



## **LOW INTENSITY LASER THERAPY**

Low Intensity Laser Therapy (also known as low level or cold laser) has been used in rehabilitation medicine, for over a decade, to successfully treat many acute and chronic injuries and complaints. It is understood that laser therapy creates positive biological improvements at the cellular level as so dramatic and lasting changes are possible painlessly and without unwanted effects.

Effective for pain control, muscle tears, arthritis and a large number of other conditions (see list to the right). The same type of laser therapy can treat a host of different afflictions due to the nature of laser light and the human tissue response. At APR clinics we provide several different types of laser therapy to keep up with the advancements in biotechnology and to provide the ability to effectively treat a broader list of conditions.

Laser therapy can be used as a standalone therapy or in conjunction with Chiropractic, Massage, Physiotherapy or other advanced therapies. Suitability of using laser therapy to help with whatever condition you have can be addressed by a number of our qualified practitioners.

Relief can often be felt after the first treatment but may take up to 6 sessions depending on the nature and chronicity of the conditions. In rare cases there may be a temporary increase in symptoms. The number of sessions varies typically from 5 to 30.

### **CONDITIONS TREATED**

- Headaches**
- TMJ (facial pain)**
- Carpal Tunnel Syndrome**
- Rotator Cuff Tears**
- Herniated Discs**
- Degenerative Discs**
- Tennis Elbow**
- Tendinitis**
- Bursitis**
- Facet Irritation**
- Facet Syndrome**
- Skin Conditions**
- Inflammation**
- Gout**
- Osteoarthritis**
- Rheumatoid Arthritis**
- Plantar Fasciitis**
- Wounds**
- Over Use Symptoms**
- Repetitive Strain**
- Sprains**
- Shingles**
- Fibromyalgia**
- Shoulder Pain**

To find out if laser therapy (or any other treatment) could help you, book a complimentary consultation at any APR clinic location to meet with a qualified health care practitioner.

# Low Intensity Laser Therapy to Relieve Pain



By Dr. W.  
Gifford-Jones M.D.

What can you do if you've tried every conceivable way to relieve pain? You've been treated by anti-inflammatory drugs, cortisone, painkillers, physiotherapy, massage and finally, surgery. Yet the pain continues unabated. A technique, known as "Low Intensity Laser Therapy" (LILT) could be the answer.

Dr. Fred Kahn is Director of the Meditech Laser and Rehabilitation Centre in Toronto, and a specialist in pain control. He believes in curing the pain by curing the cause. I've talked to several of his patients about how LILT eased their pain and changed their lives.

PC, a 43-year-old jogger, collided with a glass door on returning to her hotel. When the door shattered, a large fragment of glass penetrated her knee. It left her with osteoarthritis and a life on crutches. Doctors claimed knee replacement was her only hope to relieve pain. After 11 treatments with LILT over a five-week period, PC threw away the crutches and returned to work.

GM, an 85-year-old former World War II pilot, had four back operations. A surgical error caused nerve damage, another resulted in infection and 26 weeks in hospital. Cysts formed in his spine and he required a morphine pump to ease the pain. Now after a three-month

treatment with LILT he walks upright without a cane and is being taken off morphine. He says he's 75 percent improved and can't believe it's happened.

A 17-year-old equestrienne had the misfortune of a 1000 pound horse falling and rolling over her hip joint. This left her with a visible limp and an audible click when she walked. Specialists told her they had little to offer but painkillers for her pain and drugs to treat her subsequent depression.

When seen by Dr. Kahn she had extensive soft tissue damage in the hip and thigh and so much injury to the joint capsule of the hip that it almost popped out with every step. After four treatments with LILT the pain had subsided and she stopped pain medication. She continued treatment three times a week until she returned to a normal gait.

LILT jump-starts the body's natural healing process by sending energy into the muscles and joints that's then transformed into biochemical energy. This decreases swelling, accelerates healing time and increases the pain threshold.

Dr. Kahn says LILT also triggers release of endorphins, morphine-like substances that inhibit the sensation of pain. It also increases cortisol, the forerunner of cortisone and angiogenesis, the formation of new blood vessels along with a number of other physiological processes.

The majority of patients seen at Meditech suffer from degenerative arthritis involving

the lumbo-sacral spine. Sixty percent of these patients also have degenerative disc disease, bulging discs causing compression of spinal nerves or spinal stenosis, a narrowing of the diameter of the spinal column. In the process of evolution, learning to stand upright has exacted a toll on the human spine. Maybe we should have stayed in the trees!

Another large group of patients suffers from sports injuries. These younger patients respond quickly to LILT. At the clinic I also saw several patients suffering from The Shoulder-Neck-Arm Syndrome and The Carpal Tunnel Syndrome both related to long hours at the computer.

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**"You have to live with your pain". But this is not always the case.**

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Others had rheumatoid arthritis and diabetic ulcers of the feet.

Many patients have been told, "You have to live with your pain". But this is not always the case. Rather, the use of low intensity laser therapy has proven to be a pain-buster alternative, and improves over 90 percent of patients who have significant problems. And it does not involve the use of medication, a huge advantage today.

I discovered that Dr. Kahn, a dedicated physician, and I, share the same wavelength. We deplore seeing patients drugged into oblivion by painkillers. And we both believe that surgery should be done only as a last resort.

Today doctors, even with the help of MRIs, often can't be sure of what's causing pain. In these instances, tincture of time along with a course of LILT may be the best solution.

# Low Intensity Laser Therapy Heals Chronic Wounds



By Dr. W.  
Gifford-Jones M.D.

Do patients receive ineffective treatment when they could be cured by a lesser-known technique? The answer? Probably tens of thousands.

I recently spent a day at a Meditech Conference in Toronto listening to experts discuss dermatological and wound ulcers that were resistant to treatment. There I saw startling photos showing how Low Intensity Laser Therapy (LILT) can often cure these conditions. Today, there is something new under the sun.

An old joke in the medical fraternity is that dermatology is the best specialty as patients never die nor get better. But it's not so funny if you suffer from a chronic skin condition that refuses to improve.

Year after year these patients are prescribed a variety of pills, creams and other treatments with no significant effect. As a professor of dermatology at the University of Toronto admitted to me, "We often have no idea what we're doing."

Dr. Kahn, Director of Meditech Laser and Rehabilitation Centre in Toronto, presented pictures of patients suffering from psoriasis, allergic contact dermatitis, acne, ringworm, impetigo, herpes lesions and warts that faded away with LILT therapy after 5 to 10 treatments.

But more dramatic was the effect of this therapy on chronic ulcers. Patients with diabetes had developed frightful-

looking leg and foot ulcers due to atherosclerosis (hardening of arteries). These patients and those with ulcers resulting from injuries, chemical and thermal burns had been helped by LILT.

Today, with an aging population, more people are also suffering from what are known as pressure sores or bedsores. Some are young people who have been severely injured and face weeks of bed rest, or the elderly confined to bed.

Dr. Slava, Clinic Manager at Meditech, outlined the problems associated with the treatment of ulcers. Why doctors should stop packing ulcers with tight dressings and how it's more effective to elevate the leg, and leave ulcers exposed to the air, accompanied by daily irrigation with antiseptic solutions. And how laser treatment has a major effect on healing.

This is not a small problem. According to The World Health Organization two million Canadians have diabetes and this year seven percent will develop leg ulcers (150,000)! There are also 50,000 Canadians with spinal cord lesions. Half of these will develop ulcers.

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**LILT gives a jump-start to the body's natural healing process that delivers energy to the tissues that's transformed into biochemical energy.**

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The economic cost of caring for ulcers is appalling. Dr. G. Woodbury of the University of Western Ontario reports that

the average cost of treatment in a health care facility is \$27,000. Dr Slava, on the other hand, says it is \$1,000 at Meditech! Yet it's ironic that in spite of this financial benefit our health care system does not cover the cost of treatment at this facility!

What makes LILT so effective? Dr. Mary Dyson is Emeritus Professor of Physiology at King's College, University of London, England, and an international authority on wound healing. She reported that LILT gives a jump-start to the body's natural healing process that delivers energy to the tissues that's transformed into biochemical energy. The result is increased blood supply and accelerated healing time.

Last year I also talked with Dr. Tina Karu, Professor of Laser Biology and Medicine of the Russian Academy of Science in Moscow, an expert on basic laser research, and also a proponent of this therapy. Professor Dyson, Kuru and those at Meditech are not gypsies pedaling snake-oil medicine. Besides, progressive photos of these cures can't lie.

One has to ask the obvious question. Why don't more doctors and hospitals use LILT? It's a question that Ministers of Health should be asking. But getting doctors to accept change is like trying to pull teeth out of a bull.

Last year I wrote about the benefits of LILT in treating sciatica, painful joints and other orthopedic problems. One of my patients could walk only a few blocks without severe pain in her ankle. Now after using LILT she walks in downtown Toronto without pain. As has often been said, "The proof is in the pudding".

I hope this column helps those with skin lesions who cannot find relief from dermatologists. And those with ulcers that won't heal.

# The Lord Said “Let There Be Light”



By Dr. W.  
Gifford-Jones M.D.

I recently welcomed the 4th International Low Intensity Laser Therapy (LILT) Conference in

Toronto. I planned to talk about the life of a syndicated medical journalist, how it had changed my life, and leave. Fortunately, I stayed and heard international experts discuss this type of light therapy.

The majority of patients treated with LILT are suffering from arthritis, back, hip and knee pain that has failed to respond to othertypes of treatment. But I was surprised to hear of the variety of other problems helped by this therapy.

Dr. Fred Kahn, founder of Meditech International in Toronto, reported that LILT can heal diabetic leg ulcers due to hardening of arteries and decreased blood supply. In view of today's epidemic of diabetes this is a huge benefit for these patients.

One diabetic patient had his right leg amputated. Later, decreased blood flow resulted in eight ulcers on his remaining foot. They refused to heal and he faced another leg amputation. After 10 treatments of LILT over a two-week period seven of the ulcers had completely healed and blood circulation of the foot improved.

Lymphedema, a swelling of the arms or feet, is often resistant to treatment. It can occur following phlebitis of the legs or after

radical surgery for breast cancer. Dr. Kahn presented cases where limbs had returned to normal size after 10 treatments of LILT.

This therapy can also be used to treat such diverse lesions as psoriasis, eczema, bursitis, arthritis, herniated disc, carpal tunnel syndrome, and rotator cuff tears.

Chuck Mooney, an athletic therapist who's treated professional basketball players, provided convincing evidence on the success of LILT. Owners who pay athletes tens of thousands of dollars a game want them quickly back in action after injury. He cited cases showing how LILT had decreased healing time and saved some athletes from surgery.

Other researchers presented data on the ability of LILT to speed the healing of herpetic lesions of the face and genital area. Lesions that usually recurred after three weeks of treatments could be delayed for 37 weeks.

Dr. Shimon Rochkind, a microneurosurgeon at Tel-Aviv University, is a world expert on nerve regeneration. His research shows that what we have always accepted as gospel truth is no longer the case.

Time and time again we've been told that some tissues of the body can regenerate, but it's impossible for spinal cord injuries. After all, Christopher Reeves of the Superman movies had the best care money could buy, but never walked again after a disastrous fall from his horse.

Dr. Rochkind showed motion pictures of a rat running around

his cage. He then excised half a centimeter of the rat's spinal cord resulting in complete paralyzes of the hind legs.

During the surgery Dr. Rochkind placed a circular tube containing a biodegradable transplant based on cell tissue-engineering technology around the severed ends of the spinal cord. LILT was then administered

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**“It's the first earth moving step to restoring mobility for these victims and destroys the pervasive myth”**

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to the operative area. The final picture shows the rat has recovered partial use of one hind leg allowing him to move around his cage.

This is still “pie in the sky” research for the over 600,000 nerve injuries that occur every year in North America, often with catastrophic results. But it's the first earth-moving step to restoring mobility for these victims and destroys the pervasive myth about non-regenerative nerve tissue.

One has to be cautious about new techniques, but firm evidence proves this is not another old-fashioned snake oil cure. I spoke with Dr. Mary Dyson of the Department of Physiology, University of London, England and Tiina Karu, Professor of Laser Biology of the Russian Academy of Science. They have both done extensive basic research on LILT and are convinced of its merits.

The appeal of LILT is that it's nontoxic, non-invasive and safe. It seems logical to try LILT before resorting to the possible side effects of drugs and complications of surgery. After all, the Lord said “let there be light.”

# Natural Healing



By Dr. W.  
Gifford-Jones M.D.

Have you ever had to crawl on your hands and knees because of severe back pain? It's not a dignified position. But it recently happened to me. What caused this problem and how did I finally get relief?

We all love our mothers and I dearly loved mine. But unfortunately she had scoliosis of the spine and passed this genetic problem along to me. Then in my final year at The Harvard Medical School I awakened one morning with the worst headache of my life. A lumbar puncture revealed poliomyelitis.

Scoliosis and poliomyelitis is not a good combination to maintain a healthy spine. As a result over the years I've suffered from occasional attacks of sciatica, usually appearing for no apparent reason.

But I have followed my own advice over the years making sure that I had sufficient intake of calcium and vitamin D to help decrease the risk of osteoporosis. However, it's not possible to eliminate the wear-and-tear effects of aging on the spine.

Several mornings ago I decided it was time to get out of bed. This was a terrible mistake and my luck ran out. Standing up immediately triggered a pain from Hell, the likes of which I'd never had before. It required my being admitted on a stretcher to

the Toronto Western Hospital.

On such occasions doctors get a taste of what it's like to be a patient. I could have killed the x-ray technician who was

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**"Surgery offered only a 70 percent chance of relieving the pain, but a 30 percent chance of making it worse."**

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annoyed at my inability to keep still on a hard slab while x-rays were being taken. Why couldn't he understand that I was in excruciating pain?

An MRI revealed two ruptured disks and spinal stenosis. Finally someone knew I had genuine pain and wasn't a drug addict looking for a morphine fix.

One of Toronto's top neurosurgeons gave me the bad news. Surgery offered only a 70 percent chance of relieving the pain, but a 30 percent chance of making it worse.

Sir William Osler once remarked it's only a doctor who has suffered from a disease who truly understands the problem. He's right. Crawling on your hands and knees provides great insight about how one's life has changed. Moreover, being on the cutting end of a scalpel always makes a surgeon cringe. He knows all the things that can go right, but also those that can go wrong.

A long sleepless night gave me time to weigh my options. I finally decided that since the odds were worse than gambling

in Las Vegas, I'd go home hoping time would heal me.

At this low point I remembered a column I'd written about Low Intensity Laser Therapy (LILT). This treatment had eased the pain of patients who were suffering from a number of acute and chronic painful conditions.

So I called Dr. Kahn, founder of Meditech, in Toronto. Since I could not walk Dr. Denis Potosky, a Russian orthopedic surgeon, now working as a therapist with Dr. Kahn (another reason why we're short of doctors), treated me with LILT at my home for several days. The first few treatments provided no significant relief. But within a week I was able to drive to the clinic and four weeks later I was once again pain free in my office.

Researching and writing an article about LILT is one thing. Being a grateful patient who'd been spared a major surgical operation prompted further inquiry. At this point I'd also become a very curious patient, wondering how light therapy could result in such a dramatic relief of pain.

Studies at the University of London, England and other research centers show that it's important to decrease the duration of acute inflammation. This results in less scar tissue and chronic pain. LILT accomplishes this by giving a jump-start to the body's natural healing process. It delivers energy to the muscles and joints that's transformed into biochemical energy. The result is increased blood supply to the injured area, decreased swelling and accelerated healing time.

# Non-Surgical Options - Advanced Pain Relief Clinic

## Laser Therapy for Disc Herniations

By Fred Kahn, MD, FRCS(C) and Michael Patterson, MSc

Low back pain has obvious lifestyle and financial burdens; when it is accompanied by radiation of pain and numbness in the lower extremities, it can be truly debilitating. Lumbar disc herniations account for only 4 percent of low back pain patients, but account for a high percentage of low back pain costs.

A painful disc herniation results when a tear of the annulus fibroses allows migration of the nucleus pulposus (protrusion), resulting in nerve root irritation. Lumbar disc herniations typically occur in individuals between the ages of 30-40 years,<sup>1-2</sup> when the nucleus pulposus is still fluid and the annulus is weakened by strenuous activity and age. Due to this relatively young demographic, poor treatment outcomes can result in decades of suffering for these patients.

Prior to the existence of imaging studies, little was known about the healing mechanism of disc herniations. Imaging studies have confirmed what has been long suspected: Disc herniations can decrease in size and even disappear spontaneously, leading to decreased pressure on the nerve root.<sup>3</sup>

In adult discs, blood vessels are normally restricted to supplying only the outer layers of the annulus. Low oxygen tension at the center of the disc leads to an anaerobic metabolism, resulting in high concentrations of lactic acid and low pH. These deficiencies in metabolite transport limit both the density and metabolic activity of disc cells.<sup>4</sup> Collagen turnover time in articular cartilage is approximately 100 years<sup>5</sup> and is theorized to be even longer in the disc.<sup>6</sup> The result is that intervertebral discs have a limited ability to recover from metabolic or mechanical injuries such as herniations.

There have been a number of mechanisms investigated in attempts to determine how disc herniations heal. It is generally accepted that the herniated disc fragments are reabsorbed.<sup>7-8</sup> Histological investigations have shown the presence of granulation tissue with abundant vascularization surrounding the fibrocartilaginous fragments.<sup>7</sup> Within the granulation tissue, the prevailing cell types are macrophages with fibroblasts and endothelial cells.<sup>8</sup> These cell types have been demonstrated to be positively affected by laser therapy. The stimulation of macrophages and fibroblasts could be the primary mechanism by which laser therapy

heals disc herniations.<sup>9</sup>

Inflammatory markers such as IL-1, IL-6 and TNF-a are also present at the site of disc herniations, leading to higher prostaglandin E2 concentrations. Two studies have demonstrated that laser therapy is effective in reducing prostaglandin E2 concentrations.<sup>10-11</sup> Bjordal has demonstrated that inflammation is greatly reduced 75, 90, and 105 minutes after active laser therapy compared to levels prior to treatment.<sup>11</sup> The reduction in inflammation appears to be another method by which laser therapy promotes healing in disc herniations.

There is substantial published research on the effectiveness of laser therapy in treating LBP and lumbar disc herniations. The majority of these research articles discuss chronic (nonspecific) low back pain either alone<sup>12-14</sup> or with exercise.<sup>15-16</sup> These positively inclined studies seem to be absent in reviews from either the American Pain Society / American College of Physicians<sup>17</sup> or the Cochrane Collaboration.<sup>18</sup>

In the review of laser therapy for low back pain performed by the American Pain Society / American College of Physicians, four trials (566 patients) demonstrated that laser therapy was effective and one trial (140 patients) found laser therapy to be no more beneficial than a sham laser device. The conclusion from this review was: "Non-invasive therapies (low-level laser therapy) have not been shown to be effective for chronic, sub-acute or acute low back pain."<sup>17</sup> A letter to the authors regarding their bias against laser therapy and in support of pharmaceuticals<sup>19</sup> only prompted the authors to downgrade the evidence supporting acetaminophen and cite the Cochrane study to support their stance on laser therapy.

The Cochrane study they refer to found that "three high quality studies (168 people) separately showed statistically significant pain relief with laser therapy in the short-term (less than three months) and intermediate term (less than 6 months) when compared with sham laser therapy."<sup>18</sup> Two small trials (151 people), also included in the Cochrane review, independently found that the relapse rate in the laser therapy group was significantly lower than in the control group at six-month follow-up. The conclusion was that "based on these trials, with a varying population base, laser therapy dosages and comparison groups, there is insufficient data to either support or refute the effectiveness of laser therapy for low back pain."

The resounding statements from both of these meta-analyses were that "more studies are required" and "larger trials on specific indications are warranted." Lacking in the conclusions were any suggestion of "how many patients and studies" are required to provide sufficient evidence. A recent study examining the effectiveness of laser therapy in treating lumbar disc herniations as measured using clinical evaluation and

magnetic resonance imaging (MRI) found that "low power laser therapy is effective in the treatment of patients with acute lumbar disc herniations."<sup>20</sup>

Invariably, studies provoke questions. Some of the more common parameters for consideration are duration and extent of laser therapy treatment, joules per centimeter square of irradiation, power settings, etc. One must conclude these studies and meta-analyses, although well-intentioned, may in many instances be misguided. In our experience, almost 40 percent of all patients presenting for treatment suffer from back problems characterized by severe pain, and more than 85 percent can be treated successfully with laser therapy.<sup>21</sup>

The financial justification for the use of laser therapy as the first line of defense in disc herniations is overwhelming. Data collected from the SPORT trial found that the average surgical procedure cost \$15,139, which rises to \$27,341 when other costs such as diagnostic tests and missed work are factored in.<sup>21</sup> The cost of conservative treatment in that same study averaged \$13,108. In our experience, even the most extreme example of a herniated disc patient (receiving 40 treatments), resulted in a total treatment cost of just \$3,200. When diagnostic tests and health care visits are factored into this equation, the total cost of laser therapy is closer to \$5,700. This is a savings of more than \$20,000 versus surgery and \$7,500 over standard conservative treatment. Moreover, laser therapy is noninvasive and no adverse events have been reported in more than 3,000 publications.

In summary, this review of the current literature clearly reveals some of the shortcomings of meta-analyses and the performance of studies without standardized methodologies. We conclude that medical convention has demonstrated that the relief of symptomatic disc herniations continues to be problematic; and that both conservative and surgical solutions in the majority of cases appear to be equally ineffective. While the application of appropriate therapy requires a comprehensive understanding of the anatomy, pathology and biomechanics of the spinal column, we feel that laser therapy presents the most logical and effective therapeutic approach in managing these pervasive medical conditions.

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