

PBM Laser Therapy for Acne, Skin Disorders

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Blue (415 nm) and red (660 nm) light phototherapy in the treatment of acne vulgaris

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Summary In this study, we evaluated the use of blue light (peak at 415 nm) and a mixture of blue and red light (peaks at 415 and 660 nm) in the treatment of acne vulgaris. One hundred seven patients with mild to moderate acne vulgaris were randomized into four treatment groups: blue light, mixed blue and red light, cold white light, and 5% benzoyl peroxide cream.

The subjects in the phototherapy groups used portable light sources and the irradiation was carried out for 15 minutes daily. The comparative evaluation between the three light sources was carried out blindly, but this could not be achieved when using benzoyl peroxide. The evaluations were carried out every 4 weeks. After 12 weeks of active treatment, the combined blue ± red light phototherapy achieved a mean improvement in inflammatory lesions of 76% (95% confidence interval 66 ± 87); this was significantly better than the improvement obtained with blue light (in weeks 4 and 8 but not in week 12), benzoyl peroxide (in weeks 8 and 12), or white light (in each assessment).

The final mean improvement in comedones from the use of blue ± red light was 58% (95% confidence interval 45 ± 71), which was again better than that obtained from the other active treatments used, although the differences did not reach significant values. We have found that mixed blue ± red light phototherapy, likely through the combination of antibacterial and anti-inflammatory effects, is an effective means of treating acne vulgaris of mild to moderate severity with no significant short-term side effects. **Keywords:** acne, blue ± red light, phototherapy

Low Intensity Indocyanine Green Laser Phototherapy of Acne Vulgaris: Pilot Study.

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For the treatment of acne vulgaris, near infrared (NIR) diode laser phototherapy with low intensity (soft) and topical application of indocyanine green (ICG) has been suggested. Twelve volunteers with acne lesions on the face and / or back were included in the experiment. The test subjects' skin areas, which were 4 × 5 cm (2) in size, were stained with ICG solution for 5 to 10 minutes before the laser irradiation (803 nm) with a power density of up to 50 mW / cm (2).

75% of the subjects received a single treatment, and the remaining 25% received eight consecutive treatments over a period of one month. Observations one month after the end of treatment showed that only the multiple treatments with a combination of ICG and NIR radiation reduced inflammation and improved the condition of the skin for one month with no side effects. One month after treatment, the improvement in the group that received multiple treatments was about 80%. Individual treatments had no prolonged effect.

Light therapy in the treatment of acne vulgaris

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BACKGROUND: Over the past decade, lasers and light-based systems have become popular for treating a variety of skin diseases, including acne vulgaris. Despite the various oral and topical treatments that are available to treat acne, many patients do not respond adequately or may develop side effects. There is therefore a growing demand from patients for a new type of therapy that is fast, safe and free of side effects.

OBJECTIVES: To address the role of light therapy in the arsenal of acne vulgaris treatment, to discuss photobiological aspects and biomedical optics, to review current technologies of laser / light-based devices, to review clinical experiences and results, and to outline clinical guidelines and treatment considerations.

RESULTS: Clinical studies show that 85% of patients show a significant quantitative reduction of at least 50% of lesions after four bi-weekly treatments. In about 20% of cases, acne eradication can reach 90%. 3 months after the last treatment, the eradication is around 70% to 80%. The non-response rate is 15% to 20%.

CONCLUSIONS: Laser and light-based therapy is a safe and effective modality for treating mild to moderate inflammatory acne vulgaris. The relief of acne through light therapy is comparable to the effects of oral antibiotics, but offers faster healing and fewer side effects and leads to high patient satisfaction.

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Green tea and red light - a powerful duo for skin rejuvenation

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Summary

Objective: Young skin has been the subject of intensive research efforts since ancient times. This article reports on synergistic complementarities in the biological effects of green tea and red light that inspired the design of a green tea assisted facial rejuvenation program.

Background data: The approach is based on previous laboratory experiments that provide insight into a mechanism by which visible light interacts with cells and their microenvironment. **The methods:** After 2 months of extreme oxidative stress, cotton pads filled with green tea were placed on the skin for 20 minutes once a day before being treated with an array of light-emitting diodes (central wavelength 670 nm, dermal dose 4 J = cm²). **Results:** Rejuvenated skin, reduced wrinkling and a youthful complexion previously achieved in 10 months of light treatment alone could be achieved in 1 month.

Conclusion: The accelerated skin rejuvenation, which is based on the interplay of the physico-chemical and biological effects of light with the reactive oxygen species-trapping capacity of green tea, extends the spectrum of activity of phototherapy. The duo opens the door to a multitude of possible biomedical light applications and cosmetic formulas
