FlashMax® P7

”You can hide in pockets or crevices, but we will find You and destroy You”

www.cmsdental.dk

We present the very best in local antimicrobial treatment

CMS Dental
Our Innovation Your Success

Offer your patients the very best antibacterial treatment

What is Light Activated Disinfection?

Light Activated Disinfection (LAD) is the use of light to kill microorganisms in the biofilm. Most of the focus is on the antibacterial effect, but we should not forget the killing of virus and fungus. LAD may work with a light source alone or in combination with one or more photo-sensitizers.

How does Light Activated Disinfection work?

The mechanism behind LAD is the creation of ROS (reactive oxygen specimen), which are short lived but very reactive substances. They destroy bacterial and fungal cells and also inactivate the DNA or RNA of viruses.

What are the advantages of LAD?

All microorganisms may be killed, i.e. all bacteria, fungus and viruses.
There are no side-effects at all.
The treatment may be repeated as much as necessary.
No resistance among microbes are developed.
The killing effect is instant.

The dysbiotic oral cavity biofilm may be influenced by several factors

LIFE-STYLE · DRUGS · MEDICAL CONDITIONS · GENETIC FACTORS · BACTERIA · STRUCTURAL FACTORS

A biofilm is a multilayered structure of bacteria and other microorganisms in an extracelluar matrix. A biofilm turned “bad” is called dysbiotic.

Important bacteria in the dysbiotic biofilm are: Porphyromonas gingivalis, Tannerella forsythia, Treponema denticola, Aggregatibacter actinomycetemcomitans, Prevotella intermedia

A dysbiotic oral cavity biofilm may cause local and systemic problems

LOCAL

- Periodontitis
- Periimplantitis
- Halitosis
- Oral candida infections
- Recurrent oral herpes infections
- Aphtae
- Oral lichen planus

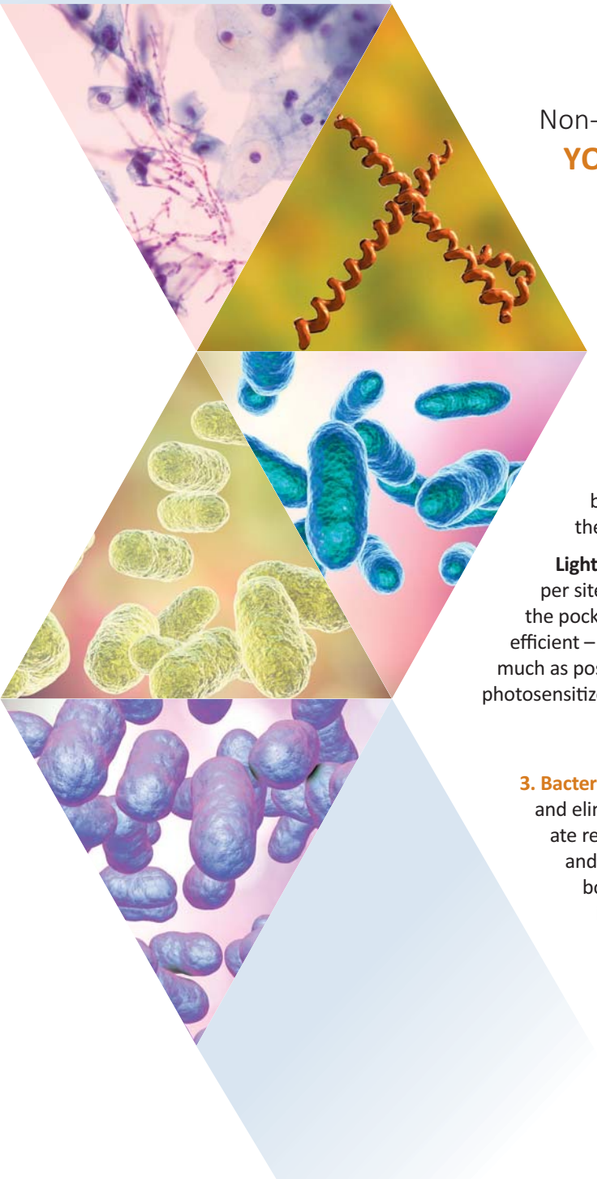
SYSTEMIC

- Orodigestive cancers
- Alzheimers
- Rheumathoid arthritis
- Atherosclerosis

Control of the oral cavity

BIOFILM

A very important issue for all dentists is the patient's oral cavity biofilm. Many recent studies have proved that the oral cavity biofilm, and specifically the bacterial composition of this biofilm has a huge impact on the patient's health. Especially the biofilm in dental pockets around teeth and/or implants is of great importance. The challenge is to control the biofilm.



Non-surgical biofilm control:

YOU HAVE THREE TOOLS IN YOUR TOOLBOX

1. Mechanical cleaning of teeth-, root- and implant surfaces. Manual, ultra sound and/or airflow cleaning is the first step. It changes the conditions for colonization of the bacteria, but does not kill the bacteria as such.

2. Antibacterial treatment. Antibiotics have been used since they were invented. However, periodontitis or periimplantitis is not an infectious disease, although bacteria are the triggering factor. Antibiotics make no real change of the long-term prognosis and should not be used routinely. Chemicals in the dental pockets are washed out before they are effective.

Light Activated Disinfection is the obvious choice with a treatment time per site of 15-30 seconds, short enough for the photosensitizer to stay in the pocket. The bactericidal effect is instant. The LAD treatment is more efficient – as with all antibacterial treatments – if you disrupt the biofilm as much as possible before light treatment. You do that by applying the photosensitizer with the root 'n screw brush (200-400 rpm in an endo motor).

3. Bacterial replacement treatment. You have removed most of the biofilm, and eliminated most of the bacteria. What happens next? Yes, an immediate rebuilding of the biofilm. Bacteria work day and night 24/7 to rebuild and reinforce the biofilm, this is the case on all moist surfaces in the body and also in the dental pockets. A biofilm of pathogenic bacteria is a particular problem on surfaces of teeth or implants. All other surfaces in the body shed the lining cells on a daily basis making a biofilm more difficult to sustain and build up.

The composition of the biofilm can be changed to the better

So, you cannot prevent the biofilm to return. You may however influence the composition of the biofilm, i.e. partly decide which bacteria will be present in the new biofilm. It is very important to improve the composition of the biofilm, as it acts as a protective layer against incoming pathogenic microorganisms.

What you want is a biofilm of positive or neutral bacteria and avoid the inflammophile bacteria.

You do that by applying probiotic bacteria as a gel into the dental pockets. The probiotic bacteria will quickly take part in the biofilm transformation and exclude the negative bacteria to settle. The lactobacillus used in the ProlacSan® Gel further have the ability to inhibit the growth of the known pathogenic bacteria such as P. gingivalis, F. nucleatum, T. denticola., P. denticola and S. mutans.

To keep the pressure on the inflammophile bacteria so they are not allowed into the new biofilm, the patient is advised to continue daily maintenance of the oral cavity probiotic supplement with ProlacSan® lozenges.

ANTIBACTERIAL TREATMENT

- FlashMax® P7 LAD
- Root N' Screw® rotary brushes
- Photosensitizer

BACTERIAL REPLACEMENT

- ProlacSan® gel
- ProlacSan® lozenges

WHAT YOU NEED

FlashMax® P7

2 functions in 1 light

Treat yourself to the WORLDS MOST POWERFUL curing light

No more under-cured composites

LAD treatment of the biofilm

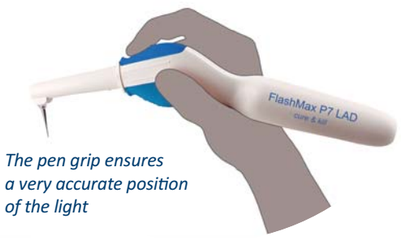
- Periodontitis
- Periimplantitis
- Endodontic disinfection
- Halitosis
- Disinfection as adjunction to surgery
- Oral candida infections
- Recurrent oral herpes infections
- Aphtae
- Oral lichen planus

Light curing

- Curing of composites using camphor quinone as photo initiator
- Orthodontic bonding

The short treatment time will reduce the chair side work benefiting patients and staff.

For a conventional layered composite build-up, use one second per layer, and three seconds for the finishing layer.

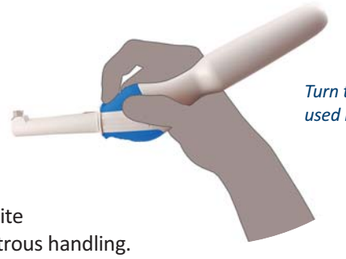


The pen grip ensures a very accurate position of the light

HYGIENE

We recommend the use of our disposable barrier sleeves. It guarantees optimal hygiene and eliminates the risk of cross contamination.

If you need to cure composite right next to the gingiva, use the cover with a disposable tip. It ensures that all the light goes into the composite without heating the gingiva.

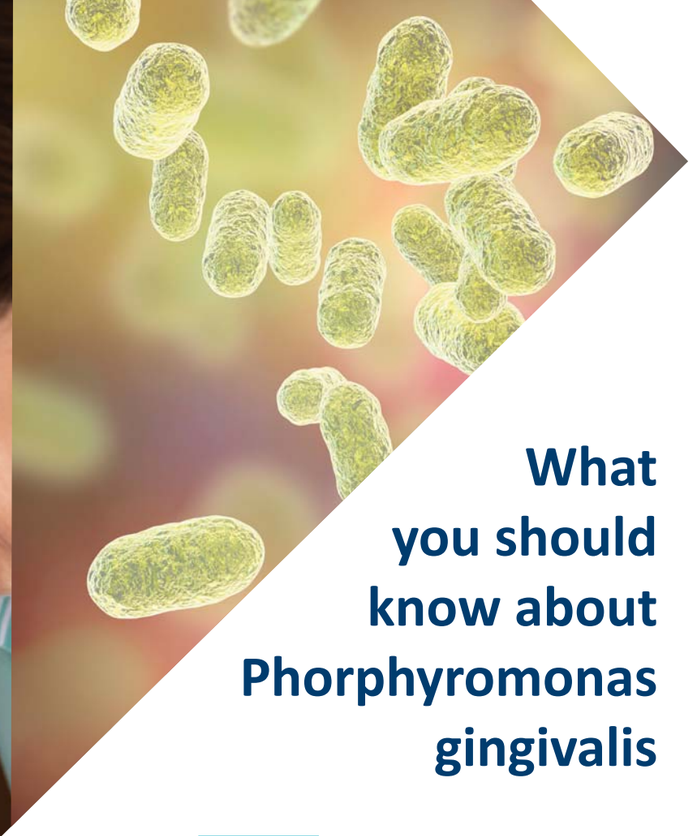


Turn the light when used in the upper jaw

ERGONOMICS

The light weighs only 120 g. There are double buttons, two on each side. The upper sides buttons are used for treatment in the lower jaw. The opposite buttons are used when you turn the light and treat the upper jaw. Ambidextrous handling.

When you need repeated activations, choose the orange program. The orange program gives you two light bursts for each activation, typically used for larger fillings.



What you should know about Phorphyromonas gingivalis

P. gingivalis (PG) is now recognized as the key factor in developing, maintaining and worsening the periodontal inflammation. PG is able to neutralize the host immune reaction, not only for itself but also for "comrades in arms".

P. gingivalis is releasing enzymes to the bloodstream, among others gingipains, widely accepted to be partly causal to the development of Alzheimer's disease.

P. gingivalis has the ability to attach itself to erythrocytes and "surf" along the blood streams undetected and unchallenged by the innate immune system for eventual colonization in distant organs, and cause problems for patients prone to inflammatory response diseases.

P. gingivalis is swallowed and transported through the digestive tract in huge numbers. In periodontitis patients, an average of 1 B p. gingivalis bacteria are swallowed each day. They are acid resistant and easily reach the colon where they cause dysbiosis, which lead to numerous diseases.

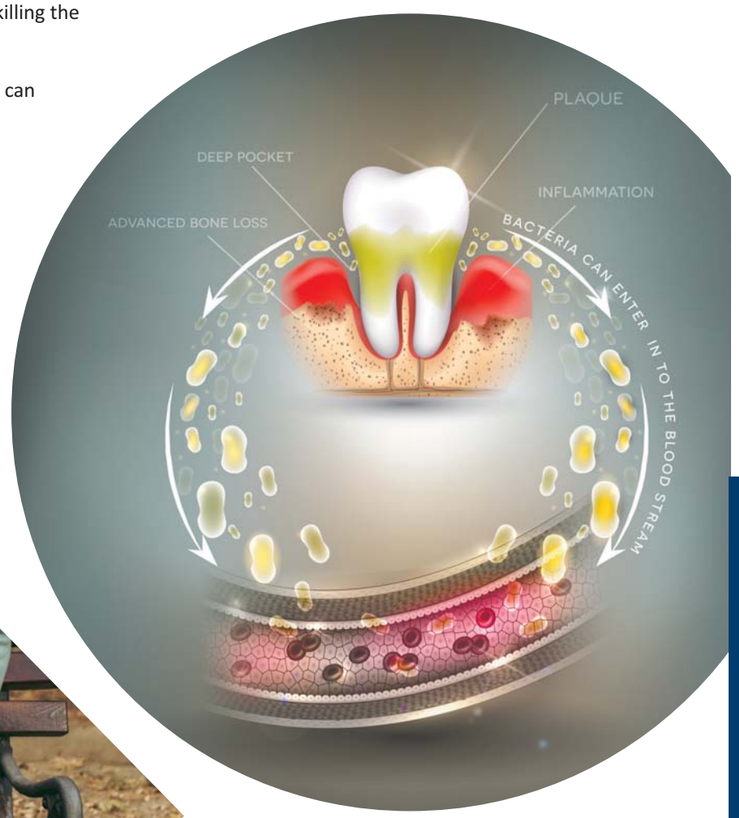
P. gingivalis converts ethanol to acetaldehyde. Acetaldehyde is a known carcinogenic factor in humans. This may partly explain the positive correlation between P. gingivalis and orodigestive cancers.

There is so much more at stake than "just periodontitis"

Conventional periodontal treatment may prevent further loss of attachment, however, the inflammophile bacteria including *p. gingivalis* are still present in the biofilm, where they continue to release enzymes to the brain, the joints and elsewhere causing degeneration of the tissues.

With our treatment we are focusing on the root cause killing the pathogenic bacteria directly in the biofilm.

With FlashMax® P7 LAD you have a medical device that can totally eliminate p. gingivalis and other inflammophile bacteria from the biofilm in the dentalpockets fast and safe.



And 7 good reasons to fight P. gingivalis

P. gingivalis's membrane LPS (lipopolysaccharides) are highly virulent and is a cause of endotoxemia (heighten proinflammatory response) which is associated with obesity and diabetes.

P. gingivalis's membrane LPS (lipopolysaccharides) are stimulating periosteal osteoclasts formation and bone resorption. This impacts not only periodontal bone loss, but also impacts rheumatoid arthritis patients.

And you, Dear Dentist is currently the FIRST line of defense with FlashMax® P7 in your hands.

Porphyromonas gingivalis is currently linked to the following diseases.

- Periodontitis
- Periimplantitis
- Cardiovascular disease
- Alzheimer´s disease
- Oral cavity squamous carcinoma
- Esophageal squamous carcinoma
- Head and neck squamous carcinoma
- Pancreatic cancer
- Diabetes mellitus
- Respiratory infections
- Rheumatoid arthritis
- Osteoporosis
- Obesity
- Adverse pregnancy outcomes, including low birth weight, and preterm birth

and the list gets longer every year

What color light and photosensitizer should I choose?

CMS Dental has manufactured and sold FotoSan® since 2009. FotoSan® is a red LED light using toluidine blue as a photosensitizer. There are numerous in-vitro and clinical studies documenting the positive effects.

The great success has led to a development of a new version of our blue color curing light FlashMax® as a LAD light offering the dentists the latest innovation within antimicrobial light treatment.

THERE ARE MANY GOOD REASONS FOR THIS:

NOW WITH PERIOXIDE

The photosensitizer powder contains peroxide powder, to increase the effect and reduce the steps of the procedure from two treatment steps to ONE.

NATURAL PHOTOSENSITIZERS

The blue light can be used with natural substances as photosensitizers.

HIGHER INTENSITY

The FlashMax® P7 LAD program has an intensity of 7,500 mW/cm2 compared to 4,000 mW/cm2 in the FotoSan® 630.

ANTIMICROBIAL LIGHT

The blue light is in itself antimicrobial and kill bacteria without a photosensitizer. Adding photosensitizer is dramatically intensifying the antimicrobial effect.

TWO IN ONE – LAD AND CURING

The strong blue light may also be used as a very fast curing light. With FlashMax® P7 you get a strong curing light and a LAD light in one device.

LONG SHELF LIFE

The photosensitizer is packed as a powder and has therefore a long shelf life.

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Q&A

LAD BiofilmControl

Q: Are there any side-effects or can you make any damage with LAD?
A: No, there are absolutely no side-effects, and you can only damage microorganisms, not human cells, with LAD. The photosensitizers attach only to microbial cells and free DNA/RNA.

Q: Can I "over treat" with LAD?
A: No, as said, there are no side-effects. There is a dose-dependent relationship with the light energy applied. More light energy means more antimicrobial effect.

Q: Why is it necessary to apply the photosensitizer with the root n' screw rotary brush?
A: It is not absolutely necessary as such however it is one way to disrupt the biofilm before applying the light. If the biofilm is not disrupted it will to some extent protect the bacteria.

Q: Why will the probiotic in the ProlacSan® Gel stay in the pockets, when chemicals such as chlorhexidine is washed out before it has any effect?
A: That is because the probiotic bacteria are living organisms and are therefore actively attaching themselves to the surfaces of dental-roots, -implants and mucosa and become implemented in the new biofilm. The two lactobacillus strains selected for the ProlacSan® are chosen among other features, because they have a strong level of attachment to root/implant/mucosa surfaces.

Q: For how long will the ProlacSan® bacteria stay in the oral cavity after the last treatment?
A: It will vary from patient to patient. For some they may stay months or even years, but for most patients they will probably only stay weeks. The long-term survival of the probiotic bacteria is however not a key issue. What is more important is that the probiotic bacteria are making a skeleton of a new and more beneficial biofilm, helping natural, neutral or beneficial bacteria to reinforce the new biofilm, and keep the inflammophile bacteria out.

Q: Why can the blue light on its own kill bacteria at the of energy (100 J/cm²)?
A: Because many species of bacteria contain endogenous photosensitizers that are sensitive to blue light. The bacteria are "blown up" from inside, when absorbing the blue light.

Curing Light

Q: Will the very high intensity make the composite shrink more than usual?
A: No, shrinking of the composite is only determined by the amount and compositions of filler particles. All modern composites shrink 1-2%, no matter the intensity of the light used for curing. If composites are under-cured, they shrink less, which is not desirable. The composites shrink when the monomers are chained together to become polymers.

Q: Can it really be true, that curing in 3 seconds is possible?
A: Yes, to be curing a composite you need to apply a sufficient amount of light energy in the right wavelength spectrum. The relevant wavelength is determined by the photo initiator used in that particular composite. Almost all composites use campherquinone, and the optimal wavelength is 350-370 nm. In practice the energy is measured as energy intensity, which is power intensity multiplied with time. Three seconds light with a power intensity of 5.000mW/cm² equals the application of 15 joule/cm². Let´s say you use a light emitting 600 mW/cm², (of the same wavelength). It means you should light 25 seconds to apply the same amount of energy of 15 joule/cm².

Q: When do you use only one second?
A: When building up the filling in 2-3 mm layers. The layer underneath gets repeated light stimulations through the above layers. The final layer needs three seconds of light. Another example is bonding of orthodontic brackets. One second of light with FlashMax® is documented to be as effective as 30 seconds light using a traditional halogen light (*).

Q: Will the very high intensity heat the pulp?
A: Factual testsshow a heating of the pulp to be 0,00°, (DENTAL ADVISOR September 2009 issue).

Q: What about the gingiva, can the patient feel the heat?
A: No, if you use the cover and tips there is no heat felt even if you direct the light at the gingiva. NOTICE: Do always use the tip when lighting close to the gingiva.

Q: Do I have sufficient working time for a day?
A: Yes, you have 500 seconds of working time on one battery charge. It equals to curing 50 large fillings or 80 fillings of mixed size.

Q: Can I or should I place the light in the docking station between patients?
A: It is not necessary to ensure sufficient working time, but is recommended for the light to be secured in it's holder. The battery charging is controlled intelligently, so there is no damage to the battery if the light is placed in the docking station when not used.

(*) High intensity light-emitting diode versus halogen light curing of orthodontic brackets: A 24 months clinical study of bond failures Armando Salazar; Andrew Sonis; Henry Ohiomoba

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Your patients and your staff deserves the very best

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... and the most powerful in light curing of composites

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CMS Dental A/S
Elmevej 8
7870 Roslev
Denmark

T: +45 3257 3000
info@cmsdental.dk
www.cmsdental.com