



FREQUENTLY ASKED QUESTIONS



TABLE OF CONTENTS

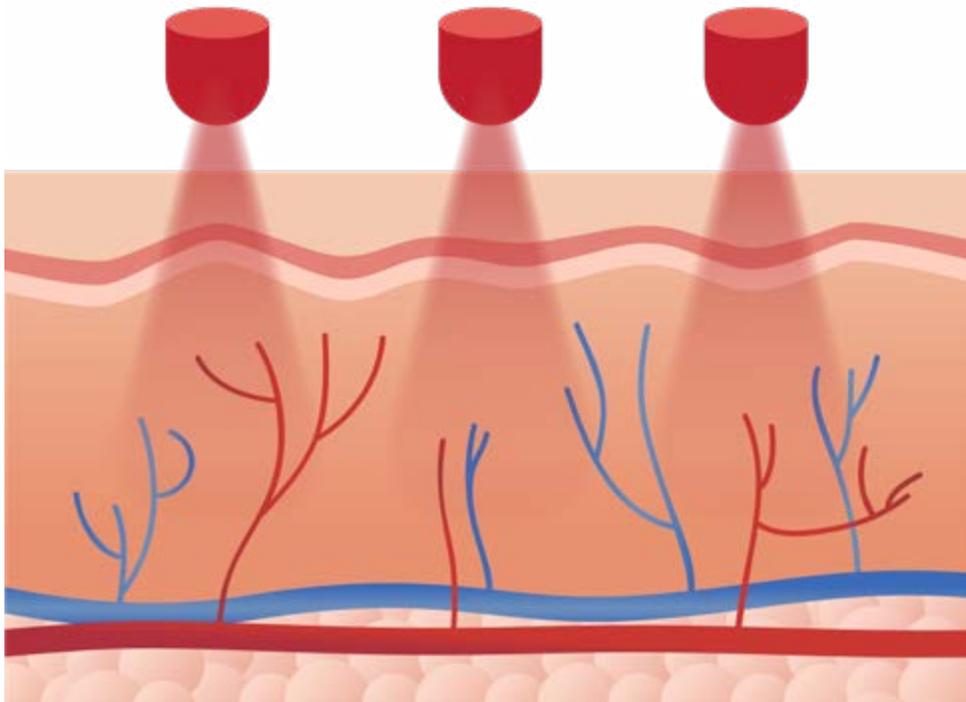
How Light Therapy Works.....	3
What NIR is Used For.....	4
How Light Therapy Relieves Pain.....	5
How Light Therapy Increases Circulation.....	7
How Light Therapy Relieves Muscles, Aches, & Stiffness.....	8
Why We Use Different Wavelengths.....	9
What Blue Light Does.....	11
Impact of Light Therapy on Wounds & Ulcers.....	12
How to Explain Light Therapy to Patients.....	13
The HealthLight Difference.....	16
Common Questions About Light Therapy Pads.....	19
Bibliography.....	20
About the Author.....	21

Note from the Author:

Light therapy is one of the fastest growing modalities. The eBook is a compilation of some of the most frequently asked questions and their answers. If you do not see your question here, please feel free to contact us.

HOW DOES LIGHT THERAPY WORK?

Light therapy works by increasing ATP (adenosine triphosphate) synthesis in the mitochondria, activating the electron transport system, and many other biochemical and biophysical reactions in the tissue.



Decades of research have found that certain wavelengths of light within the blue, red, and infrared bands can be beneficial to living tissue.

- The light triggers the release of nitric oxide from blood vessels and red blood cells.
- Nitric oxide causes local vasodilation that lasts several hours after the therapy session has ended.
- Vasodilation significantly improves blood flow.
- Improving blood flow promotes positive change in patients, lessens pain and helps nerves to begin to carry sensations again.

WHAT IS NIR USED FOR?

- 1. Pain**
- 2. Circulation**
- 3. Relaxation of Muscles**
- 4. Relief from Muscle Spasms**
- 5. Aches/stiffness Caused by Arthritis**



HOW DOES LIGHT THERAPY RELIEVE PAIN?



Increased nitric oxide production

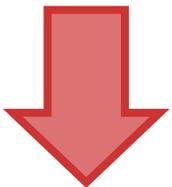
a) Nitric oxide has both a direct and indirect impact on pain sensation. As a neurotransmitter, it is essential for normal nerve cell action potential in impulse transmission activity.

b) Indirectly, the vasodilatation effect of nitric oxide enhances nerve cell perfusion and oxygenation.



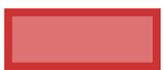
Increase in beta-endorphins

The localized and systemic increase of endogenous peptides after Light Therapy irradiation has been clinically reported in multiple studies to promote pain reduction.



Decreased bradykinin levels

Bradykinins elicit pain by stimulating nociceptive afferents in the skin and viscera, mitigation of elevated levels through Light Therapy can result in pain reduction.



Ion channel normalization

Photobiomodulation promotes normalization in Ca^{++} , Na^{+} and K^{+} concentrations, resulting in pain reduction as a result of these ion concentration shifts.

HOW DOES LIGHT THERAPY RELIEVE PAIN? (CONTINUED)



Increased nerve cell action potentials

- a) Healthy nerve cells tend to operate at about -60mV , and fire at about -20 mV . Compromised cell membranes have a lowered threshold as their resting potentials average around the -40 mV range.
- b) That means that normal non-noxious activities produce pain.
- c) Light Therapy normalizes the body's electrical system and/or charging cells back to -60 mV range.



Blocked depolarization of C-fiber afferent nerves

- a) Pain blocking effects of light therapy can be pronounced, particularly in low velocity neural pathways, such as non-myelinated afferent axons from nociceptors.
- b) Light irradiation suppresses the excitation of these fibers in the afferent sensory pathway.



Increased release of acetylcholine

Increasing the available acetylcholine, Light Therapy helps in normalizing nerve signal transmission in the autonomic, somatic and sensory neural pathways.

Axonal sprouting and nerve cell regeneration

- a) Several studies have documented the ability of Light Therapy to induce axonal sprouting and some nerve regeneration in damaged nerve tissues.
- b) Where pain sensation is being magnified due to nerve structure damage, cell regeneration and sprouting may assist in reducing pain.

HOW DOES LIGHT THERAPY RELIEVE CIRCULATION?

7



One of the most dramatic aspects of light therapy is its triggering of the release of nitric oxide. Nitric oxide is the body's natural vasodilator — it widens the blood vessels and capillaries.

After just 20 minutes of light therapy, blood flow is increased to nerves and other tissues, and this boost in local circulation lasts for several hours.

Nitric oxide is also a messenger molecule that triggers healing processes in the body. By increasing the production of nitric oxide, infrared and red light therapy increases circulation, speeds healing and relieves pain.

HOW DOES LIGHT THERAPY RELIEVE MUSCLE SPASMS, ACHES, & STIFFNESS?

8

Light Therapy dramatically stimulates muscle trigger points and acupuncture points non-invasively providing musculoskeletal pain relief.

After just 20 minutes of light therapy, patients experience relief from muscle spasms, aches, and stiffness.

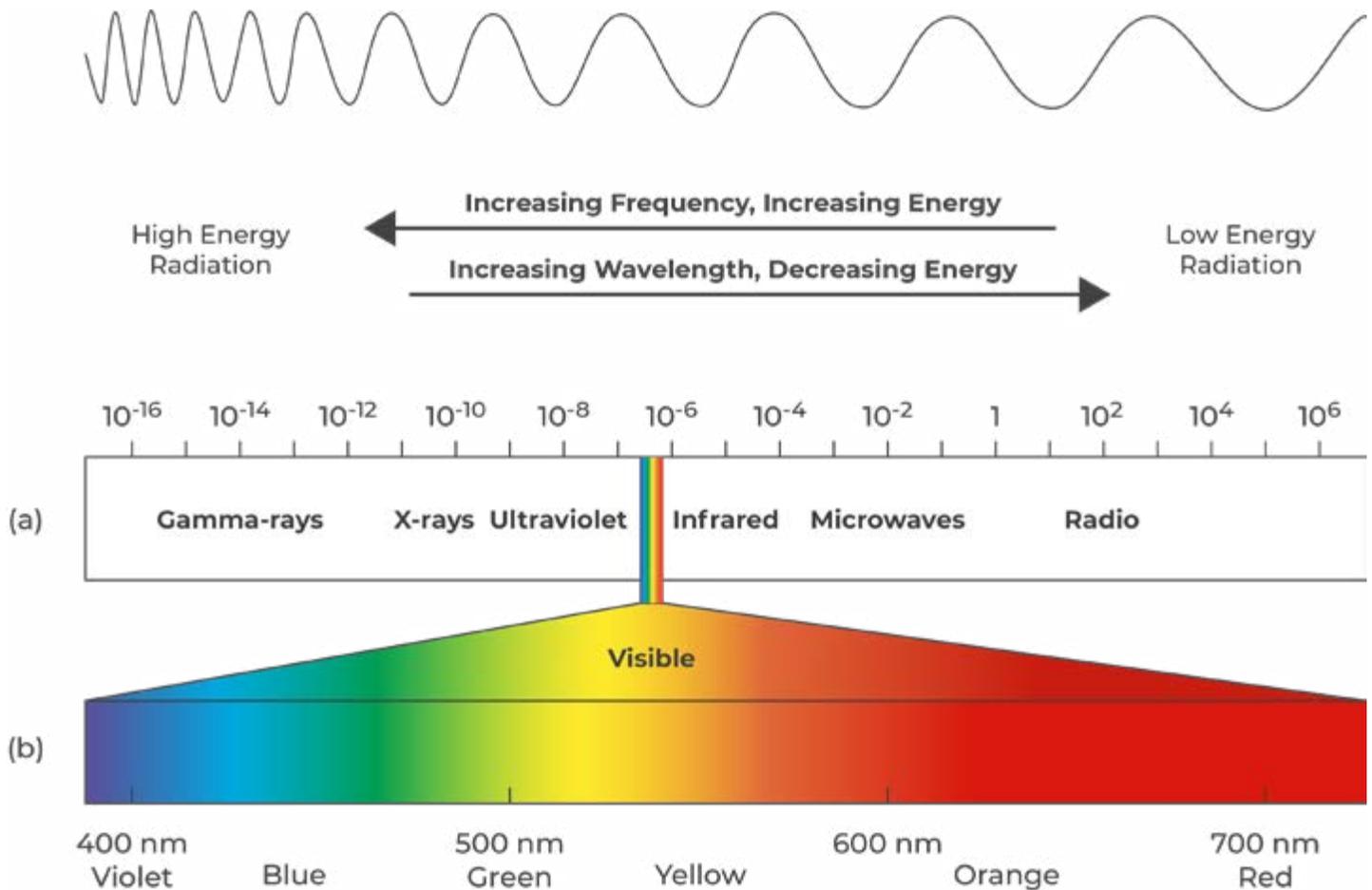
Acute conditions will respond more quickly than chronic conditions.

For acute conditions: we get users starting to feel a difference in the first few treatments.

For chronic conditions: we find the level of maximum improvement is between 24-36 treatments. Ongoing maintenance treatments will be needed.



WHY DO WE USE DIFFERENT WAVELENGTHS?



Depth of penetration

- Different levels based upon wavelength

Different biological effects

- Anti-inflammation
- Anti-pain (Analgesic)
- Accelerated tissue repair and cell growth
- Immunoregulation
- Improved nerve function
- Improved vascular activity
- Increased metabolic activity
- Reduced fibrous tissue formation
- Trigger and acupuncture points stimulation

WHAT DOES BLUE LIGHT DO?

Researchers have conducted studies and found:

- The blue wavelengths (between 400 and 470 nm) within the visible light spectrum are intrinsically antimicrobial:
 1. Do not require additional exogenous photosensitizers to exert an antimicrobial effect.¹
 2. Can photodynamically inactivate the cells of a wide spectrum of bacteria (Gram positive and negative) and fungi.¹
- Blue light leads to energy transfer and the production of highly cytotoxic reactive oxygen species (ROS), primarily singlet oxygen (O_2)¹
- 470nm light was also effective on both *P. aeruginosa* and *S. aureus*., but not as effective on *S. aureus*.²



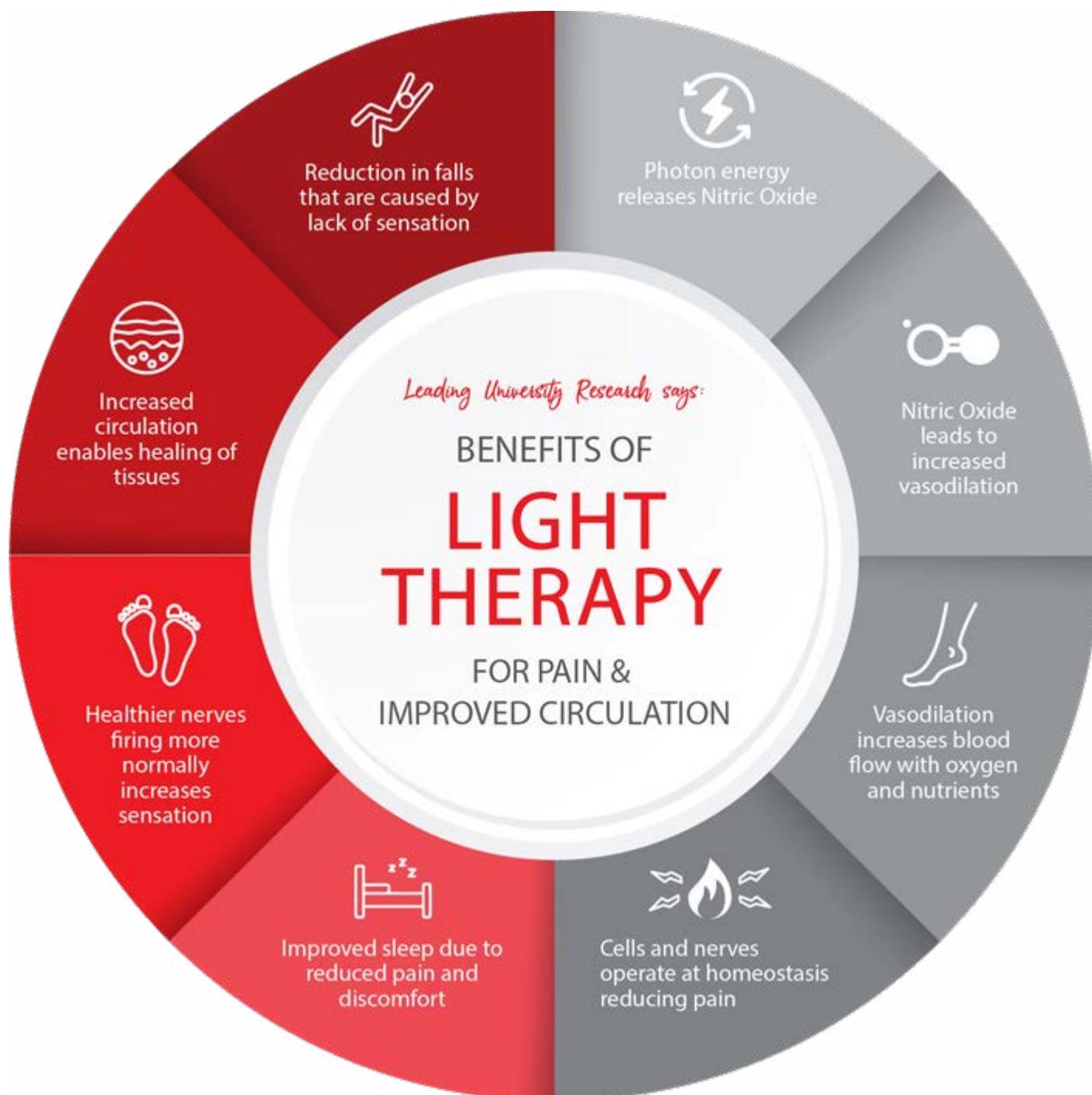
HOW CAN LIGHT THERAPY IMPACT WOUNDS & ULCERS?



Researchers have conducted studies and found:

- In Hargate's double-blind RCT, the major finding was the significantly reduced time to complete healing and accelerated crust formation.³
- In Natheret al.'s study, the major finding was complete wound closure in two cases and reducing the size of the wound in the third case, which enabled complete closure with standard dressing 3 weeks later.³
- In Houreld's study, she indicates the fast growing field of NIR light-induced PBM will continue to offer painless, potential noninvasive, drugless biophysical therapeutic intervention for chronic nonhealing dermal wounds, especially when conventional therapies have failed or have unaccepted side effects.⁴

HOW CAN I EXPLAIN LIGHT THERAPY TO PATIENTS?



- **Treatment is a virtuous circle**
- **Repeated treatments reinforce each other**
- **Photons of light help the body naturally heal itself**

CAN I USE MULTIPLE MODALITIES AT THE SAME TIME?

Yes, multiple modalities should provide a better and quicker resolution to patient complaint(s).



Physical therapy paired with light therapy can provide patients even greater success.⁵

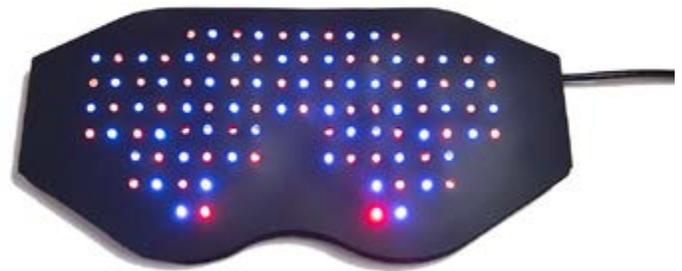
Qualified physical therapists give professional instruction and design the program to increase range of motion, strength, balance for a better overall quality of life.

Other modalities such as nutrition, vibration, chiropractic, massage, electrical stimulation, and PEMF are sometimes combined with light therapy.

ARE THERE ANY SIDE EFFECTS ¹⁴ TO LIGHT THERAPY?

There are no known side effects. Light therapy is painless and easy.

However, keep away from the thyroid and uterus if pregnant. Also, do not use to treat active cancer.



HOW LONG UNTIL MY PATIENTS SEE RESULTS?

The answer depends on disease state and condition.

For acute conditions: we get patients starting to feel a difference in the first few treatments.

For chronic conditions: we find the level of maximum improvement is between 24-36 treatments. Ongoing maintenance treatments will be needed.

WHAT MAKES HEALTHLIGHT DIFFERENT?

Our duty cycle at 50% is higher than many other pads on the market. That means we are getting more Joules/cm². The result is more healing energy to the tissues.

Our Product Features:

- Manufactured in U.S. facility that is ISO certified
- 15 years of experience
- Product lines include combinations of blue, red, and infrared
- Pads can be applied directly to the body
- Flexible not rigid
- Daily use at home or multiple times in the office
- 20 minute treatment cycle
- One button control for ease of use
- Portable
- FDA listed



WHAT'S THE DIFFERENCE BETWEEN CLINICAL VS EXPRESS?

Clinical Products (In Clinic)

- Allows for unattended treatment to free up staff.
- Use up to 6 pads per controller. Treat one or more patients at the same time.
- Charge cash for treatment.

Express Products (At Home)

- Designed for at home use with a one button control.
- Purchase pads at wholesale price. Sell to patients at retail.
- We can drop ship to your office or directly to your patient.

	CLINICAL	EXPRESS
Treatment Time	20 minutes	20 minutes
Treatment Frequency	Minimum of three times per week	Minimum of three times per week
Times Per Day	Maximum of two	Maximum of two
Attach Securely	Multiple Velcro straps	Multiple Velcro straps
Selecting Frequencies	Choose from 10 programs	Multiple frequencies built in
Pads Per Controller	3 Port: 3 pads 6 Port: 6 pads	1 or 2 depending on which product is selected
Purchase	Wholesale for clinic use	Wholesale for selling to patients at retail
Warranty	Two years	One year
Made in US	Yes	Yes
Tri-Color Pads Available	Yes	Yes
Blue & Infrared Pads Available	Yes	Yes
Red & Infrared Pads Available	Yes	Yes

WHAT HAPPENS IF MY PAD OR CONTROLLER BREAKS?

The warranty on Clinical products is 2 years.

The warranty on Express products is 1 year.

Simply mail in the pad or controller with a completed repair form. The repair form can be found on the HealthLight website. HealthLight will repair at no cost all warranty claims and ship it back to the customer.

Once a pad or controller is out of warranty, prices will vary. You'll be given a quote.



LIGHT THERAPY PAD QUESTIONS

How frequently can the pads be used?

1-2 times per day, 2-3 hours apart, minimum of 3 times per week.

What do the light therapy pads feel like?

A slightly warm, comforting feeling. The pads operate near body temperature. There should be no discomfort.

How come some of the lights seem to be on?

You can see blue/red lights, but you can't see infrared lights. It might not look like they are on, but they are actually on. If you took your cell phone and looked at the pads through the camera, you'll actually be able to see the infrared lights on.

What area of the body seems to have the most positive results with light therapy?

Depends on each person's disease state and condition.

Our best sellers are foot & calf as well as foot & ankle pads.

However, we have pads for all areas of the body.

Are some of the pads more flexible than others?

Our pads are made of neoprene. Along the width of our pads, they are flexible.

All the pads come with multiple Velcro straps to help fit the body.

BIBLIOGRAPHY

1. *Using Visible and Near-IR Light to Facilitate Photobiomodulation: A Review of Current Research* – Susan D. Motts, J. Stephen Guffey, and William Payne
2. *Antibacterial Activity of Blue Light against Nosocomial Wound Pathogens Growing Planktonically and as Mature Biofilms* – Fenella D. Halstead, Joanne E. Thwaite, Rebecca Burt, Thomas R. Laws, Marina Raguse, Ralf Moeller, Mark A. Webber, Beryl A. Oppenheim
3. *Therapeutic Efficacy of Home-Use Photobiomodulation Devices: A Systematic Literature Review* – Gavish L, Houreld NN
4. *Shedding Light on a New Treatment for Diabetic Wound Healing: A Review on Phototherapy* - Nicolette N. Houreld
5. *A Combined Treatment Protocol for Patients with Peripheral Neuropathy*, Federal Practitioner September 2015 (p) 69-73.

ABOUT THE AUTHOR

We are always happy to answer your questions or discuss how Light Therapy might help you.

ROB BERMAN

Rob is a Partner at Energia Medical LLC an energy device company. Energia Medical specializes in light therapy and laser products and is a national distributor for HealthLight products. He has an MBA in Marketing from Boston University.

Contact Rob:

rob@energiamedical.com

860-707-4220

<https://www.energiamedical.com/>

ABOUT HEALTHLIGHT

HealthLight™ has been manufacturing photo-modulated (pulsed, light emitting diode) devices also known as low-level light therapy (LLLT) devices for over 15 years. The infrared and visible red LEDs are the heart of the HealthLight™ Therapy systems, providing gentle but powerful non-coherent light.

Contact HealthLight:

marketing@healthlightllc.com

888-395-3040

<https://healthlightllc.com/>