Lasotronix

Using the Polish Smart^{M} PRO laser in everyday dental practice

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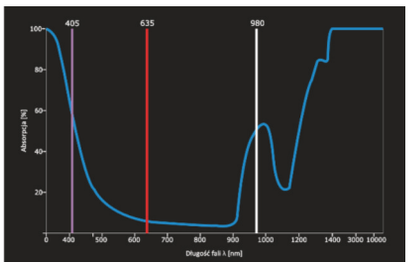
Contents

About the laser

The Smart PRO laser offers three complementary wavelengths, i.e. 405 nm, 635 nm and 980 nm. Due to such a combination we are able to provide patients with a comprehensive service – from diagnostics through therapy to postsurgical care.



There is no universal wavelength

405 nm - laser emitting violet light. Owing to the phenomenon of autofluorescence of tissues, we can precisely diagnose the extensiveness of lesions in the mucous membrane and places inhabited by bacteria, as well as visualise composite fillings and prosthetic restorations.

980 nm - laser operating in infrared. Due to high absorption in water and melanin, we are able to achieve excellent surgical results with minimal intraoperative bleeding. This wavelength has been successfully used in endodontics and periodontology owing to its disinfecting properties as well as in aesthetic dentistry to support the process of teeth and gums whitening.

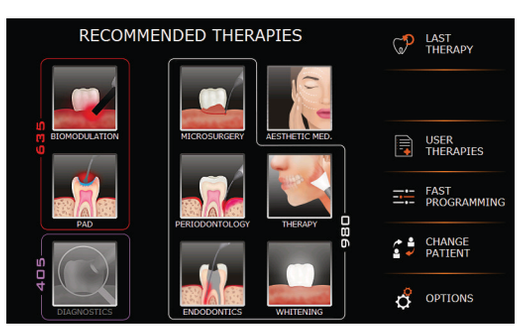
635 nm - laser emitting visible red light. Using this wavelength, we provide cells with energy in the form of ATP so that we obtain the effect of cell repair and renewal accompanied by analgesic, anti-oedema and regenerative action. This unique wavelength in combination with a properly selected photosensitiser has the ability to completely change its properties, i.e. a regenerative wave becomes a very effective and safe tool for cold disinfection of hard and soft tissues, successfully eliminating infections and accompanying inflammation.

Advantages of using the laser for the patient

Safe and comfortable procedures
Faster postoperative healing
No bleeding for most treatments
Analgesic properties
Possibility of eliminating bacteria without the use of antibiotics
Library of procedures with the possibility of their modification and assignment to the patient
Problem-free histopathological evaluation of excised lesions

Advantages of using the laser for the physician

Improved quality of treatment
Simple operation
Lowest operating costs
Safe treatments with greater operation control
Greater precision with limited invasiveness for tissues
Modern work methods
Increase in testing accuracy due to the application of pre- and postoperative diagnostics
Possibility of application in all fields of dentistry
Wide range of accessories – the broadest scope of applications
Possibility of expanding the laser with new options at any time
Comfortable workstation with a trolley
Compact size of the device
Ready thematic programs – library of medical procedures
Laser software upgrade capability
English menu
Made in Poland – manufacturer's service and support



9 treatment categories

Functionality and convenience

Intuitive operation

Database, instruction manual and key in one

Extensive accessories

From diagnostics and therapy to postoperative care Smart^{M} PRO laser applications

Diagnostics 405 nm

dental caries, tartar, dental deposits, enamel cracks, necrotic teeth, fillings, prosthetic restorations, detection of bacteria, identification of the extensiveness of mucosal diseases invisible to the naked eye and precancerous lesions, possibility of checking the accuracy of defect cleaning, implant area or periimplantitis.

Prosthodontics, surgery, implant dentistry 980 nm

incision, cutting, coagulation, shaping the course of the gingival festoon, preparing the gingiva before polishing, impression taking and cementing – retraction, exposure of implants, frenulum correction, excision of lesion in the mucous membrane, retraction of gums

Periodontology 980 nm

elimination of bacteria from gingival crevices, laser curettage

Endodontics 980 nm

disinfection of the root system and closure of microcanals

Therapy 980 nm

local increase in tissue temperature, reduction of pain, relaxation of muscular tension, e.g. treatment of carpal tunnel syndrome, temporomandibular joint disorders

Whitening 980 nm

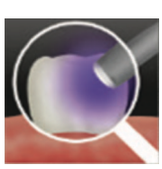
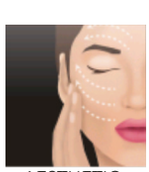
one-session whitening of a single tooth or entire dental arches

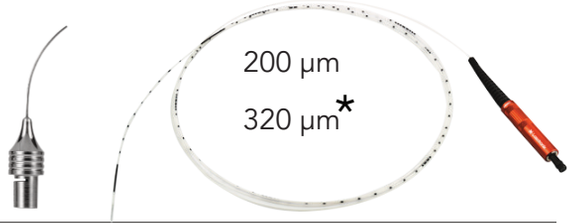
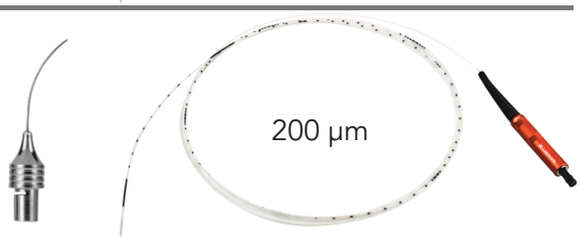
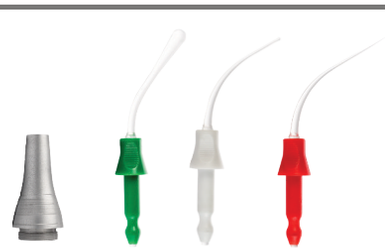
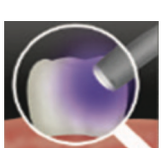
Biomodulation 635 nm

treatment of inflammatory conditions, reduction of postsurgical oedema, support of exposed pulp regeneration, elimination of cervical hypersensitivity, treatment of bedsores caused by prosthetic restorations, alveolar osteitis, trigeminal neuralgia, aphthae and herpes, regeneration of nerve fibres, treatment of temporomandibular joint injuries

Photoactivated disinfection = PAD 635 nm

disinfection of root canals, cavities before obturation, aphthae, oral inflammations, herpes, hygienisation after scaling, treatment of periimplantitis and periodontitis, treatment of lesions on the mucous membrane (e.g. leukoplakia)

procedure	practitioner	patient/assistant
 MICROSURGERY  PERIODONTOLOGY  ENDODONTICS  WHITENING  THERAPY	 OLIVE 980 nm	 GREEN  Safety glasses for kids
 PAD  BIOMODULATION	 BLUE 635 nm	 GREEN  Safety glasses for kids
 DIAGNOSTICS	 YELLOW 405 nm	 GREEN  Safety glasses for kids
 AESTHETIC MEDICINE	 YELLOW 405 nm  OLIVE 980 nm  BLUE 635 nm OR FOR ALL PROCEDURES  GREEN	 Safety glasses for : aesthetic procedures  ASSISTANT GREEN

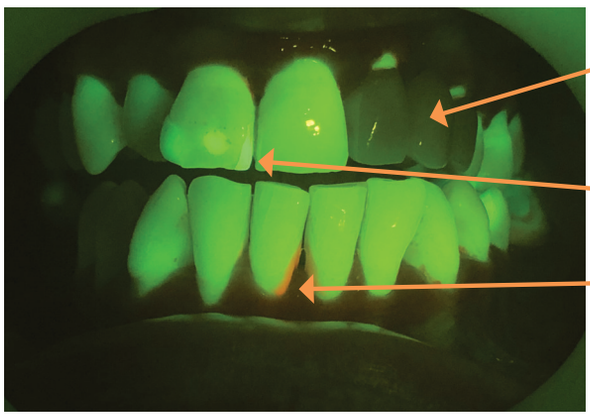
procedure	accessories
 MICROSURGERY	 
 PERIODONTOLOGY	 
 ENDODONTICS	 
 WHITENING	  
 THERAPT	  
 BIOMODULATION	  
 PAD	  
 DIAGNOSTICS	   

*Additional accessories

Violet laser - DIAGNOSTICS

How does the 405 nm laser work?

The 405 nm laser uses the phenomenon of tissue autofluorescence, which is based on absorption and simultaneous emission of radiation with a longer wavelength.



Possibilities of application

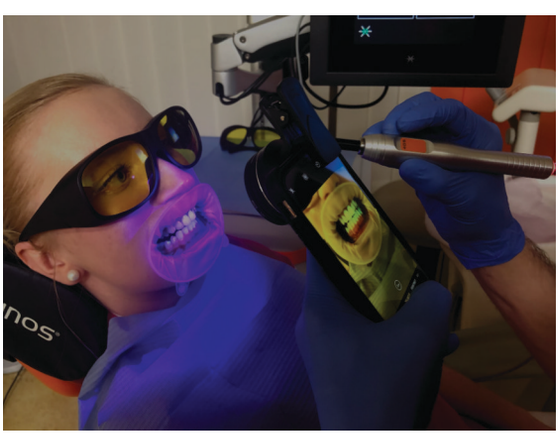
Visualisation of demineralisation and caries, detection of remaining composite after orthodontic brackets removal, control of composite material tightness, detection of prosthetic restorations, dental deposits, visualisation of enamel cracks, evaluation of the effectiveness of tooth cleaning by the patient, detection of lesions in mucous membranes showing features of dysplasia and evaluation of the limits of these lesions

Diagnostic glasses

Mobile phone camera filter

Advantages

Easy, quick and non-invasive procedure for the patient
Can be used by dental hygienists for initial diagnostics
Control of performed scaling procedures in the hygienisation office
No need for special staining preparations
Enables visualisation of lesions in the mucous membrane invisible to the naked eye before they are noticeable in white light
Facilitates communication with patients and other specialists
Enables evaluating the actual extensiveness of inflammatory changes



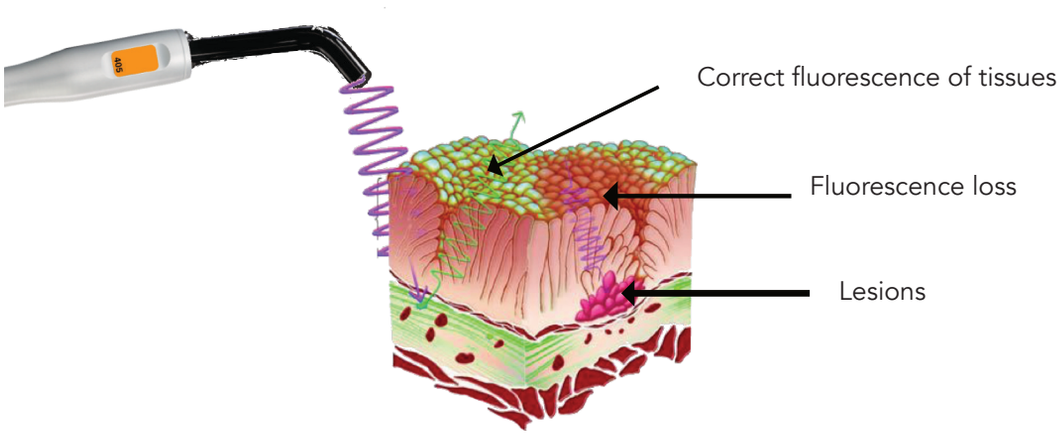
Principles of 405 nm laser operation

- Diagnostic process is carried out in a darkened room
- Yellow glasses are used for diagnostics
- Place the laser handpiece at a distance of about 10-15 cm from the examined area
- In order to prepare photographic documentation it is necessary to put a filter on the lens of the camera in the phone

Violet laser - DIAGNOSTICS

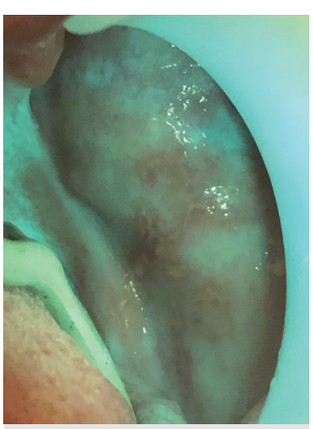
Detection of potentially carcinogenic lesions in mucous membranes

Tissues with normal structure that are examined with the 405 nm laser show intensive green glowing. Places with dysplasia are visible as dark spots with varying degrees of shadowing. This phenomenon is referred to as fluorescence visualisation loss (FVL).

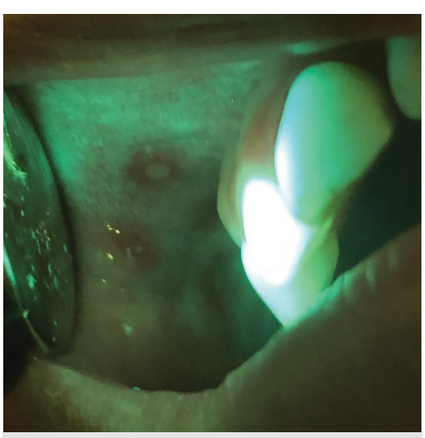


The result of this examination is not conclusive and no final diagnosis can be made on its basis. It should be noted that any lesion in the mucous membrane that is present for longer than 2 weeks should be subject to a histopathological examination.

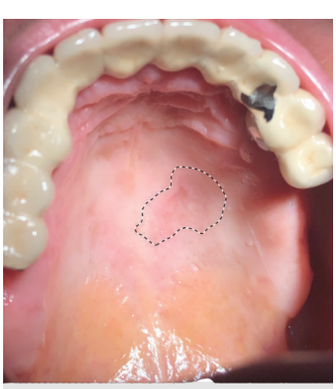
A lichen planus lesion as seen with the naked eye



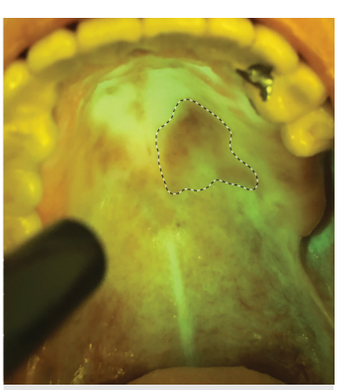
A lichen planus lesion in 405



Aphtha visible in 405 nm light



Non-healing lesion in the palate as seen with the naked eye



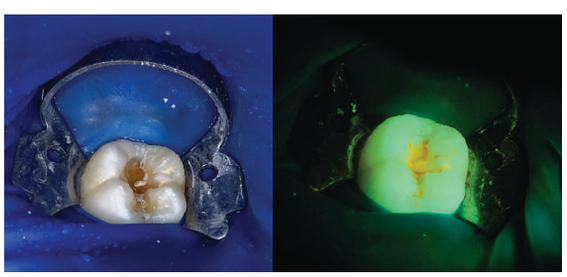
Non-healing lesion in the palate in 405 nm laser light

Violet laser - DIAGNOSTICS

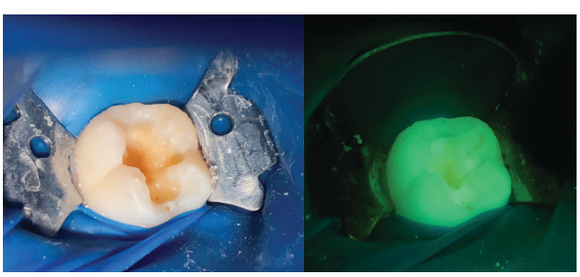
Diagnostics of demineralisation and caries

Carious lesion in tooth

With the use of violet light we can detect initial stages of carious lesions. Such places show fluorescence in red (seen in orange glasses). This colour is caused by porphyrins, i.e. substances produced by cariogenic bacteria.



A carious lesion during cleaning

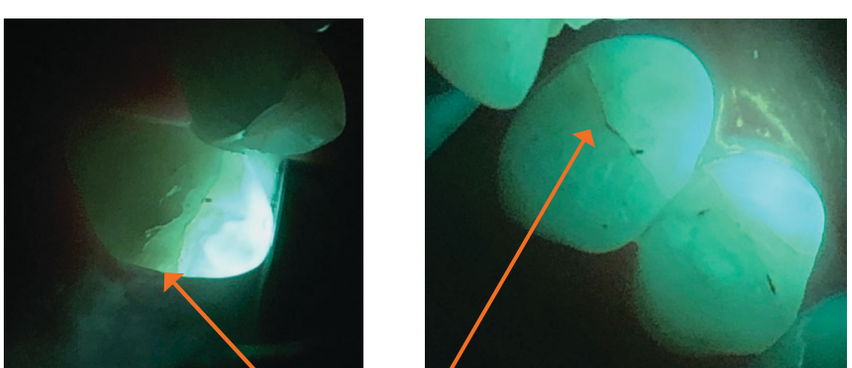


Inspection after cleaning of the lesion

Visualisation of cracks in enamel

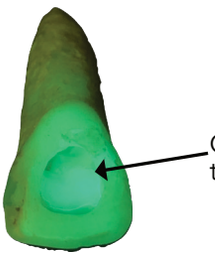
If the cause of tooth pain is difficult to diagnose, it is worth using this tool, because the cause of pain may be a crack in the enamel, often omitted during an examination with the naked eye.

Tooth without cracking



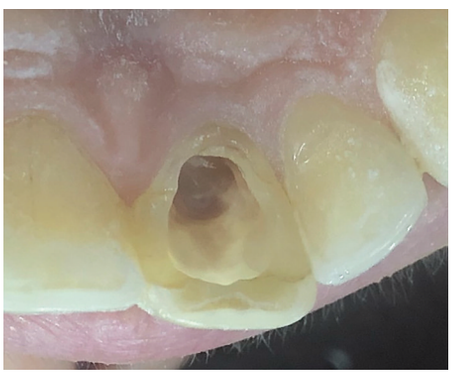
Violet laser - DIAGNOSTICS

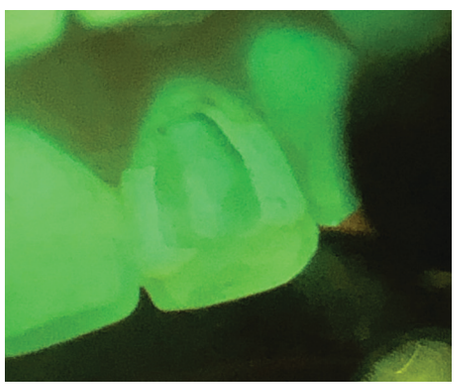
Visualisation of prosthetic restorations and fillings



Composite material in the tooth chamber

Tooth chamber cleaned from composite





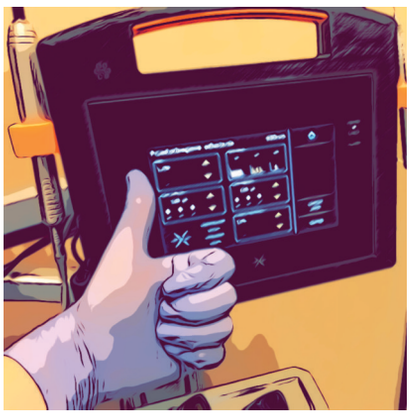
Thanks to the fluorescence of the composite, we can make it visible on the surface of the tooth. This is extremely important during the procedure of internal whitening of necrotic teeth where we are not always sure whether the material was removed completely from the chamber. Leaving even small amounts of composite reduces the effectiveness of internal whitening.

Prosthetic restorations (veneers, crowns) and necrotic teeth do not show the phenomenon of fluorescence, which allows for their easy differentiation from living teeth during a dental examination.

Image seen with the naked eye

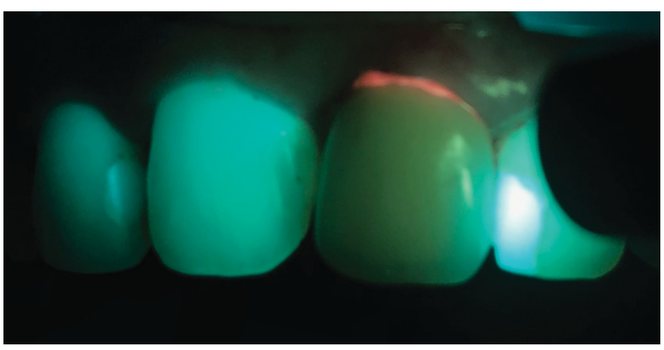
Image in 405 nm laser light
Visible prosthetic restorations in teeth

Violet laser - DIAGNOSTICS



Detection of dental plaque

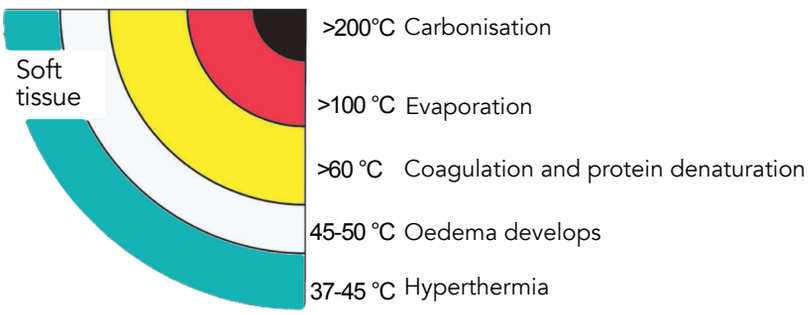
Tartar visualisation is an accurate, very fast and non-invasive diagnostic method that is helpful in everyday work. We are able to visualise the patient's dental deposits, as well as check the accuracy of tartar removal after the scaling procedure. This also serves as additional motivation for the patient to improve for checking the oral hygiene.



Visible tartar in the vicinity of a prosthetic crown

Infrared laser microsurgery, periodontology, endodontics

Laser effect on tissues



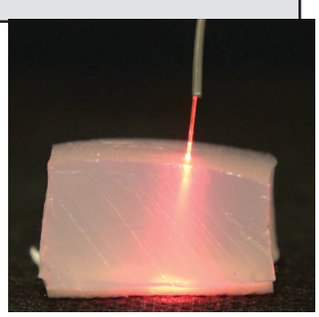
Start operating the laser with low power settings; avoid carbonisation of tissue

Use lower power settings for dark, thin, heavily hyperaemic tissues

Use higher power settings for light, anaemic and thick tissues

The more fibrous the tissue the higher the pulse power needed for incision, e.g. loose gum flap - 980 nm, power 15 W, IMP operation, t/on 100 us t/off 300 us

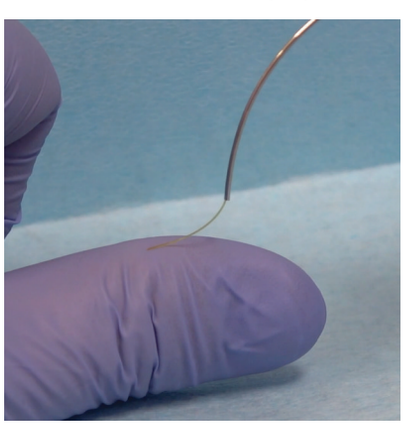
What determines the cutting efficiency of the 980 nm diode laser



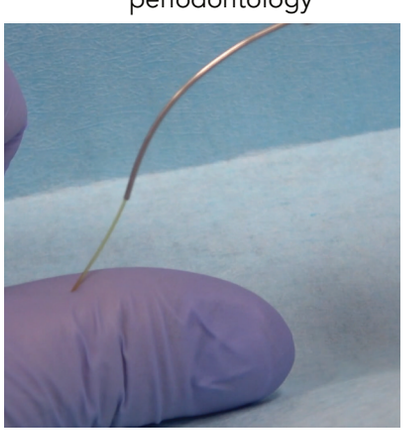
1. Wavelength and laser power – 980 nm, power from 0.5 W to 15 W for continuous operation
2. Colour and type of tissue: vascularisation, hue, gum phenotype
3. Laser operating mode – continuous operation, pulse operation
4. Operator – speed of optical fibre movement
5. Optical fibre diameter (200 µm works faster and deeper, 320 µm is shallower)
6. Optical fibre activation
7. Optical fibre working angle
8. No contamination of the optical fibre
9. Optical fibre wear level – the black spot after optical fibre activation should be at its end

Types of 980 nm optical fibres

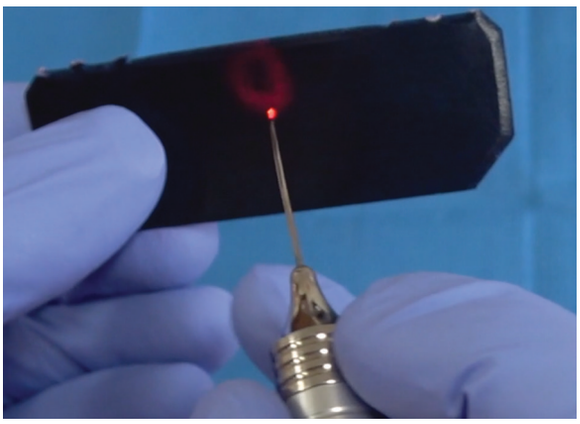
200 µm
endodontics, surgery



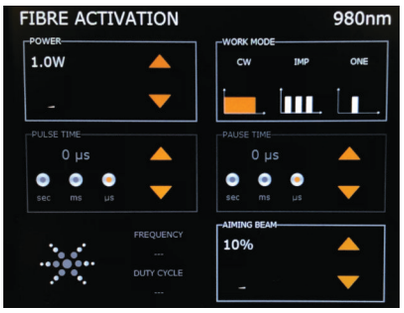
320 µm
retraction, surgery, periodontology



Optical fiber activation before each procedure



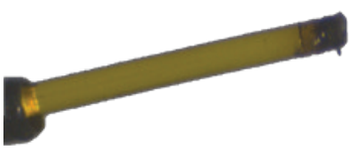
articulating paper
power 1 W, CW – continuous operation
wavelength 980 nm



Touch the front of the optical fibre and press the foot switch for 1 second and then release the trigger.

Move the optical fibre to another location and press the foot switch again for 1 second.

Activated optical fibre, blackened tip



Application:

Tissue incision
Gingiva retraction
Treatment of hypersensitivity

Non-activated optical fibre

Application:

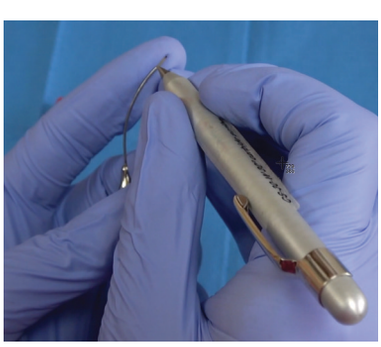
Endodontics
Sterilisation of treatment site

Deactivation of optical fibre after each procedure

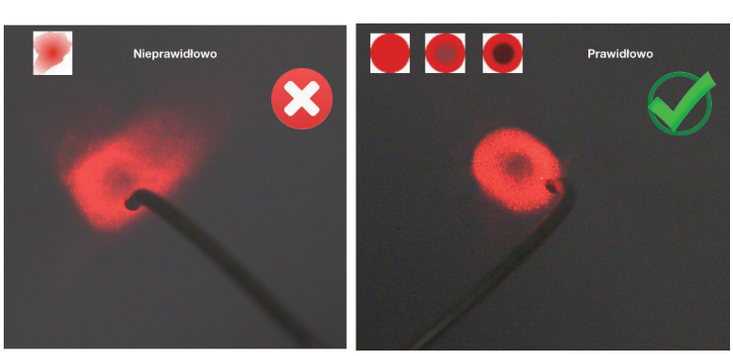
Due to the wear and tear of the optical fibre, cut off and reactivate the worn optical fibre after approx. 1 minute of operation

Deactivate the optical fibre with a special knife after each use

What to pay attention to when deactivating optical fibre



Cut the optical fibre so that only the yellow clean surface of the optical fibre is visible or at the same level as the metal cap



The pilot beam spot should be similar in shape to a circle without jagged edges; check if the shape of the spot is round (the centre of the spot may be darker or even black, i.e. the spot is a ring). If the spot is round, the optical fibre has been cut correctly. If its shape is deformed or the edges are jagged, repeat the cut.

Infrared laser Endodontics

Indications for the application of diode laser in root canal

Infected canals - purulent pulpitis, pulp gangrene
Periapical lesions - without purulent exudate
Teeth with lateral branches of canals being the cause of lesions in the periodontium
Teeth with internal and external resorption
Retrograde canal filling during resection

Effects of the laser

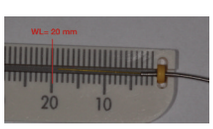
Extension of the disinfected zone of dentinal tubules
Root canal surface cleaning
Closing lateral canals
Root canal drying

Antimicrobial laser action in root canal – 4 steps to success

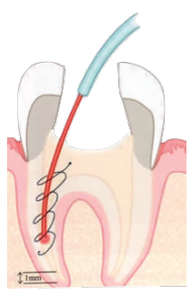
1. 980 nm laser
Activation of rinsing agents

OLIVE
980 nm

Inactivated optical fibre
200 microns



Place a stopper on the applicator to the working length minus 1 mm



Rinse the canal with EDTA and leave the liquid in the canal

Place the tip of the optical fibre in the canal to the working length minus 1 mm

Turn the laser on and extend the optical fibre 1 mm a second in a spiral motion

Carry out 2 cycles with EDTA

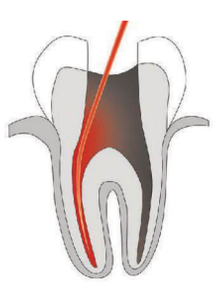
Substitute the liquid with 5.25% NaOCl and perform 3 activation cycles

2. 635 nm laser
PAD – photoactivated disinfection

BLUE
635 nm

Endo tip

PAD endo liquid



Apply the PAD liquid to the canal

Wait 1 to 3 minutes

Drain the excess of PAD preparation from the canal with a paper drain

Place the applicator in the root canal to full length

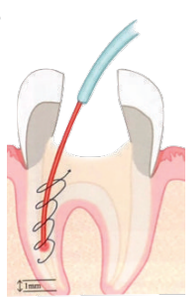
Activate the applicator in the canal

3. 980 nm laser
Disinfection and closure of dentinal tubules

OLIVE
980 nm

Inactivated 200 micron optical fibre

Place a stopper on the applicator to the working length minus 1 mm



Place the tip of the optical fibre in the canal to the working length minus 1 mm

Turn the laser on and extend the optical fibre 1 mm a second in a spiral motion

Repeat this activity 3 times

4. 635 nm laser
Biomodulation

BLUE
635 nm

ACTION:

analgesic
anti-inflammatory
accelerates healing of periapical tissues

Infrared laser periodontology

Treatment of periodontal diseases

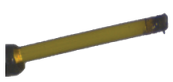
LANAP – Laser-Assisted New Attachment Procedure – 3 steps:

1. Pocket cleaning and deepithelialisation (980 nm laser)
2. Removal of dental deposits and plaque from root surface (scaler, curette, vector)
3. Creation of homoeostasis and stable clot (980 nm laser)

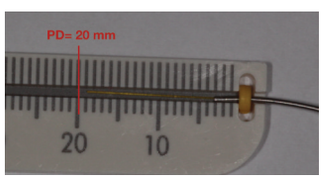
1. 980 nm Removal of inflammatory granulation

Treatment area disinfection
Removal of inflammatory granulation tissue
Stopping postoperative bleeding

OLIVE
980 nm



Activated optical fibre
320 microns



The optical fibre should have the length equal to PD (probing depth) – 1 mm

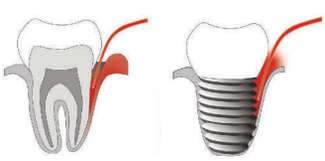
Removal of the granulation tissue and internal epithelium of the gingival pocket is achieved by moving the 320 micron optical fibre starting from the edge of the gingiva and moving back and forth to the bottom of the pocket. The optical fibre should be in contact with the gingival pocket wall without contacting the surface of the tooth's root. The optical fibre should be cleaned as epithelium and necrotic tissues accumulate on it. The pocket is cleaned when no residue accumulates on the surface of the optical fibre. SRP, i.e. scaling and root planing, is carried out in the next phase.
In order to ensure homoeostasis after SRP procedures, you should work with an activated optical fibre using a continuous movement near the gingival edge .

2. 635 nm Disinfection of gingival pockets

BLUE
635 nm

Perio tip

Alternative to topical antibiotic therapy
Eliminates 99.99% of bacteria from the gingival pocket
No discolouration of tissues and allergic reactions
Bacterial resistance is not observed



1.Apply the PAD viscous liquid to the pocket

2.Wait 1 to 3 minutes

3.Rinse the excess of the PAD preparation from the gingival pocket

4.Place the applicator in the gingival pocket

5.Activate the applicator - full program on one surface of the tooth

3. 635 nm Postoperative healing support

BLUE
635 nm

Pain relief
Accelerated healing of soft tissues after procedures
Anti-oedema effects

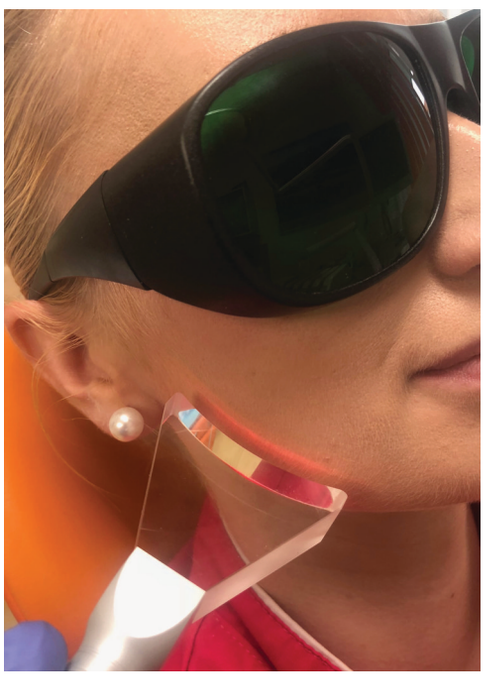
Finally, carry out photobiomodulation with the 635 nm wavelength and power of 250 mW with energy totalling 4 J/cm2 per spot. Apply the energy to every interdental papilla, both on the buccal and palatal side.

Infrared laser - THERAPY

The therapy involves raising the temperature locally, thanks to which we get temporary congestion of tissues and pain relief.

Treatments reduce or eliminate the need to take NSAIDs.

They can also be a nice addition for the physicians themselves after a whole day of being overburdened with work in a forced position



Contraindications for 980 nm therapy:

fever

active inflammation

open wounds

Application examples

- lockjaw
- carpal tunnel syndrome
- shoulder, neck, back, elbow, knee overload pains
- temporomandibular joint in patients with reduced opening of the oral cavity

Practical guidelines on how to carry out therapy with the 980 nm laser

1. The irradiated skin should be clean and degreased, e.g. by rubbing the surface of a cheek and joint with alcohol or disinfectant

2. During one treatment we expose the area several times for about 1 minute from a short distance, moving the applicator along the muscle all the time

3. During the procedure the patient is supposed to feel warmth, but it must not be pain. In case of pain, the applicator should be moved away from tissues at a greater distance and/or consider increasing the speed of applicator movement

The best results are obtained by combining cold and heat methods, i.e. 635 nm laser (biomodulation) with a lens applicator and 980 nm laser (therapy) with an arch applicator

The entire therapeutic cycle is carried out 2 to 3 times a week for 2 successive weeks or until painful sensations disappear

Applicators dedicated to 980 nm laser therapy

Arch applicator
(in the set)

*

Lens applicator 18 mm
(optional)

Infrared laser - TEETH WHITENING

The whitening effect depends on individual clinical conditions

After the application of appropriate tips we can whiten a single tooth or entire dental arches

Whitening can be performed on both vital and necrotic teeth; it is possible to brighten teeth by 6 to 12 shades according to Vita shade guide.

All fillings and prosthetic restorations made of ceramics are not whitened. The colour of fillings should be checked and the fillings should be replaced 2 weeks after the whitening procedure.

Preparing the patient for tooth whitening

Determine the colour of the patient's teeth before the procedure using the VITA shade guide – from the brightest to the darkest shade. A correctly prepared shade guide should be set according to the following brightness value formula:

B1 A1 B2 D2 A2 C1 C2 D3 A3 D4 B3 A3,5 B4 C3 A4 C4

Use a sandblasting machine or toothpaste to clean the patient's teeth.

Use an OptraGate lip and cheek retractor.

Do not anaesthetise the patient.

Apply liquid dental dam on the surface of the gums.

Whitening gel application

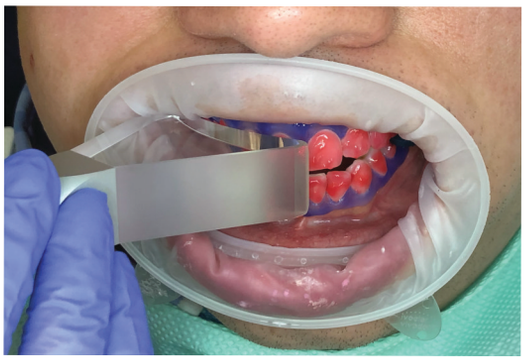
Teeth with vital pulp:

Apply 1-2 mm of the gel on the labial surface of whitened teeth. The mixing tip is designed to distribute the gel evenly.

Teeth after endodontic treatment:

The gel is placed in the tooth chamber from the lingual side. For this purpose, the root canal filling should be removed up to 2 mm below the cementoenamel junction. Then secure the bottom of the chamber with glass ionomer cement and apply the whitening gel.

Activation of whitening gel with 980 nm



The gel on teeth surface is activated by laser light using an 8 mm or arch applicator. After activation, the gel should remain on the surface of the teeth for approximately 10 minutes. After this time, we aspire the gel with an aspirating nozzle and rub off the remains of the teeth surface. If the whitening effect is not satisfactory, the procedure can be repeated twice until the desired effect is obtained. After the teeth whitening procedure, it is worthwhile to perform biomodulation with the use of the 635 nm laser in order to reduce postoperative sensitivity – the "cervical hypersensitivity" procedure. If the papilla gets burnt, set the "gingiva necrosis" program and apply it in one place 1 or 2 times

Arch applicator

whitening of entire dental arches
30 sec 7 W continuous operation
power range
4 to max. 8 W per quadrant
standard equipment

8 mm applicator

single tooth, whitening of vital and necrotic teeth
30 sec 2 W continuous operation
power range 1 to max. 2 W
additional accessories

Condition before teeth whitening

Condition after 2 applications of the whitening gel

Contraindications for the whitening procedure

- Exposed dentin
- Damaged filling margins
- Patients with hypersensitivity
- Allergy or intolerance to ingredients of the preparation
- Pregnancy and lactation (due to lack of sufficient data on the effects on pregnant and breastfeeding women).

Note

In case of increased sensitivity of teeth and when whitening is repeated within 6 months, the laser power settings should be as follows:

- 4 W for the arch applicator
- 1 W for the 8 mm applicator

The whitening preparation should be stored in a refrigerator.

PAD - photoactivated disinfection

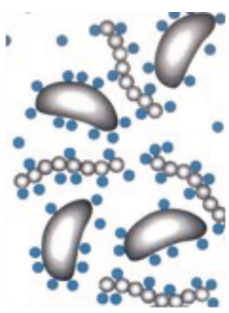
During this type of therapy target cells are destroyed by reactive oxygen species. Under the influence of 635 nm laser light - 400 mW in SMARTm (red light) on the photosensitiser (toluidine blue), reactive oxygen species with a broad and very effective antiseptic spectrum are released. 99.99% of biofilm is deactivated. Mechanism of action: disturbance of cell membrane integrity, inactivation of membrane enzymes, damage to mitochondrial DNA and RNA of microorganisms, inhibition of bacterial endotoxin secretion.

Advantages of using PAD

Eliminates 99.99% of bacteria, viruses and fungi
Immediate action
Alternative to antibiotic therapy
Does not cause bacterial resistance
No side effects
Safe and painless treatment

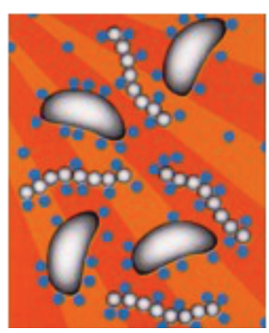
PAD mechanism of action

Bacterial infection

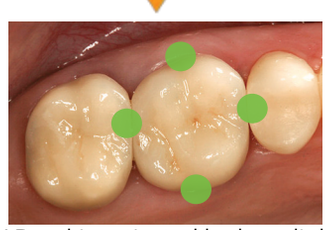


PAD preparation application

1-3 minute

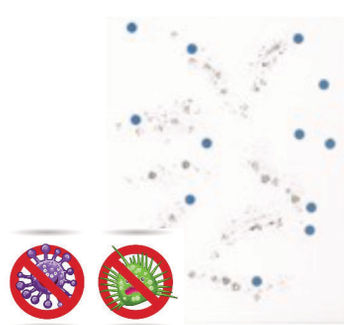


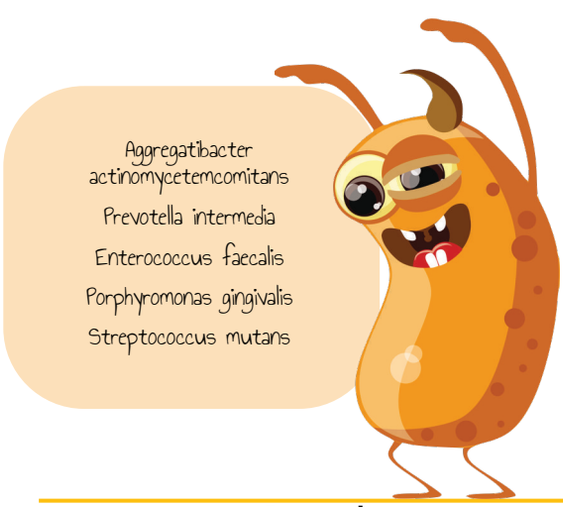
PAD activation with 635 nm laser



PAD gel is activated by laser light on every surface of the dental root separately

Bacteria destruction



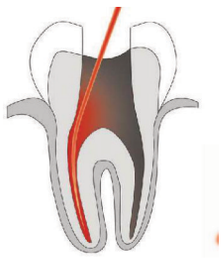


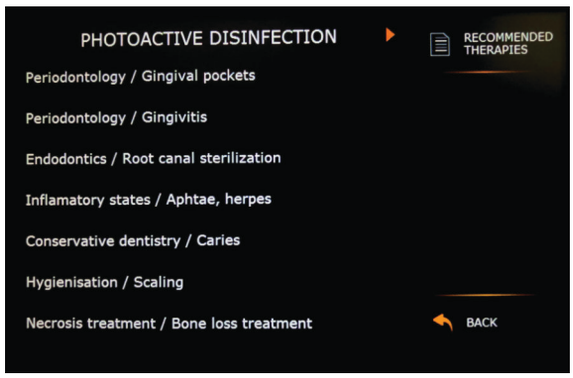
Remember

Blood, gingival fluid and biofilm interfere with PAD; therefore, it is recommended to postpone the procedure until the next appointment

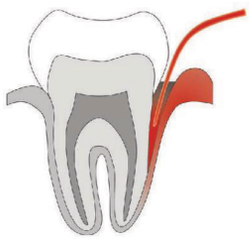
Types of PAD applicators

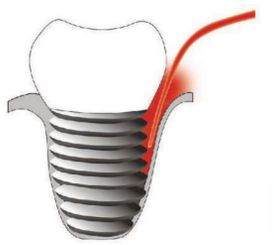
ENDO applicator
Used in endodontics



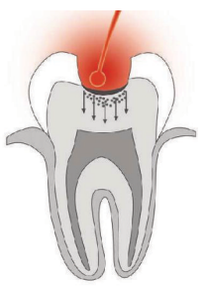


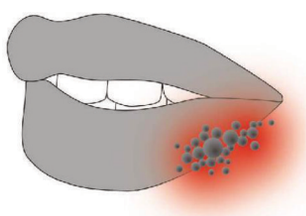
PERIO applicator
Used in periodontology and implant dentistry





BIO applicator
Used in conservative dentistry, in the case of oral mucosa lesions





Types of PAD preparations

PAD SMART SOLUTION
viscous liquid

Gingival pockets, mucosal lesions, treatment of periimplantitis

PAD SMART SOLUTION
endo liquid

Endodontics, carious lesions, deep pockets - more than 5 mm, decontamination of abutments before cementation of prosthetic restorations, before sealing of fissures

It is recommended to store the product at temperatures between 0 and 25°C. For best results, use the product at room temperature.

Biomodulation

LLLT- Low Level Laser Therapy

Primary effects of the laser:

Energy supply to cells
Increase in nucleic acid synthesis

Secondary effects of the laser:

Pain relief – increase of excitability threshold and increase of endorphins concentration
Anti-inflammatory – accelerating microcirculation and increasing oedema elimination
Biostimulating and regenerative – stimulates cell nutrition and regeneration, causes an increase in the number of blood vessels
Immunity – increase in phagocytosis, increase in interferon synthesis

Possible application in the case of:

caries and pulp diseases, dentin hypersensitivity,
periodontology and mucosal diseases in dental surgery,
treatment of functional disorders of the masticatory system,
in prosthodontics and orthodontics

Advantages:

Wound healing acceleration
Reduction of inflammation and oedema
Angiogenesis and revascularisation
Nerve regeneration
Increase of collagen quantities
Muscle regeneration

Quantities of energy supplied

1 J/cm² – 4 J/cm²

stimulates physiological activity

5 J/cm² – 9 J/cm²

conducive to physiological activity

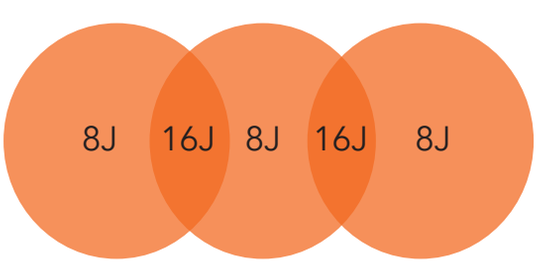
more than 10-14 J/cm²

inhibits physiological activity

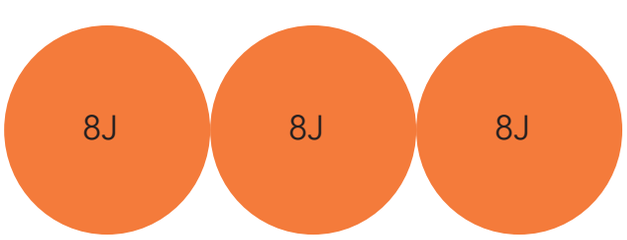
What determines maximum efficiency level

Contact of the laser tip with the tissue
Moist and clean irradiated surface
The angle of radiation in relation to the tissue is 90 degrees

Correct biomodulation of tissues



Wrong – fields of irradiation should not overlap



Correct – fields of irradiation do not overlap

Biomodulation

LLLT- Low Level Laser Therapy

14 mm lens applicator

Biomodulation of extraoral tissues

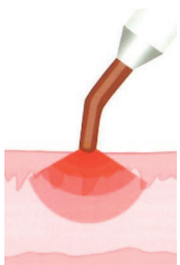
8 mm applicator

Biomodulation of intraoral tissues

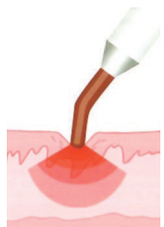
2 mm applicator

Biomodulation of intraoral tissues: papilla, abscess, pockets

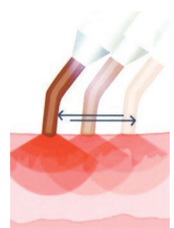
Techniques of 635 nm laser light application



Spot contact
Dental hypersensitivity
Labial herpes
Periimplantitis



Spot compression
Lockjaw
Tissue oedema



Surface contact
Hindered eruption of wisdom tooth

Spot contact-free
After extraction of teeth
Deep caries
Direct coverage of pulp
Alveolar periostitis

Surface contact-free
After surgical procedures on larger areas

Topical contraindications

lesions suspected to be malignancies
gingival hyperplasia
epulides
papillomatosis
hyperkeratosis of the mucous membrane

General contraindications:

malignant tumours (diagnosed and untreated)
pregnant women - in the uterus region
period up to 3 months following myocardial infarction
epileptic patients in the case of irradiation of extraoral outer surfaces in pulse therapy
systemic blood diseases
untreated hyperthyroidism
patients taking immunosuppressive drugs

Biomodulation

LLLT- Low Level Laser Therapy

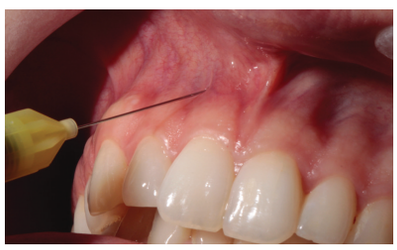
Example of biostimulation laser application

Carpal tunnel syndrome
Golfer's elbow
Sinusitis
Joint pain
Trigeminal neuralgia
Spasmodic torticollis
Burns

Field	Diagnosis	Therapy effect
Endodontics	Dental hypersensitivity	Reduced tactile and thermal sensitivity
	Pulp exposure	Improvement of the formation of reparative dentin from odontoblasts
Pediatric dentistry	Dental caries, distraction of the mandible, gingivitis	Pain reduction, faster healing
Periodontology	Chronic gingivitis	Reduction of inflammation, faster healing
	Periodontal ligament	Supports early hyalinisation
	Periodontitis	Improvement of pocket condition, reduction of inflammation, acceleration of healing after SRP procedures
Dental prosthetics	Oral inflammatory lesions related to the use of removable dentures	Accelerated regeneration of mucosal damage and faster healing of bedsores
Implantology		Accelerated bone formation
		Increase in implant–bone bonding force
		Better and faster osteointegration
		Reduction of pain and swelling after implantation procedures
		Reduction of periimplantitis
Orthodontics	Pain in orthodontics	Pain reduction, faster bone reconstruction
	Mini anchoring implants	Accelerated healing, better osteointegration
	Teeth movement	Possibility to move teeth faster
		Increased activity of osteoblasts and osteoclasts
		Faster collagen deposition
		Reduced possibility of teeth arrangement recurrence
Surgery	Bone necrosis associated with medicines such as bisphosphonates	Reduction of pain, reduction of oedemas, abscesses and fistulas, faster treatment
	Distraction of the mandible/procedures affecting the mandible	Better and faster bone trabeculation, improved bone formation around the condyle, better osteogenesis
TMJ disorders	Temporomandibular joint conditions	Pain reduction

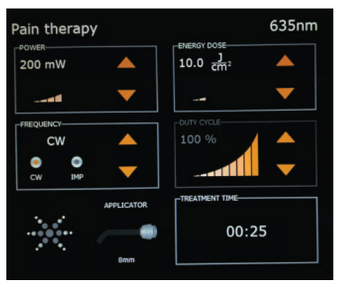
Biomodulation

LLLT- Low Level Laser Therapy



Anaesthetic effect before needle insertion

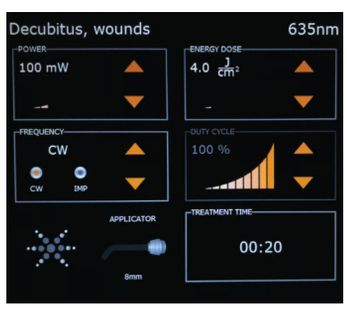
10 J/cm²



Post-traumatic healing acceleration

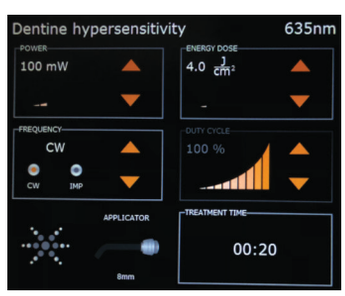
4 J/cm²

per applicator size

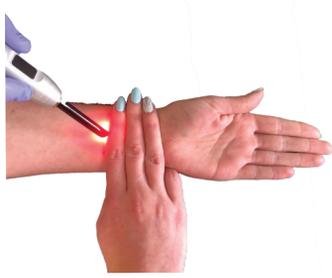


Treatment of toothache and pulp sensitivity

4 J/cm²



Laser acupuncture



Point P6

gag reflex reduction
before taking an impression
effective for 15-30 minutes

3-4 J/cm²

Hegu, Li4

systemic
analgesic action

3-4 J/cm²

Aesthetic medicine

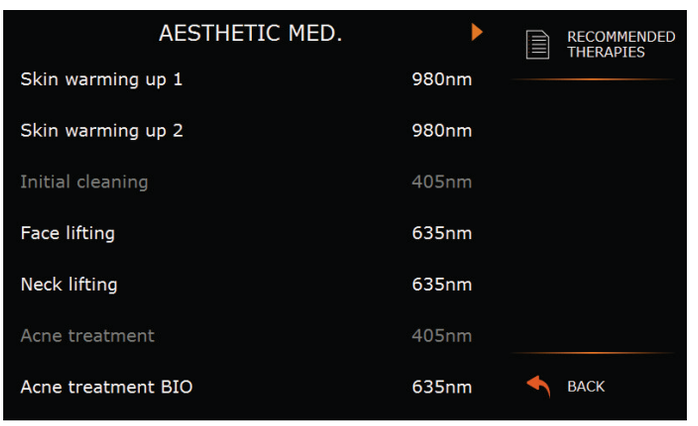
405 nm+635 nm+980 nm

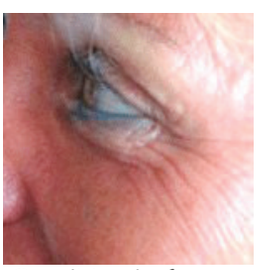
Owing to the application of three wavelengths it is possible to perform non-invasive lifting of the skin on the face, neck and décolletage. Laser action initially disinfects and prepares the skin for lifting as well as reduces post-treatment irritation. Initial effects are noticeable after the first procedure; final effects are visible after 3 months.

Photobiomodulation therapy with the 635 nm red laser is a sophisticated, effective, safe and non-invasive method of conducting skin treatments. Extremely effective and pleasant operation is possible due to the technical solution included in the standard version of the laser. The 14 mm diameter lens applicator is designed for convenient and patient-friendly treatment of outer surfaces of the human body. This dermatological lens enable, on the one hand, the homogenisation of the density of photons and, on the other hand, the deep penetration into the skin of the preparations used during irradiation.

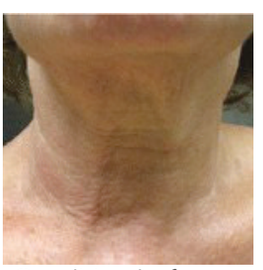
Advantages:

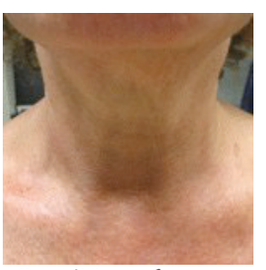
- reduction of wrinkles
- skin smoothing
- pore size reduction
- restoration of elasticity
- vital appearance
- effect of moisturising and brightening the skin
- reduction of discolourations
- acne and scar reduction




Condition before treatment


Condition after treatment


Condition before treatment


Condition after treatment

An important aspect of laser treatment is skin care after the procedure.

Proper management gives the possibility to exclude side effects and ensures a long-lasting effect of the treatment. It is not allowed to sunbathe at least 4 weeks after the last treatment. It is essential to protect your skin from the sun for at least 1 month after treatment using creams with SPF 50+ filter. The treated area should be moisturised 2-3 times a day with a strong hygroscopic agent.