



AAOSH:

Foundations of Oral Systemic Health
and the Medical-Dental Connection

THE MOUTH IS THE GATEWAY to the body, plain and simple. Many chronic conditions and illnesses first show symptoms in the mouth. The oral systemic link focuses on detecting, preventing, and treating conditions and illnesses including heart disease, sleep disorders, diabetes, periodontal disease, and more. This can be done by educating dental and medical practitioners/clinicians and encouraging them to collaborate to cure.

The mouth is, was, and forever will be part of the body. The old model in traditional medicine of treating symptoms and body parts in isolation is flawed. Pioneers in functional medicine like Dr. Mark Hyman, Dr. Mike Roisen, Dr. Josh Axe, Dr. Joel Fuhrman, Dr. Amy Doneen, Dr. Brad Bale, and a host of others are leading the charge in functional medicine. They do not ask questions like “what do we have?” but rather “why do we have it?” They understand that body parts and organ systems are connected via the bloodstream, the lymphatic system, the endocrine system, the gastrointestinal system, the nervous system, and the immune system...separation of organ systems and body parts does not exist. They understand that what happens in one part of the body affects the entire being. The mouth is just one example, albeit a very potent one.

WHY DOES THE ORAL SYSTEMIC LINK MATTER AND WHY SHOULD MEDICAL AND DENTAL COMMUNICATE?

Dentists and physicians can create health for patients. The science is there, and the science is clear. At this point, we don't need more research—we need more collaboration! It is estimated that up to 60%, possibly 80%, of adults have some form of chronic inflammatory illness. It is clear that a healthy mouth is VITAL for a healthy body.

50% of Americans over age 30 have periodontal disease

70% of Americans over age 65 have periodontal disease

...and most of them don't even know it! Even worse, it is estimated that only 5% of them will get treated.

Up to 57 systemic conditions have already been studied and hypothesized to be linked with periodontal diseases. When we see patients with increased risk, we should be looking hard for other associated diseases that need a physician's care.

“Inflammation is the root of all medical evil and often the root is the roots of the teeth. If we don't have a partnership where we identify that, we will never be able to get the patient optimally well.”

Ellie Campbell, DO



**JOIN
AAOSH
TODAY!**

RELATIONSHIPS BETWEEN ORAL HEALTH AND SYSTEMIC DISEASE

Though you might not be hearing about it until now, the science has been clear for some time on how closely related your oral health is to your whole-body health. Systemic disease continues to rise, and detection and prevention are more important now than ever.

Diabetes' Relationship With Oral Health

Diabetes puts your patients' bodies at an increased risk for infection...and that includes infections in the mouth! 95% of people with diabetes also have periodontal disease. Many people who have diabetes or prediabetes have not even been diagnosed with one or the other. Periodontal disease can make balancing blood sugar levels more difficult, which can lead to catastrophic health risks for diabetic patients who aren't being treated properly. All periodontal patients should know their diabetic status, and vice versa!

[Click here to learn how to help manage your or your patient's diabetic status.](#)

Cardiovascular Disease and Periodontal Disease

Periodontal disease is directly linked to artery inflammation. Bacteria from the mouth enter the bloodstream and cause arteries to harden, which in turn increases a patient's risk for stroke or heart attack.

Periodontal Disease and Inflammation in the Body

Periodontal disease is a chronic inflammatory disease that can be treated and managed. When the mouth and teeth are not adequately cared for, bacteria infect the tissue, creating inflammation in the mouth. Testing is available for dental professionals to help create proper treatment plans. A dental professional should have the knowledge to properly create a treatment plan to help minimize the damage periodontal disease will wreak on the patient's systemic health.

Emerging Science that Links Oral Health and Systemic Disease

Studies have shown oral infections to have drastic and life-altering effects on systemic diseases including hypertension, adverse pregnancies, diabetes, Alzheimer's disease, arthritis, and more.

[Click here to view the Oral Systemic Health Section or ADG.](#)

Science shows that the current standard of care is not enough to fight the battle of systemic disease. Heart attacks and strokes impact over 1 million Americans each year, over 37 million Americans (1 in 10) have diabetes, and Periodontal disease affects roughly HALF of all adults. Salivary testing and diagnostics are available to practitioners to detect subclinical diseases. These tools can be used to provide a higher standard of treatment and change the trajectory of your patient's lives.

"A physician cannot manage a disease comprehensively and a dentist cannot manage periodontal disease comprehensively without stable blood sugar and other things as well. This is where the collaborative bidirectional relationship [between dentists and physicians] comes in."

Doug Thompson, DDS

12 FACTS YOU CAN'T IGNORE

About the Mouth-Body Connection



80% of American adults over 35 have some form of gum disease.



95% of Americans who have diabetes also have periodontal disease.

ALZHEIMER'S DISEASE

Oral bacteria have been implicated in the development of Alzheimer's disease and dementia.

OBSTRUCTIVE SLEEP APNEA

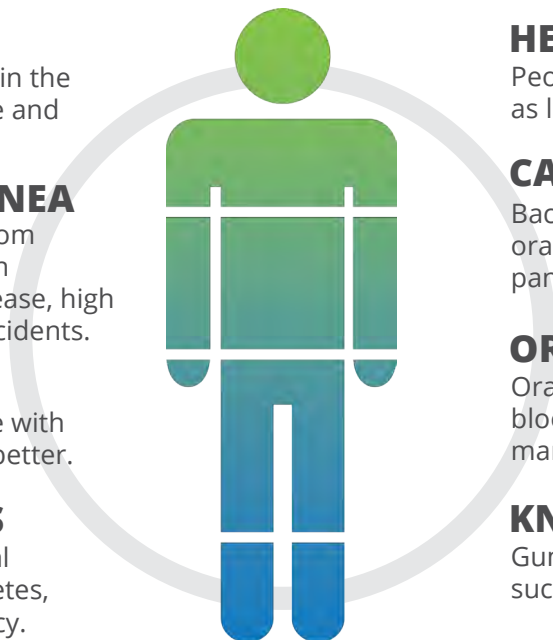
Over 25 million Americans suffer from obstructive sleep apnea, a condition associated with diabetes, heart disease, high blood pressure, obesity, and car accidents.

DIABETES

Periodontal treatment helps people with diabetes control their blood sugar better.

LOWER MEDICAL COSTS

Treating gum disease lowers annual medical costs associated with diabetes, stroke, heart disease, and pregnancy.



HEART DISEASE

People with gum disease are nearly twice as likely to suffer from heart disease.

CANCERS

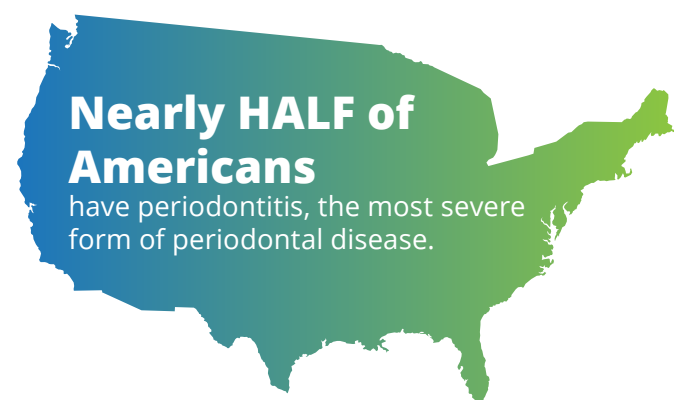
Bacteria in the mouth have been linked to oral, esophageal, lung, colorectal, pancreatic, and breast cancers.

ORGAN DAMAGE

Oral bacteria travel through the bloodstream and can have an effect on many organs and processes.

KNEE REPLACEMENT

Gum disease can interfere with the success of knee replacement surgery.



Nearly HALF of Americans

have periodontitis, the most severe form of periodontal disease.

<http://www.colgate.com/en/us/oc/oral-health/conditions/gum-disease/article/periodontal-disease>
https://www.adha.org/resources-docs/7228_Oral_Health_Total.pdf
<https://www.ncbi.nlm.nih.gov/pubmed/21933454>
<http://aadsom.org/sleepapnea.aspx>
<http://onlinelibrary.wiley.com/doi/10.1111/joor.12339/full>
<https://www.unitedconcordia.com/dental-insurance/dental/conditions/ucwellness-oral-health-study/results-ucwellness-oral-health-study/>
Fehrenbach MJ, Herring SW. Illustrated Anatomy of the Head and Neck. 4th ed. St. Louis, MO: Elsevier; 2012:127-151.
<http://aadsom.org/sleepapnea.aspx>
<https://www.ncbi.nlm.nih.gov/pubmed/24921460>
<https://www.perio.org/consumer/cdc-study.htm>
<http://www.colgate.com/en/us/oc/oral-health/life-stages/oral-care-during-pregnancy/article/pregnancy-oral-health-and-your-baby>
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3004155/>

“

Women with severe periodontal disease were found to have seven times the risk of giving birth early as women who had healthy gums. They also had seven times the risk of having a baby with a low birth weight.

Oral bacteria traveling through the bloodstream have been found to cause stillbirth.



WORLD LEADERS IN PROACTIVE HEALTHCARE COLLABORATION

Are you at risk?

Take our Free Risk Assessment on the other side of this flyer and discuss the results with your dentist.

Let's take a deeper dive into oral systemic health...

15 DISEASES ASSOCIATED WITH POOR DENTAL HYGIENE



1. Periodontal Disease

Your risk for any condition on this list will be heightened at the first sign of periodontal disease.

About half of all Americans have some form of periodontal disease, which continues to increase each year. Periodontal disease decreases your ability to fight infection and inflammation, while increasing your risk of severe systemic health consequences. Few people understand the risk factors for developing periodontal diseases, or the consequences periodontal disease has on systemic health.

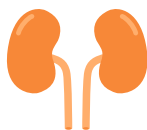
The word "periodontal" means "around the tooth." Periodontal disease, also known as gum disease, results from infections and inflammation in the mouth. When the mouth and teeth are not adequately cared for, bacteria infects the tissue, creating inflammation in the mouth.



2. Obstructive Sleep Apnea

One of the first signs of obstructive sleep apnea is teeth grinding—a sign dentists and hygienists should look for in all patients. Grinding teeth can cause cavities or inflamed gums, increasing susceptibility to infection. Sleep apnea is linked to high blood pressure, heart disease, headaches and so much more. Collaborating with a medical and dental team can help.

Other factors a dental-medical team might look at when treating or diagnosing OSA are dry mouth and TMD.



3. Kidney Complications

Poor oral health leads to inflammation and infection that will travel through the bloodstream, making it more difficult for the body to fight off infections. The kidneys' main function is to filter the blood—remove waste, control the body's fluid balance, and keep the right levels of electrolytes.

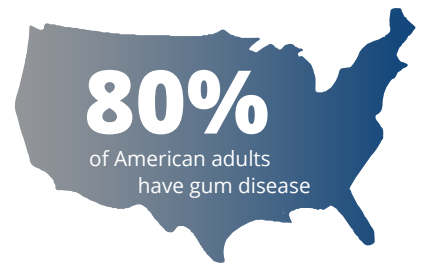


4. Diabetes

According to the ADA, 37.3 million Americans have Diabetes, with many unaware and undiagnosed. Diabetes increases risk for infection (including infection of the gums!). Periodontal disease makes it more difficult for the body to control blood sugar levels, and can increase complications from diabetes or increase the risk of developing Diabetes. 95% of adults with diabetes ALSO have Periodontal disease.

HAVE DIABETES?

You're at risk for periodontal disease.



it's a 2-way street



DIABETES

Diabetics with periodontal infection have hyper-responsive monocyte/macrophage cells resulting in increased inflammatory cytokines; and they produce high levels of TNF α in response to periodontal bacteria as compared to non-diabetics. They have decreased immune cell function, inhibiting adequate defense against periodontal bacteria.

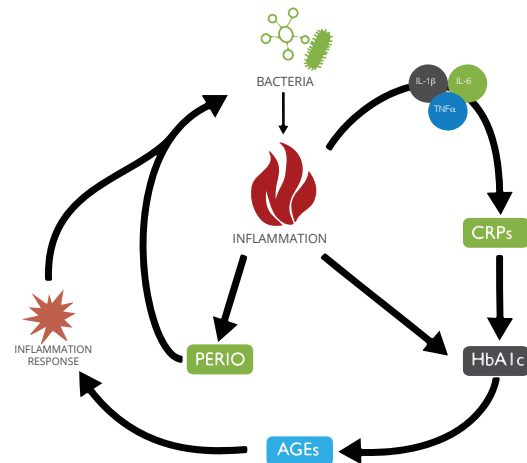
PERIODONTAL INFECTION

Diabetics with periodontal infection have a 6-fold worsening of glycemic control. Infection causes the release of stress hormones. This worsens insulin resistance causing a bigger rise in glucose levels and impairing the bodies ability to use the glucose for energy.

THE CONNECTION:



The presence of dangerous oral bacteria triggers inflammatory mediators activating the inflammatory response which results in increased blood glucose levels.



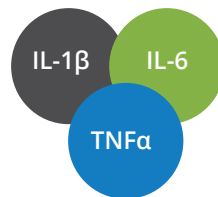
COMPLICATIONS

for the diabetic patient

In response to periodontal bacteria, diabetics produce high levels of TNF α as compared to non-diabetics.

Periodontal disease decreases glycemic control.

Numbers of teeth decrease as HbA1c levels increase. Good oral hygiene can protect a Type 2 Diabetic patient from progression of diabetes



Inflamed periodontal tissues produce significant amounts of proinflammatory cytokines: interleukin 1-beta (IL-1 β), IL-6, prostaglandin E2, and tumor necrosis factor-alpha (TNF α). This systemic inflammatory burden has damaging effects on the host.

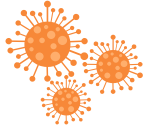
the inflammatory BURDEN:

Systemic inflammation is the root cause of disease. Inflammatory factors like periodontal disease accumulate, and this inflammatory burden leads to a diseased state.



5. Respiratory Issues

Poor dental hygiene and its connections to a higher clinical risk for respiratory issues is not a new idea. Bacteria in the mouth can be inhaled into the lungs or travel through the bloodstream. Are you seeing a trend here? Once in the lungs, bacteria can lead to respiratory infections, bronchitis, pneumonia, COPD, and lung disease. Working with your dentist and medical provider, especially if you have pre-existing respiratory problems, can help reduce the progression of infection from mouth to lungs.



6. COVID-19

It's well known that systemic inflammation is linked to periodontal disease and respiratory diseases. COVID-19 is known to trigger an inflammatory response. In a Journal of Clinical Periodontology study, patients with periodontitis (the most severe stage of Periodontal disease) were three times more likely to experience severe COVID complications, ventilation, or death.



7. Obesity

Obesity and oral health both share common risk factors. Diet plays a significant role in oral health. Without a proper diet, oral health is at risk, and therefore, overall health is at stake. While the causes of obesity can range from genetics to cultural factors, maintaining a healthy weight is essential in optimizing oral health.

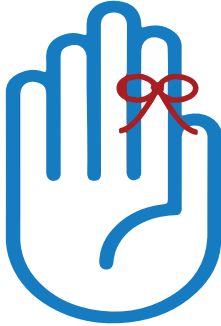


8. Alzheimer's Disease

Poor oral health will lead to inflamed gums. When bacteria leave the mouth and travel to the brain, they can kill brain cells, leading to memory loss. Oral bacteria from poor dental hygiene have been implicated in the development of Alzheimer's disease and dementia.

Pathogenic oral bacteria called spirochetes have been studied as a potential cause of Alzheimer's Disease. The presence and frequency of spirochetes are significantly higher in Alzheimer's patients' brains than in controls. Salivary diagnostic testing can detect the presence of these oral pathogens.

ALZHEIMER'S & periodontal disease



Alzheimer's Disease (AD) is the most common cause of dementia among older people.

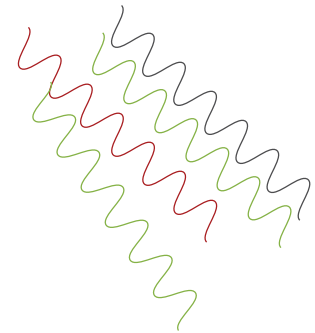
DEMENTIA:

The loss of cognitive function—thinking, remembering, and reasoning—and behavioral abilities, to such an extent that it interferes with a person's daily life and activities.

SPIROCHETES:

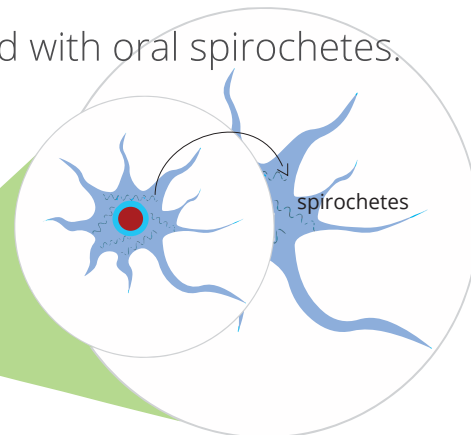
Spirochetes form plaque, tangles, and curly fiberlike lesions in the brain. Their number progressively increases in patients with mild, moderate, and severe AD. Spirochetes escape destruction of the host immune response and establish chronic infection and sustained inflammation.

PATHOGENIC ORAL BACTERIA CALLED SPIROCHETES MAY CAUSE AD.



INSIDE THE AD BRAIN

AD brain lesions are infiltrated with oral spirochetes.





9. Cancer

There is a strong correlation between Periodontal disease and cancer. Pancreatic cancer, lung cancer, and blood cancer are just a few cancers for which people with poor oral health have been studied to show higher risks.

Additionally, smoking and chewing tobacco increase your risk for oral cancer. Early detection is critical to surviving oral cancer.



10. Prostate / Erectile Dysfunction

Can poor oral health affect your sex life? The answer is yes. Periodontal disease opens pockets for infection in the mouth. Bacteria and infection in the bloodstream can cause inflamed blood vessels, blocking blood flow to the genitals.

One study showed that men with periodontal disease were three times more likely to experience erectile dysfunction than men with a healthy oral cavity.



11. High-Risk Pregnancy

According to a study done by BMC Pregnancy and Childbirth (view more here), women who had periodontal disease were 6 times more likely to give birth prematurely than women without periodontal disease.

Bacteria *Fusobacterium Nucleatum*, present in the oral cavity, has been found in amniotic fluid, placenta, and chorioamnionic membranes of preterm birth patients.

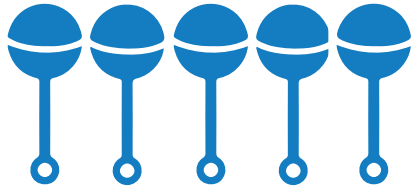


12. Infertility

Additionally, poor oral health can affect fertility. It can take longer for a woman with poor oral health to conceive than a woman with good oral health. This doesn't end with women. Studies have shown that men with poor oral health can have lower sperm count and reduced sperm motility.

Preterm Birth

& periodontal disease



infection accounts for 10-25% of stillbirths

FIFTEEN

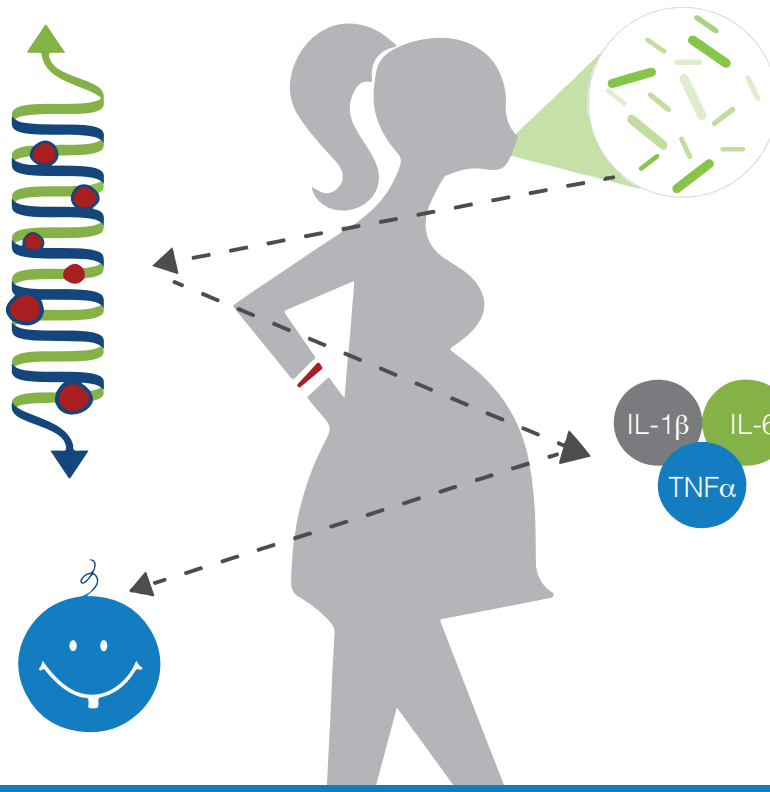
million babies are born preterm



3/4 of newborn deaths could be prevented with current, cost effective interventions, even without intensive care facilities.

Fusobacterium Nucleatum

A gram negative anaerobic bacteria frequently found in periodontal infection. *F. nucleatum* translocates from the oral flora of the mother's mouth to the uterus.



{ *F. nucleatum* is one of the most prevalent species in intrauterine infection, predominantly identified in cases of preterm birth. }



13. Rheumatoid Arthritis

Johns Hopkins studied the link between poor oral health and rheumatoid arthritis. Results have revealed the bacteria *Aggregatibacter Actinomycetemcomitans* causes periodontal disease. The inflammatory response of joints in patients with rheumatoid arthritis is similar to the inflammatory response in a patient's mouth with periodontal disease. Rheumatoid arthritis is an inflammatory condition. As we know, poor oral health can cause periodontal disease, causing inflammation in the mouth that will eventually make its way to the rest of the body.



14. Osteoporosis

Later stages of Periodontal disease cause a loss of bone tissue from inflammation and infection. Clinical studies have uncovered links showing that periodontal disease affects bones throughout the body, not just the jawbone and teeth. Research shows estrogen deficiency, low mineral bone density, and low vitamin D levels in both osteoporosis and Periodontal disease.

Salivary testing, dental checkups, and proper oral hygiene in collaboration with appropriate diet and supplementation can lower your risk of periodontal disease and bone loss.

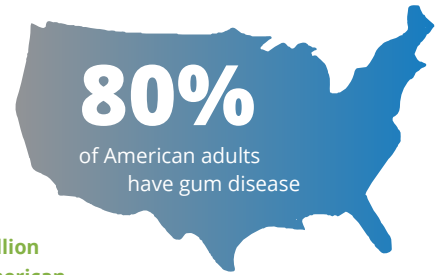


15. Cardiovascular Disease

Between 80-90% of heart attacks can be prevented! Proper dental Hygiene is just one way to lower risk for developing cardiovascular disease. Periodontal disease is directly linked to artery inflammation. Bacteria from the mouth enter the bloodstream and cause arteries to harden, which in turn increases a patient's risk for stroke or heart attack. Up to 50% of heart attacks and strokes are triggered by oral pathogens. (source: *Circulation* (2013))

Poor oral health is also related to high blood pressure and dense LDL cholesterol—further increasing cardiovascular risk. How do you improve one of the root causes and assist in prevention of gum disease? By caring correctly for teeth and visiting your dentist regularly! Likewise, it is essential for dentists and medical practitioners to educate patients on the increased risks poor oral health has on whole-body health.

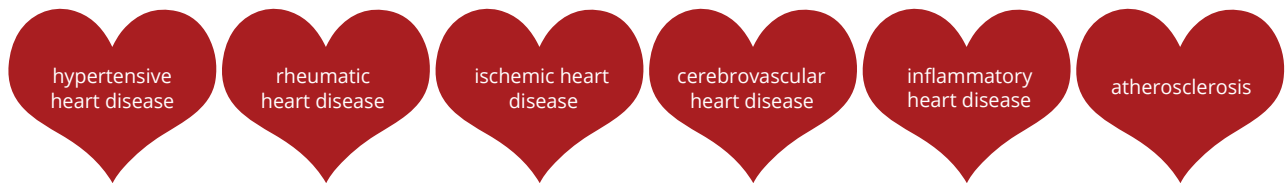
CARDIOVASCULAR DISEASE and periodontal disease



83.6 million
American
adults (>1:3)
have one or more types of CVD.

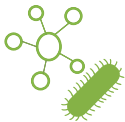
CARDIOVASCULAR DISEASE

There are 22 types of cardiovascular disease, including:



THE CONNECTION:

*how destructive PD
damages blood vessels*



Periodontal bacteria travel from the oral cavity into the blood stream, causing systemic inflammation.



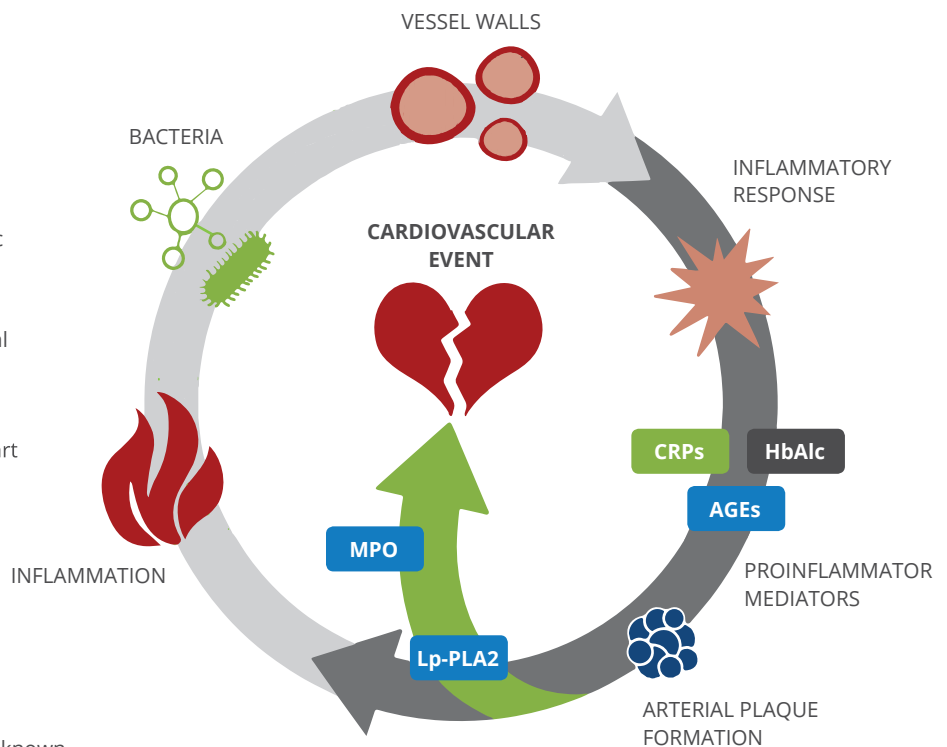
The presence of dangerous oral bacteria is a **root cause** that drives systemic inflammation and damages the blood vessel lining: the first step toward heart attack and stroke.



Proinflammatory mediators are released in response to periodontal disease driving insulin resistance, which causes arterial damage and CVD.



Periodontal disease is the only known disease to increase LpPla2 which increases plaque vulnerability and plays a direct role in CVD progression.



WHAT IS YOUR ROLE IN PATIENT HEALTH WHEN IT COMES TO ORAL HEALTH AND SYSTEMIC DISEASE?

Start with education and move to ACTION.

Educate yourself on the connections between oral health and systemic disease, learn to detect and treat subclinical disease, and collaborate with your healthcare community to reach total body health. If you aren't collaborating with medical and dental practitioners, you are missing out on an opportunity to provide life-saving care!

Another priority is educating your PATIENTS on the importance of oral health and the risks that accompany poor oral health.

AAOSH works to educate practitioners from allied health fields to collaborate and change the way we provide care to our communities. Our research-based Core Curriculum provides you with the tools and education you need to bring your patients to whole-body health.

Incorporating Oral Systemic Health Into Your Practice

Educating patients on oral systemic health helps them to understand the connection between oral health and overall wellness. When patients connect these dots, they become more empowered in their health and are more open to accepting treatment.

"The best defense against oral and systemic disease is a healthy oral microbiome."

Mark Cannon, DDS, MS

At AAOSH, it is our mission to connect dental and medical practitioners while providing them with the tools to understand the importance of the oral-systemic link. With this comes the power to cure, and to prevent patients from falling down paths we see patients unknowingly succumb to every day in healthcare. Instead of constantly treating these chronic illnesses, we have learned how to manage them individually for each patient.

Beyond helping your patients, becoming a total medical dental practice and following the AAOSH principles will help your business:

Attract health-valuing patients from a wide sweep around your practice location. Collaborate with other health professionals and build a remarkable network of co-referral relationships.

Add value to your hygienists' role and hygiene profitability through adjunctive testing. Through the development of this sought-after niche of practice, you'll get the golden keys to insurance independence, if that is something you seek.

"AAOSH has helped my entire team and me illuminate these signs, get to the root cause, and transform our treatment options. Moreover, the like-valued friendships and collaborative relationships we have made within AAOSH have been life-changing."

-Susan Maples, DDS

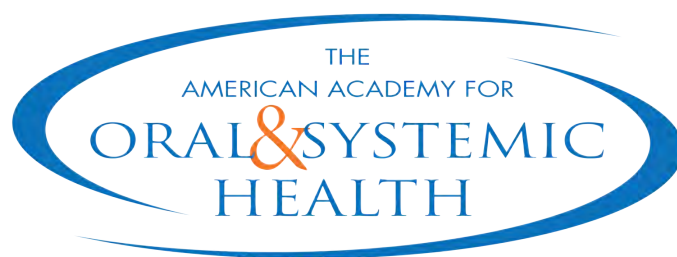


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EBOOK





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You can learn more at AAOSH.org