

Laser treatment

A laser is a technical device capable of emitting electromagnetic radiation (most often in the visible region of the spectrum and its surroundings) in the form of a beam that is polarized, coherent and minimally diverging. The designation Laser comes from the initial letters of the device's English name **L**ight **A**mplification by **S**timulated **E**mission of **R**adiation.

Laser dosing

We express the dose using the so-called **energy density**, which is the ratio of the product of the average laser power [W] and time [s] with the area [cm²] which is the ratio of the product of the average laser power [W] and time [s] with the area J·cm⁻². The dosage is individual, but at least 0,05 J·cm⁻² the most commonly used is 6 J·cm⁻² for neuralgia.

Laser application

First, the application site is washed (e.g. by alcohol) and only then is the laser applied, either directly in contact with the skin or just slightly above it, depending on the type of procedure. It is important to observe safety measures such as the use of safety glasses, training of personnel, compliance with the manufacturer's instructions, etc.

Spot application

The laser is applied in one point, it usually affects a small area. It is used on trigger points or during laser acupuncture.

Surface application

The laser is usually applied to a larger area with a point or line scanner.

Laser effects on tissue

Analgesic effect

The analgesic effect usually comes immediately after the first application of the laser. It is given by the release of endorphins and serotonin. It improves tissue blood flow and helps the absorption of edema.

Anti-inflammatory effect

The laser accelerates the proliferation of lymphocytes, activates the activity of monocytes and macrophages and helps with more efficient and faster phagocytosis.

Biostimulatory effect

The use of a laser has a regenerative effect on damaged tissue, accelerates the healing of damaged blood vessels, activates collagen synthesis and stimulates the production of leukocytes.

Contraindications

- direct exposure to the eyes
- febrile diseases
- radiation of endocrine glands
- irradiation of the abdominal landscape (pregnancy, menstruation)
- epilepsy
- half a year after radiotherapy

Indication

- degenerative disease: acute exacerbation of arthrosis
- dermatological diseases: scars, herpes zoster, pressure sores
- neurological diseases: neuralgia, neuritis, peripheral paresis
- post-traumatic complications: distortion, contusion, hematomas
- rheumatic diseases: inflammation of tendons and muscles

Links

References

- PODĚBRADSKÝ, Jiří – VAŘEKA, Ivan. *Fyzikální terapie. I.* 1.. edition. Prague : Grada Publishing, 1998. ISBN 8071696617.