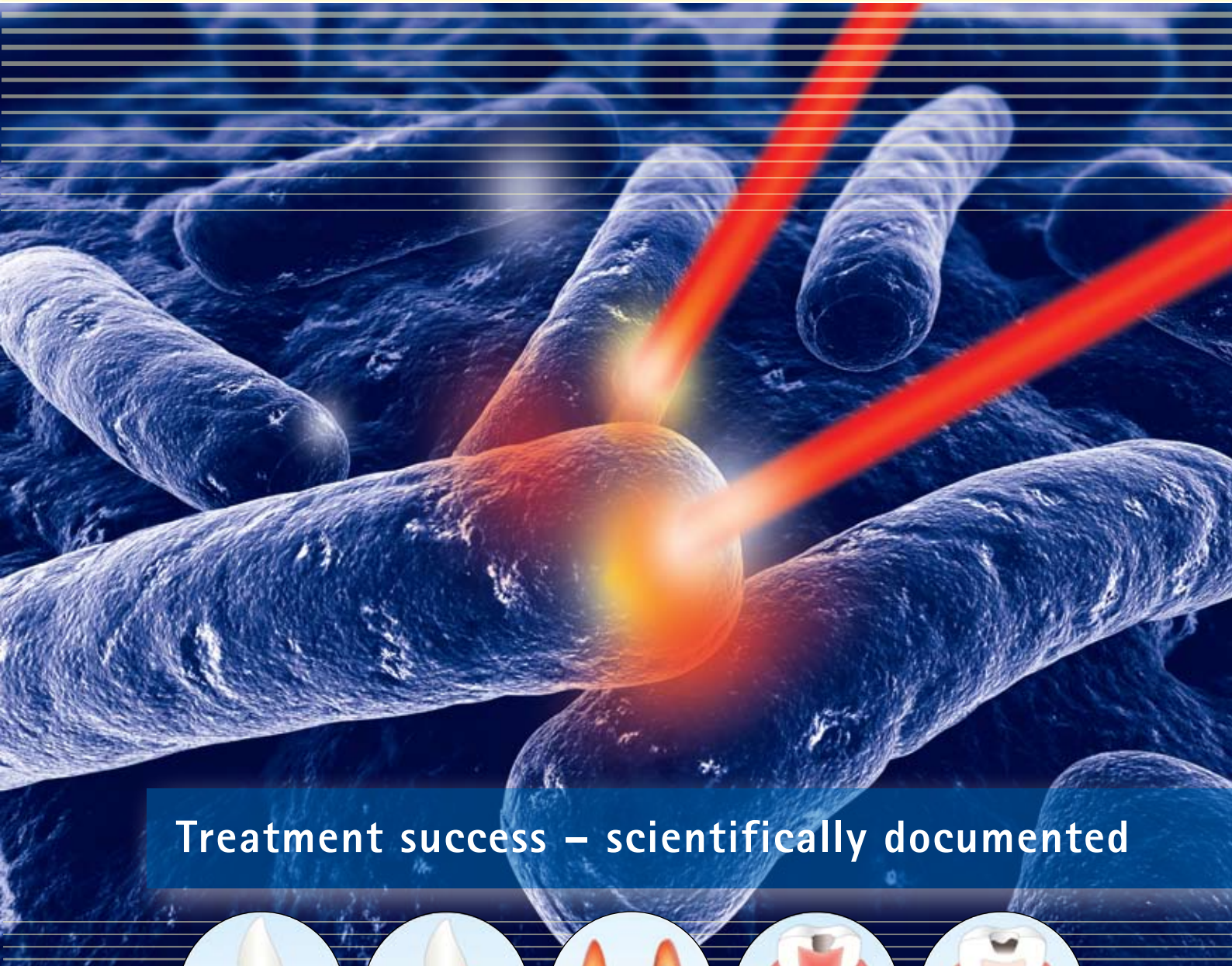


HELBO



HELBO Treatment

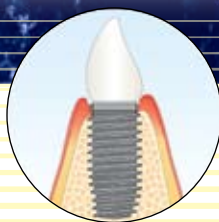
Infection control



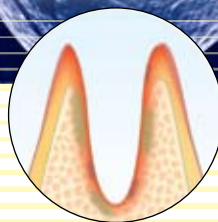
Treatment success – scientifically documented



Periodontitis



Periimplantitis



Infection of the soft
tissue and bone



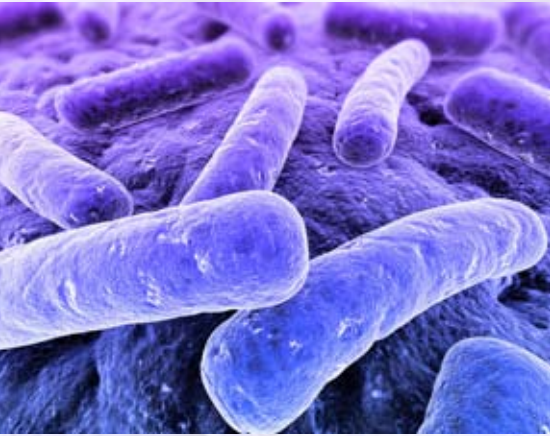
Endodontitis



Caries

bredent
medical

Biofilm — A habitat for pathological bacteria



Pathogenic bacteria are the main cause of failure in dentistry! Studies have shown that the biofilm provides a safe habitat for them. A phenomenon called „Quorum Sensing“ enables bacteria to communicate with one another and coordinate their activities. The more mature the biofilm, the more resistant the bacteria within it become.

Mechanical cleaning and rinsing solutions do not adequately destroy the bacteria in the biofilm. Even strong antibiotics seldom provide sustainable success. There are, however, side effects, interactions with other medications and the risk of resistance when using antibiotics.

Periodontal pathogenic bacteria increase the risk of numerous diseases:

- **Periodontitis and periimplantitis**
- **Endodontitis**
- **Caries**
- **Alveolar osteitis** following tooth extraction
- **Bone necrosis**, for example following administration of bisphosphonates
- **Inadequate healing following apicoectomy**
- **Residual osteitis** (disturbed healing of an implant, in particular in the case of immediate implantation)









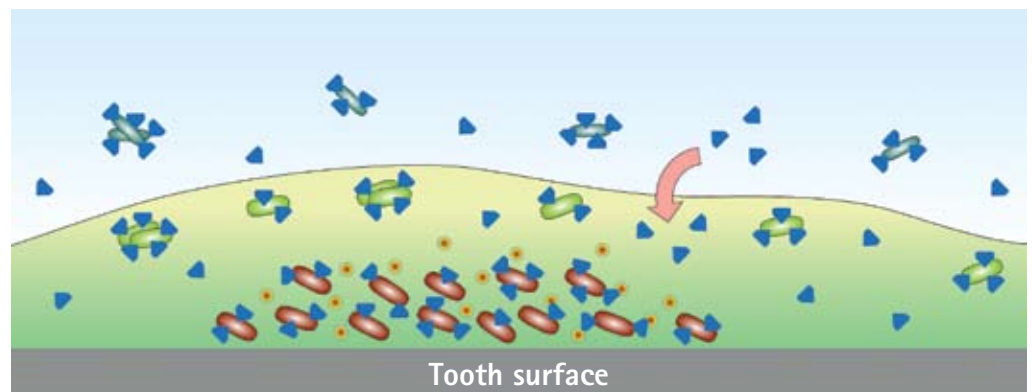
HELBO Treatment – modern treatment

With **HELBO Treatment** you can quickly relieve your patients from these inflammations/infections or prevent disturbances to wound healing. The light also accelerates the healing process and has a proven analgesic effect. The treatment can easily be integrated into the breident medical **treatment concepts of „gapless“, „attractive“, „in the thick of it“ and „regeneration“**. The HELBO treatment can be assigned to adequately trained assistants to reduce the workload for the dentist.

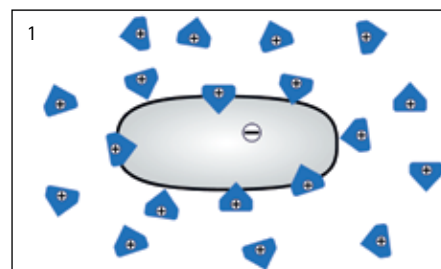
Singlet oxygen destroys pathogenic bacteria.

The proposed treatment is based upon the marking of the bacterial wall using light-sensitive dye molecules, which diffuse into the biofilm from the **HELBO®Blue Photosensitizer**. The dye molecules are then activated using laser light and transfer their energy into local oxygen. This creates highly-aggressive singlet oxygen, which destroys more than 99 percent of the bacteria in the biofilm. An efficacy rate as high as this would be unthinkable using conventional treatment methods.

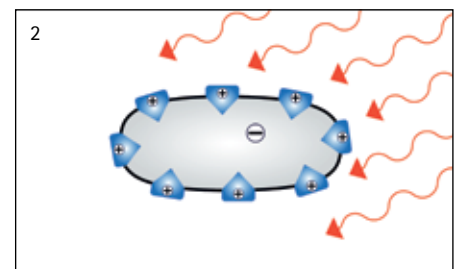
-  Planktonic bacteria
-  Bacteria actively growing in the biofilm
-  Persisting bacteria in the biofilm
-  HELBO®Blue
-  Biofilm matrix
-  Quorum Sensing signal molecules



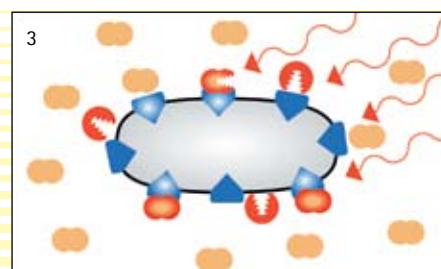
How it works



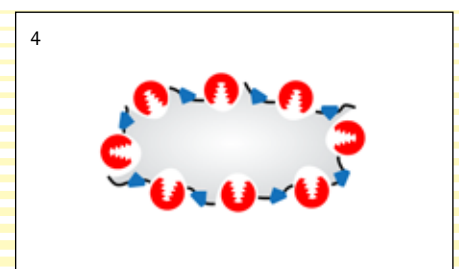
1 Accumulation of light-sensitive photosensitizers on the bacterial membrane



2 Exposure and stimulation of the photosensitizers with the **HELBO®TheraLite Laser**



3 Reaction with oxygen, image of aggressive singlet oxygen



4 Damage to bacterial membrane: destruction of the micro-organisms

Indications



Periodontitis

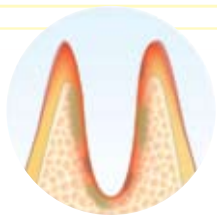


Periimplantitis

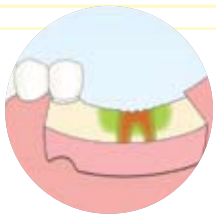
HELBO treatment can be applied in initial and maintenance treatment. Studies have shown that the treatment stops inflammation, promotes healing and reduces the probing depth.



Image: Dr. Tilman Eberhard, Schwäbisch Gmünd



Alveolar osteitis



Necrosis of the bone

Contamination on bones, soft tissue, teeth and implant surfaces is made visible by the intra-operative staining of the biofilm with the sterile HELBO photosensitizer and is eliminated by laser radiation. The results are successful regeneration and healing.



Image: Dr. Jörg Neugebauer, Landsberg a. Lech



Endodontitis



Apicoectomy

Despite mechanical cleaning and chemical disinfection prior to obturation, bacteria remain in the channel, in the tubuli and in the apical delta. Pathogens can also be reduced deep in the dentine channels and in the apical bone region (apicoectomy) with HELBO treatment.



Image: Dr. Matthias Eckl, Frankenthal



Caries

During treatment for caries profunda, the bases of the cavities near the pulp are decontaminated in a point shape, to halt progression of the carious processes and to avoid inflammation in the pulp. This is an advantage together with the analgesic effect of the the laser light, particularly in the area of paediatric treatment. It can also be used in the case of incipient caries.

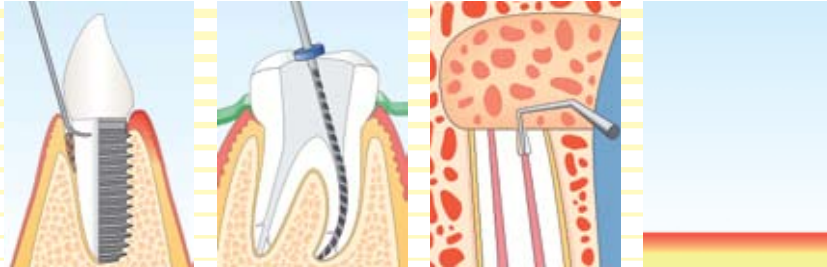


Image: Dr. Gerhard Werling, Bellheim



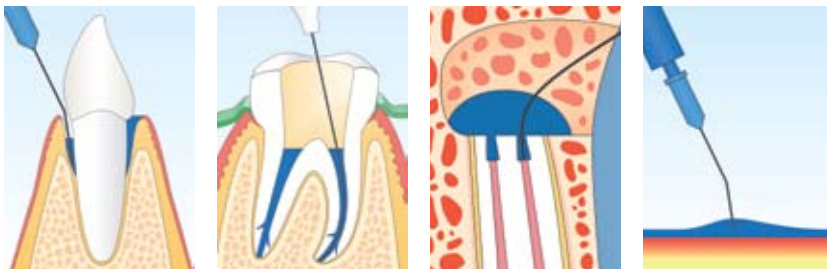
HELBO Treatment

The use and effects of HELBO treatment are this simple:



Step 1: Professional cleaning or preparation using conventional methods.

- Removal of calculi and plaque or infected tissue.



Step 2: Application of the light-sensitive **HELBO®Blue** photosensitizer.

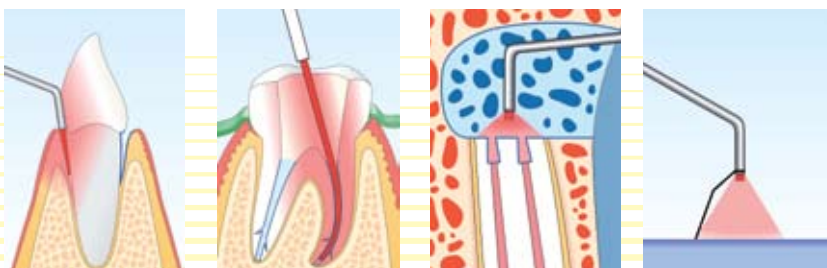
- Staining, diffusion of the dye molecules in the biofilm and sensitising of the micro-organisms. Dye molecules attach themselves to the bacterial membrane.



Step 3: Rinsing and aspirating of excess **HELBO®Blue**.

Checking of the residual contamination, possible secondary cleaning and rinsing.

- Excess light-inhibiting dye is removed, accumulated active molecules of dye solution remain in the biofilm.



Step 4: Exposure with the **HELBO®TheraLite** Laser and the **HELBO®3D Pocket / Endo Probe** or the **HELBO®2D Spot Probe**.

- Transfer of the light energy and stimulation of the molecules; imaging of local singlet oxygen, which lead to the destruction of the micro-organisms by means of lipid oxidation on the bacteria membrane. Healthy tissue is not stained or damaged.

Components required for successful treatment with HELBO

HELBO®Blue Photosensitizer

(0.1 ml)
Sterile single-use syringes
(1 pack of 5 pieces)
1 syringe is sufficient for
at least 4 teeth/implants

REF HE101006

HELBO®Blue Photosensitizer

(0.5 ml)
Sterile single-use syringes
1 syringe is sufficient for
maxilla and mandible
Set with 5 syringes
(1 pack of 5 pieces)

REF HE 101005

HELBO®Blue Photosensitizer

Set with 15 syringes
(3 packs of 5 pieces)

REF HE 101007

Set with 30 syringes
(6 packs of 5 pieces)

REF HE 101008

HELBO®Blue Photosensitizer/ HELBO®Endo Blue

- Ready-to-use solution in an applicator with special atraumatic soft-touch cannula - packaged in a sterile environment!
- Easy to apply, safe and non-drip, with efficient moistening and rapid diffusion into the biofilm.



**Sterimedix Soft Touch
Cannulas for HELBO®Blue
Photosensitizer**
(1 pack of 10 pieces)

REF HE 100122



HELBO®Endo Blue
Sterile single use
applicators
(1 pack of 5 pieces)
Sufficient for 4-5
root canals

REF HE101025



HELBO®Endo Seal

REF HE10 5002

HELBO®Endo Seal

Light curing dentine sealant that protects crowns.



HELBO®TheraLite Laser Red

REF HE103206

Blue

REF HE103207

Silver

REF HE103208

HELBO®TheraLite Laser including complete battery set

- Ultra-light diode laser with integrated power control, short treatment time due to optimum light output.
- Mobile as can be used independently from the mains supply (changing battery operation), ergonomically perfect, small and light at 80 grams, therefore effortless use.
- Treatment-oriented sterile fibre optics:
HELBO®3D Pocket Probe for secure 3D exposure of the periodontal/periimplantar pocket,
HELBO®3D Endo Probe for 3D channel exposure and **HELBO®2D Spot Probe** for exposure of two dimensional areas.

HELBO® battery set
1 charger including 3
x 2 batteries for the
HELBO®TheraLite Laser

REF HE100200

**3 sets
Replacement batteries
for the HELBO®TheraLite
Laser**

REF HE100201

Replacement components for the Helbo® TheraLite Laser



HELBO®3D

Pocket Probe

Set with 5 fibre optic light guides
(1 pack of 5 pieces)

REF HE102006

Set with 15 fibre optic light guides
(3 packs of 5 pieces)

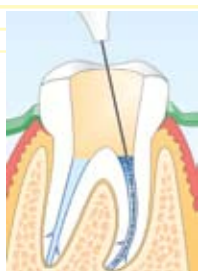
REF HE102007

Set with 30 fibre optic light guides
(6 packs of 5 pieces)

REF HE102008

HELBO®3D Pocket Probe

Sterile single-use fibre optic light guide for safe 3D exposure of the periodontal/periimplantar pocket.



HELBO®3D

Endo Probe

Set with 5 fibre optic light guides
(1 pack of 5 pieces)

REF HE102025

Set with 15 fibre optic light guides
(3 packs of 5 pieces)

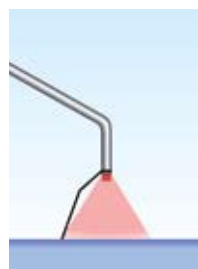
REF HE102026

Set with 30 fibre optic light guides
(6 packs of 5 pieces)

REF HE102027

HELBO®3D Endo Probe

Sterile single-use fibre optic light guide for 3D channel exposure.



HELBO®2D

Spot Probe

Set with 5 fibre optic light guides
(1 pack of 5 pieces)

REF HE102105

Set with 15 fibre optic light guides
(3 packs of 5 pieces)

REF HE102106

Set with 30 fibre optic light guides
(6 packs of 5 pieces)

REF HE102107

HELBO®2D Spot Probe

Sterile single-use fibre optic light guide for exposure of two-dimensional areas.



HELBO®T-Controller

REF HE104000

1 replacement battery for the HELBO®T-Controller

REF HE104001

HELBO®T-Controller including battery

- Systematic time and treatment checks on quality assurance.
- Aesthetic and functional due to optical and acoustic signalling.
- Simple control of the relevant treatment parameters.

Trust the market leader:

- Diffusion: biofilm is visible
- Sterile products enable use in the case of haemorrhaging lesions and during surgery
- Academia: more than 50 publications

Publications

We support your treatment success through continued research and implementation of clinical studies:

- More than 50 publications are available regarding the efficiency of HELBO treatment.
- Clinical treatment experience of more than 10 years and consistent further development ensure the foundation of the partnership between users and research companies.
- All products bear CE certification in accordance with the Medizinproduktegesetz [German Medical Devices Act].

Stop inflammation using HELBO treatment in the case of various forms of periodontitis:

- **Dr. A. Braun et al.:** J Clin Periodontol 2008; 35: 877–884.
„In patients with chronic periodontitis, clinical outcomes of conventional subgingival debridement can be improved by adjunctive aPDT.“
- **Prof. N. P. Lang et al.:** J Clin Periodontol. 2009 Aug; 36(8): 661–6. Epub 2009 Jun 25.
„Repeated PDT adjunctive to debridement yielded improved clinical outcomes in residual pockets in maintenance patients.“

Treatment options for HELBO treatment in the case of periimplantitis:

- **Dr. J. Neugebauer:** Poster presentation ADI 2007, May 3–5.
„The initial treatment of periimplantitis with aPDT allows a nearly complete regression at an early stage. In late cases a recovery is possible for over 80% of the infected implants.“
- **Dr. T. Eberhard:** ZBW [Dentistry Journal Baden-Württemberg] 2009; 2.
(3 years' results with 70 patients)
"This treatment seems to open up new treatment options, particularly in the field of periimplantitis treatment and prophylaxis"

Treatment of infections of the soft tissue/bone without antibiotics:

- **Dr. J. Neugebauer:** Laser Zahnheilkunde [Laser Dentistry] 2008; 1: 27–38.
"HELBO treatment represents an alternative method to known pharmacological and chemical decontamination procedures for prophylaxis and treatment of orally-manifested infections (periimplantitis, disturbances to wound healing, bisphosphonate-induced necrosis of the maxilla, alveolar osteitis, orthograde and retrograde endodontics)."



HELBO

Examples of use of HELBO treatment for the treatment of caries:

- **Dr. Volker Scholz:** Dental Barometer 2007; 3.
„Certainly with the increasing problem of root caries in the paramarginal region, use of the HELBO system for tooth preservation has become accepted in any dental practice that focuses on tooth preservation with mild methods. As the treatment is completely painless and has no side effects, patient acceptance is also very high, despite additional charges, and patients who have heard about it are also actively enquiring about it.”

Comparison of various treatment types with systems based on photodynamics:

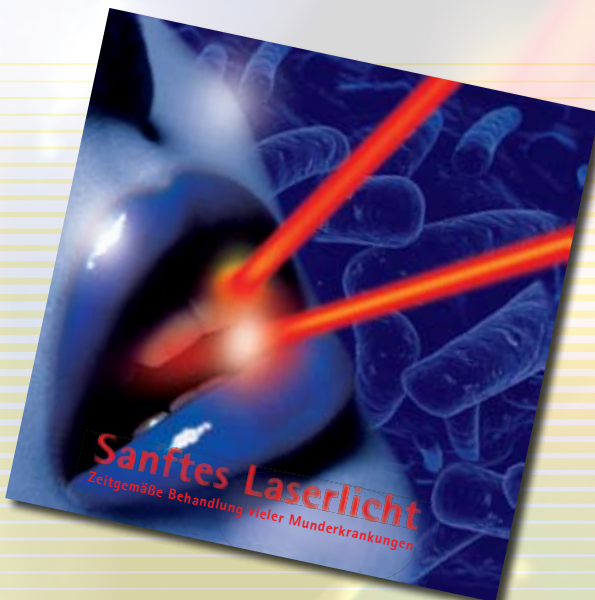
- **Dr. J. Gustmann:** ZP [Dentist and Practice] 2010; 1 & 2.
Photodynamic therapy - comparative examinations of various photodynamic systems:
„On the basis of all these considerations, we have decided to purchase the HELBO system for our dental practice. Many of the treatments listed above could be carried out very effectively using the HELBO system and with great benefit to the patients. There are a multitude of academic reports by well-known authors with regard to this and for this reason, only the most tried and tested system is good enough for our patients.”

Does HELBO treatment also work against pathogens in the biofilm?

- **Dr. A. Braun et al.:** SPIE BiOS: Lasers in Dentistry XVI 2010; 01.
„The present study indicates that antimicrobial photodynamic therapy can reduce live bacteria within a layer of 10 µm in an artificial biofilm model.”

All publications can be found in the bibliography and at www.helbo.de/Wissenschaft!

Patient information



Use the new brochure to provide your patients with indication-specific information

English literature

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Periodontol. 2010 Jul; 81(7): 975–81.
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- Romanos G.E., Brink B.*
Photodynamic therapy in periodontal therapy: microbiological observations from a private practice.
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- Al-Waeli Hayder*
Review of Photodynamic Therapy of Periodontal Diseases
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- Scheer M., Neugebauer J., Rothamel D., Fienitz T., Ritter L., Zöller J.*
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- Schneider M., Kirfel G., Krause F., Berthold M., Brede O., Frentzen M., Braun A.*
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- Lulic M., Leiggener Görög I., Salvi G.E., Mattheos N., Lang N.P.*
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J Clin Periodontol. 2009 Aug; 36(8): 661–6. Epub 2009 Jun 25.
Used Photodynamic System: HELBO
- Petelin Milan, Gaspiric Boris, Skaleric Eva*
The Comparison of Photodynamic and Antibiotic Therapy in Patients with Aggressive Periodontitis: Preliminary Results
Poster presentation ISOLA 2009, June 4–5.
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- Stein E., Koehn J., Sutter W., Schmidl C., Lezaic V., Wendtlandt G., Watzinger F., Turhani D.*
Phenothiazine Chloride and Soft Laser Light Have a Biostimulatory Effect on Human Osteoblastic Cells
Photomed Laser Surg. 2009 Feb; 27(1): 71–7.
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- De Oliveira R.R., Schwartz-Filho H.O., Novaes A.B., Garlet G.P., de Souza R.F., Taba M., Scombatti de Souza S.L., Ribeiro F.J.*
Antimicrobial photodynamic therapy in the non-surgical treatment of aggressive periodontitis: cytokine profile in gingival crevicular fluid, preliminary results
J Periodontol. 2009 Jan; 80(1): 98–105.
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- Eberhard Tilman, Neugebauer Jörg, Zöller Joachim E.*
Antimicrobial Photodynamic Therapy (aPDT) – A 2 year study in private dental clinic
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- Christodoulides Nicos, Nikolidakis Dimitris, Chondros Panagiotis, Becker Jürgen, Schwarz Frank, Rössler Ralf, Sculean Anton*
Photodynamic Therapy as an Adjunct to Non-Surgical Periodontal Treatment: A Randomized, Controlled Clinical Trial
J Periodontol 2008; 79: 1638–1644.
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- Braun Andreas, Dehn Claudia, Krause Felix, Jepsen Søren*
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- Chondros P., Nikolidakis D., Christodoulides N., Rössler R., Gutknecht N., Sculean A.*
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- Brink Birgit, Romanos Georgios E.*
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- De Oliveira Rafael R., Schwartz-Filho Humberto O., Novaes Arthur B. Jr., Taba Mário Jr.*
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- Eberhard Tilman, Neugebauer Jörg, Zöller Joachim E., Vizethum Freimut*
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- Turhani D., Scheriau M., Kapral D., Benesch T., Jonke E., Bantleon H.P.*
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Am J Orthod Dentofacial Orthop. 2006; 130(3): 371–377.
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Adjuvant laser treatment procedures in periodontology – a clinical controlled randomised study

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Laser Zahnheilkunde [Laser Dentistry] 2008; 1: 27–38.

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