Basic Laser Training

2018 update

What is Laser Therapy - Laser therapy is the application of laser light to reduce pain and inflammation and promote tissue healing through the effects of photochemistry & photobiostimulation.

Conditions treated include musculoskeletal problems, arthritis, lateral epicondylitis, plantar fasciitis (bottom of foot pain), sports injuries, general pain, and dermatological conditions.

Typical treatment - The light source is placed in contact with the tissues allowing the photon energy to penetrate widely, where it interacts with various intracellular biomolecules resulting in the normalization of cellular components. This also enhances the body's natural healing processes.

Yes laser works on arthritis, sinus, pain (in general), stiff necks, lateral epicondylitis, plantar fasciitis and many other conditions.

Technology - The technology utilizes laser diodes to irradiate diseased or traumatized tissue with photons. These particles of energy are selectively absorbed by the cell membrane and intracellular molecules, resulting in the initiation of complex physiological reactions leading to the restoration of normal cell structure and function. *Simply stated:* **"LIGHT HEALS".**

Advantages to Laser:

- Non-invasive
- Non-toxic
- Easily applied to the human body
- Highly effective (properly applied laser may produce results in as little as one treatment)
- Safe & effective

Basics:

- 1000 mW = 1 watt
- Joules = 1 unit of measure (energy delivered)
- 1 Joule = 1w x 1 sec

- Treatment goal: 4 – 20 joules per treatment spot at the target tissue.

Treatment goal is 4 to 20 joules to the treatment site.

Depth of penetration – lasers will travel between 1 cm (0.4”) and approximately 10 cm (4”) deep if applied for enough time. Every laser starts at the surface. Every laser is different. The AVERAGE POWER (not peak power) is the amount of mW or watts that you apply at the skin surface. For every cm light travels thru tissue there is a loss of 50% of power.

Wavelengths:

- 665nm - Pointer light (red visible)
- 910nm - Super pulsed (IR - not visible)
- 810nm - CW & pulsed (IR - not visible)

Classes (based on average power):

- **1** - Laser pointer (5 mW or less)
- **2** - Product in other industries
- **3b** - up to ½ watt (500mW) of average power
- **4** - ½ watt of power and more (very wide range)

Super Pulsed - Pulses every 200 billionth of a second (nanosecond or ns)
Pulse duration 200ns

Average power - assists in determining treatment time

Peak power - assists in determining depth of tissue penetration

Power density - size of the head / time rate of energy transfer

3 main laser human effects:

1. Reduce inflammation
2. Reduce pain
3. Stimulate cell growth / re-growth

Other effects:

- Blood flow is increased
- Immune system is stimulated

- Lymphatic drainage is improved
- Histamine response is positively altered
- Production of growth hormone is increased
- The body's natural healing processes are enhanced

Reimbursement:

- **Currently no direct insurance reimbursement based on a laser code.** There maybe some indirect ways to charge for insurance
- **Cash** charges recommended between $25-$75/ treatment

Treatments Steps: (Treat directly on skin. Not thru clothes)

- Palpate looking for tender points
- Check pain scale
- Check range of motion
- Treat w laser for 3 - 10 min
- Keep treatment area dynamic (moving).
- Give it 3 - 5 mins, then re-check tender points (pain) & range of motion

Treatment time: Many factors go into this calculation, but generally 4 to 12 minutes

How do lasers help at the cellular level? Light particles known as photons stimulate the mitochondria in the target cells, causing an increased production rate of adenosine triphosphate (ATP), which provides cells energy in order to heal tissue at accelerated rates.

Recommended Lasers

- **DJO Cube 4+ / 4 wavelengths / Dynamic lens / 5 year warranty**
- DJO Cube 4 / 4 wavelengths / 2 year warranty
- DJO Cube 3 / 3 wavelengths / 2 year warranty