Pathogens Identified in Periodontal Disease, Root Canals & Cavitations

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Many people in our community are deeply curious about the science that connects oral infections to systemic disease. Genuine Biological Dentists are complete science geeks — if we make a claim, we want the literature to back it up.

Root canal teeth, cavitations, periodontal pockets, and chronic oral infections often harbor bacteria, fungi, viruses, protozoa, and even stealth pathogens that should not be present in significant amounts in a healthy mouth. These microbes can migrate, enter the bloodstream, trigger inflammation, dysregulate the immune system, and contribute to chronic illness.

Below is an EXTENSIVE, organized, evidence-supported overview of the pathogens most commonly found in chronic oral infections — along with peer-reviewed studies documenting their systemic links. This is not exhaustive, but it highlights the major players you need to know. THIS is what the conventional world is trying to tell you is NOT a big deal, that there is NO relation to systemic health, and that you will be FINE. See the videos at the end that highlight some of the issues people find in their own bodies.

Oral & Gut Bacteria Implicated in Systemic Disease

These two studies show how Fusobacterium nucleatum, a bacterium from the mouth, can travel to other parts of the body and cause serious diseases like cancer and heart disease. One study explains how this bacterium helps colon cancer spread by changing how cells behave, while the other reviews all the different diseases linked to this oral bacterium.

- PMC9673791 - https://pmc.ncbi.nlm.nih.gov/articles/PMC9673791/
- PMID 34162680 - https://pubmed.ncbi.nlm.nih.gov/34162680/

Porphyromonas endodontalis is a bacterium commonly found in infected root canals that can invade cardiovascular cells and increase heart disease risk. One study showed it can directly penetrate coronary artery cells in the lab, while another found that root canal infections with this bacterium are linked to higher inflammation markers and cardiovascular risk in patients.

- PMID 34313848 - https://europepmc.org/article/pmc/8017189
- PMID 12059938 - https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0149618

Both studies show that *Prevotella intermedia*, a bacterium from gum disease, is found at higher levels in pregnant women who deliver prematurely. One study found that women with preterm births had significantly more *P. intermedia* in their gums after delivery, while the other confirmed that higher proportions of this bacterium correlate with shorter pregnancies and worse periodontal disease.

- PMID 17470016 - https://oamjms.eu/index.php/mjms/article/view/4444
- PMC10499342 - https://pmc.ncbi.nlm.nih.gov/articles/PMC10499342/

Prevotella nigrescens is a pigmented bacterium commonly found in gum disease that can also cause infections outside the mouth, including respiratory infections. This bacterium contributes to periodontal disease by forming biofilms and producing enzymes that damage gum tissue, and it has been detected in various non-oral infections like lung infections, showing how oral bacteria can spread to other body parts and cause disease.

- PMC9662046 - https://pmc.ncbi.nlm.nih.gov/articles/PMC9662046/

Dialister invisus is a bacterium commonly found in infected root canals that has also been detected in patients with Crohn's disease, suggesting it may migrate from the mouth to the gut and contribute to intestinal inflammation. One study first identified this species in root canal infections, while another review discusses how gut dysbiosis in inflammatory bowel disease involves disrupted immune responses that allow harmful bacteria to trigger chronic inflammation.

- PMID 14657126 - https://pubmed.ncbi.nlm.nih.gov/14657126/
- PMC5334117 - https://pmc.ncbi.nlm.nih.gov/articles/PMC5334117/

These two studies show that Tannerella forsythia, a gum disease bacterium, can worsen heart disease by disrupting cholesterol metabolism and increasing inflammation. One study found that the bacterium's surface protein (BspA) accelerates plaque buildup in arteries by raising bad cholesterol and lowering good cholesterol, while

the other showed that chronic oral infection with T. forsythia increases inflammatory markers linked to atherosclerosis.
• PMID 25663343 - https://pubmed.ncbi.nlm.nih.gov/25663343/
• PMID 24372897 - https://europepmc.org/article/med/16567960

Treponema denticola is a spiral-shaped bacterium from gum disease that can travel to the brain and trigger Alzheimer's-like changes. One study showed it causes brain cells to die by increasing toxic amyloid-beta protein buildup, while the other found it creates abnormal tau protein tangles by activating brain inflammation—both hallmark features of Alzheimer's disease.
• PMC9610539 - https://pmc.ncbi.nlm.nih.gov/articles/PMC9610539/
• PMID 35193423 - https://pubmed.ncbi.nlm.nih.gov/35193423/

Enterococcus faecalis is a tough bacterium commonly found in root canals that failed treatment, and it can also cause serious heart infections called endocarditis. One study explains that E. faecalis is a leading cause of heart valve infections worldwide and requires prolonged antibiotic treatment because it resists many common drugs. The other study found that while oral bacteria cause about 10% of heart valve infections requiring surgery, the mouth can still be a source of these dangerous infections.
• PMC10135260 - https://pmc.ncbi.nlm.nih.gov/articles/PMC10135260/
• PMC9276723 - https://pmc.ncbi.nlm.nih.gov/articles/PMC9276723/

Pseudoramibacter alactolyticus is a bacterium commonly found in infected root canals, especially in teeth with chronic bone lesions around the root tip. This study found P. alactolyticus in 76% of teeth with painless infections and 60% of teeth with painful infections, making it one of the most common bacteria in root canal infections that don't respond well to treatment.
• PMID 14651280 - https://pubmed.ncbi.nlm.nih.gov/14651280/

Staphylococcus aureus is a bacterium that can cause life-threatening infections including sepsis (overwhelming bloodstream infection), heart valve infections (endocarditis), and bone infections (osteomyelitis). One study explains that S. aureus is a leading cause of these serious infections worldwide, while the other found that while oral bacteria cause about 10% of heart valve infections, the skin and gut are more common sources than the mouth.
• PMC4451395 - https://pmc.ncbi.nlm.nih.gov/articles/PMC4451395/
• PMC9276723 - https://pmc.ncbi.nlm.nih.gov/articles/PMC9276723/

Legionella pneumophila is a bacterium that lives in contaminated water systems, including dental waterlines, and causes a severe lung infection called Legionnaires' disease when people breathe in water droplets containing the bacteria. One study found that dental workers and patients face infection risks from aerosols created during dental procedures, while another documented a fatal case where an immunocompromised patient contracted Legionnaires' disease from a contaminated dental unit water outlet.
• PMC5735387 - https://pmc.ncbi.nlm.nih.gov/articles/PMC5735387/
• PMID 6358250 - https://europepmc.org/article/med/6358250

Mycoplasma species are bacteria that can trigger autoimmune diseases by causing the immune system to mistakenly attack the body's own tissues, leading to chronic inflammation and symptoms like fatigue. The study found that Mycoplasma pneumoniae infection can cause a condition called mucosal respiratory syndrome, where the infection triggers severe inflammation of mucous membranes without skin involvement, demonstrating how these bacteria can provoke exaggerated immune responses that damage tissues beyond the initial infection site.
• PMC8089407 - https://pmc.ncbi.nlm.nih.gov/articles/PMC8089407/

Chlamydia pneumoniae is a respiratory bacterium that can travel from the mouth to other parts of the body and trigger heart disease and brain damage. One study found C. pneumoniae DNA in 29% of heart artery plaques from bypass surgery patients, while another showed the bacterium lives in dental plaque of gum disease patients and causes inflammation by activating immune pathways linked to atherosclerosis.
• PMC6444558 - https://pmc.ncbi.nlm.nih.gov/articles/PMC6444558/
• PMID 26573036 - https://pmc.ncbi.nlm.nih.gov/articles/PMC4873590/

Actinomyces species are bacteria normally found in the mouth that can cause chronic infections characterized by abscesses, draining sinus tracts (tunnels that leak pus), and tissue destruction, especially in the face and neck area called cervicofacial actinomycosis. These infections can spread beyond the mouth to other body parts including the lungs, abdomen, brain, and bones, often mimicking cancer and requiring months of antibiotics to cure.
- PMC4094581 - https://pmc.ncbi.nlm.nih.gov/articles/PMC4094581/
- PMC4402957 - https://pmc.ncbi.nlm.nih.gov/articles/PMC4402957/

Fungal Organisms Found in Chronic Oral Infections

Candida albicans is a fungus normally found in the mouth and gut that can overgrow when the body's balance is disrupted, causing thrush (white patches in the mouth), inflammation throughout the body, and damage to the gut lining that allows harmful substances to leak into the bloodstream. One study showed that oral thrush can damage mouth tissue and allow dangerous bacteria to spread through the body, while the other explained how disruptions in the immune system or microbiome allow Candida to switch from harmless to harmful.
- PMC7151112 - https://pmc.ncbi.nlm.nih.gov/articles/PMC7151112/
- PMID 25422264 - https://pubmed.ncbi.nlm.nih.gov/25422264/

Aspergillus species are mold spores found everywhere in the environment that can colonize damaged lung tissue (like old tuberculosis cavities) and cause life-threatening invasive infections in people with weakened immune systems, such as cancer patients or transplant recipients. The study found Aspergillus contaminating dental equipment water, which poses infection risks especially to immunocompromised dental patients exposed to aerosols during procedures
- PMID: 28695189 - https://pubmed.ncbi.nlm.nih.gov/28695189/

Protozoa & Archaea Found in Oral Infections

Entamoeba gingivalis is a single-celled parasite found in gum disease that may actively contribute to inflammation and tissue destruction, not just live harmlessly in diseased pockets. One study found E. gingivalis in 43% of patients with periodontal disease, with higher rates in more severe cases, while the other review argues this parasite should be reconsidered as a potential pathogen that helps drive periodontitis rather than just being a bystander.
- PMID 38792919 - https://pubmed.ncbi.nlm.nih.gov/38792919/
- PMID 30420943 - https://pubmed.ncbi.nlm.nih.gov/30420943/

Trichomonas tenax is a single-celled parasite (protozoan) found much more frequently in gum disease than in healthy mouths, with studies showing it in about 39% of diseased periodontal pockets compared to rarely in healthy sites. This flagellated organism can trigger inflammation by stimulating immune cells to release inflammatory molecules, produce tissue-damaging enzymes, and may directly contribute to the breakdown of gum tissue and bone that characterizes periodontitis.
- PMID 35612794 - https://pubmed.ncbi.nlm.nih.gov/35612794/

These two studies show that Methanobrevibacter oralis, a methane-producing archaeon (a microorganism distinct from bacteria), is strongly linked to severe gum disease and may help harmful bacteria thrive by creating favorable conditions in diseased gum pockets. One landmark study found M. oralis in 36% of periodontitis patients but only in diseased sites, with its abundance correlating directly with disease severity and decreasing after treatment. The comprehensive review confirms M. oralis has been detected in periodontal disease, root canal infections, and even brain abscesses, suggesting it can spread beyond the mouth and contribute to systemic inflammation.
- PMC395942 - https://pmc.ncbi.nlm.nih.gov/articles/PMC395942/
- PMC11536694 - https://pmc.ncbi.nlm.nih.gov/articles/PMC11536694/

Viruses Identified in Oral Infections and Jaw Lesions

Cytomegalovirus (CMV) is a common virus that can infect blood vessel walls and trigger heart disease by causing chronic inflammation and activating immune cells that damage arteries. One study found CMV DNA in atherosclerotic plaques and showed it correlated with inflammation markers like C-reactive protein, while the other review explains how CMV infects various vascular cells—including endothelial cells, smooth muscle cells, and immune cells—causing oxidative stress, abnormal lipid metabolism, and persistent inflammation that accelerates plaque formation and atherosclerosis.
- PMC5015295 - https://pmc.ncbi.nlm.nih.gov/articles/PMC5015295/
- PMID 32253424 - https://pico.polito.it/discovery/fulldisplay?

Epstein-Barr virus (EBV) is commonly found in diseased gum tissue and can switch between dormant and active states, triggering inflammation by recruiting immune cells (B-cells and plasma cells) that damage the gum's protective barrier. One study found EBV DNA equally in healthy and diseased gums, but in periodontitis the virus showed both dormant and active patterns linked to increased inflammation and tissue breakdown, while the other review explains how EBV detection methods help researchers understand its role in gum disease and potentially other systemic diseases.
• PMC7823867 - https://pmc.ncbi.nlm.nih.gov/articles/PMC7823867/
• PMC11909788 - https://pmc.ncbi.nlm.nih.gov/articles/PMC11909788/

HSV-1 (Herpes Simplex Virus) has been linked to encephalitis and Alzheimer's disease pathways. **Herpes Simplex Virus type 1 (HSV-1) can enter the brain and cause severe encephalitis (brain inflammation), but it's also linked to Alzheimer's disease by triggering the buildup of toxic proteins like amyloid-beta and tau tangles that damage brain cells and memory over time.**
• PMC4575419 - https://pmc.ncbi.nlm.nih.gov/articles/PMC4575419/
• PMC2996373 - https://pmc.ncbi.nlm.nih.gov/articles/PMC2996373/

Human Papillomavirus (HPV) can infect the mouth and throat, causing benign lesions like warts but also leading to cancers of the oropharynx (throat), cervix, anus, and other areas. One study found that HPV-positive oropharyngeal cancer patients had better survival than HPV-negative patients, while the other review explains how oral HPV infections can be transmitted through sexual contact or mouth-to-mouth contact and may persist, eventually causing cancer in some cases.
• PMID 30178562 - https://pubmed.ncbi.nlm.nih.gov/30178562/
• PMID 28378539 - https://pmc.ncbi.nlm.nih.gov/articles/PMC5430083/

T**Torque Teno Virus (TTV) is a harmless virus found in most people, but when someone's immune system is weak or not working properly, TTV levels in the blood increase significantly.** One study found TTV is common in liver disease patients' saliva and blood, while the other review showed that higher TTV levels correlate with weakened immunity in transplant patients, cancer patients, and HIV patients, making it a potential marker to measure how well someone's immune system is functioning.
• PMC10325656 - https://pmc.ncbi.nlm.nih.gov/articles/PMC10325656/
• PMC12257264 - https://pmc.ncbi.nlm.nih.gov/articles/PMC12257264/

Lyme-Related and Stealth Pathogens Found in Root Canals & Cavitations

Borrelia burgdorferi — the Lyme organism — I have seen reports from testing my patients that show lyme disease pathogens, but the literature on it is sparse at best. This was a tenuous find at best.
• PMID 10442678 - https://pubmed.ncbi.nlm.nih.gov/10442678/
• PMC11679815 - https://pmc.ncbi.nlm.nih.gov/articles/PMC11679815/

Bartonella henselae contributes to vascular inflammation and has been identified in jawbone lesions.
• PMC85877 - https://pmc.ncbi.nlm.nih.gov/articles/PMC85877/
• PMC9973681 - https://pmc.ncbi.nlm.nih.gov/articles/PMC9973681/

Babesia microti, a malaria-like parasite, is associated with chronic systemic infections and immune dysfunction.
• PMID 12525424 - https://pubmed.ncbi.nlm.nih.gov/12525424/

Rickettsia species have been implicated in chronic inflammatory states and intracellular persistence.
• Rickettsia Overview - https://pubmed.ncbi.nlm.nih.gov/34776994/

Why This Matters in Biologic Dentistry

The mouth is not isolated from the rest of the body. Chronic oral infections — especially those hidden inside root canal–treated teeth or cavitations — can serve as reservoirs for pathogens that contribute to systemic inflammation, immune dysregulation, cardiovascular disease, neurodegeneration, chronic fatigue, autoimmune conditions, and more.

We are not sterile organisms. We rely on a balanced microbiome. The goal is not to kill everything — it is to restore harmony, reduce pathogenic load, and support the immune system.
That often requires coordinated care between a biological dentist and a functional or integrative physician who understands oral–systemic pathways.

Additional Resources on Extractions and Cavitations:

- **Alternatives to Root Canals in Biological Dentistry Part 1) https://www.orabiologics.com/resource-library/alternatives-to-root-canals-in-biological-dentistry%3A--part-one**
- **Alternatives to Root Canals in Biological Dentistry Part 2: https://www.orabiologics.com/resource-library/alternatives-to-root-canals%2C-part-2**

- **Biological Extractions: Ensuring Proper Healing and Meridian Restoration https://www.orabiologics.com/resource-library/biological-extractions%3A-ensuring-proper-healing-and-meridian-restoration**
- **Videos about what happens when you restore Meridians: https://www.orabiologics.com/resource-library/let's-talk-about-meridians**
- **What biological Extractions look like at Holistic Dental Associates: https://www.orabiologics.com/resource-library/biological-extractions%3A-ensuring-proper-healing-and-meridian-restoration**