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UNDERSTANDING THE PHYSIOLOGY OF PAIN AND THE USE OF LOW INTENSITY LASER THERAPY FOR TREATING IT

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Pain is a bio-electrochemical process whose primary function is to apprise the brain of the state of the body and its surroundings. Therefore, it is a protective mechanism, which occurs whenever any tissue is being damaged. With the exception of conditions such as spinal stenosis, severely herniated or ruptured discs, scar tissue or diseases that put direct pressure on nerves, the greatest majority of pain is electrochemical in nature.

The pain nerve endings, primarily A and C fibers, are stimulated by the release of bradykinen and histamine. Pain can also emanate from ischemia and the resultant release of lactic acid.

Ordinarily, damaged and surrounding tissues release chemicals such as serotonin. These chemicals neutralize those which stimulate the pain nerve endings.

Chronic pain is an extension of this process. It is this author's description that chronic pain results from cells going into "survival mode". As such, just enough waste products are released and nutrients absorbed to stay alive. There is not enough biological activity taking place to allow for normal function. Without normal biological activity, healing and the elimination of pain are impossible.

Another aspect of pain is facilitation. There is a normal threshold within which a nerve ending can be stimulated without the transmission or perception of pain. When nerves are hyper facilitated, it takes very little stimulation to exceed its threshold. In chronic, unremitting pain, the nerves function at the upper limits or above the threshold.

It should be easy to understand why cells in survival mode, combined with hyper facilitated nerves are so resistant to treatment. Anti-inflammatory and pain medications, physical therapy, epidural injections and even surgery often do not result in the resolution of a patient's pain.

Surgery, while often necessary, always results in the formation of scar tissue. Regardless of how outstanding the surgeon, scar tissue always forms. It is part of what is called, "the normal fibrosis of healing"; the key word being "normal." The inflammatory process is stimulated by the surgical procedure. The healing process progresses from fibrinogen to fibrin and, ultimately, critical tissue.

Scar tissue has interesting characteristics. To begin with, it forms in circular and/or cross hatch patterns. This means it does not form in the same direction as the inflamed tissue fibers. It is also inelastic. Ligaments have the ability to stretch 4% before fibers break (sprain). Scar tissue has 0% stretchability. Therefore, whenever the injured tissue moves, even within normal limits, scar tissue fibers break, causing minute amounts of additional inflammation. This, in turn, results in the formation of more cicatrival tissue. This, of course, is why scar tissue spreads so much internally. As it spreads, it either puts direct pressure on pain nerves and/or causes the release of bradykinen and/or histamine. The nerve endings in and around the scar tissue become hyperfacilitated. This is why people experience pain with changes in barometric pressure. There really is a physiologic

reason for patient complaining of pain whenever the weather changes.

Since scar tissue develops as a result of the inflammatory process, it is not necessary to have surgery for it to form. Any injury or condition that causes internal edema will result in the formation of cicatricial tissue. Once formed, it can spread as described above. In fact, I am convinced that the majority of chronic patients that I have treated with Low Intensity Laser Therapy (more than 5000) suffer from pain directly or indirectly related to scar tissue.

Physiologically, pain exists primarily because of the mechanisms described above. Therefore, IT DOES NOT MATTER WHAT A CONDITION IS CALLED in terms of diagnosis. To paraphrase William Shakespeare, "Pain, by any other name, still hurts."

The role of LOW INTENSITY LASER THERAPY (LILT) in the treatment of pain is to reverse the physiological causes of pain. The biggest problem in understanding the process is that it appears to be too simple.

According to Dr. Tina Karu, considered by most to be the world's leading authority in LILT cellular research, red light (660nm) has a direct effect on the mitochondria and infrared (830nm) has a similar effect on the cell membrane. In both cases, these components return to normal function. The chronic tissues (in survival mode) heal. Acute injuries heal in less than half the usual time. There are molecular changes in cicatricial tissue, which make it more pliable and allows the associated nerves to return their normal threshold. As a result, normal movement (or exercise) can realign it to the direction of the surrounding tissue. This will also prevent the insidious spread of the scar tissue.

Mitochondria and cell membranes exist regardless of the NAME of the condition. Arthritis, bursitis, tendonitis, low back pain, neck pain, shoulder pain, carpal tunnel (median nerve) pain and even fibromyalgia are nothing more than descriptions necessary for insurance purposed or to help a doctor choose which of thousands of medications to prescribe. When the condition persists for six months, the word chronic is added to the name and there are changes in the medication and/or dosage. THE PATIENT STILL HURTS!

The majority (about 98%) of patients treated in my office are what I call "medical failures." They have chronic conditions ranging from several months to 45 years. They have tried medicine, chiropractic, physiotherapy, epidural injections, surgery, massage and anything that others suggested might help including other low intensity laser systems. In spite of this, when they first come to see me, they rate their pain anywhere from 7/10 to 10/10.

My overall success rate using LILT is about 90%. Success is measured by how the patients rate their pain and their lives. The most common statement is that, "I have given them back their lives." They either have no pain or it has been reduced to 2/10, 3/10 or 4/10.

How can this be possible? Simple! Since pain is cellular (biochemical) in nature, if the cells return to normal function, the patients get better. This is what LILT does. In my experience, nothing does it better or faster than the BioFlex by Meditech International, in Toronto, Canada.

So, forget everything you ever learned about diagnosis and review your basic anatomy and physiology. Then, learn all you can about the BioFlex laser system and its protocols.

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