

TREATING PERIODONTAL DISEASE IN THE POST-ANTIBIOTIC AGE

How Perio Protect is changing the game.



The Antibiotic Alternative

Perio Protect's hydrogen peroxide gel and sealed tray combine to create a natural treatment for periodontal disease that's effective and does not lead to bacterial resistance.

For years, dentists have prescribed antibiotics to periodontal patients after scaling and root planing with the goal of reducing the bacterial load and creating a healthy environment in the mouth. But, often, this approach only has a temporary effect, and as a result, patients keep coming back for the same treatment over and over—never able to truly manage the disease and its negative impacts on their health.

Part of the reason antibiotic therapy doesn't work is the delivery mechanism. Most antibiotics are given in pill form, so the concentration must be high enough to travel through the blood stream and get to the source of infection. But an even bigger issue is the antibiotic resistance that has increasingly become a problem in recent years. As antibiotics continue to be over-prescribed, bacterial strains continue to become resistant to them and share those resistant genes with other bacteria. Because periodontal disease is made up of hundreds of different strains, every patient has a different combination. So even if you can pinpoint which bacteria are present through a salivary diagnostics test, you're not going to find an antibiotic therapy that can kill every strain.

Antibiotics, while they have their place, simply aren't able to manage



Michael Fulbright, DDS

"It's single-handedly one of the simplest, best-outcome techniques or products I've ever used in dentistry."

periodontal disease, which is why dentists and their patients need an alternative treatment like Perio Protect. Through this solution, you can deliver hydrogen peroxide via a custom Perio Tray that patients wear at home, ensuring the gel can get deep into the sulcus and do its job. Perio Protect should be used in conjunction with other treatment methods like scaling and root planing, and also can be used as maintenance once patients are in good health.

"The Wound Healing Society

has guidelines for treating chronic wounds, and that's really what periodontal disease is," said Dr. Duane Keller, the inventor of Perio Protect. "If you get a splinter in your finger and pull it out, that's an acute wound. If you break the splinter off and leave part of it in your finger, that's a chronic wound, and you can't treat it the same way. We've been treating a chronic wound with acute wound modalities figuring we'd get rid of the bacteria, but we never did. We left the splinter there."

A Proven Practice

Dr. Michael Fulbright has used Perio Protect in his practice for about five years and said he only prescribes antibiotics to his patients as a last resort. He uses salivary diagnostic tests to determine which bacteria are present so he can create a custom plan, then performs another test to see how the bacterial load has changed after the initial treatment. If it's down, which is the case 98% of the time, no antibiotic is needed.

Two sets of trays are part of every perio package in Dr. Fulbright's office—one before treatment and one after, because the fit changes once patients are healed. The gel naturally whitens teeth, so the trays are also attractive to patients interested in whitening their smile, but Dr. Fulbright said he recommends Perio Protect to all his patients, no matter their state of oral health.

"It's single-handedly one of the simplest, best-outcome techniques or products I've ever used in dentistry," Dr. Fulbright said. "I have a lot of cool toys and I spend a lot of money on technology, but that simple, little bleaching tray is amazing."

Perio Protect offers many benefits over antibiotics. Here's a closer look at why.

Through the Perio Tray, it's possible to deliver medication subgingival and interproximal. The patented sealed tray holds the medication deep into the sulcus or periodontal pocket to fight the infection, getting into areas where treatments like rinses can't reach.

When Dr. Keller first thought of the idea, he planned to deliver antibiotics via tray, because that's what was used to treat infection at the time. He added hydrogen peroxide gel as a propulsion agent to deliver the antibiotic to the bottom of the perio pocket. Eventually, he discovered that if he used just the hydrogen peroxide, he could achieve the same—if not better—result, but that the patented seal of the Perio Tray was critical to successful treatment. Today, the Perio Gel used with the trays is a

**2.8
MILLION**

The number of antibiotic resistant infections that occur in the U.S. each year, with more than 35,000 people dying as a result

1.7% hydrogen peroxide. This broad-spectrum antimicrobial physically disrupts the biofilm matrix protecting the biofilm that live in the mouth.

"I didn't know it then, but the primary antimicrobial we have in defense against bacteria in the human body is hydrogen peroxide," Dr. Keller said. "So we are using a naturally occurring antimicrobial in the process, and if you deliver it subgingival and interproximal it does a number of things."



GUIDANCE FROM THE CDC AND ADA

At the end of 2019, the Centers for Disease Control and Prevention (CDC) published "Antibiotic Resistance Threats in the United States 2019," where the director said it was time to stop referring to a coming post-antibiotic era, because it's already here.

Antibiotic-resistant bacteria infect someone in the U.S. every 11 seconds and kill someone every 15 minutes, according to the report, translating to nearly 3 million people infected and 35,000 deaths each year. This isn't a problem that's going to be overcome anytime soon, as the number of resistant bacterial and fungal infections continue to rise. More people are at risk and the threats are more difficult to spot. This makes products like Perio Protect that offer an alternative increasingly vital.

The ADA also issued new guidelines for antibiotic use, recommending that dentists prescribe acetaminophen or ibuprofen when needed, but to avoid antibiotics for most pulpal and periapical conditions.

For example, if you look at the oxygen concentration level as perio pockets get deeper, it becomes less and less until there's almost none. Hydrogen peroxide breaks down water



and oxygen, taking an anaerobic environment and making it aerobic. Dr. Keller describes the trays as a “localized hyperbaric chamber” like you might see in a wound healing clinic. This chamber provides the benefits of oxygen under pressure, leading to the formation of new blood vessels and promoting healing. Essentially, the peroxide releases oxygen as it activates, with the water/oxygen combination changing the microbial environment of the periodontal pocket to healthy bacteria.

“The first bacteria to die are those most highly associated with disease, the most virulent,” Dr. Keller said. “As you continue to use that super oxygen-rich environment, you also change your microbial community. By using hydrogen peroxide, we completely reverse the antimicrobial community from one that was virulent to one where you only find bacteria present in healthy tissue. It also reduces the number of bacteria by 95%.”

The Benefits for Patients

Before Perio Protect, Dr. Fulbright had tried just about everything to better manage periodontal disease for his patients, but nothing worked. He was a hygienist before he became a dentist, so hygiene and soft-tissue management have always been focal points of his practice. He tried the trays on himself first, and once he saw his results, knew he had to start offering the treatment to patients.

When patients are diagnosed with periodontal disease, he has them wear the trays for 15 minutes twice a day before they see the hygienist for scaling and root planing, lasering, or any other necessary treatments. Once that initial treatment is complete, usually in about two weeks, he recommends wearing the trays once a day for 10 minutes as part of a homecare routine that also includes brushing and flossing.

“The trays reduce bacteria and inflammation, so the bleeding stops, the bacterial infection is lessened, and it allows us to get in there and do our work safer so bacteria isn’t spread through the bloodstream,” Dr. Fulbright said.

A Practice Builder

Perio Protect is the cornerstone of Dr. Fulbright’s hygiene department and is critical to getting his patients to optimal health. And while that’s the main goal, there’s also a financial benefit that comes in the form of patient loyalty and referrals.



This system should be the “hub around which the hygiene program functions,” Dr. Keller said, making it part of every patient’s routine care. Once the trays get patients healthy, they can be used to naturally whiten and maintain that health, with patients easily able to incorporate 10 minutes of wear a day into their homecare routine.

Further, patients don’t need to set aside a specific time to wear the trays; they can be worn while they do other tasks, whether it’s showering, driving their kids to school or checking email.

Perio Protect is also a very affordable treatment that’s easy to incorporate into any practice. In doing so, the practice adds another revenue source, grows its hygiene department, and provides patients the treatment they need to manage their periodontal disease and improve their overall health.

A Natural Alternative

When it comes to treating and managing periodontal disease, Perio Protect offers a natural alternative to antibiotics that’s affordable and effective.

“We finally have a way we can use a custom-made medical device to deliver natural-occurring antimicrobials to change the microbial environment from one that’s conducive to disease to one that’s conducive to healing,” Dr. Keller said. “We can also use an antioxidant to help you at least stop, but probably even regenerate some of the lost support for your teeth, so you have a healthier environment and a situation where patients are actually able to control the disease, instead of having to come back time after time to repeat the same procedure that doesn’t work because that’s all we had. Now we have something better.”

The Road to Perio Protect

The inspiration behind the product that’s changing the way periodontal disease is treated.



“Perio Protect gives us the opportunity to change how we treat a chronic wound.”

Duane Keller, DMD

The idea for Perio Protect started with Dr. Duane Keller’s mom. He treated her periodontal disease with surgery, reducing the pockets as much as he could, and then began to talk with her about the second surgery. She told him that wasn’t going to happen, and that he needed to find a better way to treat the condition. So, he did.

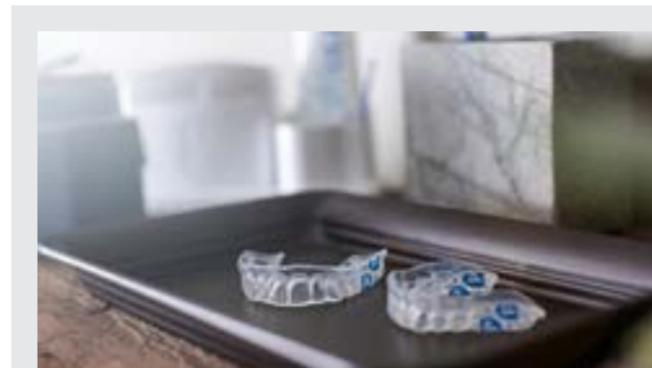
Of course, it wasn’t easy. First, he looked into directly delivering antibiotics such as doxycycline into the periodontal pockets using a syringe. The problem? It flooded right back out. He then tried a reservoir, but that didn’t work well, either. An article on bleaching trays became his next source of inspiration, and after trying several designs for delivery to treat his mom, he realized a sealed tray worked best.

Hydrogen peroxide wasn’t the medicament of choice to begin with. It was the propulsant agent. But when the antimicrobial he was using was no longer available, he tried just the hydrogen peroxide and got the same result. That sent him down the path to find the best concentration for the hydrogen peroxide gel, which became the primary agent of treatment. As an antimicrobial that occurs naturally in the body to ward off infection, it offers many benefits. And it doesn’t lead to bacterial resistance like an antibiotic does, another key benefit.

The tray is also critical, sealing to the gums to keep the gel inside the periodontal pocket as well as under pressure to create that localized hyperbaric chamber, promoting healing.

Together, they provide an alternative to antibiotics that can be added to other treatments, delivering the results both you and your patients are seeking.

“Perio Protect gives us the opportunity to change how we treat a chronic wound,” Dr. Keller said. “If you just do scaling and root planing, you leave the bacteria present after treatment. You actually stir up the bacteria, so you double, triple, or quadruple reproductive capacity. So instead of dividing every hour, they divide every 15 minutes. If you’re scaling and root



TALKING TO PATIENTS ABOUT PERIO PROTECT

At Dr. Michael Fulbright’s office, when he’s checking for pocket depth he also checks for bleeding points—and if he finds 10 or more, he starts talking to patients about periodontal disease and the benefits of Perio Protect. The protocols he recommends for treatment depend on the severity of disease, but he uses the number of bleeding points found as an entry point to talk about the patient’s condition and why he recommends starting Perio Protect to help treat it.

Of course, he also talks about the benefits of the solution for patients who are looking to whiten, especially if they’re sensitive to traditional techniques, and with patients who are already healthy and want to stay that way. He recommends the trays to just about every patient he sees chairside.

For patients who present with periodontal disease, Dr. Keller recommends telling them that they finally have a way that isn’t painful to control the chronic condition, and it will also benefit their overall health. It only takes wearing the trays for 10 to 15 minutes, once or twice a day, something that can easily be added into any homecare routine.

planing without controlling bacteria, you’re stimulating their regeneration. It just festers and comes back.”



Additional Resources



CONNECT WITH PERIOPROTECT