

SOFT TISSUE/MUSCULOSKELETAL TREATMENTS

Low energy photon therapy has been proven in controlled medical studies and through anecdotal reports by patients to be very effective for the treatment of A wide range of soft tissue and musculoskeletal injuries such as repetitive strain injury, carpal tunnel syndrome, arthritis, whiplash, sports injuries, myofascial pain, chronic pain, cumulative trauma disorder and fibromyalgia.

In one study of carpal tunnel syndrome, a repetitive strain injury, the Salansky protocol resulted in a 71.4% average rate of cure in 21 patients. The patients ranged in age from 28 to 66 years, all had chronic, painful CTS and some had been advised to try surgery. All received treatment three times per week over a period of five to ten weeks. Fifteen patients experienced complete recovery and were able to return to work. Two patients experienced partial relief and four did not respond. In follow-up visits of three to eighteen months, the 15 cured patients remained symptom free.

Results of this study were released in a University of Toronto Research Highlights Bulletin issued in October 1994 by the Public Affairs Department. The results also appeared in the University of Toronto Bulletin of April 24, 1995, and the Family Practice newspaper of November 14, 1994.

LEPT has been shown to improve muscle strength by 23% after whiplash compared to conventional therapy alone (Fitz-Ritson, D., et al, as reported in Laser Surg. Med, 1993; suppl (5)). In fact, a 1995 Quebec Task Force study on Whiplash which analyzed over 10,000 scientific papers found that current passive physiotherapy treatments like ultrasound, TENS, pulsed electromagnetic field, and diathermy are of low benefit for patient recovery. During the first two to three days, only ice was found to be effective and later only manipulation and exercise are effective. LEPT, however, can be used immediately following the trauma because it reduces swelling and hematoma formation and accelerates the resolution of inflammation. Patients often experience remarkable pain relief after 1-3 treatments and are able to start an exercise program sooner.

For other soft tissue and musculoskeletal injuries, LEPT has also been shown to be very beneficial. In a study carried out by Dr. N Filonenko and colleagues, there was an improvement in 60% of patients treated with LEPT who were suffering from neuromuscular conditions or degenerative disc disease. 70% of all patients with osteoarthritis and soft tissue problems showed an improvement with LEPT. (see Low Energy Laser Biostimulation Therapy of Musculoskeletal Disorders in SPIE Laser Surgery, 1992 (1643-240-250)).

LOW ENERGY PHOTON THERAPY AND THE SALANSKY PROTOCOLS

In the late 1980s, Dr. Salansky, whose main areas of research were microelectronics, began studying the therapeutic applications of low energy photons. These photons have about 10,000 times less energy than surgical lasers and are in the wavelength range of 4,000 to 7,000 angstroms. This is a visible range of light extending from blue to red. Another range involved is the close infrared with a wavelength of from 8,000 to 10,000 angstroms.

Salansky and his colleagues at IMI discovered that these photons, if delivered at specific powers, frequencies and wavelengths, interact with body tissue and can relieve a number of painful conditions. Early studies with photon therapy in Hungary a number of years ago met with some success but the results were never consistent.

Dr. Salansky, however, discovered that the reason for this failure to replicate results was because there are a number of parameters that must be defined for the condition being treated. In other words, it is not good enough to bathe a wounded or injured area with photons; the parameters of the photons must be specifically defined for the condition being treated. These parameters that must be calibrated are wavelength, monochromaticity, beam divergency, pulse frequency, pulse duration, power intensity, dose, and three-dimensional light distribution in the tissue. Each condition being treated requires unique settings.

Certain wavelengths have been found that will penetrate the skin to different depths. In addition, by selecting the parameters of the photon beam, cell metabolism can be normalized and the microcirculation can be improved.

Dr. Salansky's work in this area has been funded by the National Research Council of Canada and by the Canadian Department of National Defense. Research into the appropriate parameters required to treat a number of conditions has led to the development of the LEPT 2000 technology

Treatment with low energy photons is of short duration and usually takes about two to six minutes; it rarely exceeds ten minutes. There are usually about 1 to 3 applications of a multiple source probe to specific areas defined in the clinical protocol. **Patients may even self-administer. In some cases, a special point therapy focusing on acupuncture, tender, or trigger points may be used with light emitting or laser diodes to facilitate the treatment success.**

SKIN ULCERS

Chronic leg ulcers are a common and costly problem in North America. Despite Numerous treatments that are available, many ulcers are difficult to heal and Recurrence rates are high. Some of the existing treatments such as skin Grafting, hyperbolic oxygen, ultrasound and ultraviolet light only marginally Improve outcomes. It is estimated that there are 9 million skin ulcer patients in North America who cost the health care system \$50,000 each. Consequently, an efficient treatment for ulcers will not only benefit thousands of patients, it will save the health care system million of dollars annually.

That treatment is now available using low energy photon therapy!

The efficacy of this treatment was described in a front page article in the August 1994 issue of the Dermatology Times of Canada. In addition to the scientific discussion of LEPT, the article describes the treatment of a patient at Sunnybrook Health Science Centre in Toronto - a teaching hospital associated with the University of Toronto Faculty of Medicine. The patient was a woman over 70 years of age with a 200 square cm leg ulcer that had persisted for 13 years. The woman had had a hysterectomy related to cancer, radiation therapy and osteomyelitis of the ankle bone. Despite three failed skin grafts, the ulcer began to heal after low energy photon treatments began. The necrotic tissue disappeared, microcirculation improved and tissue grew under the new skin and filled in the wound. According to a report by Jacqui Telfer of the Department of Physiotherapy at Scarborough General Hospital in suburban Toronto, 13 patients with 22 leg ulcers were treated. 19 of the 22 ulcers were completely healed in 60 treatments; 2 decreased in size by 75% and one did not heal. (Scarborough General Hospital Mednews, vol 6 no 2, May 1993)