

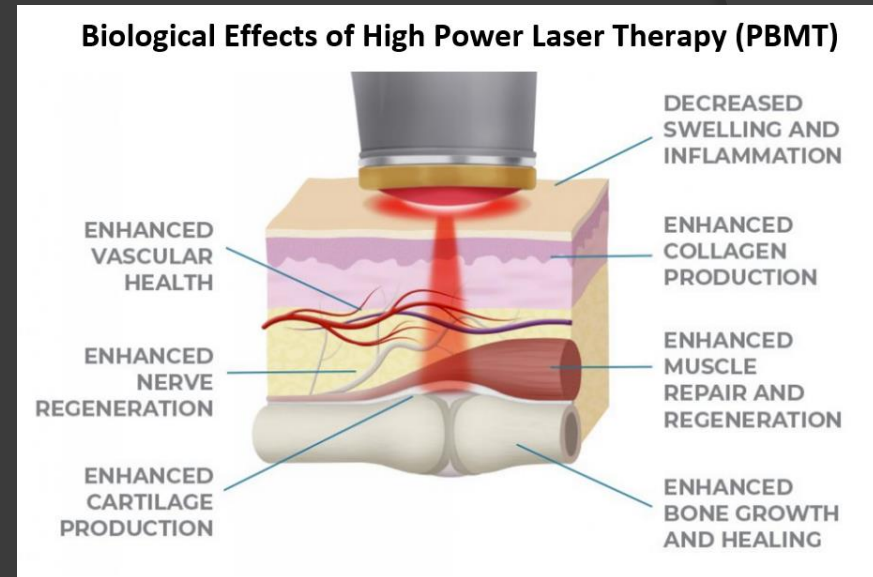
CLASS IV LASER THERAPY

- ❑ An Educational Presentation of an Effective Non-Invasive Treatment Option

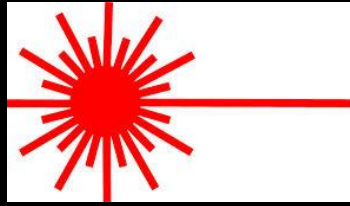


Discussion Topics

- ❑ Brief History of Laser Therapy
 - What is it and What does it Do?
 - Mechanism of Action
- ❑ Science behind how it Works
 - Conditions it can help
 - How it can improve your conditions
 - How long will a Treatment take?
 - How many Days, Weeks, Months?
- Contraindications
- How much will it cost?



LASER



- ⦿ Light Amplification by Stimulated Emission of Radiation.
- ⦿ It is simply another form of energy that can be used to create physiologic changes.
 - Albert Einstein provided basic science and theory
- ⦿ 1960 Theodore Maiman produces first ruby laser
- ⦿ 1960-1970 Andre Mester (Budapest scientist) is credited with discovering that laser can promote accelerated tissue healing.

Laser Uses are Advancing with Time

- From the early history lasers have advanced to many uses today.
- Look at what we use lasers for:
- Surgery, Eye Repair, Dental Teeth Whitening, Cutting Steel, Military Weapons, Treating Musculoskeletal Conditions and well as Wounds and Skin Conditions
- As laser technology progresses, we may one day have a cure for cancer or be able to heal the bodies injuries much faster and more effectively than now.

LASER IS:

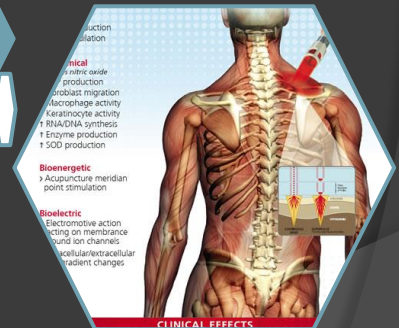
MONOCHROMATIC



COHERENT



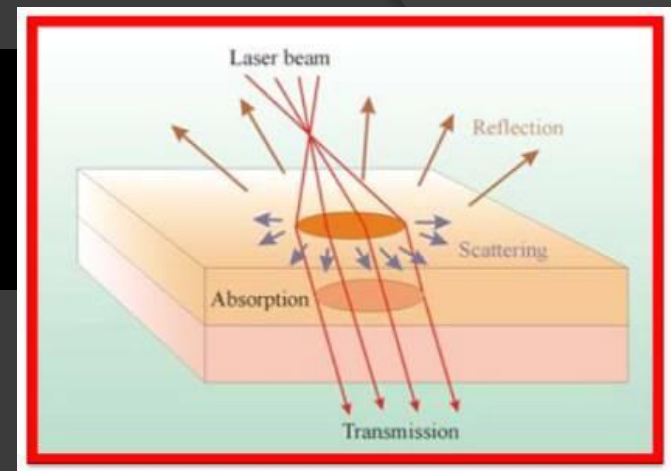
COLLUMATED



Laser Mechanism of Action

- ⦿ The Laser's Diode generator converts laser energy by using electricity.
- ⦿ The laser beam that creates the healing result is actually infrared, so invisible to the naked eye. The red aiming beam that you see is just to show where the laser energy will be emitted.
- ⦿ The laser photons hit the skin and then penetrate to the necessary treatment depths.
- ⦿ On maximum power and frequency the laser has the ability to penetrate 3 inches below the skin.

How Does It Work?



- The laser's energy is absorbed through the Chromophore in the cells and then it rises ATP production which then creates increased white blood cells and the bodies overall healing energy.
- In the area of treatment the laser will increase metabolic rate which helps pull healthy nutrients to the damaged area. Also, more oxygen and blood flow is circulated to that area creating the optimal healing environment.
- High Dose Laser Therapy will accelerate your body to heal 300 times faster than normal. This is why it is important to heal your condition and get you back to your daily life and activities.

Science Proves Healing

- Many studies have been done and the results show that lasers have an impact on the tissue healing and regeneration of skin and superficial hair. This was found back in 1964 on a test group study on rats. Since then lasers have become more and more advanced and powerful.
- Many studies have been done in Europe and the U.S. over the last 20 years. Every study showed that laser therapy had some kind of positive healing effect.
- Many laser companies have done case group studies that have shown the effectiveness of laser on many different conditions.

Case Studies Proving the Effective Results

THE IMPORTANCE OF TREATING PATIENTS AND NOT IMAGES IN THE MANAGEMENT OF CHRONIC BACK AND LEG PAIN

Author: Joseph A Costello Jr. DC, DABCO

CLASS IV LASER THERAPY CASE REPORT

HISTORY:

This patient is a 37 year old female from Munich, Germany who has suffered with chronic back and leg pain for over 10 years. She suffers from leg pain which extends into the foot, more so on the left. She has been treated with many forms of conservative care including physiotherapy, pain medication, and epidural steroid injections, all without relief. She was contemplating surgical intervention prior to presenting for high power laser therapy (HPLT).

CLINICAL EXAMINATION:

NEUROLOGICAL EXAM:

DTR 2-/2 and symmetrical at the patella, achilles reflexes are 2/2 and symmetrical. All myotomes including EHL's are 5/5. Circumferential mensuration of the legs and calves were symmetrical and negative for long standing atrophy. Sensation to pinprick was intact. Babinski sign was flexor. She was able to heel and toe walk without difficulty.

ORTHOPEDIC EXAMINATION:

Straight leg raising was 90 degrees and negative for root tension signs. There was exquisite tenderness in the left Sciatic notch. There was also significant tenderness in the left sacroiliac joint at the superior pole. There was focal tenderness over the spinous process at L5. Flexion/extension provocation testing revealed complete centralization of pain from the lower extremity as well as the left Sciatic notch with hyperextension of the lumbar spine. Flexion precipitated radiation into the left lower extremity. Sitting SLR with neck flexion and Valsalva's maneuver revealed increased pain in the left leg below the knee. Orthokinetic evaluation of the weight bearing patient revealed bilateral subtalar pronation with mild inferiority of the right hemi-pelvis. There was only minimal tenderness in the periaricular myofascial tissues of the hip joints bilaterally.

IMAGING/ MRI:

T1 & T2 weighted images in the sagittal and transaxial planes were reviewed. There was disc desiccation at L3/4, L4/5, and L5/S1. There was disc protrusion at L3/4 with effacement of the thecal sac. There was also disc bulge at L4/5. Most interesting was a 10pp intensity zone in the posterior annulus.



IMAGE 1 — IMAGING/MRI

custom fabricated orthotics to correct her kinetic chain dysfunction.

She began a trial with a right sided 5mm heel lift. She was placed in hyperextension. Once again, there was complete centralization of left sided leg pain as well as tenderness to the left Sciatic notch. She was treated with the high power laser beginning at 6 watts for 10 minutes to the lumbar spine and 10 minutes to the left Sciatic notch. The dosage was increased each visit until she was treated at 12 watts of power for 10 minutes to the lumbar spine and 10 minutes to the left Sciatic notch. She was treated for a total of 11 treatment sessions. Her results were quite remarkable as described by the patient in a video testimonial at the end of her treatment plan just prior to her returning to Germany.

DISCUSSION:

Laser therapy is classified as an acimotherapy which results in biostimulation of the chromophores inside the mitochondria of each cell¹². This photo-stimulation results in increased cellular metabolism, vasodilatation, and neo-capillary growth within the outer 1/3 of the annulus⁸. Although the High Power Laser is warm, the results are photochemical and not thermal⁸. Biostimulation translates into reduction of inflammation and increased lymphatic drainage¹³.

- Our office has the technology available to treat your lumbar spine with decompression and laser at the same time. It is a revolutionary way to get the best results possible.



Case Studies Prove Results

CONCLUSION:

High Power Laser Therapy has the ability to penetrate deeply and "bio stimulate" tissue to heal. Laser photonic stimulation has been shown to increase blood flow and lymphatic drainage while at the same time stimulating endorphin and enkephalin release for pain management⁸. Biostimulation translates into reduction of inflammation, and nerve regeneration^{5,6}. Regarding patients suffering from back and leg pain, the High Power Laser is thought to decrease inflammation of the disc and nerve root as well as aid in nerve regeneration⁵. Healing of annular defects in the outer 1/3 of the disc (which is vascularized) have the ability to heal⁹. Of interest in this particular case study is the fact that this patient has been followed for over 18 months. During that timeframe, he has not experienced any exacerbations of back or leg pain and has returned to all previous activities without pain!

High Power Laser Therapy also has the ability to reach deep within the body when compared to Low Level Laser Therapy⁵. Results achieved seem to be long term in nature when compared to all other forms of treatment for disc pathologies. This may also be due to the fact that laser energy appears to also biostimulate collagen and fibroblast growth which would enhance the tensile strength of the annular fibers of the degenerative disc patient^{1,2,3,4}. Clearly, further investigation regarding a large scale blinded study is necessary to further correlate patient's clinical findings with pre and post imaging studies.

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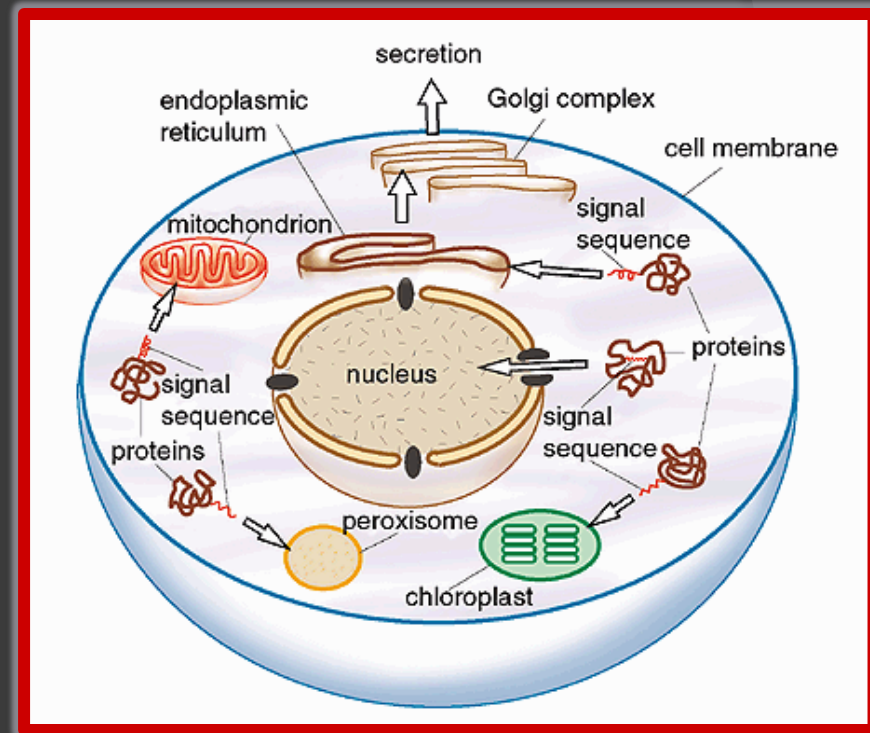
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Regarding patients suffering from back and leg pain, the High Power Laser is thought to decrease inflammation of the disc pathology and nerve root as well as aid in nerve repair and regeneration. In order to achieve optimal healing and long term results, it has been found in a clinical setting that all biomechanical abnormal forces need to be removed so healing is not interrupted or compromised during gait, thus the need for orthotic correction is paramount in case

Laser Increases Cellular Activity

- The increased growth factor within the cells allows for the repair of damaged cells and the increase in the body's white blood cells. Increased cell growth is a result of increased ATP production and protein synthesis.



CLASS IV THERAPY PROMOTES

- Increased circulation
- Increased metabolic activity
- Muscle relaxation
- Accelerated cell reproduction and growth
- Immune stimulation
- Stimulation of nerve regeneration
- Improved vascular activity
- Enhanced ATP(adenosine triphosphate) production
- Increased Protein Synthesis
- Increased wound healing



High Power Lasers VS Low Power

- Some other clinics you have been to may have Cold Lasers or also known as low power lasers.
- These lasers do not produce the results, dosage, or the laser energy needed to help your conditions efficiently.
- This is why our office is different and has a much more effective way to treat your condition by using a High Power Unit.

COLD LASER vs. CLASS IV LASER

The Cold One

- The cold laser has been around for years, and used for conditions such as acne and gum disease, and to zap away cold and canker sores. Cold lasers are also used in acupuncture and as a way to stop smoking. As it enhances metabolic activity at the cellular level, cold laser therapy helps to speed healing without generating any heat.
- Its limited output, which penetrates roughly 1/5-inch, makes it optimal for wound healing and treatment of superficial chronic or acute pain, soft tissue and repetitive strain injuries, as well as neurological and joint conditions.
- For chiropractors, this includes treating conditions of the skin and just below it, such as the areas around the knees, hands, feet and elbows, where exposed joints are present.
- Multiple low-dose intervals may be necessary to achieve the desired healing. And because the cold laser can only reach shallow depths into the tissue, you may need something more powerful for treating conditions of the bone, discs, muscles and nerves.

Relative Contraindications

- Epiphyseal lines or fontanelles in infants
- Pacemaker or other electronic devices
- Patient using photosensitizing drugs such as steroids
- Recent cortisone injections
- When intolerance is noted
- Carefully over hemorrhages as they may worsen
- Patient using immunosuppressant drugs
- **Tattoos** as they will heat up faster
- MS patients especially where thermal effects may occur
- Meningitis/encephalitis unless identified and no contraindications
- Dialysis patients (whole body treatments) regional treatment is ok
- Area with decreased sensory perception

How Long Will Treatment Take?

- Typical total treatment time for deep tissue conditions is 10 minutes.
- Certain chronic conditions may take more time which means more dosage.
- Treatment time for skin conditions, wounds, or superficial pains is dependent on the size of the treatment area. The larger the treatment area the longer it will take.

- Acute conditions take as many as 6-10 treatments.
- Chronic conditions take as many as 10-20 treatments.
- Less than 6 treatments is strongly not recommended because the effects will only be temporary.

- A monthly maintenance treatment is recommended as well.

How Much Will It Cost?

- Laser Therapy is not paid for by insurance. So, it is a cash based service.
- Most Clinics charge between \$30-\$90 per session. We are on the lower end.
- Most clinics have their patients purchase treatments in packages of 6 or 12.
- 6 Treatments is the minimum number needed for acute conditions
- 12 Treatments for Chronic Conditions

Most Advanced Therapy Available

- ① High Dose Laser Therapy is the most advanced healing technology available.
- ① It is the only modality that heals your body at the cellular level.
- ① Professional sports teams actively use this therapy on their athletes.
- ① This is your best non-surgical option and it can be made affordable.

Your Other Options

⦿ Surgery

- Failure Rate 64% (Back Surgery)

⦿ Pain Injections

- Can be painful and expensive
- Cortisone and Steroids can be only temporary relief

⦿ Medications

- Opioids only mask the pain temporarily and are expensive



Thank You For Your Attention!

ANY
QUESTIONS?

