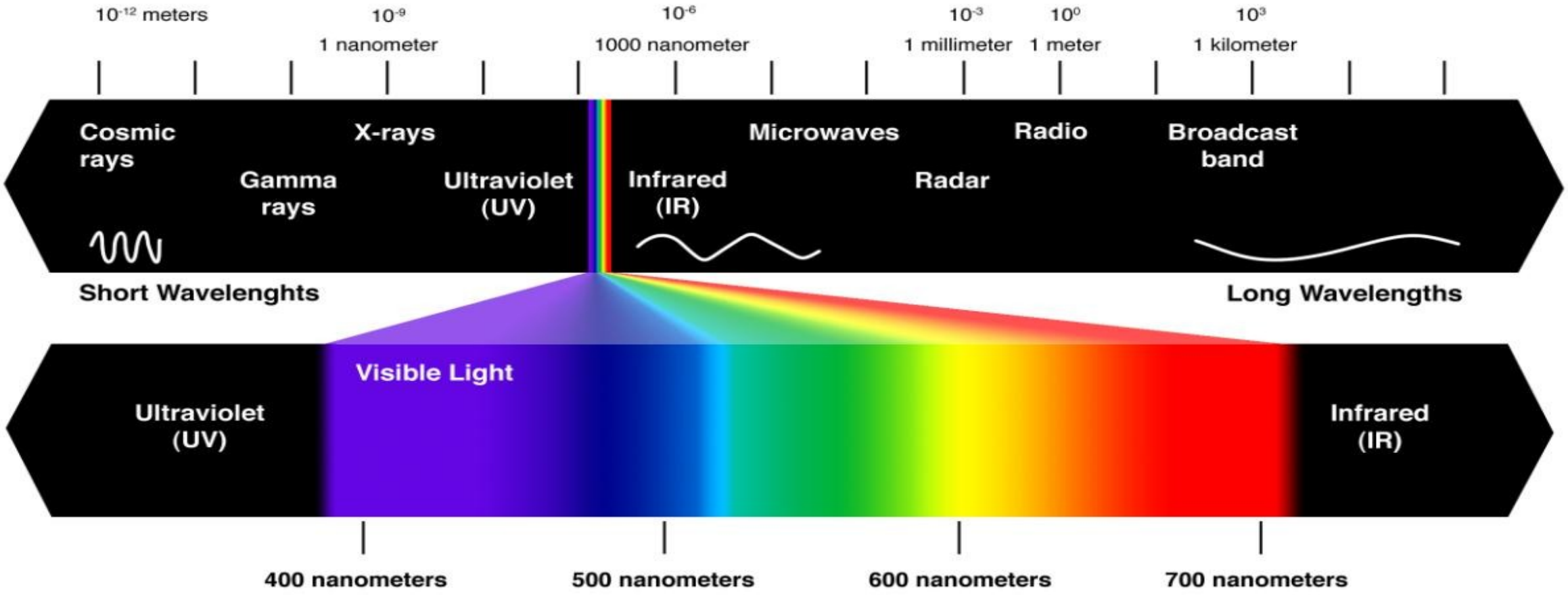
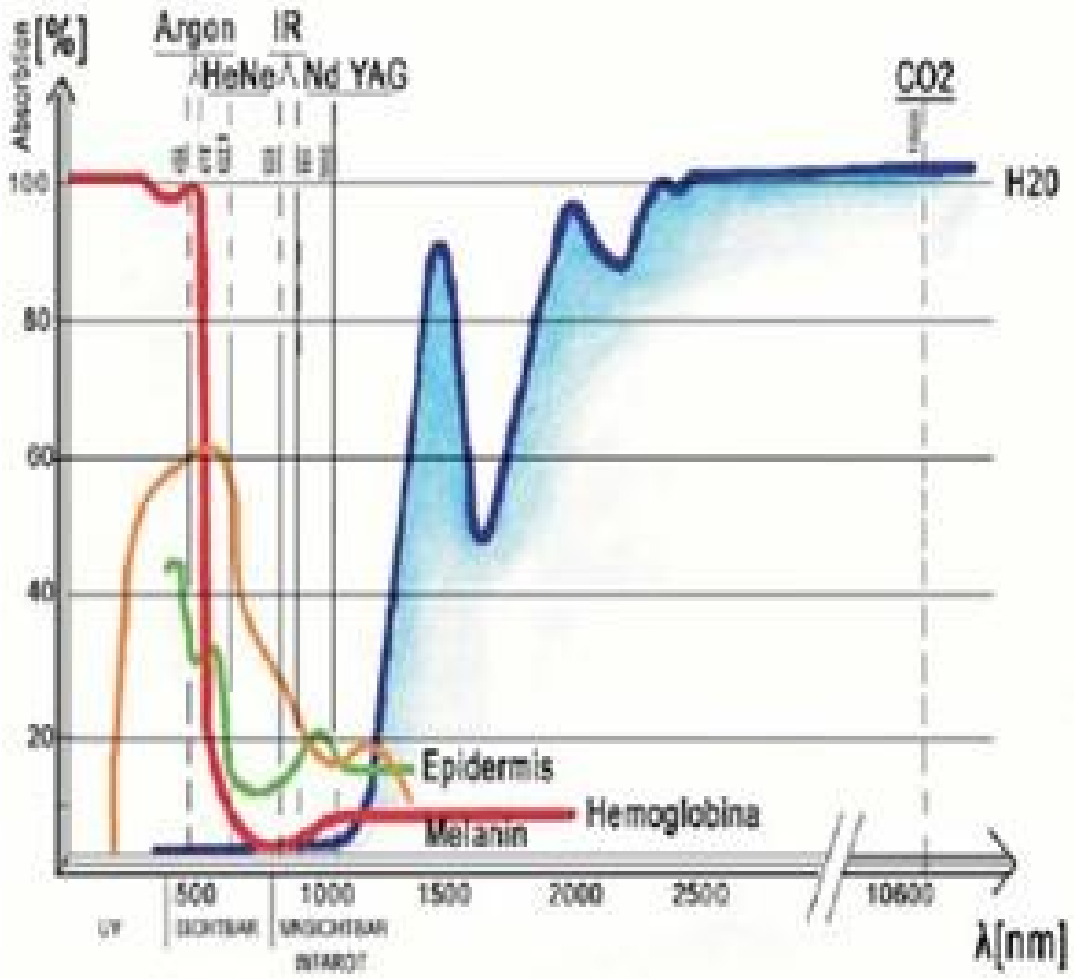
LOW LEVEL LASER THERAPY

LIGHT AMPLIFICATION BY STIMULATED EMISSION OF RADIATION

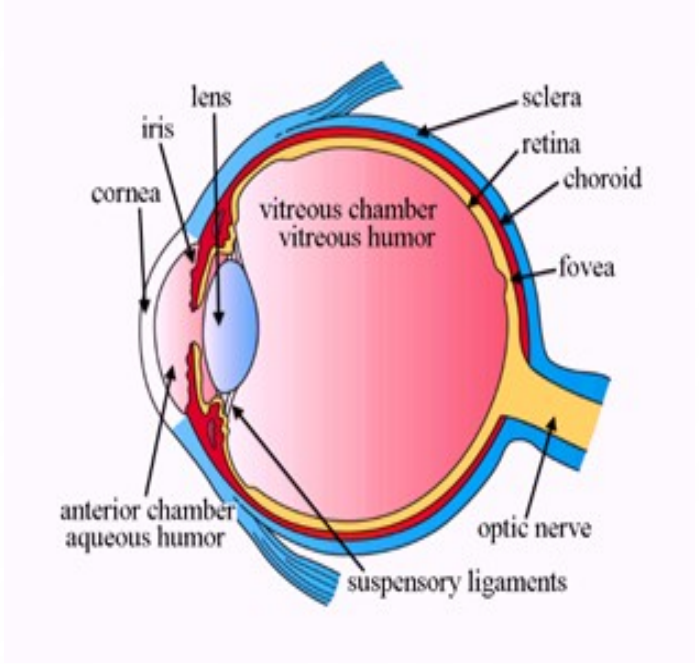

10^{-12} meters
10^{-9}
1 nanometer
10^{-6}
1000 nanometer
10^{-3}
1 millimeter
10^{0}
1 meter
10^{3}
1 kilometer
Cosmic rays
Gamma rays
X-rays
Ultraviolet (UV)
Infrared (IR)
Microwaves
Radar
Radio
Broadcast band
Short Wavelenghts
Long Wavelengths
Ultraviolet (UV)
Visible Light
Infrared (IR)
400 nanometers
500 nanometers
600 nanometers
700 nanometers

WHAT WAVELENGTH HAVE THERAPEUTIC LASERS:



IN PHYSICAL MEDICINE WE PREFERED WAVELENGTH 830 nanometers FOR HEALING JOINTS, DEEP TP, DEEP MUSCLES AND FASCIAS.


Warning
Laser beam


lens
sclera
iris
retina
choroid
cornea
vitreous chamber
vitreous humor
fovea
anterior chamber
aqueous humor
optic nerve
suspensory ligaments

LLTH IS THE PART OF FOTOTHERAPY

FOTOTHERAPY:

1/ UV-

2/ VISIBLE LIGHT: 400- 700nm

3/ INFRARED LIGHT

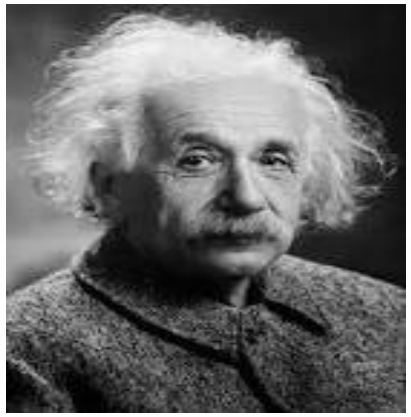
VISIBLE LIGHT: 400- 700 NANOMETERS

Green - 540nm
-Improves skin metabolism
-lightens sunspots & freckles
-stress relief, tranquility

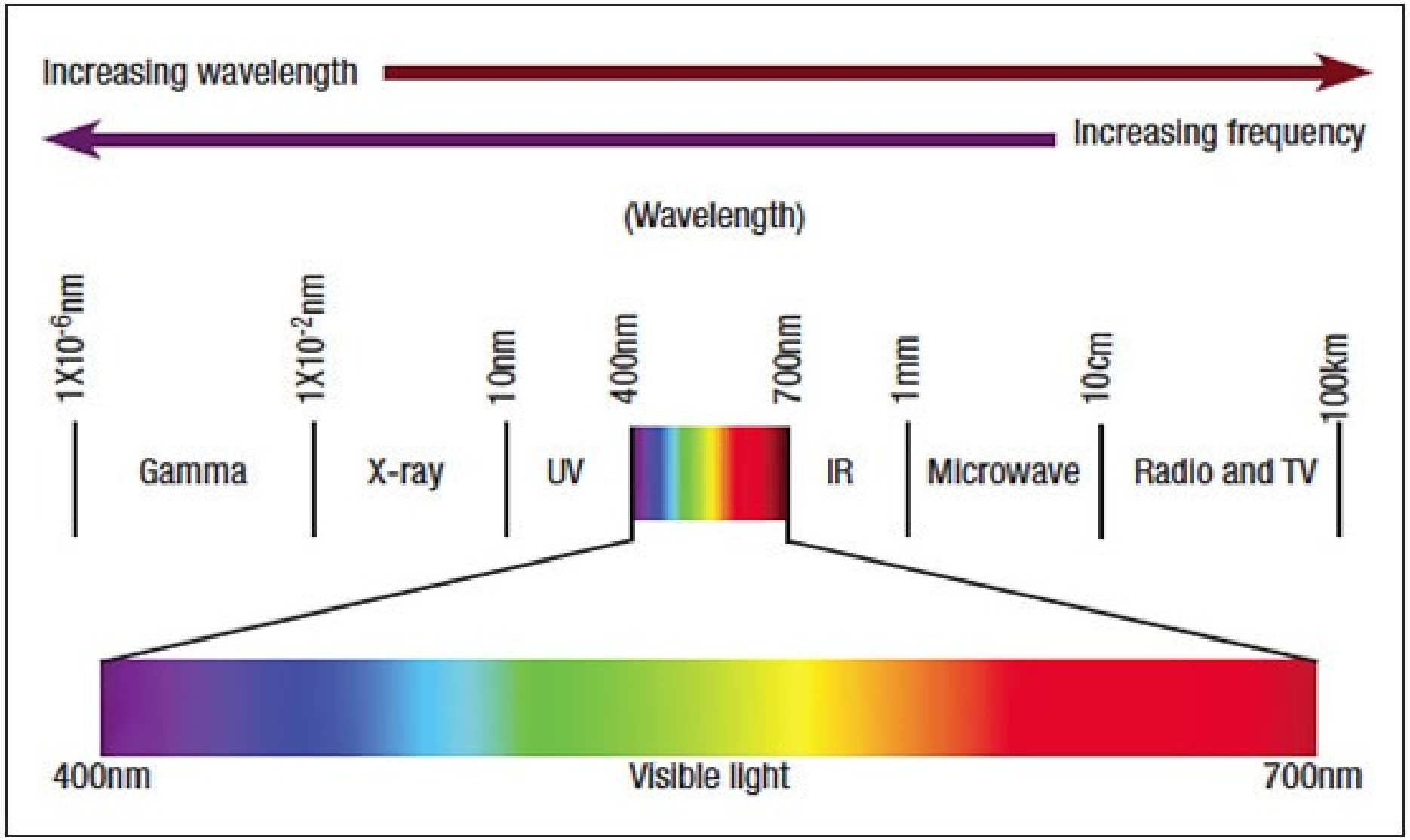
Red - 755nm
-Increases circulation
-Helps lymphatic drainage
-Stimulates cell regeneration
-stimulating, warming

Blue - 500nm
-Antibacterial effect
-Fights acne
-calming, relaxing

IN 1917 ALBERT EINSTEIN FIRST DESCRIBES ABSORPTION, SPONTANEOUS AND STIMULATED EMISSION OF ELECTROMAGNETIC RADIATION.



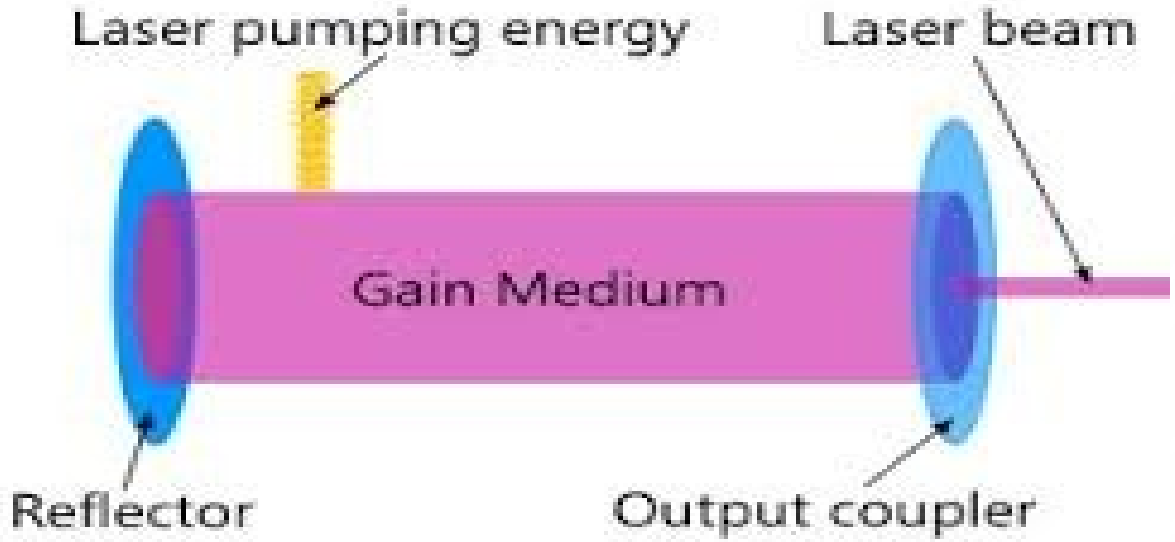
THE FIRST NONINVASIVE LASER IN MEDICINE: 1960


Increasing wavelength
Increasing frequency
(Wavelength)
1X10-6nm
1X10-2nm
10nm
400nm
700nm
1mm
10cm
100km
Gamma
X-ray
UV
IR
Microwave
Radio and TV
400nm
Visible light
700nm

WHAT IS LASE

A DEVICE PRODUCES A COHERENT, MONOCHROMATIC AND POLARIZED LIGHT

CONSTRUCTION OF APPARATUS



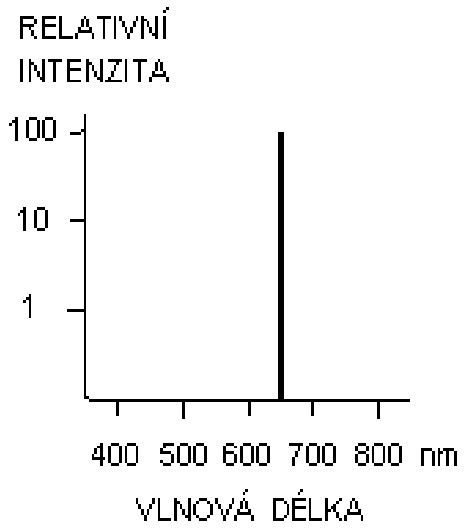
QUALITY OF THE LASER BEAM

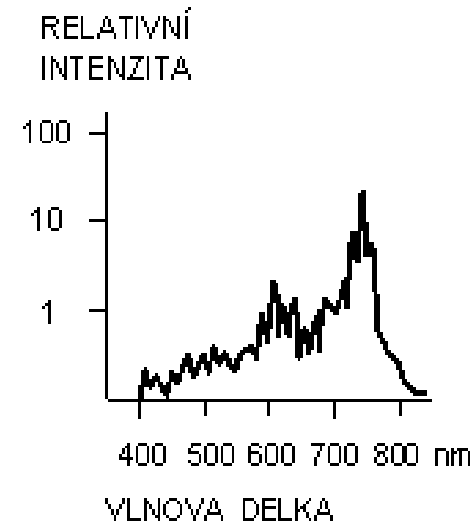
1/ MONOCHROMATICITY

LASER EMITES ONLY ONE WAVELENTH

light

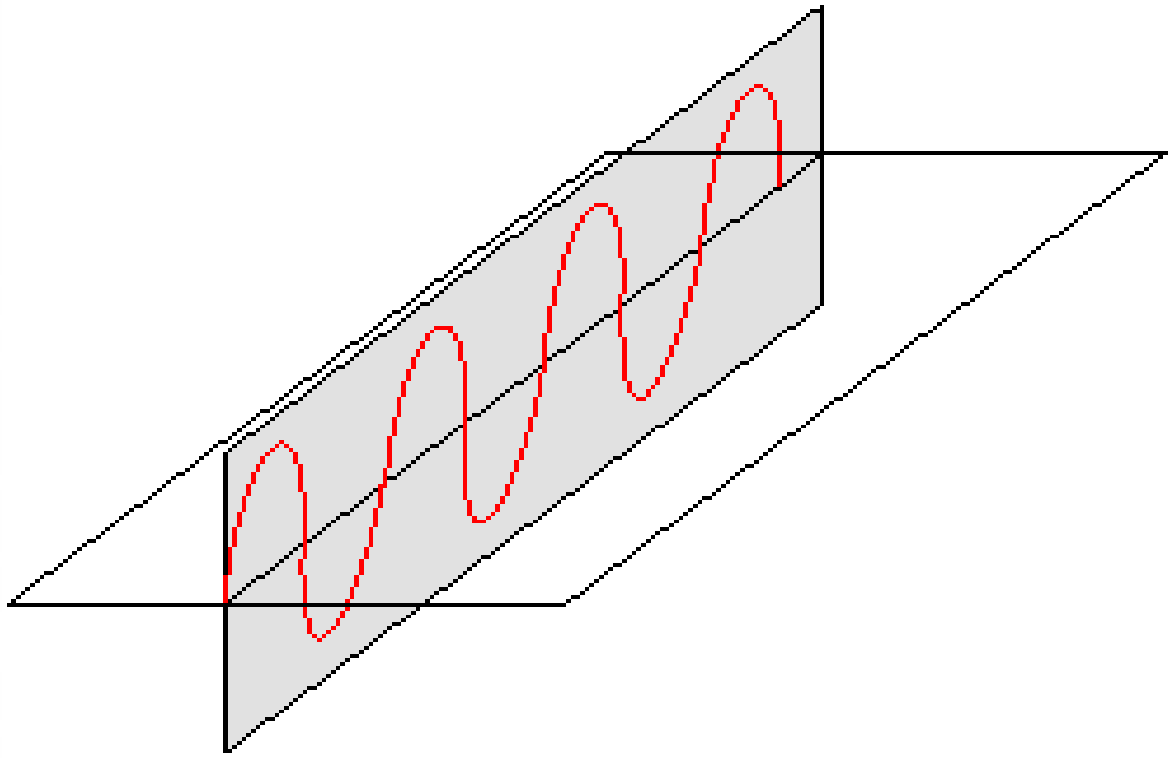
bulb





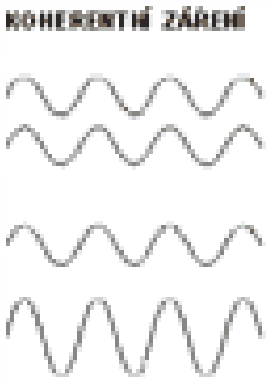
2/ POLARIZED BEAM

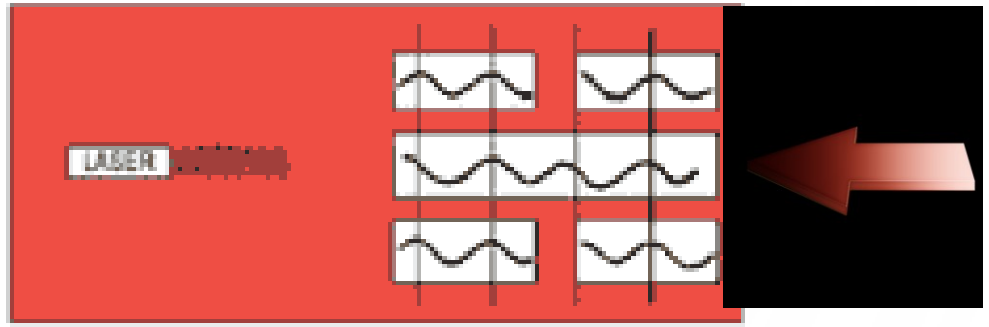
IN ONE LANE- EASY TO PASS THROUGHT MEDIA

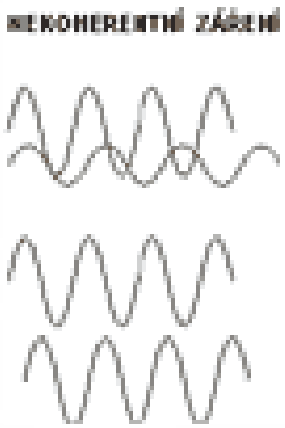


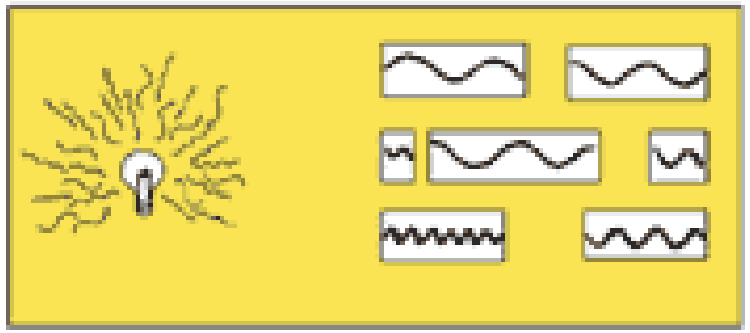
3/COHERENT

ALL IN SAME PHASE



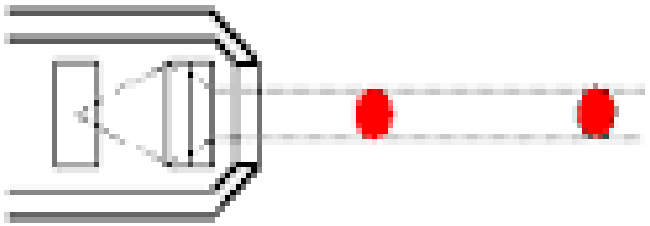


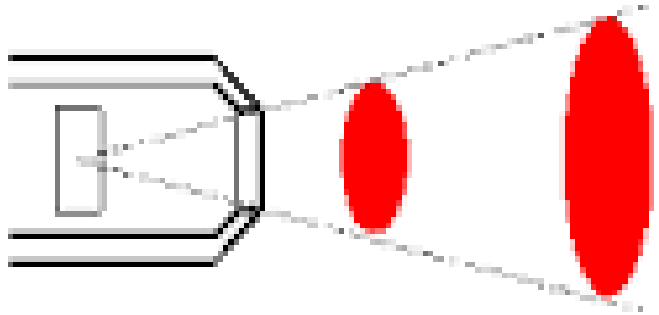


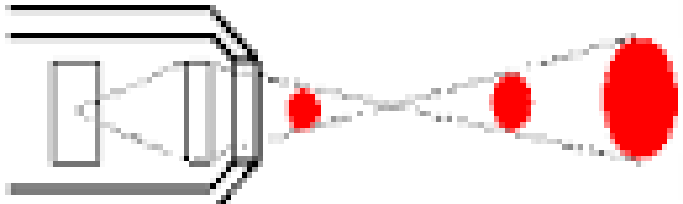


GEOMETRY OF THE LASER BEAM

PARALIER X DIVERGENT

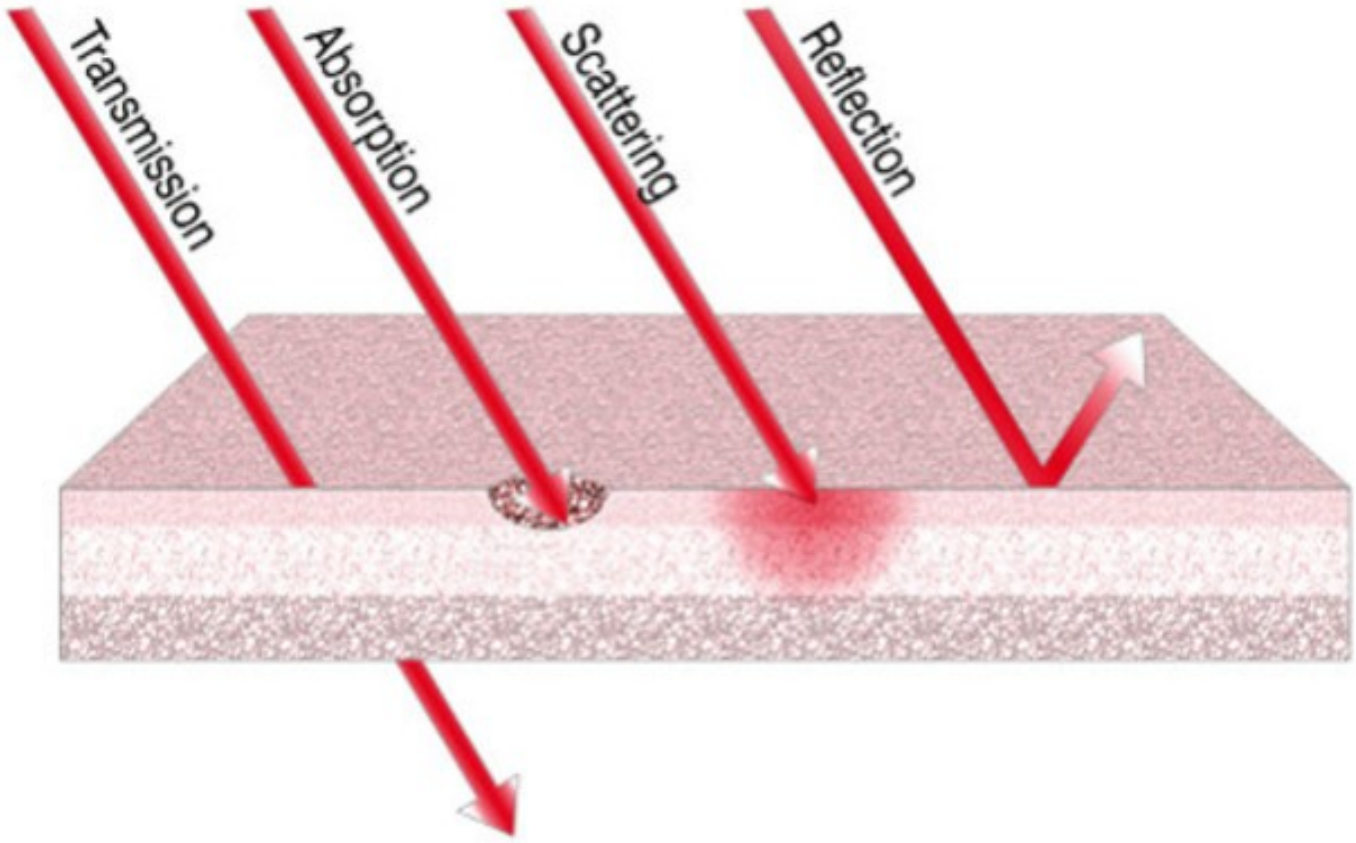




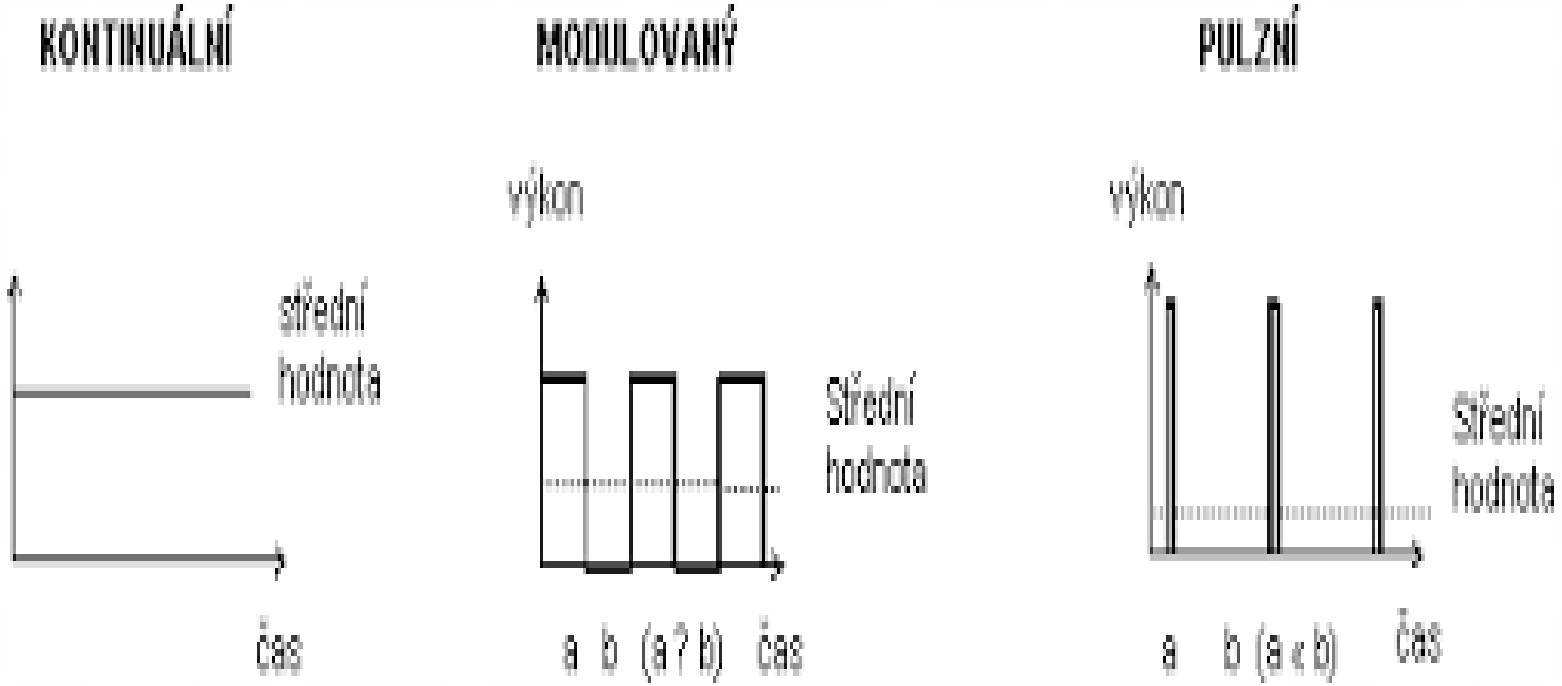


PROPERTIES OF THE LIGHT- LASER LIGHT

- QUARRY
- BOUND
- **ABSORPTION**
- PASSAGE


Transmission
Absorption
Scattering
Reflection

HOW DAS LASER OPERATES ?



INDICATIONS FOR LASER THERAPY

Treatable Conditions

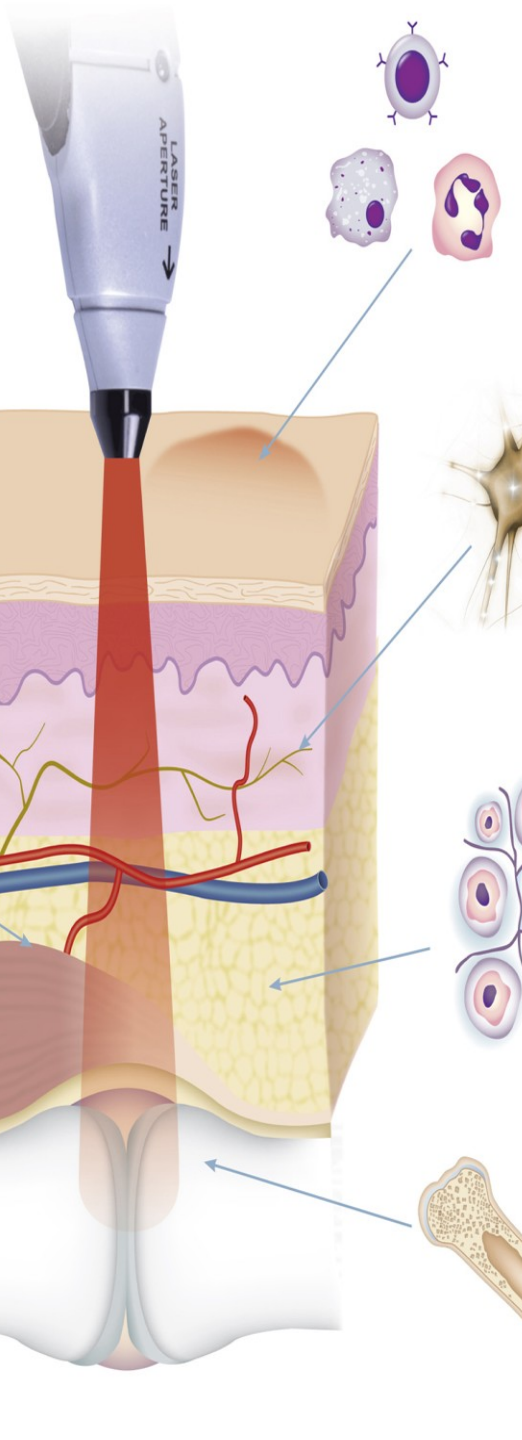
Other treatable conditions include:

Otitis
Sinusitis
Trigeminal Neuralgia
Lumbar Disc Herniation

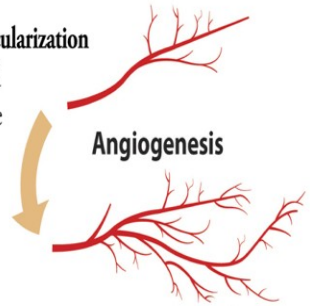
Fibromyalgia
Psoriasis
Lymphedema
Sesamoiditis

Low Back Pain
Sacroiliac Joint Pain
Patellofemoral Pain
Keliod Hypertrophic Scar

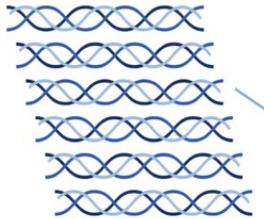
CLINICAL EFFECTS OF LASER THERAPY



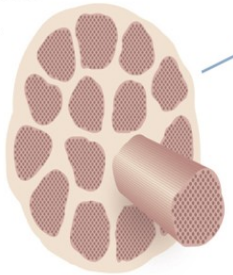
Angiogenesis & Neovascularization
An increase in oxygenated blood to the injured tissue accelerates tissue healing.



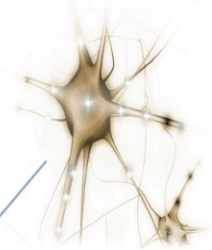
Collagen Production
Proper alignment and remodelling of collagen reduces internal scar formation and enhances tissue elasticity.



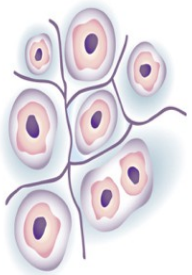
Muscle Regeneration & Muscle Atrophy
Repair of damaged muscle fibers and activation of myogenic satellite cells leads to regeneration of muscle tissue.



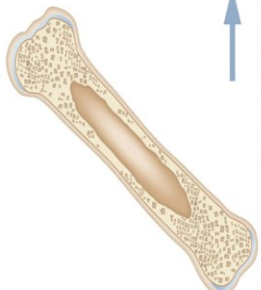
Inflammation & Edema
Increase in inflammatory mediators such as macrophages, neutrophils and lymphocytes accelerates and resolves the inflammatory process.



Nerve Regeneration
Proliferation of growth factors promotes neuronal sprouting and myelin formation for optimal nerve recovery.



Cartilage Production
Increase in chondrocyte and collagen production allows for improved cartilage deposition and joint function.



Bone Formation
Proliferation of osteocytes and remodeling of bone extracellular matrix results in accelerated bone repair.

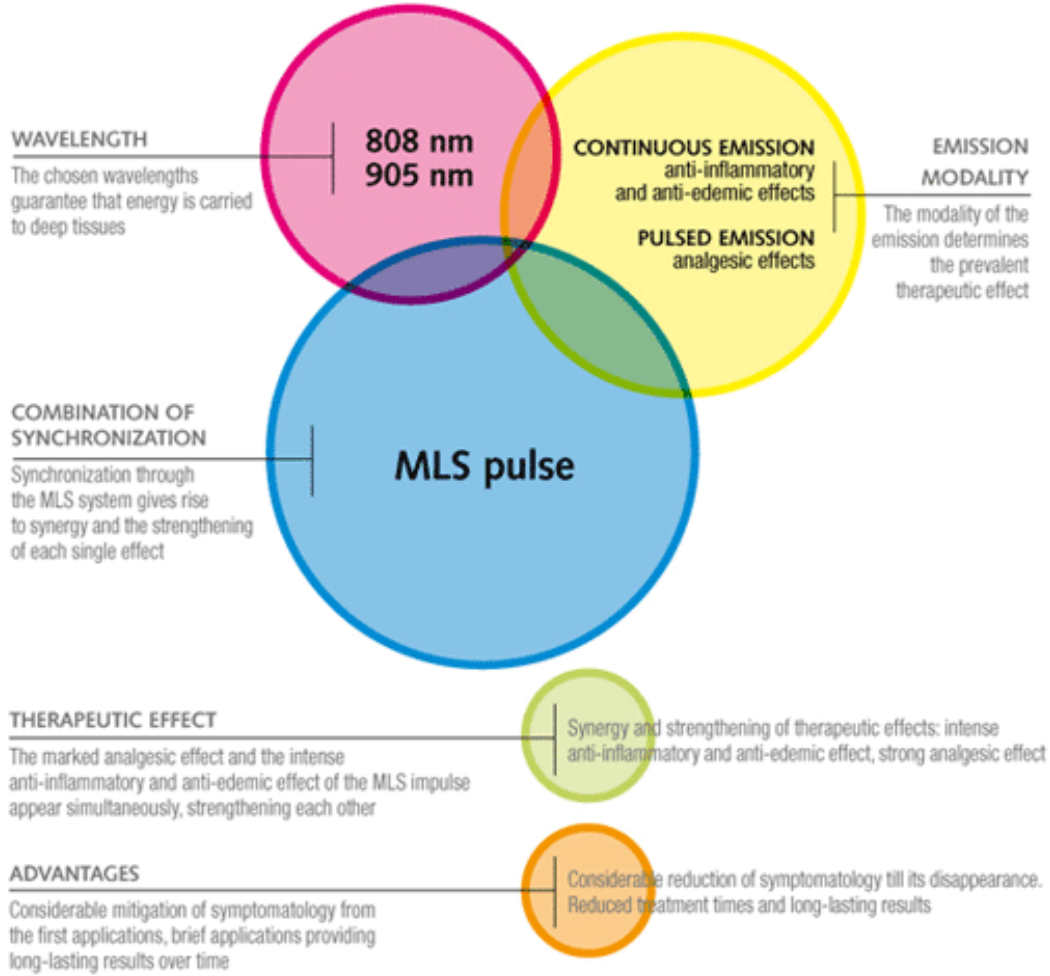
KONTRAINDICATIONS FOR LASER THERAPY

LASER GLASSES

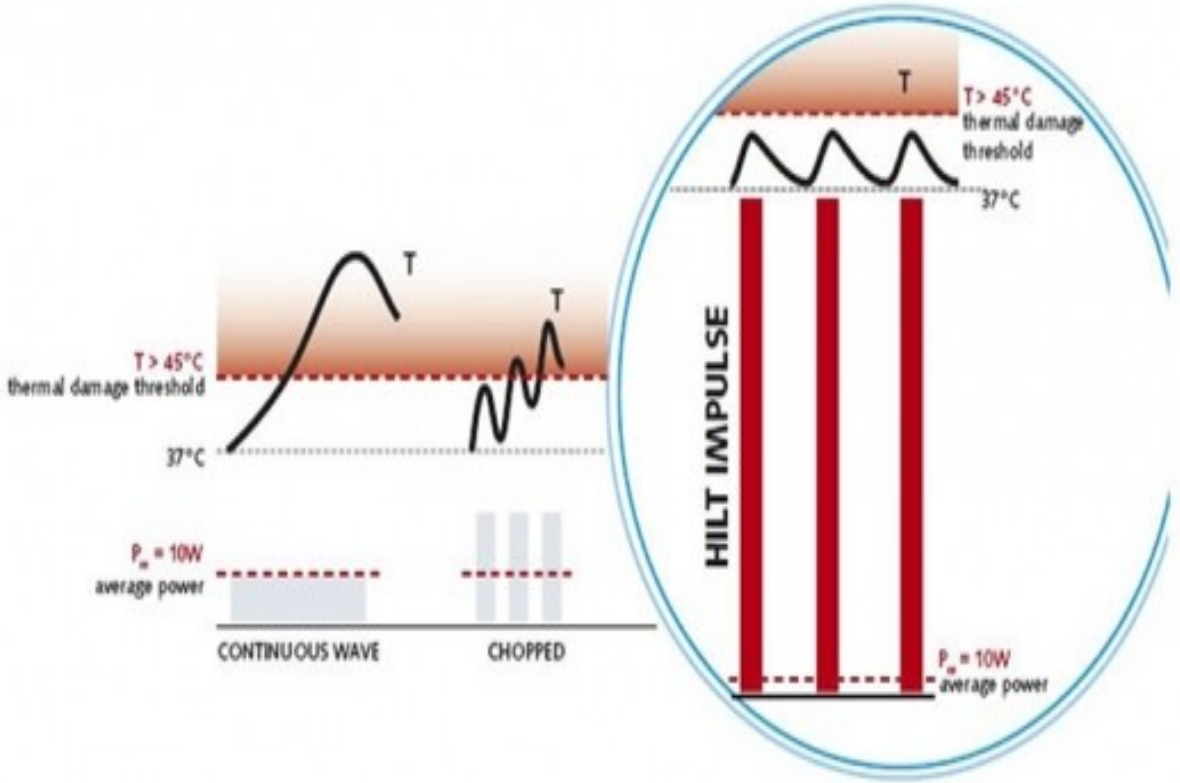
- EVERY

IDENTIFICATION OF THE LASER GLASSES

NEWS IN LASER THERAPY




Hilterapia


T
T
T > 45°C
thermal damage threshold
37°C
P_m = 10W
average power
CONTINUOUS WAVE
CHOPPED
HILT IMPULSE
T
T > 45°C
thermal damage
threshold
37°C
P_m = 10W
average power