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**Learning Objectives**

- Upon completion of the webinar, the participant will be able to;
- Understand the biological pathways of oral inflammation and the impact on systemic health
  - Recognize the critical role of the dental team in promoting overall wellness
  - Solve oral self-care challenges with innovative product recommendations

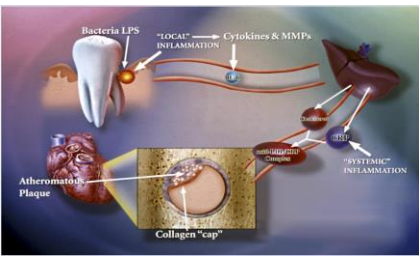
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**We're here to help...**



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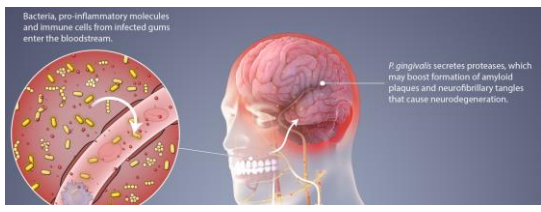
**Cardiovascular Disease**



Slide courtesy of Dr. Liane Birkle, Biory Brain School of Dental Medicine

5

**Alzheimer's Disease**



Slide 1: Wang H. Oral Microbiome and Inflammation in Alzheimer's Disease. *Microorganisms*. 2021;9(1):113. [doi:10.3390/mi9010113](https://doi.org/10.3390/mi9010113).  
 Slide 2: Wang H, Chen H. Polymicrobial gingivitis as a driver of P. gingivalis in Periodontitis. *Pathogens*. 2020;9(10):1200. [doi:10.3390/path9101200](https://doi.org/10.3390/path9101200).  
 Slide 3: Wang H, Chen H, Wang Y, et al. Oral Microbiome and Inflammation in Alzheimer's Disease. *Frontiers in Aging Neuroscience*. 2022;14:822. [doi:10.3389/fnagi.2022.822](https://doi.org/10.3389/fnagi.2022.822).  
 Slide 4: Wang H, Chen H, Wang Y, et al. Oral Microbiome and Inflammation in Alzheimer's Disease. *Frontiers in Aging Neuroscience*. 2022;14:822. [doi:10.3389/fnagi.2022.822](https://doi.org/10.3389/fnagi.2022.822).  
 Slide 5: Wang H, Chen H, Wang Y, et al. Oral Microbiome and Inflammation in Alzheimer's Disease. *Frontiers in Aging Neuroscience*. 2022;14:822. [doi:10.3389/fnagi.2022.822](https://doi.org/10.3389/fnagi.2022.822).  
 Slide 6: Wang H, Chen H, Wang Y, et al. Oral Microbiome and Inflammation in Alzheimer's Disease. *Frontiers in Aging Neuroscience*. 2022;14:822. [doi:10.3389/fnagi.2022.822](https://doi.org/10.3389/fnagi.2022.822).

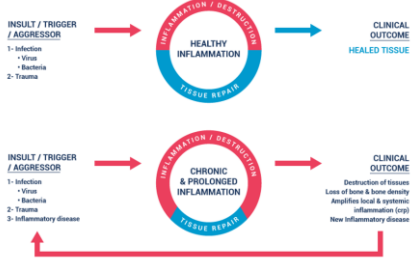
6

**The mouth is the gateway to the body**



**PHILIPS**  
OralCare  
Zilver

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“They are all chronic inflammatory diseases; a consequence of unchecked, or undiagnosed ongoing inflammation. All chronic diseases have excessive inflammatory responses. The primary difference is anatomical location.”

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“People do not care how much you know until they know how much you care.”

-Teddy Roosevelt

11

### UNTIL THE PATIENT PERCEIVES A PROBLEM, THEY WILL NOT 'BUY' INTO THE SOLUTION

- First of all, are we uncovering the information in our standard medical history update questions? (Familial history, risk factors, subjective symptoms, etc.)
- Chronic inflammation connects systemic diseases. A 'condition' in one anatomical location has an effect that reaches far and wide (Does the patient understand the connection?)
- *“Do you understand the treatment fully? Do you also understand what will happen if you choose not to accept the treatment?”*
- Next step is patient engagement...ownership of the 'problem'

12



Enter, 2<sup>nd</sup> resource...

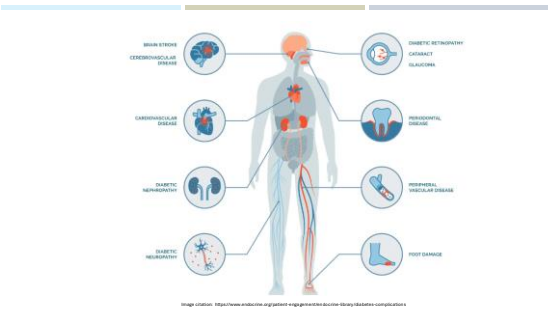
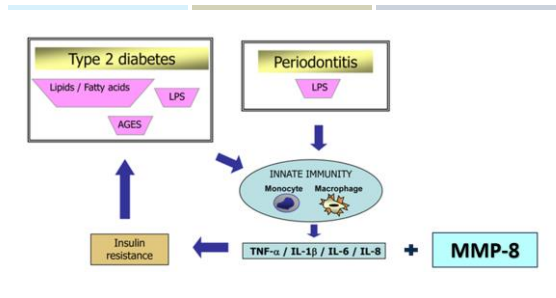
- Checkbox style medical history update
- Facilitates uncovering of information that wouldn't otherwise be communicated
- Last but not least, it enables us to make a human CONNECTION

### Clinical Scenario – Dx Pre-Diabetic

19. Have you been diagnosed with diabetes?  Type I  Type II  Pre-diabetes  
 Diet-controlled  Medication controlled Under control: Yes  No

- Individuals with prediabetes have a higher CRP level, which is an indicator on elevated inflammation within their bodies than those with normal glucose tolerance
- Systemic inflammation may play a role in the early-phase deterioration of glucose metabolism
- The emerging role of inflammation in both type 1 and type 2 diabetes (T1D and T2D) pathophysiology and associated metabolic disorders, has generated increasing interest in targeting inflammation to improve prevention and control of the disease.

Kato K, Otsuka T, Saki Y, Kobayashi N, et al. Association Between Elevated C-Reactive Protein Levels and Prediabetes in Adults, Particularly Impaired Glucose Tolerance. *Can J Diabetes*. 2019 Feb;43(1):40-45.e3. doi: 10.1016/j.cjdi.2018.03.007. Epub 2018 May 19; PMID: 30020044.  
 Tsalamandris S, Antonopoulou AS, Oikonomou E, Papaioannou GA, Vagstad G, Papaioannou S, Diferencia S, Tousoulis D. The Role of Inflammation in Diabetes: Current Concepts and Future Perspectives. *Eur Cardiol*. 2019 Apr;14(1):50-59. doi: 10.1542/ehcr.2018.03.1.



### Science Driven Product Innovation

#### At Home Management of Periodontitis Study

- First long-term/6-month clinical study of Philips Sonicare demonstrating safety and efficacy in periodontitis patients in combination with clinical therapy
- In conclusion this 6-month study showed that twice-daily home use of the Philips Sonicare DiamondClean Smart with Premium Gum Care brush head following scaling and root planing was statistically significantly more effective in reducing plaque, and symptoms of periodontal inflammation including bleeding and pocket depth, compared to use of a manual toothbrush.

17

### At-home management of periodontitis

**KEY Conclusions**

- Sonicare PTB was statistically superior in reducing periodontitis as measured by BOP compared to MTB after 4, 16, 20, and 24 weeks of home use.
- Sonicare was statistically superior in reducing symptoms of periodontal inflammation as measured by PPD and CAL compared to MTB after 4, 16, 20, and 24 weeks of home use.
- Sonicare was statistically superior in reducing supragingival plaque as measured by MPI compared to MTB after 4, 16, 20, and 24 weeks of home use.

Milleman K, Milleman I, Starke M, et al. A comparison of the effects of scaling and root planing, plus twice-daily toothbrushing, in a stage IV periodontitis population. Salus Research Inc. Indiana, USA. Study completed in 2020.

18

**Yearly periodontal assessment**

**PHILIPS sonicare**

**Periodontitis: changing our grading?**

Stage	Grade	Definition
Stage I	Low	1-2 mm interproximal BOP, no recession, no furcation involvement, no tooth loss
	High	3-4 mm interproximal BOP, no recession, no furcation involvement, no tooth loss
Stage II	Low	1-2 mm interproximal BOP, 1-2 mm recession, no furcation involvement, no tooth loss
	High	3-4 mm interproximal BOP, 3-4 mm recession, no furcation involvement, no tooth loss
Stage III	Low	1-2 mm interproximal BOP, 3-4 mm recession, no furcation involvement, 1-2 teeth lost
	High	3-4 mm interproximal BOP, 5-6 mm recession, no furcation involvement, 3-4 teeth lost
Stage IV	Low	1-2 mm interproximal BOP, 5-6 mm recession, furcation involvement, 5-6 teeth lost
	High	3-4 mm interproximal BOP, 7-8 mm recession, furcation involvement, 7-8 teeth lost

**Understanding and treating periodontal disease**

https://www.philips.com/c-dam/020/category-pages/personal-care/dental-professionals/periodontitis/PatientProfile\_Perio\_ChairsideGuide\_Digital.pdf  
https://www.usa.philips.com/c-m-pe/dental-professionals/dental\_indicators/periodontitis

19

**Periodontal Classification Calculator**

Download the Periodontal Classification Calculator on your apple device

**PerioCalc**

**PerioCalc**

**Result!!**  
Stage IV Periodontitis  
Grade C Periodontitis  
Extent: Generalized (> 30%)

**PerioCalc**

**Stage IV**

https://drkotsakis.com/

20

### Clinical Scenario – Dry Mouth

We underestimate the debilitation that a loss of saliva can impart.  
The patient doesn't bring it up as they have tried so many things and nothing seems to provide relief.  
Are we giving patients the validation they deserve?  
Do you inquire about xerostomia in your practice?  
5. Does your mouth frequently feel dry?  Yes  No If yes, on a scale of 1 to 10, how much does it disrupt your daily activities?

### Science Driven Product Innovation Philips Sonicare Power Toothbrush in a Xerostomic Environment

- **Study:** To determine if using a Philips Sonicare power toothbrush (PTB) was a beneficial treatment of medication-induced xerostomia
- **Methods:** 61 subjected with medication induced xerostomia randomly assigned Sonicare (SC) or a manual toothbrush (MTB). Followed for four months; saliva flow was measured by subjects at four collection periods.
- **Results:** End-of-study questionnaire showed that 98.2% of subjects found enhanced salivary flow and 92.7% would use it to increase salivary flow. After three years, subjects rated the cleaning effect of the Sonicare to > 4.5 (5 = excellent).
- **Conclusions:** The use of a Sonicare resulted in statistically significant increase in post brushing salivary flow rates in persons with medication-induced xerostomia

\*If patient preference is a manual TB, make certain recommendation is for a soft TB such as Curaprox

Papas A, Singh M, Harrington D, et al. Stimulation of salivary flow with a powered toothbrush in a xerostomic population. Spec Care Dentist 2006 Nov-Dec;26(6):241-6.

### Science Driven Product Innovation Protection in a Compromised Oral Environment



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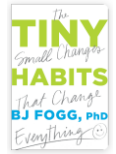
“Repetition is the KEY to success in forming a habit. That is simply not true.”

- B.J. Fogg, Founder, Director, Behavior Design Lab, Stanford University, Author, The Tiny Habits

25

**BJ Fogg Behavior Model - ABILITY**

- Ability
  - Training is the most challenging method; **give people the tools** that facilitate easier behavior change
  - Implement tiny habits
  - Focus on simplicity
  - Consider patient values/preferences – time, finances, physical and mental effort, ease of routine



26



27



28

**RESULTS OF CLINICAL STUDIES**

- 1. **180% more effective** than string floss at improving gingival health<sup>1</sup>
- 2. Up to **130% more effective** than interdental brushes in improving gingival health<sup>2</sup>
- 3. Up to **2.5X as effective** as interdental brushes in reducing gingival inflammation between teeth<sup>2</sup>

1 When used with the QUAD STREAM nozzle on setting 8 with a manual toothbrush in patients with moderate to severe gingivitis vs. using manual toothbrush with string floss  
2 When used with Quad Stream nozzle on setting 10 with a manual toothbrush in patients with moderate to severe gingivitis vs. using manual toothbrush with interdental brush

