Chapter 1

Your Journey Starts Here

Being proactive in keeping your body and mind healthy **slows the aging process and may, in some cases, even reverse some effects of aging.**

People 50 years old and older usually can feel the adverse effects of aging. Compared to themselves at 20-30 years old, the 50-year-old self is weaker, slower, has less energy, decreased flexibility, with increased aches and pain from physical activity. However, technology can help us push back against aging.

There's a new tool in the antiaging toolbox, called Red Light Therapy (RLT), **or as it is called in medical circles, Photobiomodulation. This therapy energizes your cell's aging mitochondria that** help slow down, halt, and sometimes reverse **age-related deterioration, both physically and mentally. The terms Red Light Therapy (RLT) and photobiomodulation are used interchangeably in this book.**

The claims promoting RLT are so fantastic that I find it necessary to start by informing you there are over 5000 clinical scientific studies that show the efficiency of RLT. Do all the clinical studies show dramatic improvements? No, of course not. But the majority of the clinical studies show positive effects.

Even though RLT is not a hoax, there are still snake oil salespeople selling RLT equipment. They use a smidgen of

truth to make exaggerated claims. RLT can help you lose weight, gain muscle, speed recovery, help heal wounds, reduce wrinkles, regrow hair, boost skin collagen, improve cognitive ability and be protective of various neurogenerative diseases, just not at the intensity the typical snake oil salesperson will claim.

So, Who Am I and Why Should You Listen to Me?

Fair question. I am not a doctor, sports physiologist, or nutrition expert. I earned no degrees in medicine, biochemistry, nutrition, physiology, or sports. So why buy my book and read what I have to say? Let me explain why with an analogy.

Suppose you had $50,000 to invest in the stock market.

You tell me your plan to invest $50,000 into the stock market, and I tell you, 'I just published a pamphlet, "15 Tips - How to Make Money Buying and Selling Stocks", for $50.'

You ask, "How much money have you made buying and selling stocks?"

I answer you, "I never bought or sold a single stock in my life."

"What?" you respond incredulously, "Why would I buy your pamphlet? You have no experience in the stock market. None! I will NOT waste my money buying your pamphlet!"

I say, "Well, let me explain. I spent 18 months studying and interviewing the top 25 stockbrokers in the country. While I didn't personally buy or sell any stocks, they did. They bought and sold millions of dollars' worth of stock and made a fortune. I distilled everything I learned from studying and interviewing these stockbrokers into my 15 Tips pamphlet."

Are you interested in buying my pamphlet now? You'd be a fool not to. What's a $50 investment compared to risking 50,000? If only one of my tips helped you make a good buy or avoid a mistake, it would more than pay for your investment, right?

So, while I am not an expert in those fields I mentioned previously, I am an expert in researching, distilling my research into practical, usable information. I then applied that information myself.

QuickStart Guide to Implementing RLT in Your Life

Most of the chapters on RLT benefits also provide the initial steps needed to implement RLT for that result. Aside from giving the initial phases, the chapters reference critical studies supporting RLT to achieve that result.

Images SI Inc.

Full disclosure. My company, Images SI Inc., previously imported and sold RLT equipment. However, Images SI Inc. no longer imports or sells RLT equipment. Why? Because I much prefer researching and writing about RLT than selling equipment. If I sold RLT equipment, I could be accused of being biased. I feel my experience in the RLT field has given me greater insight and shown me who the liars and charlatans are in the field.

I'm Not A Guru

I am not asking you to blindly accept the information I presented in this book. Instead, use the links provided to read the research yourself if interested.

While hundreds of hours and years of research are represented in the distilled information presented (some of which field-tested by me), what's true for me, or even the general population, may not be accurate for you. Our body chemistry and responses to RLT stimuli will vary because we are individuals.

Keep in mind; experts disagree with one another all the time. Two well-respected experts can look at the same research data and interpret the findings differently. This is true

regardless of whether the field is nutrition, physics, biochemistry, endocrinology, physiology, etc.

Ongoing research adds to our body of knowledge, sometimes reversing itself multiple times. As an example, think of the humble egg. Nutrition experts worldwide first said eating eggs was good, high-quality protein. Then in the 1970s, eating more than one egg a day was considered harmful. Eggs, the experts said, contained too much cholesterol and would cause heart disease. Now nutrition experts appear to reverse themselves again, declaring that cholesterol from eggs didn't associate with blood cholesterol after all.

The 80/20 Rule

Vilfredo Pareto created the 80/20 rule in 1895. He correctly observed that 20 percent of England's population controlled 80 percent of the money and influence. What he termed the "vital few." While the "trivial many," consisting of 80 percent of the population, controlled the other remaining 20 percent of the wealth and influence.

This 80/20 rule, called the Pareto Principle, has been applied to many other fields in personal and business applications. For instance, 20 percent of a company's top customers generate 80 percent of its revenue in sales. Likewise, the top 20 percent of salespeople are responsible for 80 percent of sales.

I try to emulate the Pareto Principle here. I keep my chapters short, content-rich, and focused without fluff, with what I consider the top 20 percent of the information.

Realistically Expectations - Riding the Silver Bullet.

Think of Red Light Therapy as an assist. It will improve the results you are already working to achieve. It will assist in losing fat, healing, inflammation, muscle building, muscle recovery, and exercise endurance. However, standing in front of an RLT light for ten minutes will not build muscle in and of itself.

How much RLT will improve your results is impossible to answer. Everyone's physiological responses to RLT stimulation are different. Participants in clinical studies show a wide plus or minus deviation from the group's average. Most people examining clinical studies only pay attention to the group average and expect that result. This may not be the case because your response can lie within the group's plus and minus variations of the average response—just something to keep in mind.

"I believe," “can," "suggest," and “I feel.”

In this book, I sometimes reference the clinical studies using words like "I believe," “can," "suggest," and “I feel.” I use these words not because I doubt the veracity of the clinical results but because I know that you, as an individual, “your mileage will vary.”

So, what improvements can you realistically expect? Glad you asked.

Incremental Improvements: 1%, 2%, 3%, Four.

What boost to expect from RLT? My opinion is approximately one to two percent improvement. However, the accumulative or compound effect will appear more significant over time.

For example, assume you are trying to build muscle and lose weight. You are exercising, doing a little weight training and aerobics. Using RLT, your body’s response is incremental improvements over not using RLT. Let’s say you experience a 0.7% improvement in your body's muscle-building ability, 0.75 % improvement in muscle recovery, and 1 % greater muscle endurance. These incremental improvements work synergically to build muscle faster and work out longer. Working out longer means burning a few more calories every exercise session.

In three months of using RLT, it would not be unreasonable if you accumulated a five percent greater weight loss and five percent more muscle than a person who didn't use RLT. Five percent over three months may not seem like a lot, but the accumulative effect over a year is huge! RLT didn't create the result; it assisted you in the making.

If you look at the chapter on fat loss, you may think I am underselling the fat loss capability of RLT. I don't believe so. One study tracked 64 obese women, divided into two groups. One group exercised, and the other group exercised with 804

nm light. The exercise group lost 4.33 % of their body fat, while the exercise with the light group lost 5.60 % of their body fat. That's a 1.27% improvement in results over 20 weeks of exercising three times a week.

Another study reported that RLT doubled the participant's fat loss. Okay, but if you're not losing fat to begin with, two times zero is still zero (2 x 0 = 0). This is not entirely accurate. There are fat loss clinics that use RLT to reduce fat and contour the body without exercise. However, these clinics employ specially designed RLT equipment, some of which utilize lasers, and in this book, I am referring to RLT fat loss at home using general-purpose LED-driven RLT devices.

Clinical studies show RLT improves numerous areas from skin rejuvenation, cognitive enhancements, hair regrowth, reduced inflammation, and many other body functions. As a result, Red Light Therapy will help you live younger longer by generating incremental improvements in your health.

Seniors

Seniors are most likely used in RLT studies to improve cognition, combat neurodegenerative diseases like Alzheimer's, or improve eyesight.

For many other studies, younger non-seniors are the subjects of choice. For example, the best research on muscle building, recovery, and endurance using RLT uses younger "non-senior" subjects.

Would those beneficial muscle-building results be less, the same, or more using seniors? I don't know. Nobody will know until clinical studies are performed. My guess is that it will improve muscle building in seniors. This guess is based on the fact that seniors benefit from the mitochondria boost from RLT in other areas, so why would muscle-building be different. Considering the fact that seniors in the 80s and 90s can still build muscle with exercise alone, it's reasonable to assume RLT will boost their muscle-building results.

Can Red Light Therapy Reverse Aging?

As we age, our cellular mechanisms age as well. In particular, our mitochondria have decreased functionality, which reduces the production of ATP our cells use for energy.

In as much as Red Light Therapy increases the functionality of the mitochondria and increases the cellular production of ATP, we can state that it decreases the effects of aging.

Photobiomodulation affects the Central Nervous System by improving the survival and function of neurons and reducing inflammation.

The chapter on eyesight shows how photobiomodulation improves the participants' vision in clinical studies.

In these studies, the age of the participants hasn't changed, but Red Light Therapy has rejuvenated their mitochondria with increased cell energy. So in effect, RLT helps reverse the biological effects of aging, to wit feeling younger, which I think is high on the list of "Living Younger Longer."

Ref:
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4003832/
Ref:
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6188498/

Contraindications for RLT

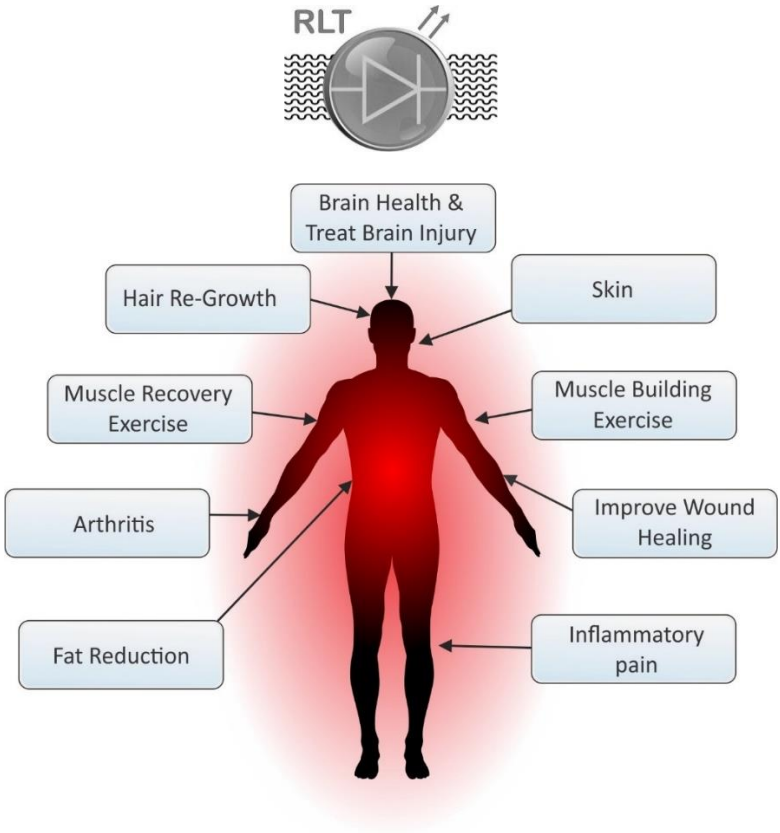
There are certain instances where Red Light Therapy is contraindicated and should not be used.

1) Some drugs, including a few antibiotics like tetracycline, may make the individual light-sensitive. Check with your primary care physician if you are taking medication before beginning RLT.
2) **Do not use RLT treatment on any suspicious skin mole or lesion. Instead, check any questionable skin condition with a dermatologist before beginning RLT.**
3) **If you are on immune suppressant drugs, check with your primary care physician before beginning RLT. RLT may stimulate the immune system and have a counter effect on the suppressant drugs.**
4) **If you have an infected wound, treat and see a physician for treatment and antibiotics to combat any infection.**
5) **If you have photosensitive epilepsy, do not use pulsed RLT photobiomodulation.**

In the next chapter, we will begin at the beginning.

Chapter 2

Photobiomodulation (PBM) and Red Light Therapy (RLT)



Representative of studies performed on animals/humans regarding affects of low light laser therapy and/or LED red light therapy.

I will use the terms Photobiomodulation (PBM), Red Light Therapy (RLT), and Phototherapy to mean the same, and the terms will be used interchangeably throughout the book.

History of Light Therapy

We can trace the beginning of light therapy to treat and cure human illness to the ancient Egyptians. Sunlight's ability to positively affect human health was known and used by ancient Egyptians—the first recorded light to heal, phototherapy.

UV Light and Skin Disease (1903)

In 1903, Nils Finsen, a Danish physician, was awarded the Nobel Prize for successfully treating skin diseases like lupus vulgaris with artificial ultraviolet light. Niels Finsen is considered the founder of modern Phototherapy. Below is a photograph of a skin disease treated using a narrow band of ultraviolet light.

UV Light and Sex Hormones – Testosterone (1939)

The ability of UV light to stimulate sex hormones in men has been known since a 1939 clinical study. Dr. Myerson exposed the chest area of men to UV light for five days. The exposure boosted androsterone levels incrementally over the five days ending on the fifth day with a 120% increase over baseline.

Dr. Myerson then stopped the UV exposure and watched the androsterone levels incrementally decrease and return to baseline after eight days.

Androsterone is a steroid hormone like testosterone, with approximately 1/7 the potency of testosterone. Androsterone is made in the liver from the metabolism of testosterone and is excreted in the urine. Therefore, we can infer that the increase in the androsterone is in relation to a similar rise in testosterone.

Dr. Myerson performed a follow-up experiment using the same treatment course but exposed the male genitals to UV light instead of the chest. Again, for a five-day treatment, androsterone levels incrementally increased, and by the fifth day, there was a 200% increase over baseline. Then, exposure was stopped, and again androsterone levels dropped back to baseline over eight days.

Study: https://academic.oup.com/endo/article-abstract/25/1/7/2772602?redirectedFrom=PDF

Study: https://tahomaclinic.com/Private/Articles1/Androsterone/Myerson 1939 - Influence Of Ultraviolet Irradiation Upon Excretion Of Sex Hormones In The Male.pdf

Light science took another leap forward in the 1960s with the invention of the laser.

The Father of Photobiomodulation (1967)

In 1967, Professor Endre Mester wanted to replicate an experiment performed in the United States where a laser was used to destroy cancer tumors in mice. The laser available to him in Hungary was not as powerful as the one used in the United States. Because of this, the laser failed to kill the implanted cancer tumors.

While the laser was too weak to destroy the implanted tumors, the laser light had sufficient strength to stimulate the skin tissue to promote the rapid healing of the surgical incision.

This observation perplexed Mester, who was trying to use the laser to destroy "cancer" tissue. But his observation led him to conclude that the laser light had a regenerative effect instead.

Mester continued experimenting with low-level laser light for the next six years, and he confirmed that the laser light promoted faster skin healing. He also made far-reaching additional discoveries regarding Low-Level Laser Therapy (LLLT), which included: promoting hair growth, helping heal skin ulcers, helping heal infected wounds, increasing collagen production, decreasing arthritis pain, and having an anti-inflammatory effect. He achieved these results with laser energies as low as 1 Joule/cm^2.

NASA (the 1990s)

In the early 1990s, NASA adapted the technology for medical purposes in space flight. Its ability to speed wound healing, burns, and skin ulcers helps offset microgravity's disadvantages on wound healing. In other words, it could help prevent minor injuries to astronauts in space from becoming catastrophic injuries.

Nasa's research determined that the optimum wound healing wavelength was 670 and 880 nm at 4–8 J/cm^2 dosage. The power intensity of the light was 50 mW/cm^2.

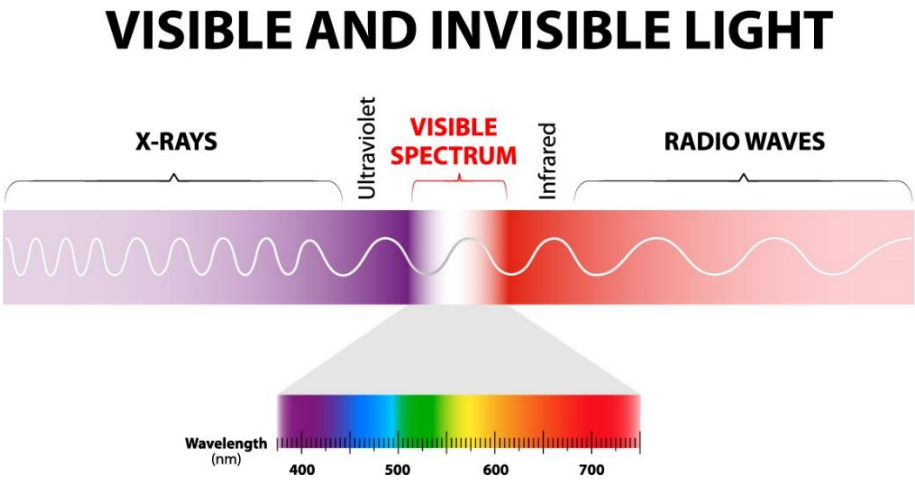
Photobiomodulation (Today)

Today, photobiomodulation (PBM) predominately uses one of two light sources, either low-power lasers or Light Emitting Diodes (LEDs). Much clinical work has advanced to using LEDs because of the cost and ease of use. Studies that have compared the two light sources find that LEDs work just as well as lasers. However, some researchers prefer the coherent light source provided by lasers.

The Electromagnetic Spectrum

As illustrated below, visible light is a small part of the entire electromagnetic spectrum. While this book focuses on the benefits of red and infrared light, other wavelengths of light, such as green and blue, also have beneficial effects. We will touch upon these wavelengths too.

The wavelength of light is given in nanometers (nm). A nanometer is one-billionth of a meter (0.000 000 001 m). It is the measured distance between peaks of the light's electromagnetic wave.

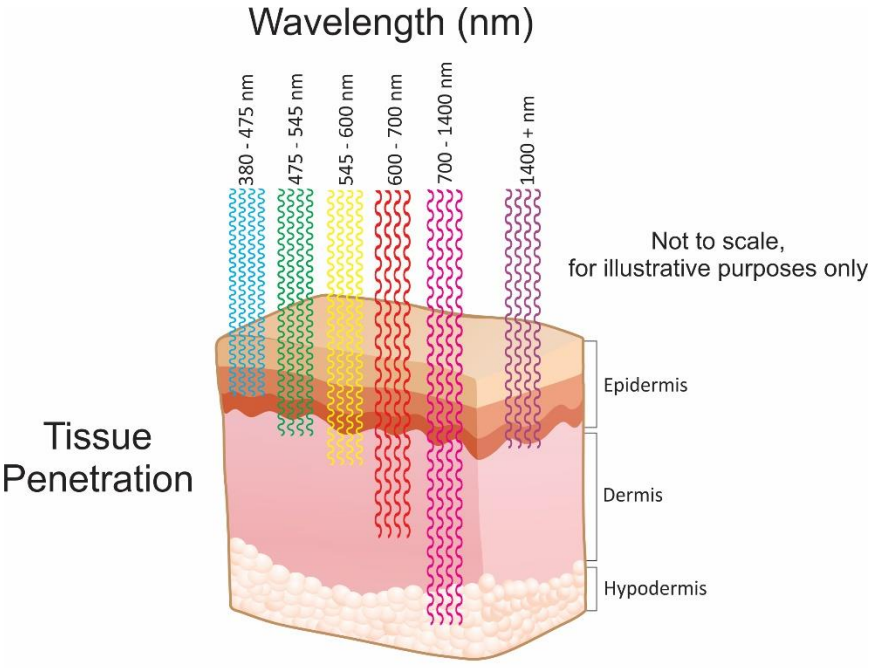


Researchers focus on two bands of light. One is the visible light spectrum with wavelengths between 400–700 nm. The other

band of light is in the infrared spectrum between 700 -1100 nm wavelengths.

Depth of Light Penetration into the Skin

An essential factor to consider is the depth of penetration of light into the body. The thickness of the skin varies from individual to individual and on the body part being measured. For instance, the skin thickness on the eyelid is thin compared to the thickness of skin on your hands.



Wavelength (nm)	Color Range
380-700	Visible
700-1000 +	IR

Ref:
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4552256/

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5653719/

Therefore, the light penetration in skin drawing is for illustrative purposes and not to scale.

Layers of Skin

Depending upon how you count, the skin has several layers. For our example, only three layers are shown in the drawing: skin, fat, and muscle.

The skin layer is comprised of the epidermis and derma. Depending upon the body part, the skin section can vary in thickness between 0.35 mm on the eyelids to 4.5 mm on your upper back.

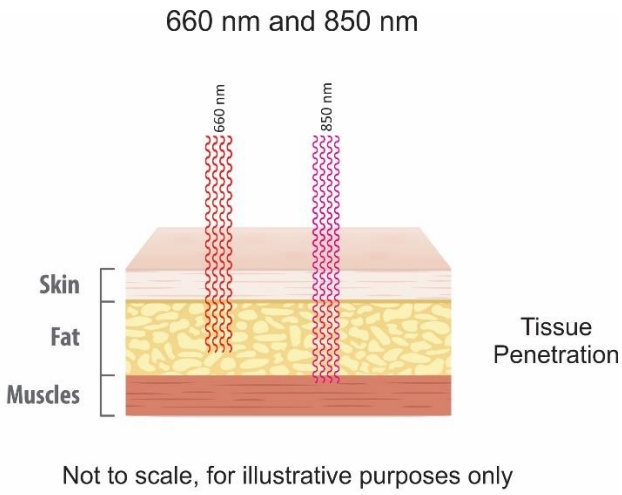
The subcutaneous fat under the skin is also referred to as Hypodermis. The thickness of one's subcutaneous fat varies enormously depending upon the body part being measured and the individual's body fat percentage and weight. For illustration purposes, we will say this layer is approximately 3 mm.

Under the subcutaneous is muscle tissue.

Researchers study the effects of other wavelengths of light, such as green and blue. We touch upon using those wavelengths of light in chapter 13.

Common Red and Infrared Light Wavelengths

Much of the photobiomodulation research we focus on in this book uses red light centered on wavelengths around 660 nm and 850 nm. However, there are variances in the wavelengths of light used for treatments. For instance, the wavelength used for treating the eyes is 670 nm, see chapter 10, but usually not too far from these quoted wavelengths.



Ref:
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4552256/

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5653719/

How It Works & Why It Works

What I found so amazing and equally hard to believe about this technology was how one type of treatment could be applicable and beneficial for so many diverse human aliments.

The answer turned out to be not complex at all.

RLT promotes one significant effect on cells; it stimulates a cell's mitochondria to produce more energy. Thereby giving the cell more power to perform whatever function that cell was designed to do. Whether that cell is a brain cell, nerve, muscle, bone, skin, etc., its function can be enhanced using photobiomodulation.

How this happens is fascinating. If you remember from your school biology class, the mitochondrion is an organelle inside the cell. The mitochondria were called the cell's powerhouse because they synthesized ATP compounds the cells used for energy. So, when the mitochondria are stimulated, they

create more ATP compounds, which the cell uses to function, thereby improving and boosting its function.

A human cell may contain thousands of mitochondria. How many mitochondria organelles any particular cell contains depends upon the type of cell.

Red Light Therapy (RLT) stimulates the mitochondria, which supplies more energy to the cells, allowing them to do what the cell was designed to do because its mitochondria are stimulated.

How Mitochondria Produce More ATP from Light

The mitochondria have molecules that are capable of absorbing photons of light. These molecules are called chromophores. One primary chromophore that has been identified is cytochrome c oxidase, or as it's known by its friends, CCO. This chromophore is found in the membranes of the mitochondria. When CCO absorbs photons of light, it causes an increase in the synthesis of adenosine triphosphate (ATP). ATP is an organic compound that provides energy to the cell.

This is a quick overview of fundamental photochemistry. For a more in-depth look into this biochemistry, I recommend the following book, "Low-Level Light Therapy: Photobiomodulation" by Hamblin, Ferraresi, Huang, Freitas, and Carroll.

There are other pathways and aspects of the biochemistry of RLT, like the reduction of inflammation, protein synthesis, and increased blood flow. For instance, nitric oxide (NO) is often produced with RLT. NO is a vasodilator that will increase blood flow to an area.

Why This Information Is Important

Indeed, you do not need to understand the biochemistry to use the technology. In the same way, you don't need to be an auto mechanic to drive a car. Still, a little understanding

goes a long way. But essentially, at least for myself, I needed to understand the underpinning of how something like RLT can improve my cognitive ability and help me lose fat, and promote muscle recovery and strength, all at the same time. These divergent results do not appear to have a common thread connecting them until you realize how RLT powers up the mitochondria in cells making all this possible.

Suffice to say, you don't need to study the biochemistry of RLT unless it interests you. I will touch upon biochemistry again later when it relates to other topics. Other aspects of using RLT are covered in the dosage chapter.

Why Try Photobiomodulation?

For forty years, researchers working with photobiomodulation have proven the technology to be safe and non-invasive. The PBM equipment lends itself to home use, allowing treatments without visits to a doctor or clinic. While many studies use only a handful of subjects, the results are clear and sometimes striking.

By the end of this book, you will have all the information you need to begin red light therapy

LEDs vs. Lasers

One of the first considerations when purchasing RLT equipment is whether you should buy LED devices or Laser Diode devices. I recommend LED devices.

Laser Diode Pro's

Laser diodes deliver light in a coherent beam. Because of this, it can penetrate the skin and irradiate tissue deeper than an LED. This is a consideration when purchasing torches (RLT Flashlights) where you may need to direct as much light as possible onto a joint or wound. Torches are used successfully in veterinary work.

Laser Diode Con's

Because laser light is coherent, it is more dangerous to your eyes. Therefore, adequate eye protection should be worn when using high-powered Laser diode equipment. Eye safety should also be a concern when treating pets and animals.

Laser diodes general cost more than LEDs

LED Pro's

LEDs are, in general, more eye-safe than laser diodes. However, eye protection should still be worn. LED devices have been used safely in the home environment for years; see appendix "Dangers of IR light." LEDs are more cost-efficient per mW than lasers. Rather than a tight, coherent beam of light, LED lights disperse and cover a broader surface area than a laser.

I recommend LED devices unless you need laser diode torches for a specific "deep tissue" purpose. There are also powerful LED RLT torches available for a fraction of the cost of Laser Diode devices.

Pulsed vs. Unpulsed Light

Several clinical studies and researchers have shown that pulsed light may be more effective than Continuous Wave (CW) light. As a result, some manufacturers and resellers are offering RLT units with pulsed frequency capabilities to capitalize on this research.

There are two methodologies in play here, one involves increasing the pulsed light intensity to penetrate deeper, and the other is the effects of the light frequency itself.

The frequency of pulsed light is measured in Hz. When I think of pulsed light, I think of a 50% duty cycle where the LED is turned on for 50% of the time and turned off for 50% of the time. You would need to check with the manufacturer to see the duty cycle they use on their devices

Pulse Intensity

By pulsing, the LED will allow the LEDs to be driven at a higher current than can be used with CW power. The higher pulsed current produces a higher light intensity from the LED that will penetrate the body deeper.

The off time of the duty cycle allows the LED to cool. Thereby preventing the LEDs from overheating. In addition, the off time may also allow the skin radiated by the RLT light to cool.

This is one method; pulsing the LED at a higher intensity to improve penetration and results. This methodology appears to have a broad application base for RLT, but we can't say for sure until additional clinical studies confirm this.

Pulse Frequency

The second method is from the frequency alone. Imagine we pulsed the RLT light at a specific frequency without increasing the light intensity above the intensity of the CW light. Would this pulsing have any beneficial effect?

In the case of neurological treatments, yes. Pulse light at 10 Hz and 40 Hz have shown greater beneficial neurological results than CW mode. See chapters 8 and 9.

We need additional clinical studies to determine if pulse frequency improves RLT results in broader applications.

Neurologically, I do not doubt that pulsing the light at a higher intensity would also assist, as the increased light intensity would help penetrate the skull and radiate the brain better.

Counterindications For Pulsed Light

Pulsed RLT light may not be a treatment option for people sensitive to stroboscopic effects of pulsing light. This pulsing light is a stroboscopic effect, where the LED light is turned off and on rapidly. This differs from light with a 10% flicker, riding on top of a 90% CW light, as discussed in Appendix G.

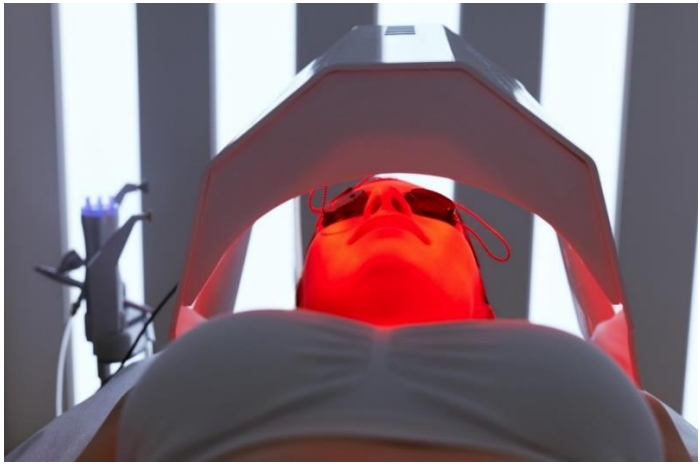
Chapter Summary

This chapter provides a solid foundation for Red Light Therapy (RLT) and Photobiomodulation (PBM). We covered the history, function, and essential features of the technology.

Chapter 3

Red Light Therapy to Improve Skin & Rejuvenation

Red Light Therapy is a proven technology with hundreds of clinical trials to reduce skin wrinkles and boost collagen density.



While the use of lasers, as in Low-Level Laser Therapy (LLLT), is still used today, in many cases, equivalent results are obtained using LEDs.

Red Light Therapy units are available from many retailers, including Amazon and Walmart. RLT is an easy therapy to do at home.

Medical and Cosmetic

Aside from boosting collagen and reducing wrinkles, red light therapy effectively treats a host of medical skin issues like; acne vulgaris, herpes simplex, and wound healing.

Study: https://pubmed.ncbi.nlm.nih.gov/29356026/

I don't recommend treating any medical skin condition with Red Light Therapy without consulting your doctor or dermatologist. You may have to arm yourself with a couple of clinical studies, or bring a copy of this book, to be taken seriously. It is easy to do an internet search on PubMed for relevant studies. Then, print out the studies to bring with you to your doctor.

PubMed

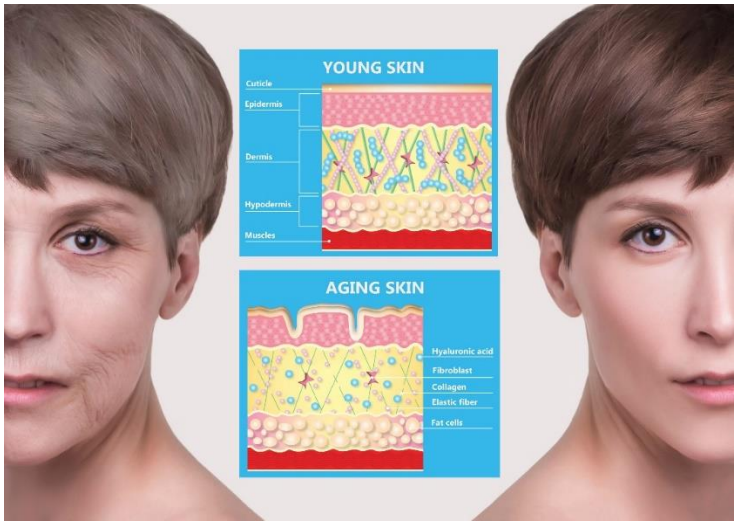
PubMed is the NIH-funded National Library of Medicine.

https://pubmed.ncbi.nlm.nih.gov/

Search PubMed for Red Light Therapy and your skin condition.

A search on PubMed will return studies relevant to the search term entered. You may have to dig a little bit. Keep in mind that Low-Level Laser Light Therapy (LLLT) is practically synonymous with RLT. If a treatment has been established using LLLT, around 630 nm, there is an excellent chance the same therapy will work with RLT.

Back to Wrinkles



Red LED light at 660 nm has the benefit of reducing fine line wrinkles.

Study: https://pubmed.ncbi.nlm.nih.gov/28195844/

Skin Elasticity

This study showed a decrease in wrinkles and measured a 19% increase in skin elasticity.

Study: https://pubmed.ncbi.nlm.nih.gov/17566756/

Dosage

One study on wrinkles used 126 Joules per square cm of red light at 633 nm light and 66 Joules per square centimeter (66 J/cm(2)) of near-infrared light at 830 nm. There were nine treatments given over nine weeks.

At the end of the treatment cycle, more than 50% of the treated subjects had a 25–50% improvement in photoaging scores, and 81% showed a significant improvement in wrinkles.

Protect Your Eyes

See Appendix A, "The Dangers of Infrared Light." My research on RLT devices has led me to caution people regarding the Infrared Red (IR) light emitted by these units. The appendix recommends wearing #5 shade sunglasses to protect your eyes when using RLT.

https://www.amazon.com/gp/product/B001VXTC2W

Eczema

These are before and after pictures of my daughter's eczema. My daughter's a hard case. She initially refused RLT as some Woo Woo science, and her dermatologist agreed with her assessment.

However, her eczema was getting out of control, and her doctor recommended monthly injections of Dupixent.

She came home for a few days for a holiday, and I convinced her to try RLT before committing to the injections. I provided clinical study reports and such. She relented and took home a 600-watt wall unit and started.

The before picture is a few weeks into the treatment, and her eczema has already improved. The after picture is six months later, but this significant improvement happened before the six-month mark when the photo was taken.