

bredent  
medical

**HELBO**<sup>®</sup>  
PHOTODYNAMIC THERAPY

*THERAPEUTIC SUCCESS  
GENTLE AND SECURE*





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*Key to long-term  
dental and implant preservation  
and general health*

# HELBO laser therapy



## EFFICIENT

**Anti-microbial photodynamic therapy (aPDT)** destroys pathogenic bacteria in oral dysbiosis, helping the body restore physiological equilibrium.

**Low-level laser therapy (LLLT)** reduces pain and also stimulates the body's own regeneration processes to heal wounds and inhibit inflammation.



## GENTLE

The therapy is **pain-free and has no side effects** as the low-energy HELBO TheraLite laser does not heat the tissue.



## SAFE

Based on CE-certified products and decades of market-leading experience in dental medicine, HELBO therapy delivers safe, effective treatment through an optimally coordinated therapy concept. This is corroborated by numerous studies and case studies.



<https://www.helbo.de/en/home>



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# Oral biofilm management

*as a holistic regulation therapy*

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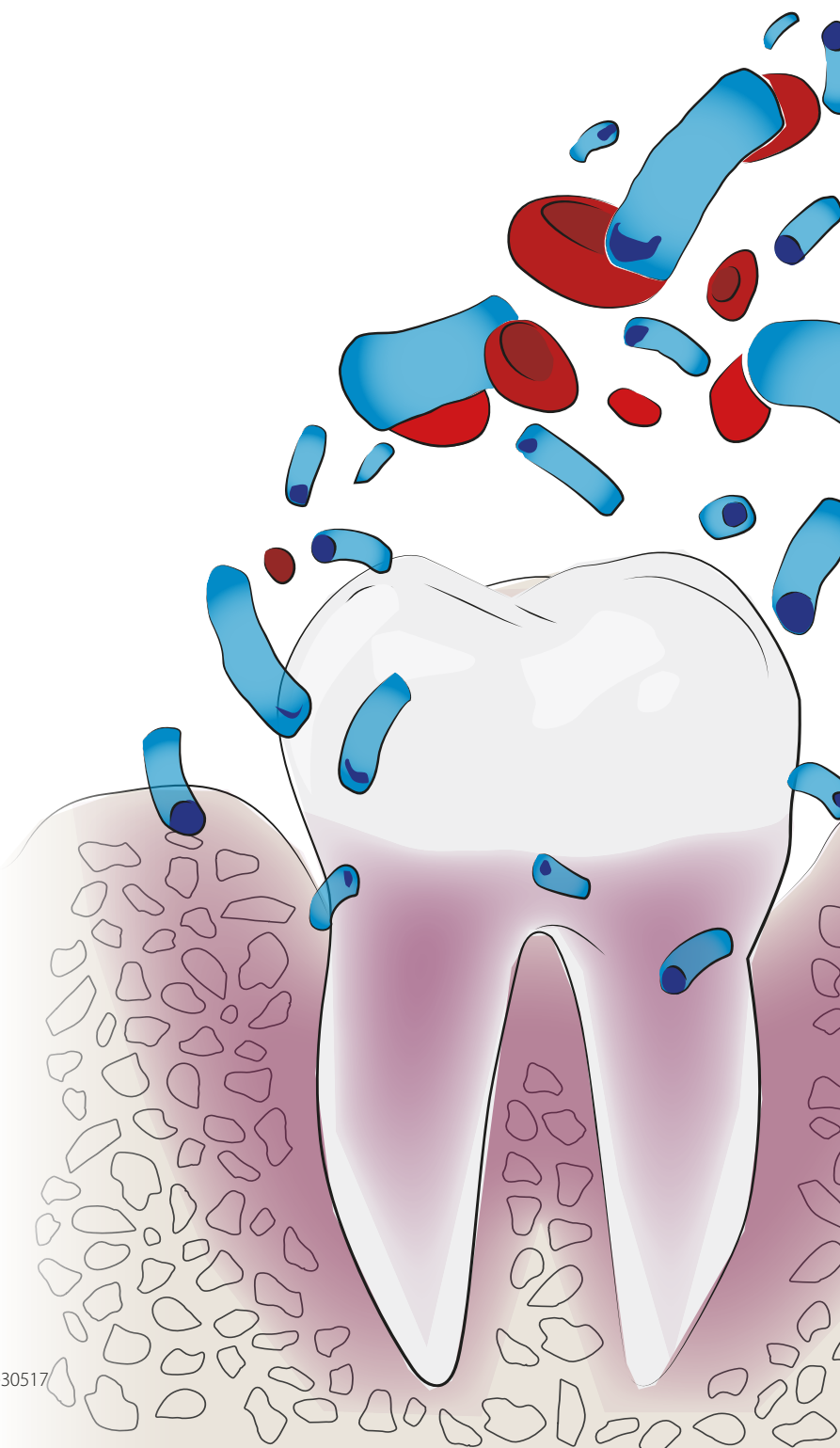
**Oral dysbiosis poses a risk for the entire organism.**

## DISEASES IN THE MOUTH AREA:

- *Gingivitis and mucositis*
- *Periodontitis and peri-implantitis*
- *Alveolar osteitis*
- *Residual osteitis and bone necrosis*
- *Endodontitis*
- *Caries*
- *Skin/mucous membrane disease*

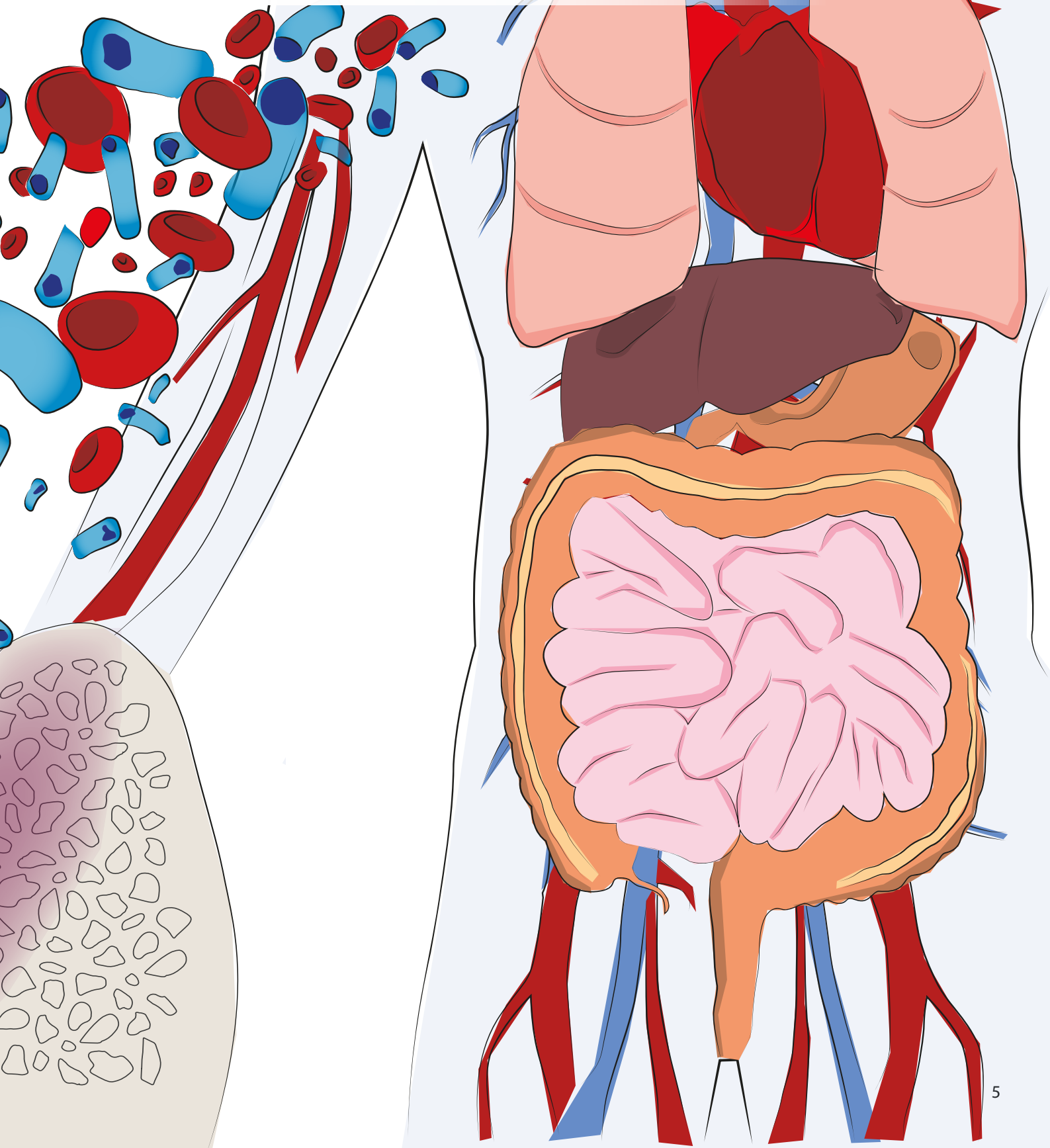
## POOR ORAL HEALTH LEADS TO\*:

- *Cardiovascular diseases*
- *Strokes*
- *(Chronic) lung diseases*
- *Type II diabetes*
- *Rheumatoid arthritis*
- *Osteoporosis*
- *Chronic kidney failure*
- *Chronic intestinal diseases*
- *Cancer (prostate, intestine, pancreas)*
- *Premature birth with low birth weight*
- *Erectile dysfunction*
- *Depression*
- *Alzheimer's*



\* Kurtzman G. M. *et al.* *Medicine (Baltimore)*, 2022;101(46):e30517

*The aim is to restore  
physiological equilibrium  
through efficient biofilm management*





# *Reduces prescription of antibiotics, painkillers and anti-inflammatory drugs*

*Effective against a wide range of microorganisms*

The dye solution stains bacteria, viruses, yeasts, protozoa and their toxins selectively but not the body's own cells, so that it does not cause tissue damage. The ideal prerequisite for

- reducing the risk of infection
- mitigating inflammation
- fast, complication-free healing

**CONTROLS  
INFLAMMATION**

**REDUCES  
PAIN**

**PROMOTES  
WOUND HEALING**

**Assisted by low-level laser therapy (LLLT)**

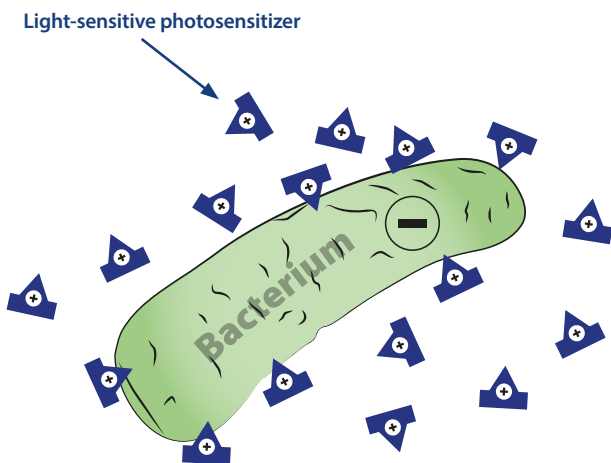
The effects of low-energy, red laser light on non-dyed body's own cells have been shown to produce a positive side effect of HELBO therapy, promoting physiological vitalisation and reactivation of the body's own healing processes.

# HELBO – *convincing mode of action*

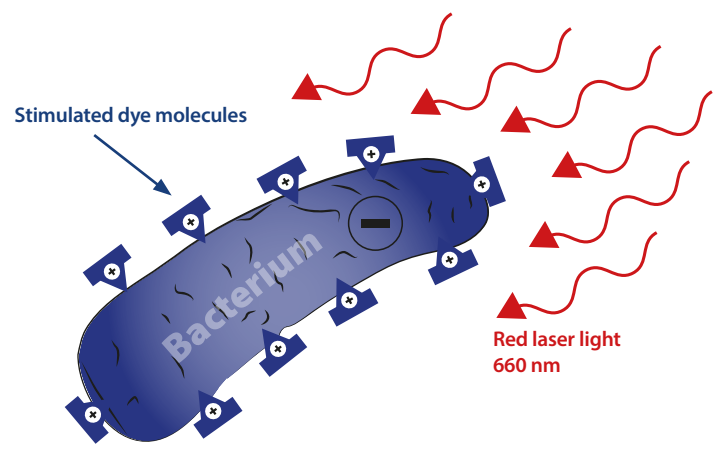
*No resistances, no side effects and no interactions*  
*Minimally invasive therapy - maximum patient benefit*

**Effect of anti-microbial photodynamic therapy (aPDT):**  
**Interaction of a dye solution with light and oxygen.**

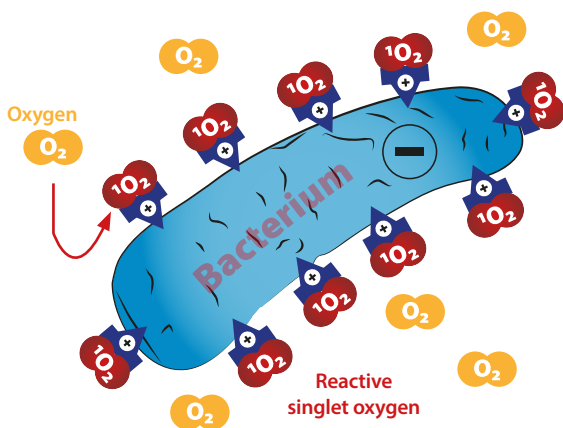
A high-dose, light-sensitive dye solution (photosensitizer) excited with light of a suitable wavelength and dosage produces aggressive oxygen molecules, which destroy bacteria, even deep within the biofilm.



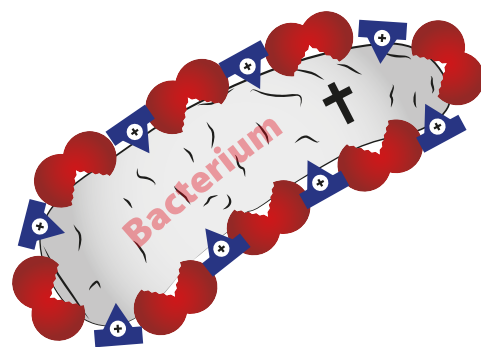
**1** Selective attachment of the light-sensitive photosensitizer to the bacterial wall



**2** Light exposure and excitation of the photosensitizer with the HELBO TheraLite laser



**3** Reaction with oxygen, forming highly reactive singlet oxygen



**4** Damage to the bacterial wall: Destruction of microorganisms

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## HELBO – *an indispensable companion ...*

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### *Demonstrated improvement*



**Prof. Dr  
Andreas Braun  
Aachen,  
Germany**

“A reliable anti-microbial treatment for many years, photodynamics has become firmly established among available laser applications and therefore also used in our clinic. Given the global problem of antibiotic resistance, the use of antibiotics as an adjunct treatment should be limited to strict indications. In many cases, photodynamic therapy offers a local anti-microbial alternative which studies have shown to improve conventional treatment methods.”

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### *Reliable results*



**Dr Andriana  
Barylyak  
Lviv, Ukraine**

„As an opinion leader in laser dentistry and a long-term user, I regard the HELBO system as my trusted assistant whenever I am worried about complications with inflammation and wound healing. I combine the use of several laser devices in my daily practice,, but scientific findings on aPDT and photobiomodulation show that HELBO is the best choice and always provides me with reliable results. Moreover, it is a highly user-friendly device that is easy to implement and use anywhere, even when working outside the practice.”



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*... and a must-have for my everyday work.*

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## *Long-term clinical benefits*



**Dr Dragana Rakašević**  
Belgrade, Serbia

"HELBO is an invaluable tool that I use in almost all areas of dentistry when decontamination and optimised working conditions are required to improve oral health. For instance, HELBO helps with my surgical regenerative treatments for peri-implantitis because it delivers long-term clinical benefits."

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## *No side-effects*



**Prof. Dr Ralf Rössler**  
DTMD, Luxembourg

"The risk of resistance is clearly present with systemic antibiotics, which are still routinely used in periodontal care. This makes diseased teeth and implants increasingly difficult to heal and retain. Locally applied measures are helpful, like HELBO therapy, for example: data shows that this type of therapy is just as effective as local antibiotics. The great advantage in my view is that it is free from side effects and resistance problems."

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## HELBO aPDT – clinical procedure

*Helpful adjuvant for customary mechanical cleaning or reprocessing*

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### RINSE

to remove  
the excess dye

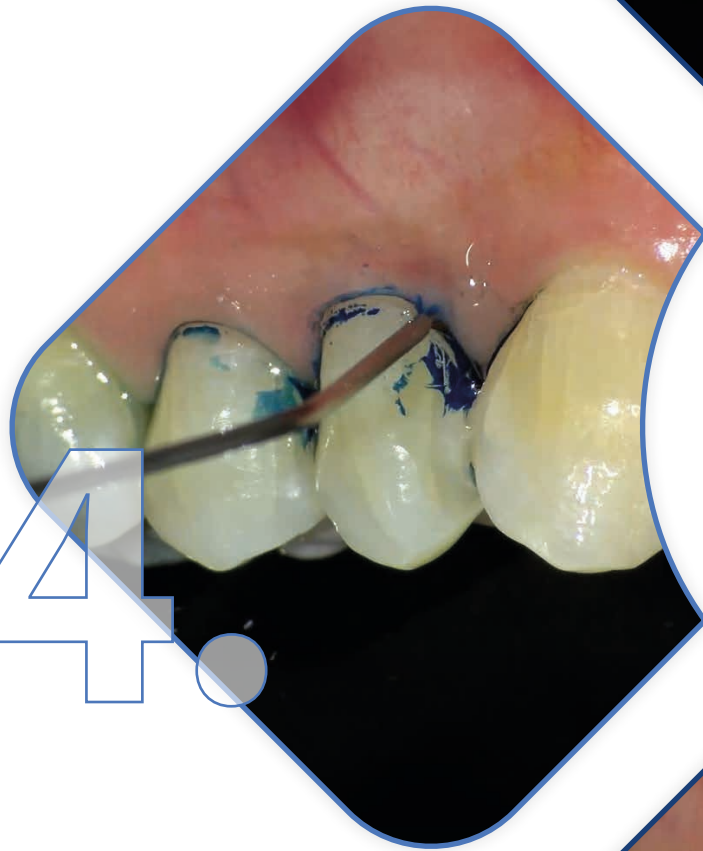
4

### LEAVE TO ACT

to allow photosensitizer diffusion  
(e.g. into biofilm)

3

5  
**EXP**  
the problem area





# CLEAN

Mechanical removal of hard and soft deposits

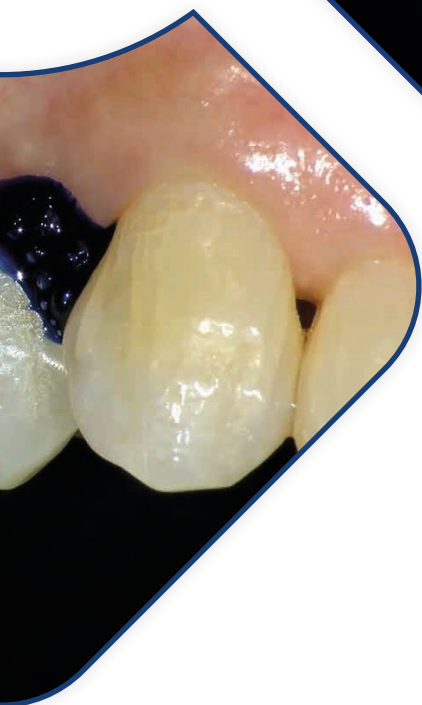


# USE



# APPLY

Apply the photosensitizer to the problem area (e.g. deep periodontal/peri-implant pockets)



Bilder: Dr. Andrea Benetti

### *Indication-specific applications:*

In our manual, you will find detailed application protocols for the wide range of applications.



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# HELBO – *added value for practitioners & patients*

*Safe, gentle and efficient*

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## ***Advantages for dentists:***

- Minimally invasive patient treatment; avoids using antibiotics
- No resistances
- Sterile products, also suitable for use in surgery
- Innovative treatment
- Can be delegated; private treatment service (e.g. in Germany)
- Simple, fast and safe to use
- Compatible with active dental ingredients and regenerative materials
- Wavelength of 660 nm: Photobiomodulation without thermal effects included
- Laser class 2: no laser protection officer required in the practice
- Clinical success, scientifically proven



## ***Advantages for the patients:***

- Pain-free treatment
- No anaesthetics
- No antibiotics, no side effects/interactions
- Ensures overall success of treatment
- Improved wound healing
- Moderate costs



# HELBO®

PHOTODYNAMIC THERAPY

*Outstanding therapy successes  
for an impressively  
wide variety of indications*

*Case studies*



Periodontal & peri-implant  
diseases  
14 - 17

Oral surgical indications  
18 - 19

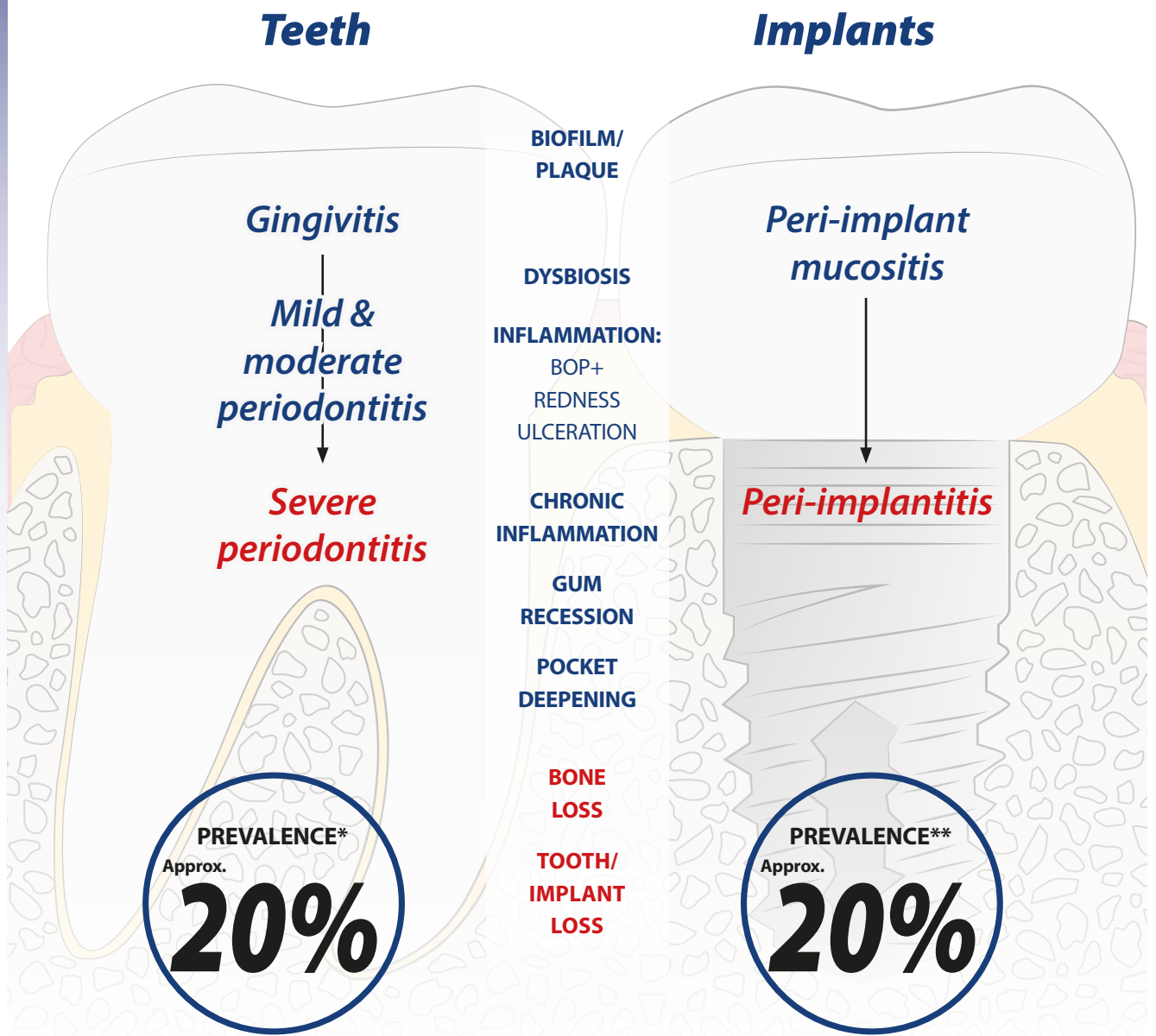
Alveolar Management/  
implantology  
20 - 23

Endodontics & deep caries  
24 - 25

Skin & mucous membrane  
diseases  
26 - 27

# One fifth of all teeth & dental implants worldwide are at risk

HELBO is part of the solution



\* Percentage of adults (>15 years) with severe periodontal disease: Global oral health status report. WHO, Geneva 2022; ISBN 978-92-4-006148-4.

\*\* Percentage of patients with peri-implantitis: Lee C. T. et al. J Dent, 2017; 62:1-12.

# Bring periodontal inflammation under control with HELBO

Long-term, positive clinical results



✓ Even in aggressive forms of this common disease and in diabetics

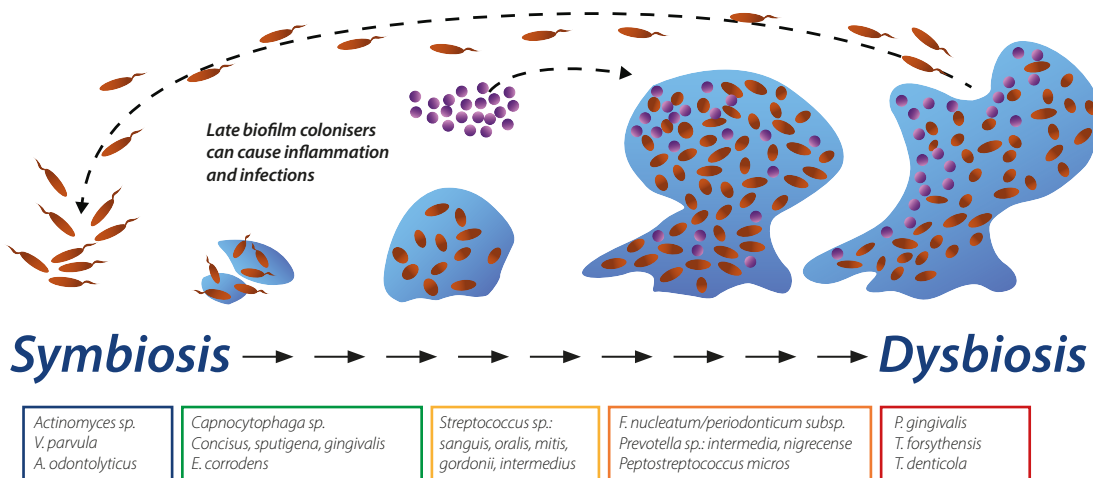
✓ Especially for probing depths  $\geq 4$  mm and bleeding on probing (BOP+)

✓ For both closed and open periodontitis therapy.

## You don't always need antibiotics.

HELBO aPDT controls dysbiosis in subgingival biofilm: Proven to be safe and efficient with no resistance development.

Applied locally, HELBO aPDT ensures any pathogenic bacteria remaining after curettage are killed, thus leading to restoration of a healthy symbiosis.



**Taken from HELBO periodontitis studies:**

Al-Waeli H.A. *et al.* Lasers Med Sci, 2015;30(2):801-7.  
 Arweiler, N.B. *et al.* Clin Oral Investig, 2014; 18(9):2129-35.  
 Chondros, P. *et al.* Lasers Med Sci, 2009; 24(5):681-8.  
 Martins S. H. L. *et al.* J Clin Periodontol, 2017; 44(7):717-28.

Moreira, A. L. *et al.* Journal of periodontology, 2015; 86(3):376-86.  
 Ramos U.D. *et al.* J Clin Periodontol, 2016; 43(2):147-55.  
 Skalerić E, *et al.* Photodiagnosis Photodyn Ther, 2023; 41:103251.  
 Zoran A. *et al.* Vojnosanitetski pregled, 2022; 79(1):17-24.

# Peri-implant mucositis is reversible

& peri-implantitis can be avoided



Successful treatment of peri-implant mucositis with HELBO: Results in long-term, irritation-free conditions.

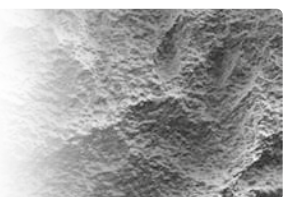
Images: Dr Amandine Para

## HELBO prevents complications



**Dr Amandine Para**  
Paris, France

"I consistently use HELBO therapy as a primary treatment after subgingival instrumentation in patients with peri-implant mucositis. The results are very satisfactory: the clinical signs of inflammation subside very quickly and irreversible peri-implantitis can be avoided when patients are educated on oral health."



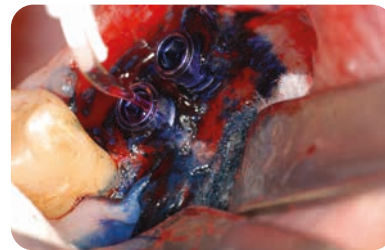
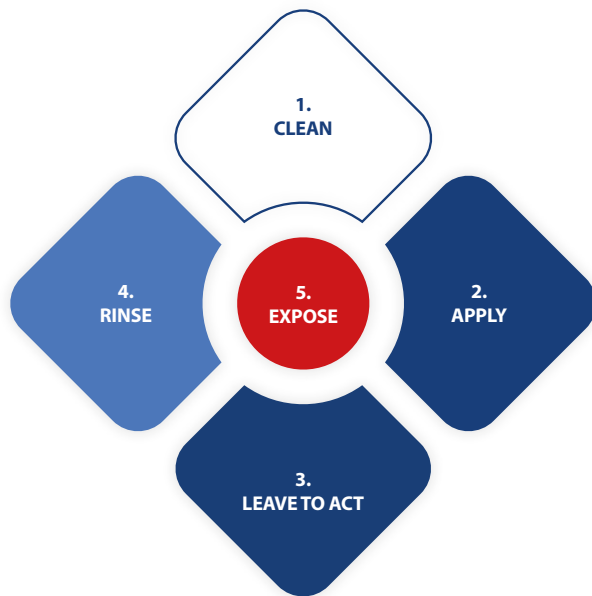
**HELBO aPDT acts powerfully down to the smallest pores on the implant surface without heating or altering the structure.\***

\*Saffarpour A. et al. Int J Oral Maxillofac Implants, 2018; 33(5):1019-26. 8



## HELBO aPDT with double action -

*long-term positive effects on inflammation\*  
and bone level\*\* after surgical regenerative  
peri-implantitis therapy*



Application of HELBO



Re-entry 9 months after bone build-up

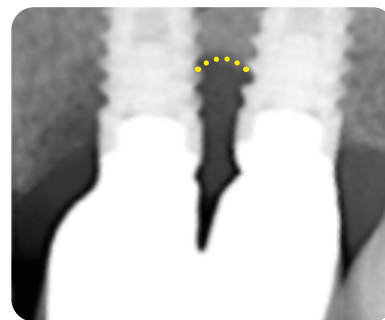
Images: Dr Pier Paolo Poli

### Long-term clinical benefit

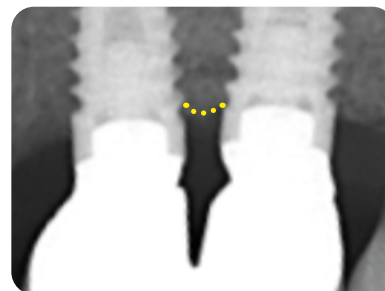


**Dr Pier Paolo Poli**  
Milan, Italy

“HELBO therapy has become a crucial step in my decontamination protocol for biofilm-contaminated implants in the surgical treatment of peri-implantitis. The initial medium-term results of my study show a lasting clinical benefit for the peri-implant bone level, which has remained stable after 5 years of surgical regeneration therapy.”



Before regenerative therapy



After 5 years

\* Rakašević D. *et al.* Poster PD047; EuroPerio10, 2022, Copenhagen, Denmark.

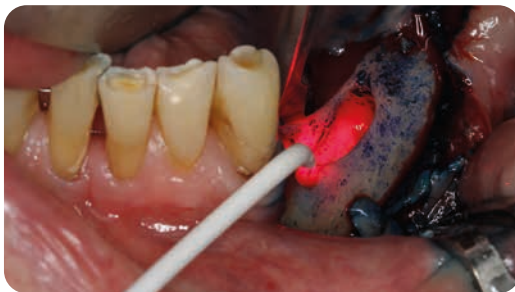
\*\* Poli, P. P. *et al.* Poster 634; EAO scientific congress, 2022; Geneva, Switzerland.

## Significant added value

### in the treatment of osteonecrosis thanks to HELBO

Necrotic bone is often affected by *Actinomyces naeslundii*. This is a pathogenic bacterium that develops tolerance to antiseptics such as chlorhexidine and cross-resistance to antibiotics, but can be combated very efficiently with HELBO aPDT\*.

**99.99% EFFICIENCY**



HELBO aPDT after removal of osteonecrosis.

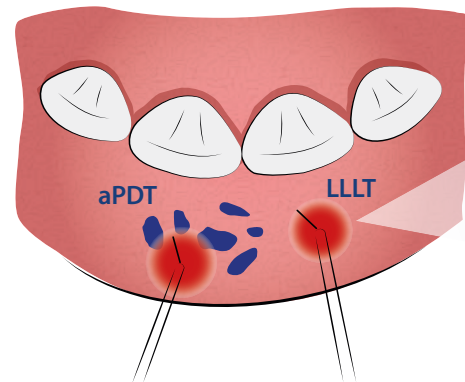


Post-operative HELBO LLLT

Images: Dr. Sigurd Hafner



After 7 weeks: irritation-free healing.



## HELBO prevents complications



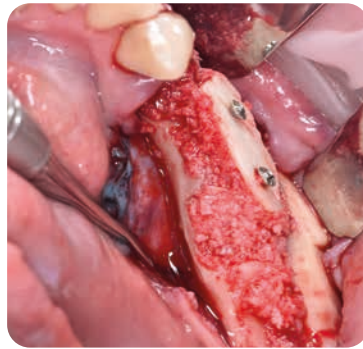
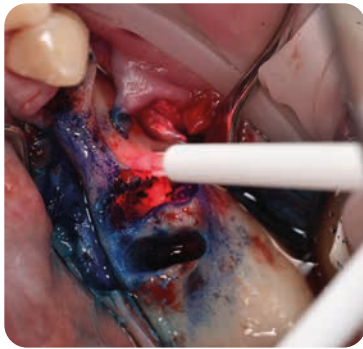
**Dr Sigurd Hafner**  
Munich, Germany

“Drug-associated bone necrosis and now COVID-19-associated wound healing disorders are stressful complications for patients and challenging for practitioners. The therapy aims to provide the fastest possible healing or reliable plastic wound closure. Anti-microbial photodynamic HELBO therapy in combination with HELBO soft laser therapy can prevent the complications mentioned above in advance or be used later as adjuvant therapy. The sterile components in the HELBO system are approved in the field of surgery and, in my opinion, also a crucial requirement.”

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## *HELBO allows controlled, uncomplicated regeneration and helps make implantation possible*

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HELBO application for reconstruction with autologous bone (**Khoury technique**).

### NOTE



*Surface irradiation  
possible with the HELBO  
2D Spot Probe light guide*



Images: Dr. Lucian Ștefan Mitroi

HELBO application for **sinus lift**.

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## *The mandatory step in the workflow*



**Dr Lucian Ștefan Mitroi**  
Bucharest, Romania

“HELBO is a decisive factor in oral implantology: the mandatory, non-invasive step in my workflow. It improves precision, promotes healing, minimises discomfort and reduces postoperative complications. It’s all about doing the best you can. Extremely recommendable.”

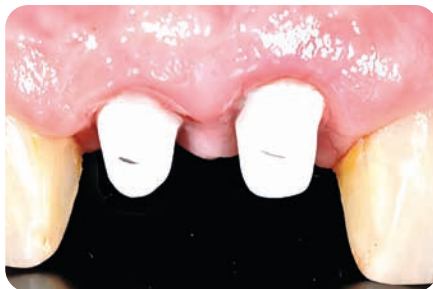
## Ensure the success of implant restorations thanks to alveolar disinfection with HELBO

### Indispensable for augmentation and immediate implantation

Bacterial inflammation is the number 1 cause of tooth loss and tooth extractions. With HELBO, we pave the way for your mouth to achieve outstanding, flawless results. HELBO is absolutely essential, especially in the field of aesthetics.



Alveolar crest build-up for delayed placement of implants in the anterior region



Images: Dr Burzin Kahn

With HELBO for controlled, low-complication regeneration.

HELBO is compatible with both natural bone and bone replacement and restoration materials.

## Control infections with HELBO



**Dr Burzin Kahn**  
Mumbai, India

"HELBO is an integral part of surgical protocols in our multi-specialised OPUS DENTAL SPECIALITIES clinic. Since we mainly use immediate implants and restorations in our practice, HELBO's antibacterial photodynamic therapy provides me with assurance of a predictable result based on infection control. However, we also use it extensively for all other applications, such as the treatment of peri-implantitis, endodontic lesions, dry alveoli and periodontal infections.

We consider it to be an extremely useful complementary treatment protocol."



## HELBO aPDT prevents pain and complications, such as dry alveoli

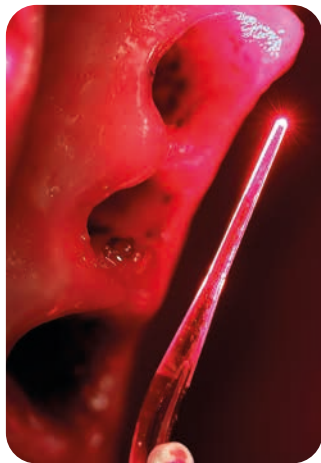


Bild: Dr. Lucian Ștefan Mitroi

Thanks to HELBO aPDT \*:

- ✓ A ten-fold decrease in incidence of alveolar osteitis
- ✓ Significantly less post-extraction pain

## Better bone quality thanks to HELBO



Prof. Arthur Novaes  
Sao Paolo, Brazil

“With our studies, we were able to prove that immediate implants placed in post-extraction alveoli with periodontal infection exhibit significantly better bone quality and quantity if they were previously treated with HELBO aPDT than with a purely mechanical treatment.”

## HELBO aPDT produces optimised bone supply, even with immediate implantations

Immediate implantation in areas with periodontal infection without signs of inflammation and with better bone thanks to HELBO. Source: Novaes A. B. Jr. *et al.* Int J Periodontics Restorative Dent, 2020; 40(6):917-923.

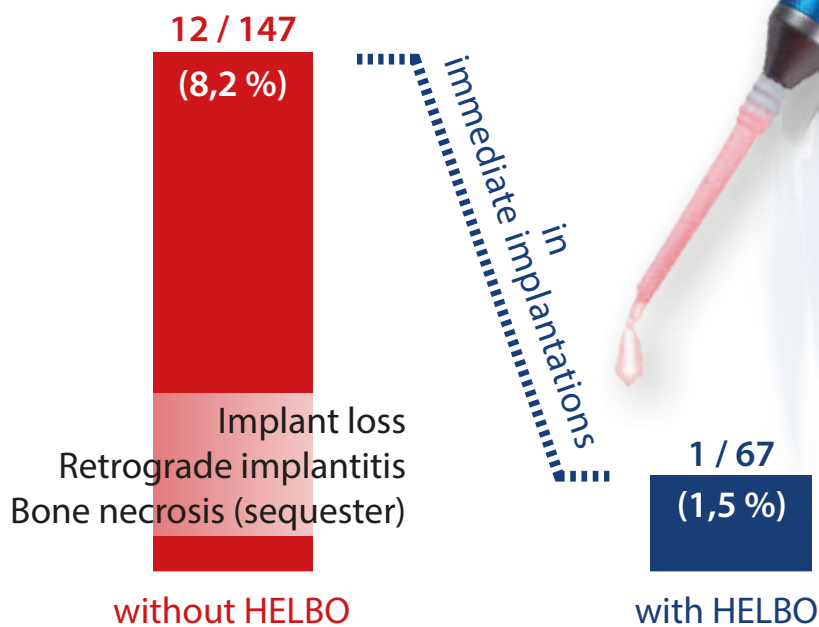
Histo-morphometric analysis - Bone	with HELBO	without HELBO
Buccal resorption	2,03 ± 1,76 mm	5,84 ± 1,44 mm
Implant contact	56,74 ± 18,02 %	33,91 ± 12,60 %
Density	70,57 ± 8,49 %	58,37 ± 9,55 %

\* Neugebauer J. *et al.* Mund Kiefer Gesichtschir, 2004; 8(6):350-5.

## HELBO and SKY fast & fixed - a well-coordinated team:

Disinfection in minutes  
without side effects

### Avoid complications \*



Alveolar management/  
implantology



**Prof. Jörg Neugebauer**  
Landsberg am Lech, Germany

### HELBO therapy - a must

"For 20 years, HELBO therapy has been an absolute must for me in implantology and oral surgery. HELBO helps me prevent complications during immediate implantations and augmentations, especially in high-risk patients. Peri-implantitis therapy without aPDT is inconceivable in our practice."

## ***Enthusiastic advocates for the use of HELBO aPDT in immediate implantations***



**Dr Stephan Ryssel**  
Crailsheim, Germany

### *HELBO in surgery*

"In our clinic, surgical procedures are performed with the help of HELBO as standard - we simply don't have time for complications, especially with immediate implantations."

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### *Assured results with HELBO aPDT*



**Dr Florian Obadan**  
Alexandria, Romania

"As a global ambassador for SKY fast & fixed immediate restorations in the digital workflow, I can guarantee my patients temporary restorations in just one day. This also means that the tissue is preserved and stabilised and that we can achieve high-quality soft tissue aesthetics. However, in order to maintain a success rate above 99%, it is crucial to avoid common bacterial complications. HELBO aPDT gives me this assurance: the therapy allows me to offer this affordable implant option to more patients and reliably saves me from corrective procedures during recall, especially when teeth susceptible to periodontitis need to be extracted."



**Dr Rita Singh**  
Kathmandu, Nepal

### *Immediate implantation with HELBO*

"Immediate implantation with immediate loading becomes more predictable thanks to HELBO therapy, especially in infected alveoli."

## HELBO helps where mechanical cleaning and chemical disinfection fail. Bye-bye, stubborn bacteria ...



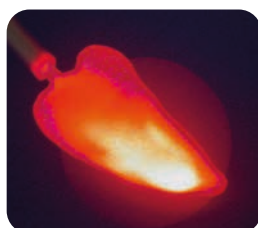
Complete filling of a prepared root canal with the photosensitizer after advancing the application cannula towards the apex.



Rinsing the excess photosensitizer from the root canal system.



Activating the photosensitizer with the light guide inserted into the prepared root canal.



Images: Prof. Andreas Braun

### ... deep in the dentinal tubules and in the apical bone area

- ✓ Gentler and with approx. 100x to 1,000x fewer residual germs than with a diode laser or NaOCl treatment.\*
- ✓ Nearly 100% pain reduction without medication inserts, even in inflamed or necrotic pulp.\*\*
- ✓ Avoids surgical intervention in 80% of gangrenous teeth.\*\*



**Dr Carolyn Kowalski**  
Hamburg, Germany

### Treat successfully with HELBO

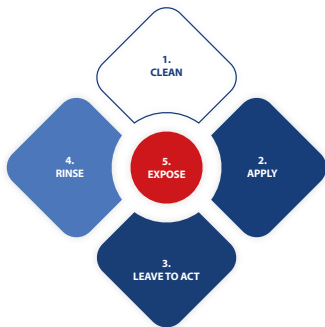
“High-quality, microscope-assisted endodontics is a key pillar for long-term tooth preservation in our practice. Besides careful preparation and filling with a tight cap, disinfection with HELBO is an important intermediate step for successful treatment which we cannot and do not want to do without.”

\* Bago I *et al.* Int Endod J, 2013; 46(4):339-47.

\*\* Eckl M. Zahn Prax, 2008; 11(4):310-13.



# HELBO aPDT assists with complete, apical re-ossification\* by suppressing inflammation\*\*



Images: Prof. Jörg Neugebauer

Application of HELBO therapy in retrograde endodontics.



**Dr Samy Kettinger**  
Montpellier, France

## HELBO - a great tool

“Rethinking our anti-microbial approach is crucial in this day and age. In endodontics, this is particularly important when access to hidden anatomical structures is limited, such as those in microsurgical retrograde endodontic treatments. The HELBO system provides you with a great tool for this.”

## Deep caries

**Effective deep caries treatment: targeted decontamination for lasting protection of healthy tooth roots**

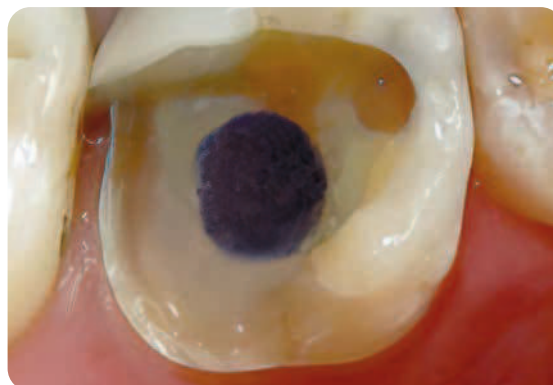


Image: Dr. G. Werling

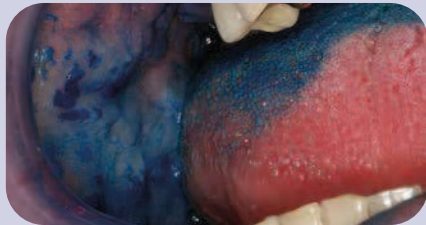
\* Eckl M. Zahn Prax, 2008; 11(4):310-13.

\*\* Silva L.A. et al. J Endod, 2012; 38(3):360-6.

## HELBO can be the primary form of therapy for skin and mucous membrane diseases ...



### aPDT disinfection



- Fights infectious lesions
- Avoids use of antibiotics, antiviral drugs or antifungal drugs



Images: Prof. Jörg Neugebauer

Successful treatment of a candida infection.

#### RECOMMENDATION

Combine both outstanding h

### Excellent results



Dr Ulrich Fürst  
Attnang-Puchheim,  
Austria

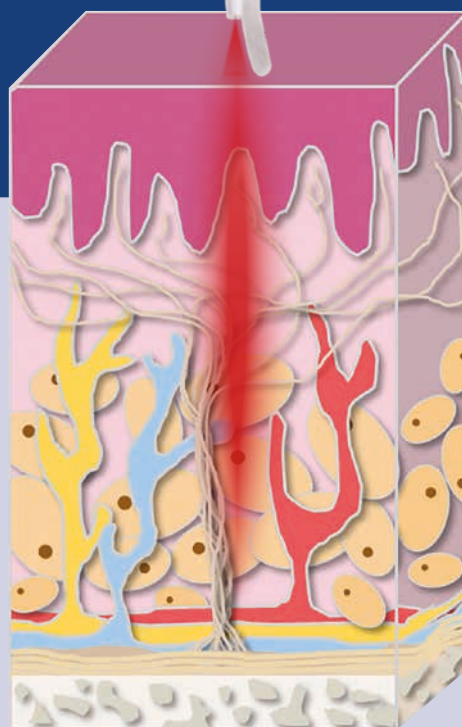
"aPDT HELBO therapy has been an elementary part of the various treatment processes in our practice for more than 20 years. aPDT enjoys excellent success as an adjunctive therapy not only for its main indications of periodontology, implantology and oral surgery, but also in the field of endodontics and mucous membrane conditions such as **mouth ulcers, herpes and fungi**, thus achieving high patient satisfaction."

*... without prior cleaning and in some cases without medication.*

## LLLT photobiomodulation

- Brings pain relief, faster healing or prophylaxis of non-infectious lesions
- Avoids use of analgesics and corticosteroids

*types for healing results.*



Good penetration without thermal effects in oral mucous membranes.

## Valuable treatment option



**Prof. Pía  
María-Jornet Lopez  
Murcia, Spain**

"With HELBO, I finally found a valuable treatment option for many of my chronic stomatology patients. LLLT brings relief to my patients with drug-refractory **oral lichen planus** or **burning mouth syndrome**."

# HELBO TheraLite Laser



Batteries & charger

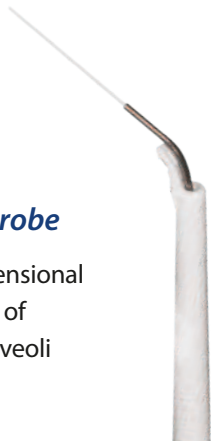
- Available in silver, red or blue
- Super-light diode laser (120 mW, 660 nm) with integrated power control; short therapy time due to optimum light output
- Portable as it can be used without mains electricity (battery operation), ergonomically perfect, small and light at 80 grams, making handling fatigue-free
- Includes battery set and charger

## Sterile HELBO single-use light guides



### HELBO 3D Pocket Probe

For three-dimensional light exposure of pockets and alveoli



### HELBO 3D Endo Probe

For three-dimensional light exposure of root canals



### HELBO 2D Spot Probe

For light exposure of flat areas

## Other accessories for laser treatment



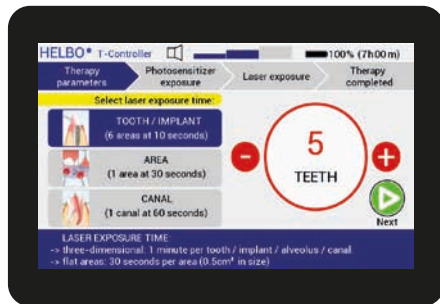
### HELBO Photosensitizer

For more detailed information on the HELBO Photosensitizer and other accessories, please contact our sales team.



# HELBO T-Controller

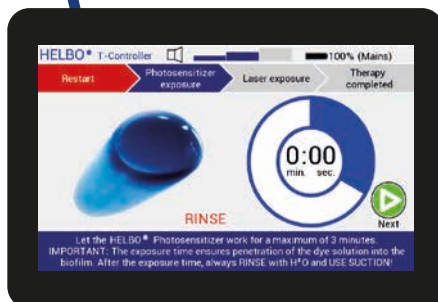
Aesthetic and functional thanks to visual and audible feedback signalling



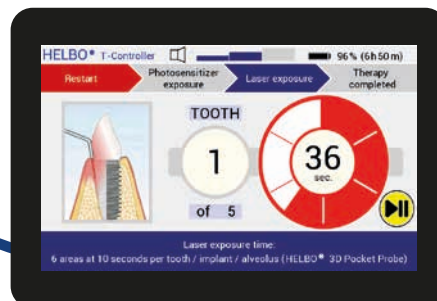
**1. Select the indication**



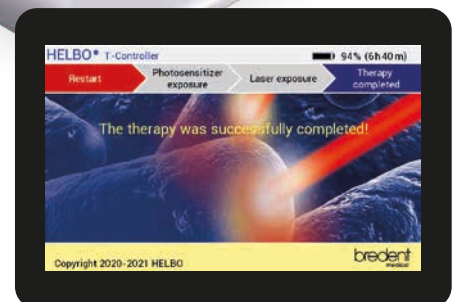
**2. Set the exposure time**



**3. Wait for contact time, rinse**



**4. Expose according to specification**



**5. Complete the treatment**



- ✓ Systematic time and therapy control to assure quality
- ✓ Easy control of relevant therapy parameters, depending on the indication
- ✓ Storage for the HELBO TheraLite laser

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# HELBO - *Place your trust in the market leader*

*Your partner for photodynamics  
in dentistry*

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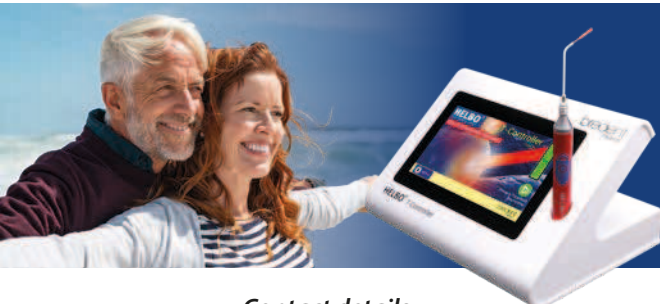
- **Sterile products**  
*allow use on bleeding lesions and during surgery.*
- **Unique, optimally matched product concept:**  
*High concentration, strong diffusion: biofilm is visibly and reliably inactivated by optimal light.*
- **Over 100 publications**  
*prove its efficacy, including many randomised, clinically controlled studies published internationally.*
- **Positive effects:**  
*Photobiomodulation assists regenerative processes significantly thanks to the light used.*



*“Never underestimate enemies  
because they are small and toothless.  
It is not lions and crocodiles that kill  
most people, but viruses  
and bacteria.”*

**Peter Hohl, \*1941, writer, publicist, publisher**

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*Therapeutic success has been  
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**Controls infections**

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