

# Laser Light Energy

Diffuse distribution in tissue: interference, speckle formation

Increased Microcirculation

Creates areas of partially polarized light

Absorption of polarized light in cytochrome molecules (e.g porphyrines) stimulates the creation of singlet oxygen

Causes areas of higher density to appear

Higher density is linked to higher probability of multi-photon effects. The electrical field across the cell membrane creates a dipole moment on the bar shaped lipids.

Creates local areas of high intensity of microcirculation

Local differences in intensity or microcirculation create temperature and pressure gradients across cell membranes.

Increase of ATP-ase and activation of eAMP enzymes

Influences the permeability of cell membranes, which affects  $Ca^{2+}$ ,  $Na^{2+}$  and  $K^{+}$  as well as proton gradient over the mitochondria membranes

Triggers immunological chain reaction

Increase of blood serotonin

Increased cell membrane receptor activity

Decreased bradychicine synthesis

Increase of procollagen synthesis in fibroblasts

Increases number of mast cells

Increased endorphin synthesis

Decreased C-fiber activity

Increase of endothelial cells and keratinocytes

Activation of macrophages

Increase of SRF

Increase of SOD levels

Increased nerve cell action potential

Wound Healing

Acceleration of the inflammatory process

Pain Influence