

# LASER THERAPY

## 7.5. LASER THERAPY

Laser beam has a specific effect on acupuncture points, adequate to use of acupuncture needle. The laser acupuncture have several advantages: it is non-invasive, painless (many patients report feelings which are not perceived to be unpleasant when the acupuncture needle is inserted), and saves time (even for sedative techniques the treatment lasts no more than several tens of seconds). Modulation by different frequencies (Nogier or EAV scales) is very useful and it is commonly used in acupuncture.

Effects of Non-Invasive (Low Power) Laser Specific physical qualities of a laser beam result in specific clinical effects. The most considerable clinical effects are:

- Analgesic effect (A)
- Antiphlogistic effect (F)
- Antiedematous effect (E)
- Biostimulation effect (B)
- Vasodilatation effect (V)

All these effects are based on positively established and verified mechanisms: • acceleration of microcirculation • increase of intracellular activity of many enzymes, particularly in Krebs cycle • increased oxygen circulation, improved glucose utilization • DNA synthesis stimulation (via phytohemagglutinin stimulation) • increased fibroblast activity (for keloids these activated fibroblasts are able to perform resorption of fibrin) • phagocytosis activation • activation of the Na/K pump on the membrane • activation of metabolic processes in the cell: partly through the Na/K pump and Ca transport affection, partly through direct activation of the mitochondrial system • changes of local level of important mediators -- inflammatory (histamin substances, prostaglandins) or e.g., endorphins

When performing an in vitro experiment, no difference can be seen between laser beams applied in continuous and pulse modes. However, when performing an in vivo experiment, we observe marked differences between a continuous beam and a beam adjusted to a certain defined mode. In physical therapy, this phenomenon can be observed when performing electrotherapy or applying ultrasound. It seems that, for a complex organism with its numerous information systems and feedbacks, a physical quantity modulated to a certain frequency features one additional quality -- specific information transmitted by this frequency.

The effect of laser beam in acupuncture is totally specific. A laser beam affects tissue in a way fully comparable with the effect of an inserted needle -- but without any pain or complications related to the needle insertion. The skin above the acupuncture point is a light conductor for the laser beam. We find it interesting that in laser acupuncture, in contrast with other forms of laser therapy, the wavelength of a laser beam is not of major importance (however, red lasers are slightly more effective), and the output of the device is of no importance at all (we can even use a laser-pen). We conclude that in this method of application it is not the effect of a physical quantity itself, but the above-mentioned transmission of information that plays the key role. Many treatments utilize several effects of laser light at a time (e.g. treatment of the varicose ulcer combine analgesic, stimulation, as well as bactericidal effects).