

# **The mechanisms of photo bio modulation for chronic pain relief**

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## **Introduction**

Laser Therapy is ecologically free, has no side effects, replacement for conventional therapy of chronic pain, can be used effectively, and have the potential advantages of bactericidal effect, detoxification & anti-inflammatory effect. The baseline diagnosis is Chronic Pain.

## **Objectives**

The objective is to explain the mechanisms of photo bio modulation, used with the desire of improving the local biological constants -reducing the bleeding, inflammation, pain relief, and the general health status of the patient

## **Method**

110 patients took part in the study. 55 in the control group, and 55 in the study group. All patients are diagnosed with chronic pain Patients are separated into 4 subgroups - healthy, diabetics, patients with liver toxicity & osteoporosis. We used a diode laser type BF, class 3B, safety class 1, with 2 laser beams one infrared with a wavelength of 830nm. The energy used was between 0.5 and 3 J, applied in pulsed mode with a frequency of 4.68 Hz or 9.12 Hz (Nogier). The parameters were adjusted depending on the depth of penetration needed (2.5 – 12 mm) to arrive to be active ... noninvasive at a distance.

## **Results**

Low-level laser therapy shortens the healing time.

Immediate effects: short bleeding with hemostasis, pain relief; no post-surgery (no edema, inflammation, no infection, or pain); forming and maintaining the clot permitting the patient an un-interrupted social and professional life

The results depend on the age, general health, and metabolic problems of the patient. The recurrence rate of periodontal inflammation is low.

Very good results were obtained in patients with diabetes.

There were no adverse effects in LLLT-treated patients

## **Conclusions**

Laser therapy as an adjuvant to the classical treatment of periodontal disease was effective on bone repair and soft tissue.

*Key words: #photobiomodulation, #lllt, #healing, #lasertherapy, #mechanisms #bone recovery, #pain relief #hemostasis.*