



SHINING THE LIGHT ON CHRONIC PAIN

BY SHARON KATZKE, CLT, ERLT
President, Photonic Healing, LLC

Copyright 2022

1



Sharon Katzke

2



GOES WAY BACK

3

What is Photobiomodulation (PBM)?

Photo - light

bio - cells/body

modulation - the interaction between the photons (light) and cytochrome c oxidase within the mitochondria (cells)

PBM is the application of applying lights of specific wavelengths to the body. Traditionally the colors of red, near infrared and blue, have been most popular but more information on green and yellow is currently being researched.

PBM starts a cellular reaction that reduces pain and inflammation, increases circulation and stimulates cellular repair.

4

4

What is LED?

LED stands for **Light Emitting Diode** and was first discovered by NASA to promote plant growth in space and accidentally discovered it also promoted wound healing for people.

Originally published in 2005, the article "Lighting the Way for Quicker, Safer Healing" https://spinoff.nasa.gov/Spinoff2005/hm_1.html, explains how the experiments conducted demonstrated that red LED wavelengths could boost the energy metabolism of cells to advance plant growth and photosynthesis which opened the door to where we are today.

5

5

What are the FDA regulations regarding LED's?

FDA-2014-N-1039

This policy can be read in its entirety here- <https://www.fda.gov/media/90652/download>

6

6

General Wellness: Policy for Low-Risk Devices

Document FDA-2014-N-1039, <https://www.fda.gov/media/90652/download>

A general wellness product:

- 1 has an intended use that relates to maintaining or encouraging a general state of health or a healthy activity, or
- 2 has an intended use that relates to the role of healthy lifestyle with helping to reduce the risk or impact of certain chronic diseases or conditions and where it is well understood and accepted that healthy lifestyle choices may play an important role in health outcomes for the disease or condition.

7

What is considered a Low-Risk Device?

Section IV. Determining Risk for General Wellness Products

CDRH's general wellness policy applies only to general wellness products that are low risk. If the answer to any of the following questions is YES, the product is not low risk and is not covered by this guidance.

- 1) Is the product invasive (meaning does it penetrate or pierce the skin or mucous membranes of the body)?
- 2) Is the product implanted?
- 3) Does the product involve an intervention or technology that may pose a risk to the safety of users and other persons if specific regulatory controls are not applied, such as risks from **lasers** or radiation exposure?

8

LED vs. LASER

LED - *Light Emitting Diode*

LASER - *Light Amplification by the Stimulated Emission of Radiation.*

9

LED Properties	Laser Properties
 Non-coherent Light	 Coherent light
 Can influence a large area	 Small spot size
 Considered a Low-Risk Device by the FDA	 Not a Low-Risk Device and must be evaluated by the FDA
 Safe and non-invasive	 Can pose safety concerns depending on Class of Laser
 Less Expensive per mW	 More Expensive per mW

10

Photobiomodulation: lasers vs. light emitting diodes?

Back in 2018, two industry experts chimed in on the discussion about LED vs/ LASER and here is what they said -

“However, in recent years, non-coherent light sources such as light-emitting diodes (LEDs) and broadband lamps have become common. Advantages of LEDs include no laser safety considerations, ease of home use, ability to irradiate a large area of tissue at once, possibility of wearable devices, and much lower cost per mW.

The Conclusion - LED photobiomodulation is here to stay.

Heiskanen V, Hamblin MR, Photochem Photobiol Sci, 2018 Aug 8;17(8):1003-1017.

<https://pubmed.ncbi.nlm.nih.gov/30044464/>

11

Benefits of PBM



LOWERS PAIN

REDUCES INFLAMMATION

IMPROVES LYMPHATIC DRAINAGE

INCREASES CIRCULATION

STIMULATES CELLULAR REPAIR

12

The Colors of PBM

RED
NEAR INFRARED – Not Visible to the eye
BLUE
GREEN
POLYCHROMATIC COLORS

13

13

The Depth of Penetration

Wavelength	Penetration Depth
380-450nm	Epidermis
450-550nm	Epidermis
550-650nm	Epidermis
650-750nm	Epidermis
750-850nm	Dermis
850-950nm	Dermis
Over 950nm	Hypodermis

Copyright © via href="https://www.123rf.com/profile_designua20designua20" 14

14

The Common Colors of PBM

Here are some of the most common concerns we address with PBM

CONCERN	LIGHT COLOR	BENEFITS
Acute & chronic pain management	Near Infrared Recharge & Rebuild	- Reduces inflammation - Relaxes muscles - Relieves pain
Circulation Major & minor wounds Pain and stiffness Skin issues	Red Energize & Recharge	- Increases blood flow - Breaks down scars - Reduces chronic and acute inflammation - Accelerates healing
Acne Anti-aging Infections Inflammation	Blue Soothe & Calm	- Enhances skin texture & appearance - Reduces fever and inflammation - Supports immunity
Migraines Skin issues Sleep disturbance Stress	Green Balance & Restore	- Eases worry and frustration - Improves sleep & relaxation - Relieves ring and pain

Adding the Near Infrared with any color will enhance the Near Infrared and penetrates deeper.

15

15

Combining Colors of PBM

CONCERN	LIGHT COLOR	BENEFITS
Blood pressure regulation Emotional instability Stress	Magenta Stimulate & Stabilize (Blue + Red)	- Stimulates adrenal & kidney function - Promotes emotional balance - Supports normalized blood pressure levels
Digestive issues Immune dysregulation Liver imbalance	Yellow Detox & Digest (Green + Red)	- Balances stomach & gastrointestinal tract - Enhances immunity - Stimulates liver & gallbladder function
Anxiety Feeling disconnected Blood imbalance	Teal Harmonize & Re-focus (Blue + Green)	- Calms the mind & opens - Reduces blood pressure - Relaxes head pain - Enhances circulation & function
Anti-aging Skin health & texture	White Regenerate & Revitalize (Blue + Green + Red)	- Improves skin metabolism - Penetrates into dermal tissue - Reduces wrinkles - Regenerates skin

Your eyes combine the color and your brain processes the blended color

Your body receives the benefits of each individual color

16

16

Let's Talk About Pain

17

17

Let's Talk About Pain

Disruptive Event

Less Cellular Respiration

Acute vs. Chronic Pain

Light frequencies to Reduce Pain

Sound frequencies to Reduce Pain

18

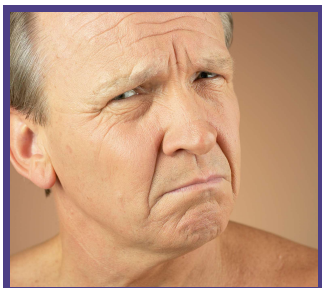
18

Can your body handle daily activities?



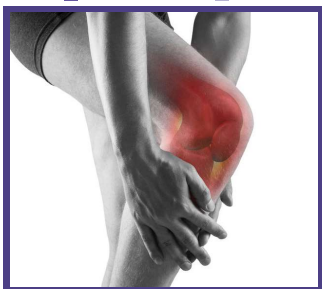
19

Are you tossing & turning or cranky?



20

Chronic Pain



21

Logan's Story



"I haven't touched my toes in years, in fact, I don't remember when I did that. Wow, this is AMAZING!" Logan Jones

22

22

IMPROVES LYMPHATIC DRAINAGE

Healthy Lymphatic flow is essential to removing inflammation from the body.

Inflammation = PAIN

PS – Inflammation in the gut = Inflammation in the body = PAIN
If you are interested in doing a deep dive into this subject, please join us for the
Engineering Your Microbiome Summit
 September 26 – October 2, FREE and on-line, register here
https://engineeringmicrobiome.byhealthmeans.com/?dev_id=30937

23

23



1st day of infection After 1st treatment 5 days later

24

24



25

STIMULATES CELLULAR REPAIR

WARNING

Some of the following images contain
Graphic content of Wounds

26

26

Effect of NASA light-emitting diode irradiation on wound healing

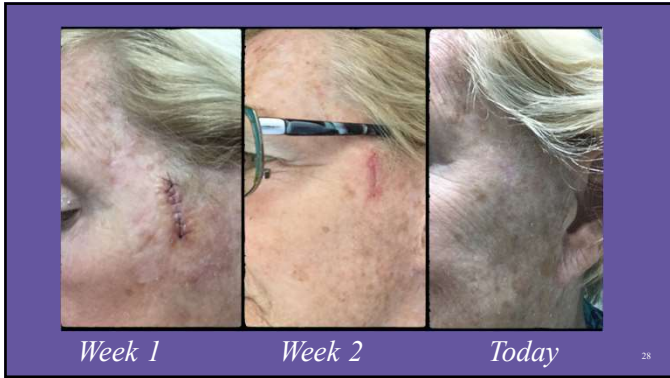
“Conclusion: We believe that the use of NASA LED for light therapy alone, and in conjunction with hyperbaric oxygen, will greatly enhance the natural wound healing process, and more quickly return the patient to a preinjury/illness level of activity. This work is supported and managed through the NASA Marshall Space Flight Center-SBIR Program.

Whelan HT, Smith RL Jr, Buchman EV, Whelan NT, Turner SG, Margolis DA, Cevenini V, Stinson H, Ignatius R, Martin J, Cwiklinski J, Philippi AJ, Graf WR, Hodgson B, Gould L, Kaur M, Chen G, Caviness J. Effect of NASA light-emitting diode irradiation on wound healing. J Clin Laser Med Surg. 2001 Dec;19(6):305-14. doi: 10.1089/104454701753342758. PMID: 11776448.

<https://pubmed.ncbi.nlm.nih.gov/11776448/>

27

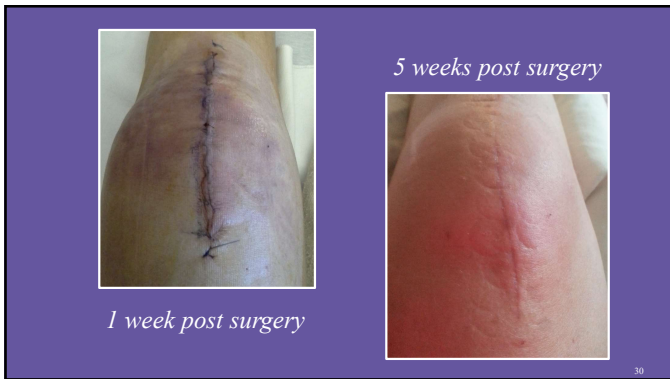
27



28



29



30



31

What are the Common Sound frequencies?

Nogier	Solfeggio	Rife
THE SEVEN NOGIER HEALING FREQUENCIES 528 Hz: DNA Repair 432 Hz: Heart and Lungs 396 Hz: Stomach and Digestion 264 Hz: Cellular Health & Vitality 174 Hz: Blood and Circulation 617 Hz: Brain and Nervous System 741 Hz: Reproductive System	9 SOLFEGGIO FREQUENCIES 174 Hz: For the relief of Pain & Stress 285 Hz: Heart, Lungs and Organs 396 Hz: Eliminate Fear 417 Hz: Memory and Learning 528 Hz: Repairs DNA 617 Hz: Brings Love 741 Hz: Cellular Cells 852 Hz: Connects to Higher Self 963 Hz: Connects to Higher Self	Rife
	Fibonacci 	Schumann Resonance

32

32

How do you choose which device is best for you?

With so many devices available today, how do you choose what one will work the best for you? Here are some suggestions for what I look for -

- Does the device have multiple functionalities or are you stuck with something simple and singular?
- Are you able to change colors and combine colors?
- Is there a timer so you can control the duration of a session?
- Does the device offer sound frequencies - or commonly understood as pulsing - in addition to color?
- Can you control the dosing (power output and time) of the unit?
- Is the manufacturer transparent with the testing of the power output and do they post the results? Or do they overstate the power thinking that most people believe more is better?
- Is the manufacturer legit or are they here today (mostly on Amazon) and gone tomorrow leaving you with no customer support?
- Does the unit have a warranty? Can you extend the warranty?
- Is there a trial time period or is the purchase non-refundable?
- And finally, what is the price of the unit?

33

33

Your Take Aways

Photobiomodulation is the industry term replacing LLLT

Photobiomodulation is Scientifically Proven with over 6500 research articles and studies published
<https://docs.google.com/spreadsheets/d/1ZK15Me4XwPj4YgJCBes3VSCJjiVO4XI0dR0rbMBj08/edit#gid=0>

LED's are safe and effective for relieving Chronic Pain and many other common ailments

Photobiomodulation is easy to learn and apply to your Wellness routines

Photobiomodulation is an excellent modality to combine with other therapies

Photobiomodulation is a great addition to health & wellness for Professionals and non-Professionals

34

34

Contact Us and Stay in Touch

Facebook: <https://www.facebook.com/visumlight>

LinkedIn: <https://www.linkedin.com/company/visum-light>

Twitter: <https://twitter.com/VisumLight>

Instagram: <https://www.instagram.com/visumlightdevice/>

YouTube: https://www.youtube.com/channel/UCBPf_cbAlO5RuMOlhWe3YYg

Email: info@visumlight.com

Website: <https://VisumLight.com>



35

35

THANK YOU

36

36
