

Laser vs. Polarized Light

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Six Years' Experience with Therapeutic Effects of Polarized Light in Comparison with Biostimulation Laser

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We have been utilizing therapeutic effects of polarized light in treating outpatients in our Center for six years. In general we perform this method of treatment 3 to 4 times per week, in sporadic cases even every day, mostly 10 to 15 applications in succession. In the course of past six years we have carried out total of 8716 therapies with polarized light. Within this figure, in 2/3 of applications we have been using stand-mounted polarization lamp BIXUN, whilst remaining 1/3 of therapies, especially where exactly directed applications were required (in the face, in the scalp, at the insertion of neck muscles), have been carried out with hand-held Biolamp operated by therapist, or by properly instructed patient himself/herself.

The range of applications for children as well as for adults stems from characteristic features of polarized organization of emitted light with the ability of penetration in deep tissue structures, with specific impact on molecular structure of cellular membrane, with strengthening effect on cellular metabolism and thus on acceleration of regenerative ability and healing processes, on suppression of inflammatory processes and analgetic effect.

Depth of penetration into tissue is reported up to 5 and more centimeters. Penetration increases the temperature locally, however photochemical changes caused by polarized light itself are much more important, for these bring said analgetic, anti-inflammatory, and biostimulative effects. Analgetic effect is a result of changes in potential of cellular membranes of neural cells, bringing increased limen of irritation, increased creation of beta-endorphines as well as opioides. Anti-inflammatory effect is caused by decreased formation of prostaglandines in tissue affected by inflammatory processes. Biostimulative effect is generated by influence of polarized light on molecular structure of cellular membranes and on mitochondrial apparatus, by acceleration of metabolic processes, and by stimulation of necessary control procedures in tissue. Significant effect is subject to stimulation of activity of macrofages necessary for healing of wounds, as well as stimulation of activity of fibroblasts which form a sound basis for healing of skin grafts and successfull scarring.

In the course of the above period we have carried out:

- 820 treatments of dermatologic ailments on body and extremities (eczemas, hypertrophic keloid scars etc.)
- 652 treatments in face and crinite part of head (cicatrix cheiloideus)
- 256 applications on herpes labialis
- 62 applications on dental complications after extractions (persisting oedemas, slow healing of the post extraction wound)
- 1258 applications on neck - accute cervicalgia
- 1836 applications on area of central thoracic vertebra and on accute blocks in the area of sternocostal joint
- 1352 applications on low back pain
- 418 applications on pain syndromes in the area of arm girdle, including the frozen shoulder syndrome
- 601 applications on tennis and golf elbow
- 323 applications on small hand joints

326 applications on gonarthrosis
812 applications on sacroilialgias

Efficacy of treatments:

Dermatologic ailments (eczema, dermatitis)

- 65 % without other local treatments
- 72 % with simultaneous local dermatologic treatment

Scars

- 60 % old hyperthrophic keloid scars
- 82 % fresh hyperthrophic scars

Dental applications on persistent post extraction oedemas

- 52 % without parallel treatment with antibiotics
- 83 % with antibiotics

Slow healing of post extraction wounds

- 92 % efficacy

Lower back pain, thoracalgias, cervicalgias

- 54 % without parallel medication and rehabilitative physiotherapy, manual manipulation
- 97 % when treatment combined with non-steroid antirheumatics and analgetics, reflex massages, soft mobilization techniques, possibly manipulations of vertebra

Frozen shoulder syndrome

- 62 % with only abduction positioning
- 82 % when treatment combined with physiotherapy, and analgetics and non- steroid antirheumatics medication

Epikondylitis

- 93 % without the necessity of supplementary medication, or of other physiotherapy procedures

Arthrosis and arthralgias

- 52 % without supplementary medication and/or local intraarticular injections
- 95 % with parallel medication with analgetics and non-steroid antirheumatics, possibly with intraarticular applications of corticoids or other preparations, as well as with additional physiotherapy in order to keep the range of mobility in joints.

Our Center for Connected Rehabilitation commands ten years of experience in laser therapy, which we have been utilizing He-Ne laser, laser scanner, and semiconductor diode hand-held laser probes with various wavelengths and outputs for. Thus we can compare advantages and/or disadvantages of therapies with the use of both laser and polarized light.

The main benefit of laser is bringing more emphatic therapy effect and quicker alleviation of pain. On the other hand, polarized light can be esteemed for simpler operation and no need for keeping to specific security and hygienic regulations, pertaining to laser, especially wearing special protective glasses is not required. However, somewhat lower effect of polarized light is compensated by lower purchase costs and by absence of expenses of necessary adaptation of a laser treatment cabinet.

Wavelength of the light in the range of 500 - 2000 nm meets all conditions for successfull utilization of polarized biolamps for above mentioned therapies. Introduction of frequency modulation of polarized light, based on the same principles as in laser therapy, can increase therapeutic effect of these devices, and shorten the time necessary for patients` healing and recovery. Our experience can well lead to a conclusion that polarized light and biostimulation laser have in many cases similar use, and to a certain extent even comparable results. Within one clinic both these methods can complement each other very well.

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