

THE EMERGING PARADIGM OF LLLT

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Letter from the President

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The field of phototherapy, once called laser, is blooming right before our very eyes. There have been multiple studies at NASA that even show that retinal damage can be reversed by photonic stimulation. Now we are seeing a wide variety of photostimulation devices coming onto the therapeutic scene in the U.S. Each has a certain amount of efficacy and each has a somewhat different claim and approval from the FDA. It is important that we all take a very hard look at these devices. All have had to show the FDA that they are effective on a much easier scenario than before. Nevertheless these studies show the efficacy of each individual unit and the use they may be in the therapeutic milieu. It is important that we determine those modalities that best serve our needs and the needs of our patients.

The researchers have shown us in over 2000 papers the efficacy of these devices and the vast number of parameters that they operate in physiologically. These types of systems can significantly shorten and enhance the therapeutic effect that we seek in patient care. It behooves us as therapists to look at these new modalities as they come on the market to see their potential in patient care. The modalities that will be advanced in the next 10 years will dwarf those that we presently use. We must not stagnate and always grow in the arena of care, especially in the field of pain management.

As the summer approaches, we again get ready for the Combined Sections Meeting in Nashville this coming year. Our programming this year will encompass both Phototherapy and Functional Manual Therapy. I hope to see each of you there and as always welcome any article that are of interest to you in the realm of pain management. May each of you have a wonderful and blessed summer.

The Emerging Paradigm of LLLT

"If a writer is so cautious that he never writes anything that can be criticized, he will never write anything that can be read. If you want to help other people you have got to make up your mind to write things that some men will condemn."

Thomas Merion, "Seed of Contemplation"

Occam's razor states, "What can be done with fewer is done in vain with more." This appears to be glaringly true in the complex physiology of the human body. Although we have successfully used light sources since the BC periods of history, only recently with the advent of laser in the early 60s and its subsequent use in the 80s in physical therapy, have we begun to touch the meaning and importance of the essence of the "vix mediatrix naturae" of light to life itself!

Low Level Laser Therapy (LLLT) has actively been an essential part of a therapeutic regimen for practitioners around the world since the early 80s. It has not actually caught on in the US until very recently and the vast majority of students have not even been taught its efficacy and use.

There are many biological components that take place in the tissue that have been successfully demonstrated with the use of LLLT therapeutically. One of these is the significant enhancement of ATP. We now know that Ling has shown the fundamental necessity of ATP as the cardinal absorbents of the resting living state of the cell and without it the cell cannot maintain life!¹ since Lohmann's discovery of ATP in 1929, we now know that ATP is the product of all energy

metabolism, aerobic as well as anaerobic. Further, we know that in muscles all ATP is absorbed in myosin.¹ This is one key that helps us to understand how specific lasers are able to significantly reset muscle clinically in a very short period of time. However some other emerging science is necessary to understand greater scope of this most dramatic and helpful modality of the new century.

In the 60s at the same time Maiman was discovering laser, Herbert Frohlich predicted on the basis of quantum physics that the living matrix of the body must produce laser-like coherent oscillations. These vibrations within the living matrix of the body occur at various frequencies and are exceedingly sensitive to the information conveyed by coherent signals.

"Coherent vibrations recognize no boundaries, at the surface of the molecule, cell, or organism - they are the collective or cooperative properties of the entire being. As such, they are likely to serve as signals that integrate processes, such as growth, injury repair, defense and functioning of the organism as a whole."² Each molecule, cell, tissue and organ has an ideal resonant frequency that coordinates its activities. By manipulating and balancing the vibratory circuits, complementary therapists are able to directly influence the body's systemic defense and repair mechanisms.

This crystalline living matrix act as coherent molecular antennae both receiving and transmitting data and can change their resonant frequencies and also store data.²

This helps us to understand the complex mechanism of laser being able to reset musculature returning its function to normal in a very short period of time. This phenomenon creates a new paradigm for the use of laser in the patient with chronic pain and can have a profound, efficient and immediate affect on the recipient of the treatment. The effect of significant increase of ATP at the myosin can have a profound effect on the modulation of muscle. Another theory that we must consider is the very essence of lambda nu (energy emitted from the laser) can reset the muscle as well. It is clinically obvious that these effects occur and the complete explanation remains forthcoming.

Not only does laser increase ATP at the cellular level, but researchers have shown that it causes stimulation of the mitochondria, cellular enzymes, macrophage activation, collagen synthesis, significant increase of granulation tissue, increased permeability of cell membranes, increase serotonin and endorphin with decreased c fiber activity and bradykinin.³ These are but a few mechanisms that have been proven to take place with laser irradiation. I know of no other modality that even comes close to the myriad of physiological changes that take place with the laser and yet no adverse effects. All therapists must do all they can to understand and accept this tremendous new modality that will cause tremendous change in the way we address our patients in pain. After over 20 years of experience with laser and thousands of thankful patients, it is time that we pay particular attention to this new paradigm in treatment before others steal it from our armamentarium. Let us "See the Light."

REFERENCES

¹ Ling G. *Life at the Cell and Below - Cell Level*. New York, NY: Pacific Press; 2001:234-246.

² Oschman J. *Energy Medicine*. London, England: Churchill Livingstone; 2000:130.

³ Turner J. Hode L. *Laser Therapy*. Grangesberg, Sweden: Prima Books; 2002:362.