

# Oral Health

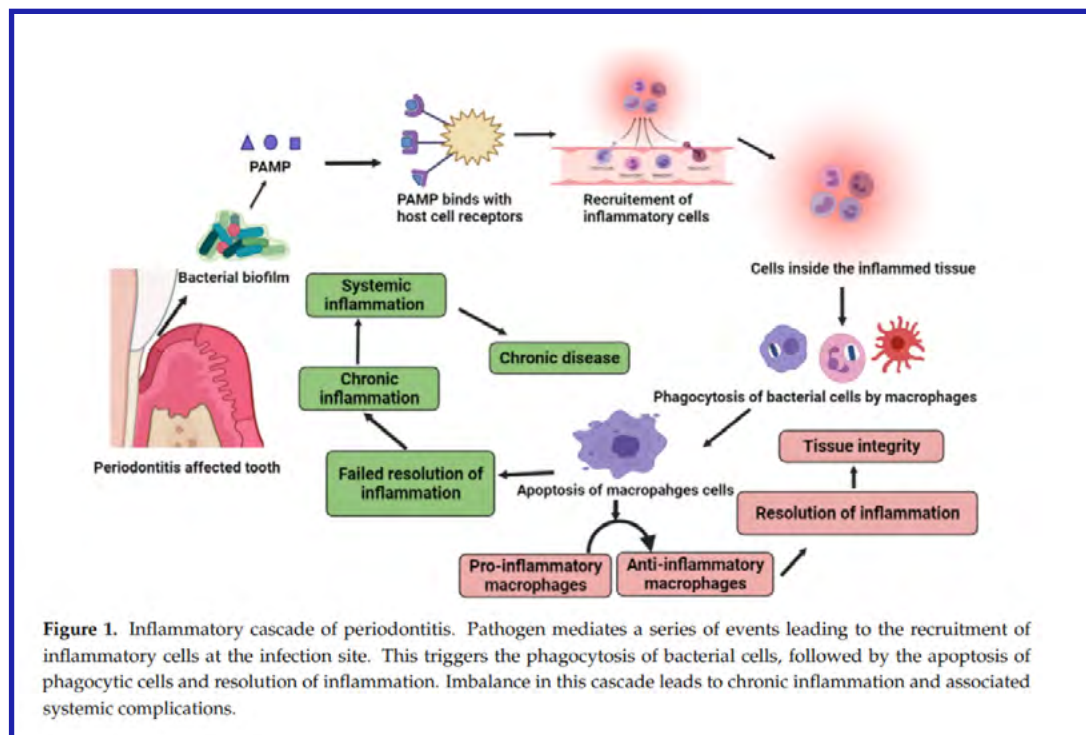
WHOLE-BODY HEALTH BEGINS IN THE MOUTH

CREATED IN COLLABORATION WITH ARIANA EBRAHIMIAN, DDS

As a natural healthcare practitioner, whole-body health is your specialty. More than ever, research is validating that oral health is foundational in setting the stage for vibrant health in the rest of the body. Oral hygiene is already a part of daily health routines for most people. Adding microbiome-balancing solutions establishes health in the mouth as a fundamental part of comprehensive care.

Periodontal disease (PD) encompasses gingivitis and periodontitis, two chronic oral inflammatory conditions. They are the **most common inflammatory illnesses globally**, impacting nearly 50% of adults 30 years and older and 70% of adults 65 or older.<sup>1</sup>

Clinically, the failure to treat PD leads to loss of teeth and increases the risk of a multitude of chronic, systemic illnesses. Central to PD is persistent inflammation as a result of oral dysbiosis and infection, and subsequent production of inflammatory mediators and irritating microbial metabolites.<sup>2</sup> Local inflammation causes destruction of connective tissue, leading ultimately to alveolar bone loss and finally, characteristic chronic and progressive destruction.<sup>3</sup>



<https://pdfs.semanticscholar.org/a8b5/f20dc632c9e5f0acc35908906e4d95840632.pdf>

<sup>1</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7841426/>

<sup>2</sup> <https://pubmed.ncbi.nlm.nih.gov/23915822/>

<sup>3</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7841426/>

## Microbial movement

### THE PROBLEM SPREADS

The bloodstream adjacent to the periodontal pocket is a mere single-cell layer thick. This creates the potential for:

- The transfer of bacterial products (e.g., lipopolysaccharides, virulence factors) and inflammatory mediators from host defense (e.g., cytokines, chemokines, arachidonic acid, proteolytic enzymes).<sup>2</sup>
- The translocation of the microbes themselves into the bloodstream, where they travel to distant sites such as the heart, lungs, brain, and joint spaces.

Movement of these microbes and mediators into the vasculature creates systemic inflammation and increases the risk for illnesses (see those listed on pg. 3).

## Risk factors for gingival and periodontal conditions

Specific populations are more susceptible to PD, including:

- Those with diets high in refined carbohydrates (feeds pathogenic microorganisms and alters oral pH)
- Smokers (promotes inflammation and dysbiosis)
- Mouth breathers / those with apnea (alters microbial niche and pH, resulting in microbial dysbiosis)
- Pregnant women (hormone changes cause “microbial shift” and frailty of blood vessels)
- Immunosuppressed individuals (results in insufficient host defense against pathogens and opportunistic microorganisms)



<sup>2</sup> <https://pubmed.ncbi.nlm.nih.gov/23915822/>

## The oral cavity as the gateway to systemic health

When oral dysbiosis occurs, pathogenic bacteria reach levels that may lead to infections, such as tooth decay and gum disease,<sup>4</sup> and ultimately to a predisposition for many systemic diseases and conditions. Research has shown that more than 120 diseases originate in the mouth.<sup>5</sup>



Cognitive  
Decline



Oral Health  
Issues



Cardiovascular  
Disease



Metabolic  
Health Issues



Respiratory  
Health Issues



G.I.  
Discomfort



Rheumatoid  
Arthritis



Weight  
Management

### Cognitive Decline

Poor oral health and periodontitis are associated with increased risk of dementia and Alzheimer's disease.<sup>6</sup>

### Neurological Health

Oral dysbiosis is associated with neuroglial activation, anxiety, depression, insomnia, brain fog, and poor concentration.<sup>6</sup>

### G.I. Discomfort

Dysbiosis (imbalance of microorganisms) in the mouth may translocate to the G.I. tract and contribute to discomfort such as gas, bloating, belching, reflux, abdominal pain, and/or altered stool function. Remember: **What grows in the mouth will grow in the gut!**<sup>8</sup>

### Metabolic Health Issues

People with gum disease have more difficulty controlling their blood sugar levels, while gum disease appears more frequent and severe among people with diabetes.<sup>7</sup>

### Cardiovascular Disease (CVD)

Oral bacteria have been found in arterial plaques and the inner lining of the heart chambers and valves. People with periodontal disease are 25% more likely to develop cardiovascular disease.<sup>8</sup>

### Autoimmunity

The translocation of oral microorganisms, their components, or their metabolites from periodontal tissues could be involved in the occurrence of autoimmune responses at a systemic level.<sup>9</sup>

### Rheumatoid Arthritis (RA)

*Aggregatibacter actinomycetemcomitans* (Aa) is associated with gum disease and a process known as hypercitrullination (the formation of immune complexes that can initiate autoimmune activity). RA patients have elevated citrullinated proteins in the joint space, and half of RA patients have evidence of Aa infection. Treating periodontal disease has been shown to reduce pain caused by RA.<sup>10</sup>

### Respiratory Health Issues

Bacteria in your mouth can be respired into your lungs, causing pulmonary dysbiosis, pneumonia, and a predisposition to other respiratory diseases.<sup>6</sup>

### Weight Management

Research shows that people with higher body weight have subpar oral health, including oral inflammation, cavities, and periodontitis. Conversely, poor oral health can affect blood glucose control and may contribute to weight gain.<sup>11</sup>

<sup>4</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4346134/>

<sup>5</sup> [https://www.google.com/url?q=https://www.dentalinjury.com/blog/entry/2019/Dentists-Can-Identify-up-to-120-Diseases-in-Your-Mouth&sa=D&source=docs&ust=1659726865432277&usq=ACvVaw37kvwjvqbgAxxv\\_vX2MJI](https://www.google.com/url?q=https://www.dentalinjury.com/blog/entry/2019/Dentists-Can-Identify-up-to-120-Diseases-in-Your-Mouth&sa=D&source=docs&ust=1659726865432277&usq=ACvVaw37kvwjvqbgAxxv_vX2MJI)

<sup>6</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6468093/>

<sup>7</sup> <https://www.frontiersin.org/articles/10.3389/fpsyg.2021.814177/full>

<sup>8</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7375741/>

<sup>9</sup> <https://www.frontiersin.org/articles/10.3389/fimmu.2020.591255/full>

<sup>10</sup> <https://www.hopkinsrheumatology.org/2017/01/gum-disease-linked-to-rheumatoid-arthritis/>

<sup>11</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5813989/>

## Microbes in the mouth

### MICROBIAL MISCREANTS

Although there are hundreds of microorganisms in the mouth, research has shown there are several pathogens that can result in the development of PD and associated systemic illnesses.

Class	Notable Bugs	Associated Illness
<b>Gram-negative bacteria</b>	<i>Porphyromonas gingivalis</i>	PD, endothelial dysfunction, Alzheimer's, IBD, insulin resistance, colorectal cancer, pneumonia
	<i>Treponema denticola</i>	A main etiological bacteria of PD
	<i>Aggregatibacter actinomycetemcomitans</i>	RA, CVD, Alzheimer's, pneumonia
<b>Gram-positive bacteria</b>	<i>Streptococcus mutans</i>	Biofilm/plaque formation, dental caries
<b>Fungal</b>	<i>Candida albicans</i>	Plaque formation, esophagitis, thrush, SIFO, disseminated infection

## Clinical Pearl #1 – Biofilms play a significant role in the oral microbiome

Biofilms are a matrix produced by microorganisms that serve as a survival mechanism, allowing them to prevail against adverse environmental factors, including host immune activity and antimicrobials. They are composed of various microbial organisms (including bacterial, fungal, and viral species), extracellular matrix proteins, and metabolites – some of which are inflammatory and/or pathogenic. In the mouth, teeth provide an ideal, non-shedding surface. Plaque is an example of a biofilm.

Biofilms can form in less than an hour, are responsible for 80% of all chronic infections, and are highly resistant to antibiotics.<sup>12</sup>

Neutrophils are the primary immune defense against biofilms in the mouth – but cannot effectively reach biofilm-associated bacteria. As they attack biofilms, they set off an inflammatory cascade that develops into gingivitis, periodontitis, a periodontal pocket, and finally, the destruction of surrounding tissue. Biofilms containing pathogenic organisms must be addressed as part of an effective oral and whole-body health strategy.

<sup>12</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8300799/>

## Biofilms play a significant role in the oral and gut microbiomes

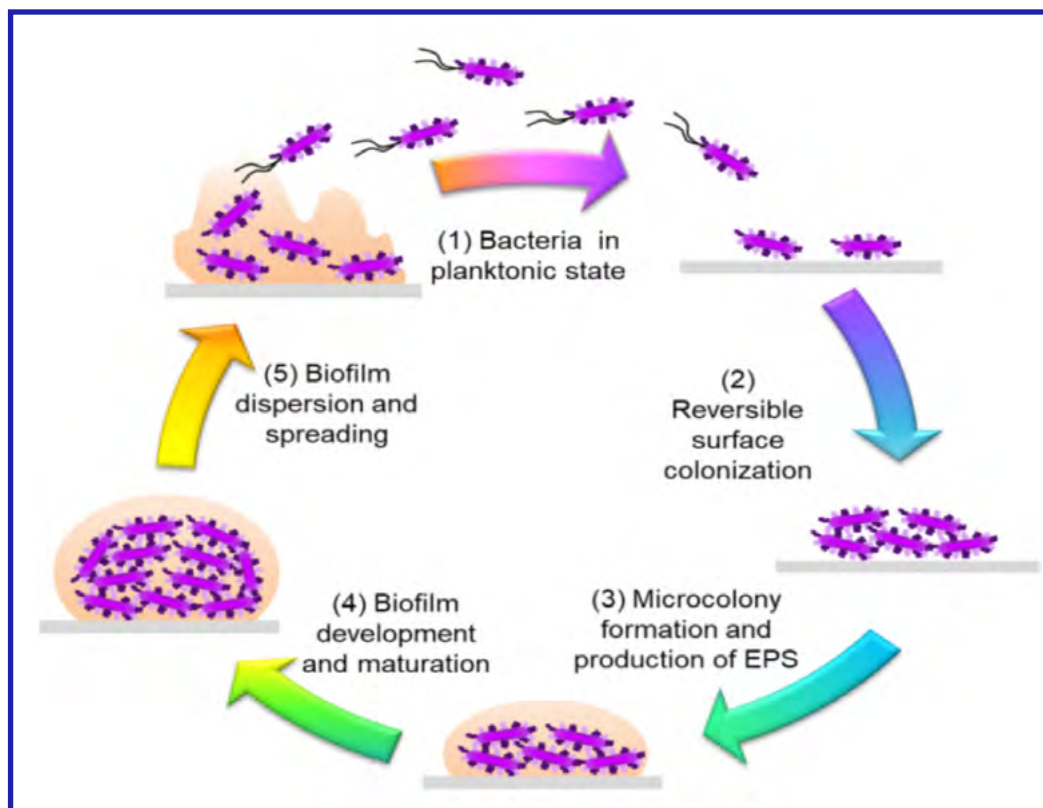


Figure 2. Life cycle of a biofilm

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8899562/>

## Clinical Pearl #2 – The gut microbiome is affected

Research shows that **what grows in the mouth will grow in the gut!**<sup>8</sup>

There are 700+ species of bacteria in the mouth.<sup>13</sup> In one milliliter of saliva, there are  $10^8$  microorganisms, and we swallow one liter or more of saliva each day! Consequently, the bacteria, yeast, archaea, viruses, and amoeba that flourish there can translocate to the gastrointestinal (GI) tract.



<sup>8</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7375741/>

<sup>13</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3800425/>

## Botanical solutions for addressing oral health

BY ARIANA EBRAHIMIAN, DDS

Biocidin Botanicals® has created a two-step Oral Care System. Dentalcidin® Toothpaste and Dentalcidin® LS Liposomal Rinse are **Dentaceuticals™** – natural dental formulations that improve the health of teeth and gums, ultimately supporting whole-body wellness.

The primary active ingredient in both products is Biocidin®, a proprietary, broad-spectrum botanical blend that supports healthy microbial balance, modulates immune activity, and maintains a healthy inflammatory response.\* It also disrupts plaque (biofilm), leaving teeth feeling exceptionally clean.\* This revolutionary approach is “functional medicine for the mouth,” a natural solution that supports fresh breath, healthy tissue, and clean, white teeth – all while preserving oral microbial balance.\*

Together, Dentalcidin® Toothpaste and Dentalcidin® LS Liposomal Rinse:

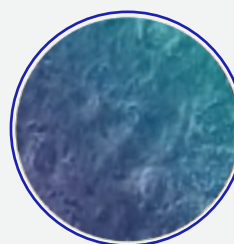
- Assist in removing oral plaque (biofilm)\*
- Revitalize gums, even reducing pocket-probing depth\*
- Whiten teeth, remove stains, and freshen breath\*
- Support oral microbiome balance for whole-body health\*

Combined with probiotics for microbiome support, lifestyle recommendations, and a regular dental health program, they provide a breakthrough solution for healthy oral microbial balance.

### The Power of Biocidin®

SERIOUS SCIENCE BEHIND EVERY SMILE®

Dentalcidin® LS contains the liposomal form of Biocidin®, our clinically effective, evidence-based botanical blend. Research using phase-contrast microscopy confirms the power of this broad-spectrum formulation.



BEFORE



AFTER

The botanical blend in Dentalcidin® LS effectively clears away unwanted microbes contained in dental plaque.

### Questions?

For clinical questions, email [clinical@biocidin.com](mailto:clinical@biocidin.com)  
or call 800-775-4140, x3.

## Therapeutic plan suggestions



### Oral Microbiome and Biofilm Support

CORE PROTOCOL	
Dentalcidin®	1-3x/day
Dentalcidin® LS	2 pumps 2x/day
Dentalflora™	Dissolve 1 tablet in mouth daily at bedtime, at least 30 minutes away from Dentalcidin® LS, other oral care, food, or drinks
ADDITIONAL SUPPORT	
Proflora™ 4R	1 capsule any time

### Additional supplements to consider for oral & gut health support

Vitamin D3	Regulates genes that affect inflammation and immunity, mood regulation; aids in sleep
Methylated B vitamins	Important for connective tissue health
Vitamins A, C, E	Antioxidant support
Vitamin K2	Gets calcium into teeth and bones
CoQ10 (ingredient in Dentalcidin® LS)	Supports healthy oral mucosa
Omega-3	Helps prevent gum disease, anti-inflammatory

### Additional suggestions

- Recommend regular cleanings and oral health exams for proper prevention and early detection.
- The oral and GI microbiomes are intimately related. Pilot research indicates addressing dysbiosis originating in the GI tract with our [Bioclear® Microbiome Detox Program](#), which may reduce oral pathogens commonly associated with PD, and risk of infection during dental procedures.
- Recommend drinking plenty of purified water for salivary formation and flow.
- Evaluate lifestyle factors (assess smoking, alcohol consumption, and stress).
- Encourage regular brushing and flossing to help with the mechanical reduction of biofilms.