above Very high
- HDL (Good)
- 40 or lower – major risk factor
- 60 or higher – reduces risk for CAD

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### What is their Framingham Risk Score?

- The electronic 10 year risk calculator:  
[www.nhlbi.nih.gov/guidelines/cholesterol](http://www.nhlbi.nih.gov/guidelines/cholesterol)
- ≤10% = moderate risk
- 10%-20% = intermediate or "highly moderate"
- >20% = high risk

### Like Periodontitis there may be little or no symptoms for Coronary Heart Disease

- Traditional risk factors do not FULLY explain ALL of the risk for CHD events.
- 50% men, 64% women who die suddenly from CHD have no previous symptoms
- This knowledge has spurred interest in *new* or *emerging* risk factors.....

INR Diabetes, Obesity, & Heart Disease hand out

# Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

## What Drugs Are Used to Treat High Cholesterol?

- Statins – (Lipitor, Zocor)
- Niacin – (Niaspan)
- Bile-acid resins (Questan)
- Fibric acid derivatives

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## Atherosclerotic Heart Disease

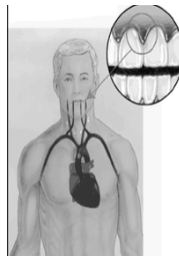
- Formerly considered to result from lipid accumulation
- Increasing evidence suggests the primary cause is **chronic inflammation**
- Extensive research (both human & animal) has established the presence of inflammatory mediators in cells at all stages of atherosclerotic disease

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## Periodontal Disease as a Risk Factor for CVD?

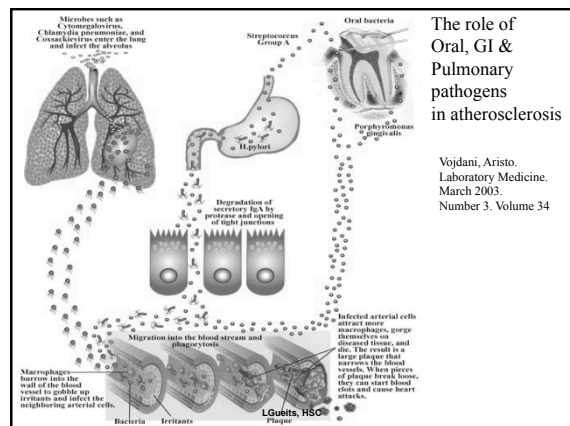
### Bacterial Damage/ Systemic Inflammation

- Oral bacteria enters bloodstream embeds in blood vessel
- Endotoxins stimulate host cells to produce inflammatory mediators (IL-1, IL-6, TNF, CRP)
- Inflammatory cytokines influence the stability and degradation of the fibrous cap leading to plaque rupture and subsequent thrombosis\*



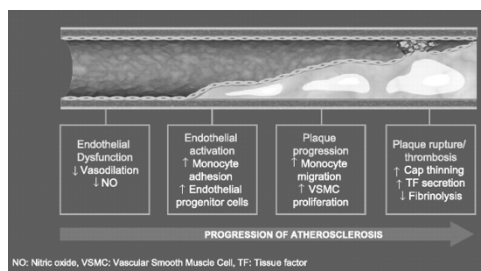
93

\*Libby P, et al. *Circulation*. 2002;105:1135-1143.



Vojdani, Aristo.  
Laboratory Medicine.  
March 2003.  
Number 3, Volume 34

Inflammation drives many stages of the atherosclerotic process and the major mechanisms are illustrated here.



Oh J et al. *Di Care* 2011;34:S155-S160

Copyright © 2011 American Diabetes Association, Inc.



## C-Reactive Protein – A Predictor of Heart Disease – Is Elevated in Patients with Periodontal Disease

CHICAGO – September 20, 2001 – Elevated levels of C-reactive protein (CRP) explain one reason why periodontal disease could be a risk factor for cardiovascular disease, according to a new study in the *Journal of Periodontology*.

Periodontal disease may cause oral bacteria to enter the bloodstream and trigger the liver to make proteins such as CRP that inflame arteries and clot blood, which can lead to heart attacks. CRP levels identify these patients whose inflammation systems respond most actively to stimuli.

"Until intervention studies are completed, we will not know with certainty whether periodontal disease really can cause heart disease. In the meantime, this study provides one more explanation for why it is very plausible that an infection in the mouth could lead to problems with the heart," said Ernesto De Nardin, Ph.D., one of the study's researchers.

The study carried out at the University at Buffalo, compared CRP levels in 59 people with moderate and 59 people with advanced periodontal disease to 65 periodontally healthy patients. Adjustments were made for other factors that are known to be associated with elevated levels of CRP such as age, body mass index, smoking and blood lipids. Researchers found that 25 percent of the 174 total subjects, **LGueits, HSC** have been associated with a higher risk of cardiovascular problems. However, among the

## **“Clinical and Biochemical Results of the Metalloproteinase Inhibition with Subantimicrobial Doses of Doxycycline to Prevent Acute Coronary Syndromes (MIDAS) Pilot Trial”**

David L. Brown, Kavita K. Desai, Babak A. Vakili, Chadi Nouneh, His-Ming Lee, Lorne M. Golub  
Arterioscler Thromb Vasc Biol April 2004 pp.733-738

## **Hypothesis**

- “Subantimicrobial doses of Doxycycline (SDD) (20mg twice daily) would benefit patients with coronary artery disease by reducing inflammation and MMP activity and thus possibly prevent coronary plaque rupture events.”

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## **Significant Findings**

- Low Dosage Doxycycline reduced the levels of high sensitivity CRP, IL-6 and MMP-9 activity in patients with active coronary artery disease.

L.Gueits, HSC

## **C-Reactive Protein – Results**

All patients *p<0.05			Patients with CRP >5 µg/mL at baseline		
	Placebo	PerioStat		Placebo	PerioStat
IL-6 Baseline	22.8	22.1	CRP Baseline	7.1	7.2
IL-6 6 months	17.4	14.4 *	CRP 6 months	5.5	3.0 *
MMP-9 % reduction		50% *	Brown, D.L., Desai, K.K., Vakili, B.A., Nouneh, C., Lee, H.M., Golub, L.M. (2004) “Clinical and Biochemical Results of the Metalloproteinase Inhibition with Subantimicrobial Doses of Doxycycline to Prevent Acute Coronary Syndromes (MIDAS) Pilot Trial” Arterioscler Thromb Vasc Biol. pp.733-738		
MMP-2 % reduction		38%			
CRP Baseline	5.2	4.8			
CRP 6 months	4.9	2.6 *			

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## **Periodontal Therapy with LDD Lowers CRP by 18% Compared to Placebo**

- NIH funded, randomized, double-masked, placebo-controlled 2 year clinical trial
- 128 Post Menopausal women with chronic periodontitis and osteopenia

### **CONCLUSION:**

LDD regimen in postmenopausal women significantly reduced the serum inflammatory biomarkers hs-CRP and MMP-9 and, among women more than five years postmenopausal, *increased the HDL cholesterol level.*

Payne, Golub, Slepian et al. Jam Dent Assoc. 2011 March: 142(3)262-273

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Getting Your Teeth Cleaned May Help Your Heart  
Study Shows Professional Teeth Cleaning Is Linked to Lower Risk of Heart Attack and Stroke  
WebMD Health News Reviewed by Louise Chang, MD

Nov. 16, 2011 (Orlando, Fla.) – Presented at AMERICAN HEART Association Meeting

In a large study, people who had their teeth professionally scaled at least once every two years were 24% less likely to have a heart attack, compared with those who skipped the hygienist. Scaling cleans between the gums and the teeth.

And their risk of stroke dropped by 13%, says study researcher Zu-Yin Chen, MD, a cardiology fellow at the Veterans General Hospital in Taipei, Taiwan.

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## Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

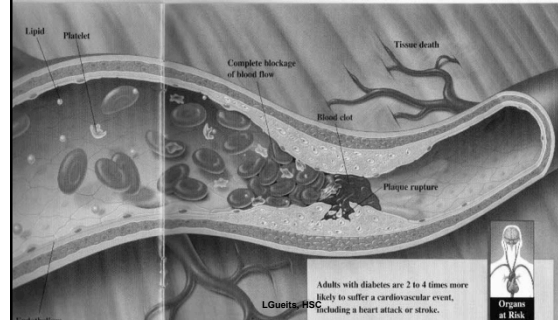
### Benefits of Frequent Teeth Cleaning

Chen and colleagues reviewed the records of more than 100,000 people in Taiwan's national health insurance database. About half had received at least one cleaning; the other half had never had a cleaning.

Their average age was 38 years. None had suffered a heart attack or stroke when the study began. They were followed for an average of seven years.

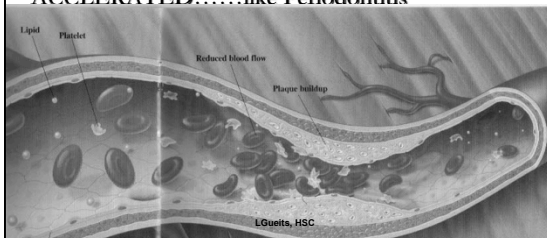
Results showed that people who had more than one cleaning a year had the lowest risk of heart attack and stroke

### People with Diabetes are 2-4X more likely to suffer a Cardiovascular Event



### Diabetes Accelerates Host Response

- SOUND FAMILIAR? HOST INFLAMMATORY RESPONSE ACCELERATED.....like Periodontitis



### DIABETES



### The RDH and the Diabetic Patient

As the average age of the U.S. population continues to rise and as the prevalence of obesity continues to increase, more patients with diabetes will be seen and treated by dental practitioners



### National Diabetes Fact Sheet 2011 CDC Estimates:

- Diabetes affects 25.8 million people
- 8.3% population
- 18.8 million people diagnosed
- 7.0 million people undiagnosed
- 79 million American adults aged 20 years or older with prediabetes.

### **National Diabetes Fact Sheet 2011**

- Diabetes is the leading cause of kidney failure, nontraumatic lower-limb amputations, and new cases of blindness among adults in the United States.
- Diabetes is a major cause of heart disease and stroke.
- Diabetes is the seventh leading cause of death in the United States.

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### **Types Of Diabetes**

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#### **Type 1 Diabetes (Formerly Juvenile Diabetes)**

Auto immune disorder: body destroys the insulin producing beta cells of the pancreas -

- 5-10% of all diabetes cases
- Complete deficiency of the insulin hormone
- Person is insulin dependent
- Cause unknown believed to be due to genetic and environmental factors, possibly viruses
- It develops most often in children and young adults, but can appear at any age.
- Obesity not risk factor, can be lean

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#### **Type 2 Diabetes (Formerly Adult onset)**

- May account for about 90% to 95% of all diagnosed cases of diabetes
- Risk factors for type 2 diabetes
  - Older age,
  - Obesity, family history of diabetes
  - Prior history of gestational diabetes,
  - Impaired glucose tolerance
  - Physical inactivity,
  - Race/ethnicity. African Americans, Hispanic/Latino Americans, American Indians, and some Asian Americans and Pacific Islanders are at particularly high risk for type 2 diabetes

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#### **Gestational Diabetes**

- Affects pregnant women.
- If not treated, it can cause problems for mothers and babies. Develops in 2% to 5% of all pregnancies usually disappears when a pregnancy is over.
- 30% risk of future onset of Type II Diabetes

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#### **Prediabetes**

- Pre-diabetes is a condition that occurs when a person's blood glucose levels are higher than normal but not high enough for a diagnosis of Type 2 diabetes.
- There are an estimated 79 million Americans who have pre-diabetes, in addition to the 25.8 million with diabetes.

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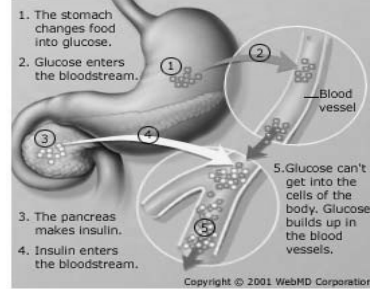
# Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

## “DIABETES 101”

- Food is turned into glucose in the stomach stimulates pancreas to produce insulin
- Glucose is energy source for all cells
- Glucose is released into the bloodstream
- Cells need insulin (hormone) to absorb glucose
- Insulin acts as the “gate keeper for the cell” key to open the door
- If cells are “insulin resistant” the key “doesn’t work” Glucose can not enter cell. Left in bloodstream. High concentration....Hyperglycemia.
- Pancreas produces more insulin “needs more gate keepers” until wears out....no longer able to produce insulin. Person becomes insulin dependent

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## Type 2 Diabetes



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## CONTROL THE ABCs OF DIABETES

A1C – this test measures average blood glucose levels over the last 3 months  
**Blood Pressure** – High blood pressure causes heart disease  
**Cholesterol** – bad cholesterol, or LDL, builds up and clogs your arteries  
**A1D** – see that Ph – Blood Pressure less than 180/90 • Cholesterol LDL less than 100

TALK TO YOUR HEALTH CARE PROVIDERS ABOUT HOW TO CONTROL YOUR DIABETES

### MEDICATION MANAGEMENT

- **Team Up With Your Pharmacist**
- Make a list of all your medicines, including their strengths and the way you take them, to share with all your health care providers. Don't forget over-the-counter vitamins, supplements and herbal medicines.
- Update your list with every change, and review it at least once a year.
- Discuss how to use your medicines and supplies to get the best results at the lowest cost.

### FOOT CARE

- **Team Up With Your Foot Care Provider**
- Get a complete foot exam each year.
- Discuss how to check your feet every day. Discuss any problems you may have.
- Find the right footwear for you.

### EYE CARE

- **Team Up With Your Eye Care Provider**
- Have a complete dilated eye exam each year. (If the results are normal, an eye care specialist may advise getting an exam every 2-3 years.) Make sure your glasses are the best for your needs.
- Discuss how good control of your blood glucose levels can protect your vision.
- Talk about what can be done if you have vision loss.

### DENTAL CARE

- **Team Up With Your Dental Care Provider**
- Get a complete mouth exam twice a year (once a year if you have no teeth).
- Learn the best way to brush and floss, and learn the early warning signs of tooth, mouth and gum problems.
- Discuss the link between your blood glucose and gum disease.

### OTHER THINGS YOU CAN DO

- **Get Physical** – Be More Active • Walk • Play • Dance • Swim • Turn off the TV
- **Eat a Healthy Diet** • Choose portions • More vegetables • Less salt, fat, and sugar
- **Quit Smoking** • Tobacco use increases your risk of diabetes complications.

TALK TO YOUR PROVIDER TO LEARN MORE

FOR FREE INFORMATION AND MATERIALS, CALL 1-800-426-0263

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## Fasting Plasma Glucose Test

Plasma Glucose Result (mg/dL)	Diagnosis
99 and below	normal
100 - 125	Pre Diabetes
126 and above	Diabetes

NIH Publication No. 05-4642  
January 2005

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## American Diabetes Association Accepted Diagnosis Guidelines for A1C

Result	Diagnosis
5.6 and below	Normal
5.7-6.4	Pre Diabetes
6.5 and above	Diabetes

Diabetes.org

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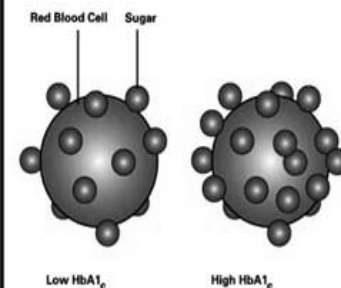


Fig. 1

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## Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

**BAYER A1CNow®**  
More efficient than the lab  
Results in 5 minutes  
Small (5µL) blood sample



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### Blood Glucose Testing

- Purchase a glucometer for the dental office
- Ask your patients to bring their glucometers to your office
- Obtain a blood glucose reading/s
  - Is the patient's diabetes well controlled/not?
  - Consult with the physician
- Consider referral of the patient to a physician for further evaluation
- You are not establishing a diagnosis
- Blood glucose results are vital signs
- You may save a patient's life



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### Correlation Between Glycosylated Hemoglobin Level and Mean Plasma Glucose Levels

HbA1c	Mean plasma glucose (mg/dL)
6	135
7	170
8	205
9	240
10	275
11	310
12	345

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### Diabetes

#### Evaluation of Efficacy of Administration of LDD in the Treatment of Generalized Adult Periodontitis in Diabetics

M.N. Al-Ghazi, S.G. Ciancio, et. al.

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### Evaluation of Efficacy of LDD in the Treatment of Diabetics

Ghazi, Ciancio, Bessinger, Mathter, Mohanty, Dandona,

- 20 patients with both type 1 and II Diabetes
- Control group received SC/RP and Placebo
- Test group received SC/RP and 20mg doxycycline BID

#### RESULTS

- Both groups had clinical and systemic improvement
- The Test Group had statistically significant reduction in MGI, PI, BOP, PD(probing depth) and CAL compared to control.
- PD reduction and CAL gain in the test group exceeded control sites by 1.7mm and 1.6mm respectively
- Only test group showed reduction in IL-2
- Reduction in HBA1C was statistically significant in test group

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### HBA1C REDUCED shy of 1% Effect of LDD on Glycated Hemoglobin

	Control Group			Treatment Group		
	Baseline	6 weeks	12 weeks	Baseline	6 weeks	12 weeks
% HbA1c	6.93 ± 0.35	6.78 ± 0.35	7.03 ± 0.37	8.16 ± 0.44	7.37 ± 0.33*	7.17 ± 0.23*
Change		0.10	0.10		0.79	0.99

Results are presented as mean ± S.E.M  
n=10 for each group  
\*p<0.05


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## Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

<b>Diabetes and A1C: The Value of 1%</b>	
A 1% drop in A1C greatly reduces Diabetic Complications	
	REDUCED RISK
Nerve damage	35%
Vision loss	
Kidney Disease	
Peripheral vascular disease	22%
Myocardial infarction	18%
All diabetes-related deaths	25%

Source : ADA "Standards of Medical Care in Diabetes." Diabetes Care Jan, 2005

**www.ndep.nih.gov**



For Lauren  
From Greg:

A1c went from  
6.5 to 5.7!!!!

Diabetic to barely pre-diabetic!  
L'Gueits, HSC

### Periodontal Disease Predicts Mortality in People with Diabetes

- 628 Pima Indians with Type 2 diabetes
- Classified periodontal disease as mild, moderate or severe
- Evaluated effect of periodontal disease on death by either ischemic heart disease or diabetic nephropathy
- 204 Pima Indian subjects w Type 2 DM died during a median follow-up of 11 years
  - 54 attributed to Cardiovascular disease
  - 28 attributed to Nephropathy

Saremi, Nelson, et al. 2005 Diabetes Care

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### Degree of PD Impacts Mortality Rates

- The age and sex-adjusted death rates expressed as the number of deaths per 1000 person years of follow up were
  - No or Mild Periodontal disease 3.7
  - Moderate Periodontal disease 19.6
  - Severe Periodontal disease 28.4
- Death rate 2-3X ↑ severe PD Ischemic Heart Disease
- Death rate 8.5X ↑ severe PD Diabetic Nephropathy

Compared to no, mild , moderate PD combined

**Conclusion: Periodontal disease is a major public health burden in Pima Indians, and is a strong predictor of death from CV/renal disease in those with Type 2 diabetes.**

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### NIH Diabetes and Periodontal Therapy Trial (DPTT) to Determine Whether Treating Periodontitis Improves Diabetes Control

- Dr. Engebretson is the Principle Investigator
- Randomized control trial at 4 centers
- 600 study subjects; all with Type 2 diabetes

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### NDEP :What All Health Care Providers Should Discuss with Patients with Diabetes

- **Promote the ABCs**  
—A1C, Blood Pressure, and Cholesterol:
- **Promote a Healthy Lifestyle:**
- **Explain the Risks and Benefits of Diabetes Comprehensive Control:**
- **Ask about Health Examinations:**
- **Support Self-Care Behaviors:**



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## Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

### **Metabolic Syndrome: Intervention Early in Life Can Reduce Risk Factors Linked to Heart Disease and Diabetes**

- Waist more than 40 inches around in men or 35 inches in women.
- Triglyceride levels in the blood of 150 or greater.
- HDL, or "good" cholesterol, less than 40 in men or less than 50 in women.
- Blood pressure of 130/85 or more.
- Fasting blood sugar of 100 or more.

### **Signs and Symptoms of Uncontrolled Diabetes Mellitus**

- Extreme thirst (polydipsia)
- Frequent urination (polyuria)
- Excessive hunger (polyphagia)
- Extreme fatigue
- Unintentional weight loss
- Slowly healing wounds ( perio pockets!)
- Dry, itchy skin
- Tingling or loss of feeling in the feet
- Blurry eyesight

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### **Oral Manifestations of Diabetes**

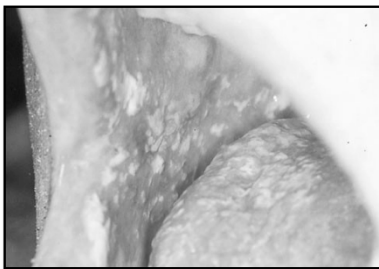
- Candidiasis
- Lichen planus
- Periodontitis
- Xerostomia
- Burning mouth syndrome
- Dental caries
- Gingivitis
- Glossodynia
- Taste dysfunction

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### **RDH Diabetes Assessment Tool**

- When was your last medical visit?
- Does anyone in your family have diabetes?
- Do you wake up >1x per night to urinate?
- Are you frequently thirsty?
- Do you have poor wound healing/ bleeding gums?
- Has any medical professional told you you have "borderline diabetes"?
- Would you consider taking an online risk factor test ? [www.diabetes.org/diabetes-basics/prevention/diabetes-risk-test](http://www.diabetes.org/diabetes-basics/prevention/diabetes-risk-test)

### **Oral Candidiasis**



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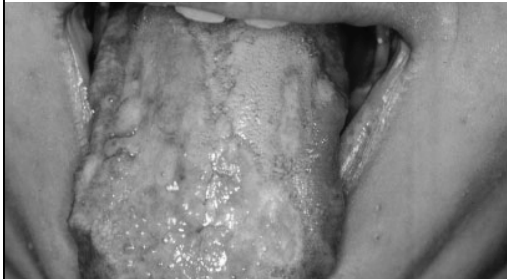
### **Lichen Planus**



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## Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

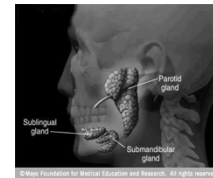
### Candidiasis Tongue



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### Dry Mouth : Xerostomia

- Medications cause 90% of dry mouth cases
- Affects between 17 and 29% of population
- Over 400 medications contribute to dry mouth
  - antidepressants,
  - antihistamines,
  - anti-inflammatory agents



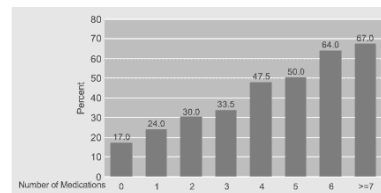
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### Diseases and Conditions Contribute to Xerostomia

- Diabetes
- Rheumatoid arthritis
- Hypertention
- Sjogren's Syndrome
- Cancer: Glandular trauma
- Depression/ Anxiety
- Smoking/alcoholism

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Prevalence of reported xerostomia among subjects aged 20 to 80 years by number of medications taken



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### Treating Dry Mouth

- Control cavities
- Replace secretions
- Increase salivary flow



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### Exposed Dentin from Gingival Recession



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## Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

### Butler® White Fluoride Varnish

- Includes **xylitol**
- Feels smooth & blends with tooth color
- More patient compliant
- **5% Sodium Fluoride Varnish**
- No leak, eco-friendly package
- Multi-use packaging



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### Medscape Medical News

#### Perio Treatments Found to Save \$2500 a Year for Diabetics

March 25, 2011 (San Diego, California) — Patients with diabetes cost insurance companies \$2484 more per year if they don't receive routine dental care and get immediate treatment for periodontitis, according to researchers here at the International Association of Dental Research 89th General Session and Exhibition.

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“These results suggest that treating gum disease has benefits beyond better oral health and may also help to control medical costs for some patients as well.

We are pleased to be part of the dental community's ongoing research into the links between good oral health and good overall health.”

Dr. Clay Hedlund, a CIGNA dental director

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### Diabetes and its Impact on Periodontal Disease & Patient Outcomes

- **Patients with Diabetes**
  - Pose distinct challenge in periodontal care
  - Response to care is variable
- **Periodontal tissues affected in the same way systemic tissues are:**
  - **Reduced blood supply**
  - **Enhanced tissue (collagen) breakdown**
  - **Increased susceptibility to infection**
  - **Impaired healing**

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THIS WOUND.....



149

Is Similar to This Wound



Imagine Not Treating This?!!

150

## Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

### **“RARE” RDH**

- Recognize diabetes and periodontal disease is a two-way street.
- Assess risk factors for diabetes and inquire about A1C
- Refer for medical evaluation and A1C testing when applicable.
- Educate your patients on the importance of oral health as it relates to overall health.

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### **Host Response Accelerated in Diabetes Patients (Hyperglycemia)**

- ↑ Gingivitis despite similar plaque levels  
(Cianciola, Genco, et al Jam Dent Assoc 1982)
- Poor Glycemic Control ↑ inflammation/bleeding  
Improved Glycemic Control ↓ #of bleeding sites  
(Ervasti et al. Jperiodontal 1985)

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### **Diabetes Patients Increased Tissue Collagenase**

- Collagenase is elevated in diabetes tissues...  
Including the Periodontium
- Newly formed collagen is susceptible to degradation ...altering wound healing
- Diabetes pt's greater proportion of active tissue collagenase than people w/o diabetes

Ryan et al, Ann N Y Acad Sci 1998  
Sorsa et al, J Clin Periodontol 1992

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### **Glycemic Control indicates risk for periodontal bone loss**

- Type 2 Pima Indians with  
POOR GLYCEMIC CONTROL  
=11 FOLD RISK of Progressive Bone Loss
- WELL CONTROLLED  
=NO SIGNIFICANT RISK

Taylor et al, J perio 1996

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### **PD Linked to Diabetes**

82 % Diabetes patients with severe PD had 1 + major:

- Cardiovascular event
- Cerebrovascular event
- Peripheral Vascular event

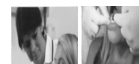
Compared to 21% of Diabetes patients w/o PD

Thortenson et al J Clin Perio 1996

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### **How Do I Relate All This To My Patients?**

- “Healthy Gums Don’t Bleed”
- “Gingivitis is a Process”
- “Your mouth is connected to the rest of your body ...we don’t want any “itis.... It’s not healthy”



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## Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

### Top 10 Ways to Relate this to our Patients

- 10 Review the stages of Periodontal Disease and how it is an inflammatory disease in nature
- 9 Discuss how plaque is organized bacteria and how important "disorganizing" it is via flossing, brushing, interdental devices, antibacterial rinses and anti gingivitis toothpastes; to prevent gum inflammation
- 8 Utilize visual aids so the patient can view the anatomy and the pathology of the disease process.
- 7 Explain how the fibers that attach the "tooth to the gum and the gum to the bone" (periodontal ligament) are made up of collagen
- 6 Describe the inflammatory response
- 5 Introduce the concept of LAA and LDD
- 4 Reinforce that LDD is not acting as an antibiotic
- 3 Acting as an ENZYME Suppressant
- 2 Enzyme it suppresses is the same enzyme that breaks down the fibers made of collagen...Collagenase.

L.Gueits, HSC

### #1 Reinforce the most effective way to treat periodontal disease is comprehensively

#### Comprehensive Periodontal Treatment

##### ■ Three prong approach

- 1- Gold Standard Scaling/Root Planing
- 2 -Localized chemotherapeutics (CHX, Arestin, Atridox) to treat putative pathogens
- 3 -Systemic Low Dose Doxycycline 20 mg BID to control the inflammatory response thus preventing the breakdown of collagen. Sustains further bone loss and pocket formation

L.Gueits, HSC

### Controlling the Bacterial Burden

- Brush at least 2 X daily: Triclosan: Stannous Fl
- Floss daily/Interdental devices:
- Rinse 2X daily with antibacterial/static rinses Alcohol Free CHX/
- Strive for five Xylitol
- Oral Irrigation
- Oral Probiotics: Perio Balance/ Evora Plus

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### Lactobacillus reuteri Prodentis – Clinically Proven Probiotic for Gum Health

- |               |   |
|---------------|---|
| Plaque        | ■ 42% reduction in moderate-severe plaque after 28 days ( <i>Krusse, 2006</i> )             |
| Inflammation  | ■ Significant reduction of pro-inflammatory cytokine TNF- $\alpha$ ( <i>Tvetman, 2008</i> ) |
| Gingivitis    | ■ 85% reduction in bleeding after two weeks of treatment ( <i>Tvetman, 2008</i> )           |
| Periodontitis | ■ 0.8 mm of CAL for SRP and ProDentis compared with SRP alone ( <i>Vivekananda 2010</i> )   |

L.Gueits, HSC

Vivekananda MR, Vandana KL, Bhat KG. Effect of the probiotic Lactobacilli reuteri (Prodentis) in the management of periodontal disease: a preliminary randomized clinical trial. J Oral Microbiol. 2010;2:2.

- In 2010, a clinical trial using L. reuteri Prodentis was published that showed significant reductions in plaque accumulation, clinical attachment level losses, probing depths, and the amount of bleeding among participants using L. reuteri Prodentis

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### L. reuteri Prodentis together with scaling and root planing can achieve maximum pocket depth reduction

**Conclusion:** The study confirms that due to the plaque inhibition, anti-inflammatory, and antimicrobial effects of L. reuteri Prodentis, it can be recommended as a useful adjunct to scaling and root planing and can be an alternative to periodontal treatments where surgical therapy might be contraindicated.

M.R. Vivekananda, K.L. Vandana and K.G. Bhat, Journal of Oral Microbiology 2010,

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## Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

### Probiotics Show Potential in Reducing the Incidence of Dental Caries

A study performed using a strain of *L. reuteri* found a remarkable reduction in the presence of *S. mutans*.

- Caglar E, Cildir SK, Ergeneli S, Sandalli N, Twetman S. Salivary mutans streptococci and lactobacilli levels after ingestion of the probiotic bacterium *Lactobacillus reuteri* ATCC 55730 by straws or tablets. *Acta Odontol Scand.* 2006;64:314–318.

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### *Lactobacillus reuteri* Prodentis effective in the treatment of periodontitis

- The study shows that *reuteri* Prodentis acts synergistically with standard treatment (scaling and root planing, SRP) to significantly reduce probing pocket depth (PPD) and clinical attachment level (CAL). Furthermore *L. reuteri* Prodentis reveals - as the first probiotic ever - significant reductions of three different pathogens in patients with chronic periodontitis. The study also confirms the anti-inflammatory effects of *L. reuteri* Prodentis on gum inflammation (gingivitis).
- The results of the study were published online on the 2nd of November 2010 in the *Journal of Oral Microbiology*, doi: 10.3402/jom.v2i0.5344. The study can be accessed at: <http://www.journaloforalmicrobiology.net/index.php/jom/article/view/5344>

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### NOTEWORTHY METANALYSIS: almost 1400 participants

- Addy M, Moran J, Newcomb RG. Meta-analyses of studies of 0.2% delmopinol mouth rinse as an adjunct to gingival health and plaque control measures. *J Clin Periodontol.* 2007;34:58–65.

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### Motivating Patients to Commit to Their Periodontal Maintenance

- Discuss the latest research linking periodontal disease to systemic disease
- Provide current articles/brochures supporting / IPAD, Slides on Computer
- Email your recommendations with links/ attachments
- Provide thorough home care instruction to area specific regions (ex furcations)
- Make customized periodontal maintenance appointments at time of visit

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### Local Antibiotics?



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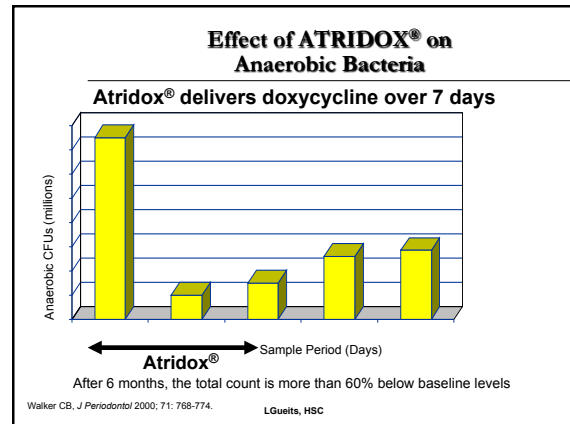
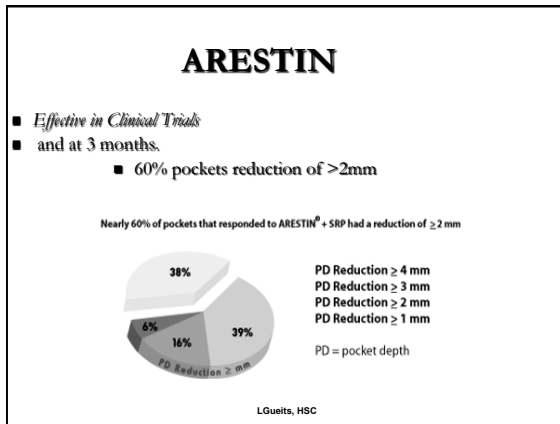


**ATRIDOX®**  
(doxycycline hyclate) 10%



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## Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets



## Comprehensive Periodontal Therapy

A Statement by the American Academy of Periodontology

2011

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## Background

- The American Academy of Periodontology encourages that the entire dental team ensures that all patients receive Comprehensive Periodontal Therapy (CPT) on a regular basis.
- Recent research conducted by the AAP and the Centers for Disease Control (CDC) suggests that periodontal disease is much more prevalent than previously thought.

## Scope of Periodontal Therapy

- Periodontics is the specialty of dentistry that encompasses prevention, diagnosis, and treatment of diseases of the supporting and surrounding tissues of teeth and dental implants.
- The goals of periodontal therapy are to preserve, improve, and maintain the natural dentition, dental implants, periodontium, and peri-implant tissues in order to achieve health, comfort, esthetics, and function.

## Periodontal Evaluation

- This evaluation should include discussion with the patient regarding his/her chief complaint, medical and dental history review, clinical examination, and radiographic analysis.
- To facilitate the evaluation, the Academy has created a CPT checklist that outlines the procedures that should be included in the evaluation.



# Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

[illegible]

## Periodontal Evaluation Procedures

- Extra- and intraoral examination to detect non-periodontal oral diseases or conditions
- Examination of teeth and dental implants to:
  - evaluate the topography of the gingiva
  - measure probing depths, the width of keratinized tissue, gingival recession, and attachment level
  - evaluate the health of the subgingival area
  - assess clinical furcation status
  - detect endodontic-periodontic lesions

## Periodontal Evaluation Procedures

- Assessment of the presence, degree, and/or distribution of plaque/biofilm, calculus, and gingival inflammation
- Full dental examination
- An occlusal examination
- Interpretation of current radiographs

## Periodontal Evaluation Procedures

- Evaluation of potential periodontal-systemic interrelationships
- Assessment of the need for and suitability of dental implants
- Assessment of patient risk factors associated with development and/or progression of periodontal disease

## Establishing a Diagnosis

- Clinical findings and diagnosis should be used to develop a plan of treatment to establish the methods and sequence of delivering appropriate periodontal treatment.

## Establishing a Treatment Plan

- The plan should include:
  - Medical and dental consultation or referral for treatment, when appropriate
  - Surgical and non-surgical periodontal and implant procedures to be performed
  - Consideration of other dental consultation or treatment
  - Provision for ongoing reevaluation during therapy and throughout the maintenance phase

## Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

### Establishing a Treatment Plan

- The plan should include:
  - Consideration of diagnostic testing
  - Consideration of risk factors that play a role in development, progression, and management of periodontal diseases
  - Periodontal maintenance program

### Informed Consent and Patient Records

- Informed consent should be obtained prior to the commencement of therapy.
- Complete records of the periodontal examination, diagnosis, treatment, and recommended follow-up should be maintained according to state law.

### Informed Consent and Patient Records

- Information given to the patient should include the following:
  - The diagnosis, etiology, proposed therapy, possible alternative treatment(s), and the prognosis with and without the proposed therapy or possible alternatives
  - Recommendations for treatment to be performed by other dentists or physicians
  - The risks and complications associated with the proposed therapy
  - The need for periodontal maintenance treatment after active therapy due to the potential for disease recurrence

### Treatment Procedures

- Patient education, training in oral hygiene, and counseling on control and management of risk factors
- Removal of supra- and subgingival bacterial plaque/biofilm and calculus by periodontal scaling and root planing
- Chemotherapeutic agents

### Treatment Procedures

- Resective procedures
- Periodontal regenerative procedures
- Periodontal plastic surgery
- Occlusal therapy
- Preprosthetic periodontal procedures

### Treatment Procedures

- Selective extraction of teeth, roots, or implants
- Surgical placement of dental implants and management of peri-implant disease
- Procedures to facilitate orthodontic treatment
- Finishing procedures, which include post-treatment evaluation with review and reinforcement of daily oral hygiene

## Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

### Evaluation of Therapy

- Upon completion of planned periodontal therapy, the record should document that:
  - The patient has been counseled on why and how to perform an effective daily personal oral hygiene program.
  - All indicated therapeutic procedures have been performed.
  - The patient's treatment objectives have been met.
  - A recommendation has been made for the correction of anything contributing to the periodontal disease process.
  - A periodontal maintenance program has been recommended to the patient for long-term control of his/her condition.

### Factors Modifying Therapy Results

- Systemic diseases
- Inadequate plaque/biofilm control
- Unknown or undeterminable etiologies
- Inability or failure of the patient to follow the suggested treatment or maintenance program

### Factors Modifying Therapy Results

- Pulpal-periodontal problems
- Adverse environmental influences (smoking, stress)
- Occlusal dysfunction
- Uncorrectable anatomic, structural, or iatrogenic causalities

### Periodontal Maintenance Therapy

- Upon completion of active periodontal therapy, periodontal maintenance visits should include:
  - Update of medical and dental histories
  - Evaluation of current extra- and intraoral periodontal and peri-implant soft tissues, dental hard tissues, and radiographs
  - Assessment of the oral hygiene status
  - Tooth cleaning

### Periodontal Maintenance Therapy

- Upon completion of active periodontal therapy, periodontal maintenance visits should include:
  - Ongoing assessment of risk factors
  - Identification and treatment of new, recurrent, or refractory areas of periodontal and peri-implant pathoses
  - Establishment of an appropriate interval for periodontal maintenance
  - Explanation of current condition of the patient's oral health

**Thank You!**

For more information and to access the CPT statement and checklist, please visit [perio.org](http://perio.org)



# Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

## Orthodontic Issues

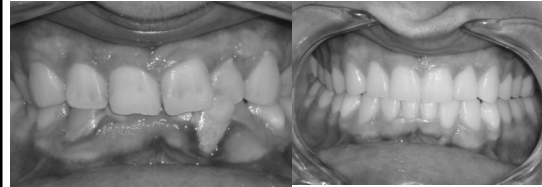
?



- Is this a periodontal problem or an orthodontic problem?

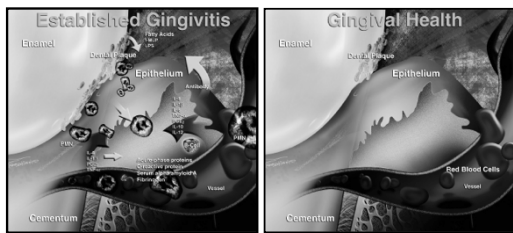
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## What's healthier? More Stable?



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## Straight teeth = Health



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## Caries Exam



- You wouldn't let a patient walk out the door without informing them of the repercussions of ignoring this...



## Periodontal Assessment



- Or this:



## Oral Cancer Screening

And certainly not this:



## Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

### Who is doing the Ortho Exam?

- In many offices—NO ONE!
- Doctor is focused on esthetics & restorative
- It's the Hygienist who focuses on optimum oral health
- Ortho exam should be a routine part of the doctors hygiene exam



1 Minute Ortho Exam				
<b>Molar relationship</b>	Class I	Class II	Class III	
<b>Overbite</b>	Mild	Moderate	Severe	Open
<b>Overjet</b>	Mild	Moderate	Severe	Underbite
<b>Crowding</b>	Mild	Moderate	Severe	
<b>Spacing</b>	Mild	Moderate	Severe	

### Straighter teeth can lead to

- Solid foundation
- Proper occlusion
- Decreased risk of occlusal trauma and abnormal wear
- Healthier teeth and gums
- Motivated patients
- Easier cleanings
  - And...
- **Beautiful smiles**

### Why Discuss Orthodontics?

- Professional responsibility. AAP guidelines
  - Advise on the latest advances in dentistry
- Treat an orthodontic problem with an orthodontic solution.
- Be the first to inform you patients about the benefits of straight teeth (not tv!)

### University Integration

- Invisalign® is currently integrated into the curricula of:
  - 41+ Orthodontic programs in North America
  - 14 Pre-Doctoral programs.

 COLUMBIA UNIVERSITY  
IN THE CITY OF NEW YORK



 UNIVERSITY OF  
FLORIDA

### Dental Community Integration

- Curriculum committee acceptances nationwide to incorporate Invisalign educational programs into society and association annual meetings

- American Dental Association
- Academy of General Dentistry
- Greater New York Dental Meeting
- Florida National Dental Congress
- Yankee Dental Congress
- California Dental Association
- Texas Dental Association
- Toronto Dental Society
- Pankey Institute
- Dawson Center for Advanced Study



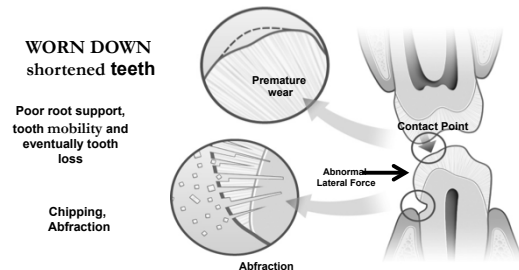
## Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

### Case Selection..Who qualifies?

- Crowding
- Spacing
- Ortho relapse
- Anterior cross-bite
- Deep Bite
- Narrow Arches

### Malocclusion & Premature Wear

Poorly aligned teeth can create abnormal lateral force and stress on surrounding periodontal structures – *can lead to.....*



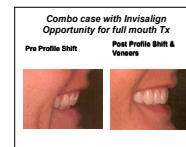
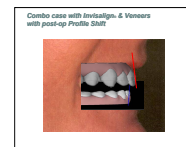
### Conversion Starters

*Have you ever noticed....*

- The amount of wear
- The number of crowns you've had done
- The notching/recession of the teeth along the gumline
- The number of teeth with cracks in them
- The periodontal problem areas we struggle with are the areas with crowding/ trauma
- The wear on the edges of your teeth
- How difficult it is for you to keep these teeth clean

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### PRE RESTORATIVE ORTHO



### Narrow Arches: Expansion



### It Takes A Hygiene Village

Together, we can turn hygiene around; consider mentoring by Lauren Ann Gueits, RDH  
Commentary by Cortney Anesse, RDH



**RDH Magazine June 2011**

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# Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

## CLINICAL PROTOCOL

1. PERIO
2. ORTHO
3. RESTORATIVE\*

\*Restorative takes precedence if active decay/  
pathology/pain.

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## Hygiene Protocols

### Comprehensive Exam

- Perio/Systemic Risk Assessment
- Periodontal Charting/ Spot probe.. BOP?
- Ortho- perio assessment: recession/erosion chart/malocclusion
- Restorative charting both existing/tx planning
- Intra/extra oral photos
- Review X-rays for periodontal defects/caries with patient
- Oral cancer screening

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## Customized Perio Classification: By Quadrant

- Early Gingivitis
- Moderate/Established Gingivitis
- Early Periodontitis: Perio I =4-5mm
- Moderate Periodontitis: Perio II=6-7mm
- Advanced Periodontitis: Perio III-IV =7mm+

Ex: Perio Status:

Gingivitis with Localized Perio I #14/#15

Perio II # 2 /#3

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## TX Planning by Quadrant

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>■ UR</li> <li>#2 /3 5-6mm BOP,</li> <li>#4/#5 4-5 mm BOP</li> <li>TX D4341 : Quad Scale with</li> <li>Atridox 3 sites #2 D &amp;M #3 D</li> </ul> | <ul style="list-style-type: none"> <li>■ UL:</li> <li>#11 D 5-6mm BOP</li> <li>#12/13 4-5mm BOP</li> <li>#14/#15 4-6mm BOP</li> <li>TX UL: D4341 Quad Scale w</li> <li>Atridox 3 sites #11, #14 #15</li> </ul> |
| <ul style="list-style-type: none"> <li>■ LR</li> <li>#30/#31 4-5mm BOP</li> <li>TX D4342 SC/RP 1-3 teeth</li> </ul>  | <ul style="list-style-type: none"> <li>■ LL #18/ 19 5-6mm BOP</li> <li>TX D4342</li> <li>Atridox 2 site #18/19</li> </ul>  |

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## Customized Patient Tx Plan

- 1<sup>st</sup> Visit UR Quad Scale with LAA
- LR Scale/RP 1-3 teeth
- 2<sup>nd</sup> Visit UL Quad Scale with LAA
- LL Scale/ Rp 1-3 teeth with LAA
- 3<sup>rd</sup> Visit 6 week Perio Maintenance

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## Treatment Modalities Early-Moderate Gingivitis 1 Appointment

- Prophyl
- Fluoride 5% varnish?
- OHI/Patient Education
- NV: 3- 6 Month recare appointment :re-eval  
may need SC/RP

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Comprehensive Periodontal Therapy:  
Treating the Patient Not Just Their Pockets

**Treatment Modalities :  
Moderate Gingivitis – Early Perio I  
Appointment 1**

- Prophy or FM Debridement
- Spot probe for BOP/initial probing depths
- Patient Education
- OHI

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**Treatment Modalities :  
Moderate Gingivitis – Early Perio I  
Appointment 2-3**

- Two Options:
  1. Quads SC/RP ( 4-5mm pockets) with LAA?
  2. SC/RP 1-3 teeth ( localized 4-5mm) with LAA?

\*Fluoride varnish if applicable

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**Treatment Modalities :  
Moderate Gingivitis – Early Perio I  
Appointment 3-4**

- Perio Maintenance in 6 weeks to 3 months\*  
Clinicians judgment\*

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**Treatment Modalities  
Early Perio I- Moderate Perio II:  
4mm-6mm;**

- VISIT 1. Prophy or FM Debridement
- VISIT 2. 4 Quads SC/RP or SC/RP -1-3 teeth  
with LAA if applicable:
  - \*Perio Chart while anesthetized by quad
- 6 week Perio Maintenance appointment

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**Moderate Perio II: 6-7mm**

- Same as Perio I with the addition of submicrobial  
antibiotic therapy (Periostat)
- VISIT 1. Prophy or FM Debridement
- VISIT 2. 4 Quads SC/RP with LAA
  - \*Perio Chart while anesthetized by quad
- Evaluate for Periostat
- 6 week Perio Maintenance appointment
  - \*Possible referral for Perio Consult/Surgery may be  
necessary

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**Advanced Perio III-IV 7mm+**

- TX: *Same as Perio II* . Refer to periodontist after  
non-surgical periodontal therapy to eval for  
surgery/implants
- Implant patient education

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## Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

### Low Dosage Doxycycline What to tell patients:

- Avoid taking with calcium/minerals (milk). (OK to take after 2 hours). Nothing “bad” will happen .... Just that the medication will bind to the calcium/minerals and won't be absorbed
- Does not require most precautions listed on pharmacokinetics (ie avoid sunlight)
- Patient cannot take if on Coumadin( check with MD), Birth Control, pregnant/nursing
- Make sure no tetracycline allergy

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### Perio Maintenance after NSPT

- Evaluate for “active” pockets BOP
- Home care analysis
- Unresolved NSPT : refer to physician for A1C
- Positive Reinforcement ☺
- Evaluate for need for LAA/LDD
- Alternate Perio Maintenance/Prophy (insurance) 3 mos intervals

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### Prophy Vs Periondental Maintenance

#### Prophy D1110

- Prevention of disease
- Removal supra gingival deposits
- Most ins allows 1 per/6mos

#### Perio Maintenance 4910

- Maintain disease remission
- Localized SC/RP when needed
- Clinician decides frequency
- Subgingival irrigation/perio charting
- May need additional TX

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### ADA CDT (Current Dental Terminology) Descriptor Codes

- D1110 prophylaxis : Removal of plaque, calculus, and stains from the tooth structures in the permanent and transitional dentition. It is intended to control local irritational factors

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#### ■ D4910 Periodontal Maintenance:

This procedure is instituted following periodontal therapy and continues at varying intervals, determined by the clinical evaluation of the dentist, for the life of the dentition or any implant replacements. It includes removal of the bacterial plaque and calculus from supragingival and subgingival regions, site specific scaling and root planing where indicated, and polishing the teeth. If new or recurring periodontal disease appears, additional diagnostic and treatment procedures

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- **D4355 full mouth debridement** to enable comprehensive evaluation and diagnosis:  
“The gross removal of plaque and calculus that interfere with the ability of the dentist to perform a comprehensive oral evaluation. This preliminary procedure does not preclude the need for additional procedures.”

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# Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

## ■ D4341 Periodontal Scaling and Root Planing (4 or more teeth per quad)

## ■ D4342 Periodontal Scaling and Root Planing (one to three teeth per quad):

\* Frequency: 18-24 months most insurance

This procedure involves instrumentation of the crown and root surfaces of the teeth to *remove plaque and calculus* from these surfaces. It is *indicated for patients with periodontal disease and is therapeutic*, not prophylactic, in nature. Root planing is the definitive procedure designed for the removal of cementum and dentin that is rough, and or permeated by calculus or contaminated with **toxins or microorganisms**.

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Hello Patient,

It was a pleasure speaking with you regarding the importance of your oral health and the benefits of non surgical periodontal therapy. Just to reiterate, this is not a surgical procedure and may in fact prevent the need for potential gum surgery, bone grafts and implant surgery. Research has shown that the most effective way to treat periodontal disease (What is periodontal disease?) is to do so comprehensively. A 3 prong approach is the most effective way to prevent bone loss and enable you to keep your teeth for a life time!

American Academy of Periodontology Review of Non Surgical Periodontal Therapy

1. REMOVE THE PLAQUE AND TARTAR BELOW THE GUM LINE  
This procedure is called scaling and root planing. It is painless because we numb the areas with local anesthesia and remove the tartar below the gum line to access the base of the pocket.

2. ERADICATE THE BACTERIA THAT IS PRESENT IN THE PERIODONTAL POCKET

The placement of Locally Applied Antibiotics (ATRIDOX) has been shown to be an effective adjunct service to scaling and root planing. The antibiotics (Doxycycline) are placed directly into the pockets via a flow-able gel and eradicate the bacteria around the circumference of the tooth. Studies show an 82% reduction of bacteria with Atridox compared to a 33% reduction with Scaling and Root Planing alone. The analogy I like to use is like putting Bacitracin on a cut to prevent further infection and improve healing predictability.

ATRIDOX CLINICAL STUDIES

III. MEDICATION TO SUPPRESS ENZYMES THAT CAUSE INFLAMMATION (PERIOSTAT)

Sometimes we prescribe Periostat (low dosage doxycycline 20 mg twice a day) to assist in bone preservation and assist in controlling the inflammatory response to the bacteria found in the mouth. At this dosage it is not strong enough to act as an antibiotic, (100mg is the antibiotic dosage) and does not have any effect on the bacterial flora in the body. At 20 mg (twice a day) it acts as an enzyme suppressor. The enzyme it suppresses is called Collagenase which prevents the breakdown of collagen. The periodontal ligament is 100% collagen. By preventing this loss of attachment, we are able to control the inflammatory cascade of events that can ultimately lead to bone and tooth loss. This type of therapy is prescribed for more advanced cases and for people who are genetically susceptible to periodontal disease, smokers, and people with systemic conditions like diabetes.

Information on Periostat (Low Dosage Doxycycline 20mg)

The bottom line is we need to create a healthy environment so you can maintain your periodontal health at home through good oral hygiene and regular periodontal maintenance appointments.

If you have pockets greater than 3-4mm, you can not close them on your own. It is a team approach. Although Periodontal Disease is not curable it is controllable by implementing non-surgical periodontal therapy and stringent oral hygiene as well as regular periodontal maintenance visits.

We are here to assist you and provide the direct care and support. You now have my E-Mail.

Please feel free to contact me should you have any questions or concerns regarding your oral health and subsequently your overall health!

The Oral Systemic Connection

I recommend you purchase the Oral B smart Series [http://www.amazon.com/s?ie=UTF8&keywords=oral+b+5000&tag=poodyh20&index=aps&hvad=5618103807&ref=pl\\_sl\\_b6575bwt\\_b](http://www.amazon.com/s?ie=UTF8&keywords=oral+b+5000&tag=poodyh20&index=aps&hvad=5618103807&ref=pl_sl_b6575bwt_b)

Smile Healthy... Smile Happy!

Lauren

Lauren Gueits, RDH

## Healthy Mouth=Healthy Body Standard

- Pink Gums with pocket depth 3mm or less
- NO BLEEDING
- No Decay or Leaky Fillings
- No Fractured or Chipped Teeth
- No Malocclusion, Crowding or Missing Teeth
- No Gingival Recession/erosion
- No Sensitivity
- No Oral Cancer
- Fresh Breath

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## RDH: Really Delivering Health Care

EDUCATE

DEMONSTRATE

EVALUATE

MAKE A DIFFERENCE BY  
BEING AN IMPORTANT PART  
OF YOUR PATIENTS OVERALL  
HEALTH CARE TEAM



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## BYE BYE TOOTH CLEANER!!



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## Hello Health Care Advocate!



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## Comprehensive Periodontal Therapy: Treating the Patient Not Just Their Pockets

### THANK YOU SUNSTAR

[www.oralhealthlink.com](http://www.oralhealthlink.com)



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• [www.laurengueits@gmail.com](mailto:www.laurengueits@gmail.com)

• [www.oralhealthlink.com](http://www.oralhealthlink.com)

### Useful Websites

- [www.perioeducation.com](http://www.perioeducation.com)
- [www.periofrogz.com](http://www.periofrogz.com)
- [www.ndep.nih.gov](http://www.ndep.nih.gov)
- [www.perio.org](http://www.perio.org)
- [www.periobalance.com/n/pdffiles/content/P10135OralHealthStudies-short.pdf](http://www.periobalance.com/n/pdffiles/content/P10135OralHealthStudies-short.pdf)
- [www.twitter.com/oralsystemic](http://www.twitter.com/oralsystemic)
- [www.nhlbi.nih.gov/guidelines/cholesterol](http://www.nhlbi.nih.gov/guidelines/cholesterol)
- [www.diabetes.niddk.nih.gov](http://www.diabetes.niddk.nih.gov)
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