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Citations

1. Arch Phys Med Rehabil.
2006 Oct;87(10):1310-7.

Continuous low-level heat wrap therapy for the prevention and early phase treatment of delayed-onset muscle soreness of the low back: a randomized controlled trial.

[Mayer JM](#), [Mooney V](#), [Matheson LN](#), [Erasala GN](#), [Verna JL](#), [Udermann BE](#), [Leggett S](#).

U.S. Spine & Sport Foundation, San Diego, CA 92123, USA. jmayer2@san.rr.com

ABSTRACT

OBJECTIVE - To evaluate the effects of continuous low-level heat wrap therapy for the prevention and early phase treatment (ie, 0-48 h postexercise) of delayed-onset muscle soreness (DOMS) of the low back.

DESIGN - Two prospective randomized controlled trials.

SETTING - Outpatient medical facility.

PARTICIPANTS - Sixty-seven subjects asymptomatic of back pain and in good general health (mean age, 23.5+/-6.6 y).

INTERVENTIONS - Participants performed vigorous eccentric exercise to experimentally induce low back DOMS. Participants were assigned to 1 of 2 substudies (prevention and treatment) and randomized to 1 of 2 treatment groups within each substudy: prevention study (heat wrap, n=17; control [nontarget muscle stretch], n=18) and treatment study (heat wrap, n=16; cold pack, n=16). Interventions were administered 4 hours before and 4 hours after exercise in the prevention study and between hours 18 to 42 postexercise in the treatment study.

MAIN OUTCOME MEASURES - To coincide with the expected occurrence of peak symptoms related to exercise-induced low back DOMS, hour 24 postexercise was considered primary. Pain intensity (prevention) and pain relief (treatment) were primary measures, and self-reported physical function and disability were secondary measures.

RESULTS - In the prevention study, at hour 24 postexercise, pain intensity, disability, and deficits in self-reported physical function in subjects with the heat wrap were reduced by 47% ($P<.001$), 52.3% ($P=.029$), and 45% ($P=.013$), respectively, compared with the control group. At hour 24 in the treatment study, postexercise, pain relief with the heat wrap was 138% greater ($P=.026$) than with the cold pack; there were no differences between the groups in changes in self-reported physical function and disability.

CONCLUSIONS - In this small study, continuous low-level heat wrap therapy was of significant benefit in the prevention and early phase treatment of low back DOMS.

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DEEP PENETRATING INFRARED THERAPY

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2. Spine J. 2005
Jul-Aug;5(4):395-403.

Treating acute low back pain with continuous low-level heat wrap therapy and/or exercise: a randomized controlled trial.

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ABSTRACT

BACKGROUND CONTEXT - Restorative exercise and palliative modalities are frequently used together for the treatment of acute low back pain. However, little is known about the effects of combining these treatments.

PURPOSE - To evaluate the efficacy of combining continuous low-level heat wrap therapy with directional preference-based exercise on the functional ability of patients with acute low back pain.

STUDY DESIGN/SETTING - A randomized controlled trial was conducted at three outpatient medical facilities.

PATIENT SAMPLE - One hundred individuals (age 31.2+/-10.6 years) with low back pain of less than 3 months duration.

OUTCOME MEASURES - The primary outcome measure was functional ability assessed by the Multidimensional Task Ability Profile questionnaire. Secondary outcomes were disability assessed by the Roland-Morris Disability Questionnaire and pain relief assessed by a 6-point verbal rating scale.

METHODS - Participants were randomized to one of four groups: Heat wrap therapy alone (heat wrap, n=25); directional preference-based exercise alone (exercise, n=25); combination of heat wrap therapy and exercise (heat+exercise, n=24); or control (booklet, n=26). Treatment was administered for five consecutive days and included four visits to the study center over 1 week.

RESULTS - At 2 days after the conclusion of treatment (Day 7), functional improvement for heat+exercise was 84%, 95%, and 175% greater than heat wrap, exercise, and booklet, respectively ($p < .05$). Seventy-two percent of the subjects in the heat+exercise group demonstrated a return to pre-injury function compared with 20%, 20%, and 19% for heat wrap, exercise, and booklet, respectively ($p < .05$). Disability reduction for heat+exercise was 93%, 139%, and 400% greater than heat wrap, exercise, and booklet, respectively ($p < .05$). Pain relief for heat+exercise was 70% and 143% greater than exercise and booklet, respectively ($p < .05$).

CONCLUSIONS - Combining continuous low-level heat wrap therapy with directional preference-based exercise during the treatment of acute low back pain significantly improves functional outcomes compared with either intervention alone or control. Either intervention alone tends to be more effective than control.

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2001 Mar;97(3):343-9.

Continuous low-level topical heat in the treatment of dysmenorrhea.

[Akin MD](#), [Weingand KW](#), [Hengehold DA](#), [Goodale MB](#), [Hinkle RT](#), [Smith RP](#).

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ABSTRACT

OBJECTIVE: To compare the efficacy of topically applied heat for menstrual pain with oral ibuprofen and placebo treatment.

METHODS: We conducted a randomized placebo and active controlled (double dummy), parallel study using an abdominal patch (heated or unheated) for approximately 12 consecutive hours per day and oral medication (placebo or ibuprofen 400 mg) three times daily, approximately 6 hours apart for 2 consecutive days. Pain relief and pain intensity were recorded at 17 time points. There was at least 85% power to detect a true one-unit difference in the 2-day pain relief treatment means for comparisons with the unheated patch plus oral placebo group using a one-tailed test at the .05 level of significance, based on an observed within-group standard deviation of 1.147.

RESULTS: Eighty-four patients were enrolled and 81 completed the study protocol. Over the 2 days of treatment, the heated patch plus placebo tablet group (mean 3.27, $P < .001$), the unheated patch plus ibuprofen group (mean 3.07, $P = .001$), and the combination heated patch plus ibuprofen group (mean 3.55, $P < .001$) had significantly greater pain relief than the unheated patch plus placebo group (mean 1.95). Greater pain relief was not observed for the combination heated patch plus ibuprofen group compared with the unheated patch plus ibuprofen group ($P = .096$); however, the time to noticeable pain relief was statistically significantly shorter for the heated patch plus ibuprofen group (median 1.5 hours) compared with the unheated patch plus ibuprofen group (median 2.79 hours, $P = .01$).

CONCLUSION: Continuous low-level topical heat therapy was as effective as ibuprofen for the treatment of dysmenorrhea.

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4. Clin J Pain.
2007 Oct;23(8):663-8.

Impact of continuous low level heatwrap therapy in acute low back pain patients: subjective and objective measurements.

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ABSTRACT

OBJECTIVES - Muscular pain is usually associated with increased muscle tension resulting in a vicious tension-pain-cycle, leading to increased alertness and stress. However, this has not been broadly evaluated using objective methods, for example, looking at neurophysiologic changes. The focus of this study was, therefore, to combine objective [spontaneous electroencephalogram (EEG) as a surrogate of alertness and stress] with subjective parameters (self-assessed pain affected variables) to investigate the effect of continuous low-level heat therapy in low back pain (LBP)-patients.

METHODS - This investigation was a randomized, active controlled, parallel-designed study. Thirty patients were randomly assigned to one of 2 groups: the control group, in which patients were provided with oral analgesics (nonsteroidal anti-inflammatory drug) and instructed to use it if needed, and the treatment group, in which patients in addition to oral analgesics as rescue medication were provided with a heatwrap therapy. The objective parameters were assessed by measuring the power of frequency bands in the spontaneous EEG. The subjective parameters (sleep pattern, well-being, pain intensity, etc.) were assessed by a Pain, Sleep, and Stress Questionnaire.

RESULTS - In the EEG-recordings, the heatwrap therapy group showed decreased power in Beta-1 and Beta-2 frequency bands compared with the control group, indicating a reduction in arousal. Also, in comparison to the control group, the heatwrap therapy group reported significantly reduced LBP, everyday situations being less stressful, a better night's sleep, and a decreased number of daytime naps. **DISCUSSION:** In addition to classic psychophysical assessment of pain-related parameters and sleep quality, performance in daily life, we were able to obtain objective measures (EEG) that suggest an acute therapeutic relaxation on the basis of the central nervous system effects accompanying the reported significant pain relief. We believe that this was due to a reduced nociceptive information load in LBP-patients after the use of the heatwrap therapy.

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5. Arch Phys Med Rehabil.
2003 Mar;84(3):335-42.

Overnight use of continuous low-level heatwrap therapy for relief of low back pain.

[Nadler SF](#), [Steiner DJ](#), [Petty SR](#), [Erasala GN](#), [Hengehold DA](#), [Weingand KW](#).

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ABSTRACT

OBJECTIVE - To evaluate of the efficacy and safety of 8 hours of continuous, low-level heatwrap therapy administered during sleep.

DESIGN - Prospective, randomized, parallel, single-blind (investigator), placebo-controlled, multicenter clinical trial.

SETTING - Two community-based research facilities.

PARTICIPANTS - Seventy-six patients, aged 18 to 55 years, with acute, nonspecific low back pain.

INTERVENTIONS - Subjects were stratified by baseline pain intensity and gender and randomized to one of the following treatments: evaluation of efficacy (heatwrap, n=33; oral placebo, n=34) or blinding (unheated wrap, n=5; oral ibuprofen, n=4). All treatments were administered for 3 consecutive nights with 2 days of follow-up.

MAIN OUTCOME MEASURES - Primary: morning pain relief (hour 0) on days 2 through 4 (0-5-point verbal response scale). Secondary: mean daytime pain relief score (days 2-4, hours 0-8), mean extended pain relief score (day 4, hour 0; day 5, hour 0), muscle stiffness, lateral trunk flexibility, and disability (Roland-Morris Disability Questionnaire).

RESULTS - Heatwrap therapy was significantly better than placebo at hour 0 on days 2 through 4 for mean pain relief ($P=.00005$); at hours 0 through 8 on days 2 through 4 for pain relief ($P<.001$); at hour 0 on day 4 and at hour 0 on day 5 for mean pain relief ($P<.001$); on day 4 in reduction of morning muscle stiffness ($P<.001$); for increased lateral trunk flexibility on day 4 ($P<.002$); and for decreased low back disability on day 4 ($P=.005$). Adverse events were mild and infrequent.

CONCLUSIONS - Overnight use of heatwrap therapy provided effective pain relief throughout the next day, reduced muscle stiffness and disability, and improved trunk flexibility. Positive effects were sustained more than 48 hours after treatments were completed. Copyright 2003 by the American Congress of Rehabilitation Medicine and the American Academy of Physical Medicine and Rehabilitation

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2002 May 15;27(10):1012-7.

Continuous low-level heat wrap therapy provides more efficacy than ibuprofen and acetaminophen for acute low back pain.

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ABSTRACT

STUDY DESIGN - A prospective, randomized, single (investigator) blind, comparative efficacy trial was conducted.

OBJECTIVE - To compare the efficacy of continuous low-level heat wrap therapy (40 C, 8 hours/day) with that of ibuprofen (1200 mg/day) and acetaminophen (4000 mg/day) in subjects with acute nonspecific low back pain.

SUMMARY OF BACKGROUND DATA - The efficacy of topical heat methods, as compared with oral analgesic treatment of low back pain, has not been established.

METHODS - Subjects (n = 371) were randomly assigned to heat wrap (n = 113), acetaminophen (n = 113), or ibuprofen (n = 106) for efficacy evaluation, or to oral placebo (n = 20) or unheated back wrap (n = 19) for blinding. Outcome measures included pain relief, muscle stiffness, lateral trunk flexibility, and disability. Efficacy was measured over two treatment days and two follow-up days.

RESULTS - Day 1 pain relief for the heat wrap (mean, 2) was higher than for ibuprofen (mean, 1.51; P = 0.0007) or acetaminophen (mean, 1.32; P = 0.0001). Extended mean pain relief (Days 3 to 4) for the heat wrap (mean, 2.61) also was higher than for ibuprofen (mean, 1.68; P = 0.0001) or acetaminophen (mean, 1.95; P = 0.0009). Lateral trunk flexibility was improved with the heat wrap (mean change, 4.28 cm) during treatment (P <= 0.009 vs acetaminophen [mean change, 2.93 cm], P <= 0.001 vs ibuprofen [mean change, 2.51 cm]). The results were similar on Day 4. Day 1 reduction in muscle stiffness with the heat wrap (mean, 16.3) was greater than with acetaminophen (mean, 10.5; P = 0.001). Disability was reduced with the heat wrap (mean, 4.9), as compared with ibuprofen (mean, 2.7; P = 0.01) and acetaminophen (mean, 2.9; P = 0.0007), on Day 4. None of the adverse events were serious. The highest rate (10.4%) was reported in the ibuprofen group.

CONCLUSION - Continuous low-level heat wrap therapy was superior to both acetaminophen and ibuprofen for treating low back pain.

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7. Arch Phys Med Rehabil.
2003 Mar;84(3):329-34.

Continuous low-level heatwrap therapy for treating acute nonspecific low back pain.

[Nadler SF](#), [Steiner DJ](#), [Erasala GN](#), [Hengehold DA](#), [Abeln SB](#), [Weingand KW](#).

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ABSTRACT

OBJECTIVE - To evaluate the efficacy of 8 hours of continuous low-level heatwrap therapy for the treatment of acute nonspecific low back pain (LBP).

DESIGN - Prospective, randomized, parallel, single-blind (investigator), placebo-controlled, multicenter clinical trial.
SETTING: Five community-based research facilities.

PARTICIPANTS - Two-hundred nineteen subjects, aged 18 to 55 years, with acute nonspecific LBP.

INTERVENTION - Subjects were stratified by baseline pain intensity and gender and randomized to one of the following groups: evaluation of efficacy (heatwrap, n=95; oral placebo, n=96) and blinding (oral ibuprofen, n=12; unheated back, wrap n=16). All treatments were administered for 3 consecutive days with 2 days of follow-up.

MAIN OUTCOME MEASURES - Primary: day 1 mean pain relief (0- to 5-point verbal response scale). Secondary: muscle stiffness (101-point numeric rating scale), lateral trunk flexibility (fingertip-floor distance), and Roland-Morris Disability Questionnaire over 3 days of treatment and 2 days of follow-up.

RESULTS - Heatwrap therapy was shown to provide significant therapeutic benefits when compared with placebo during both the treatment and follow-up period. On day 1, the heatwrap group had greater pain relief (1.76+/- .10 vs 1.05+/- .11, P <.001), less muscle stiffness (43.1+/-1.21 vs 47.6+/-1.21, P=.008), and increased flexibility (18.6+/- .44 cm vs 16.5+/- .45 cm, P=.001) compared with placebo. Disability was also reduced in the heatwrap group (5.3 vs 7.4, P=.0002). Adverse events were mild and infrequent.

CONCLUSION - Continuous low-level heatwrap therapy was shown to be effective for the treatment of acute, nonspecific LBP. Copyright 2003 by the American Congress of Rehabilitation Medicine and the American Academy of Physical Medicine and Rehabilitation

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2004 Sep;85(9):1409-16.

Continuous low-level heat wrap therapy is effective for treating wrist pain.

[Michlovitz S](#), [Hun L](#), [Erasala GN](#), [Hengehold DA](#), [Weingand KW](#).

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ABSTRACT

OBJECTIVE - To evaluate the efficacy of continuous low-level heat wrap therapy for the treatment of various sources of wrist pain including strain and sprain (SS), tendinosis (T), osteoarthritis (OA), and carpal tunnel syndrome (CTS).

DESIGN - Prospective, randomized, parallel, single-blind (investigator), placebo-controlled, multicenter clinical trial.

SETTING - Two community-based research facilities.

PARTICIPANTS - Ninety-three patients (age range, 18-65 y) with wrist pain.

INTERVENTION - Subjects with moderate or greater wrist pain were randomized and stratified to 1 of the following treatments: efficacy evaluation (heat wrap, n=39; oral placebo, n=42) or blinding (oral acetaminophen, n=6; unheated wrap, n=6). Data were recorded over 3 days of treatment and 2 days of follow-up.

MAIN OUTCOME MEASURES - The primary comparison was between the heat wrap and the oral placebo group among SS/T/OA subjects for pain relief. Outcome measures included pain relief (0-5 scale), joint stiffness (101-point numeric rating scale), grip strength measured by dynamometry, and perceived pain and disability (Patient Rated Wrist Evaluation [PRWE]); subjects with CTS also completed the Symptom Severity Scale and Functional Status Scale.

RESULTS - Heat wrap therapy showed significant benefits in day 1 to 3 mean pain relief ($P=.045$) and increased day 3 grip strength ($P=.02$) versus oral placebo for the SS/T/OA group. However, joint stiffness and PRWE results were comparable between the 2 treatments. For the CTS group, heat wraps provided greater day 1 to 3/hour 0 to 8 mean pain relief ($P=.001$), day 1 to 3 mean joint stiffness reduction ($P=.004$), increased day 3 grip strength ($P=.003$), reduced PRWE scores ($P=.0015$), reduced symptom severity ($P=.001$), and improved functional status ($P=.04$). In addition, the heat wrap showed significant extended benefits through follow-up (day 5) in the CTS group.

CONCLUSIONS - Continuous low-level heat wrap therapy was efficacious for the treatment of common conditions causing wrist pain and impairment.

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9. Arch Phys Med Rehabil.
2003 Mar;84(3):335-42.

Overnight use of continuous low-level heatwrap therapy for relief of low back pain.

[Nadler SF](#), [Steiner DJ](#), [Petty SR](#), [Erasala GN](#), [Hengehold DA](#), [Weingand KW](#).

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10. Conf Proc IEEE Eng Med Biol Soc.
2009;2009:1589-91.

Phantom limb pain treated by far infrared ray.

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ABSTRACT

We have treated a patient with severe phantom limb pain by a novel far infrared ray (FIR) therapy. The patient has suffered persistent and progressively worsening phantom limb pain after amputation ten years ago. He also experienced severe muscle spasm and twitch of stump during the attacks. His phantom limb pain was excruciating and was rated up to 9 by the Visual Analog Pain Scale. Various pain treatment modalities have been used but in vain, including medications and rehabilitation. He also underwent two episodes of sympathectomy, only achieving short-term effects for three months. Then he underwent our new treatment method. We applied FIR to the amputated limb site instead of the stump of the patient for 40 minutes for each treatment session twice a week. One month after the FIR treatment, he felt much improved and rated his phantom pain at 4, and down to 2-3 after two months of treatment. The duration of each phantom limb pain attack has significantly reduced from over 24 hours to only a few minutes or seconds after five months of FIR treatment. During a six-month post-treatment follow-up, his phantom limb pain occurred seldom for only a few seconds at a low 1-2 rating on the pain scale. The analgesic effect of FIR treatment has prevented him from the scheduled third sympathectomy and the risk of heart attack followed by severe twitch of stump. The results of this study demonstrate an easy, non-invasive and effective treatment modality for phantom limb pain.

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2009 Mar;72(3):109-16.

Prognostic factors influencing the patency of hemodialysis vascular access: literature review and novel therapeutic modality by far infrared therapy.

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ABSTRACT

In Taiwan, more than 85% of patients with end-stage renal disease undergo maintenance hemodialysis (HD). The native arteriovenous fistula (AVF) accounts for a prevalence of more than 80% of the vascular access in our patients. Some mechanical factors may affect the patency of hemodialysis vascular access, such as surgical skill, puncture technique and shear stress on the vascular endothelium. Several medical factors have also been identified to be associated with vascular access prognosis in HD patients, including stasis, hypercoagulability, endothelial cell injury, medications, red cell mass and genotype polymorphisms of transforming growth factor-beta1 and methylene tetrahydrofolate reductase. According to our previous study, AVF failure was associated with a longer dinucleotide (GT)_n repeat ($n \geq 30$) in the promoter of the heme oxygenase-1 (HO-1) gene. Our recent study also demonstrated that far-infrared therapy, a noninvasive and convenient therapeutic modality, can improve access flow, inflammatory status and survival of the AVF in HD patients through both its thermal and non-thermal (endothelial-improving, anti-inflammatory, anti-proliferative, antioxidative) effects by upregulating NF-E2-related factor-2-dependent HO-1 expression, leading to the inhibition of expression of E-selectin, vascular cell adhesion molecule-1, and intercellular adhesion molecule-1.

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12. Am J Chin Med.
2009;37(2):215-26.

Effects of far infrared acupoint stimulation on autonomic activity and quality of life in hemodialysis patients.

[Su LH](#), [Wu KD](#), [Lee LS](#), [Wang H](#), [Liu CF](#).

Nursing Department, National Taiwan University Hospital, Yun-Lin Branch, Yun-Lin County, Taiwan.

ABSTRACT

Patients receiving regular hemodialysis sessions have been known to suffer from fatigue and depression. This experiment was designed to determine the effects of far infrared ray (FIR) stimulation on acupoints of patients suffering from renal failure who are receiving regular hemodialysis. Patients receiving long-term and regular hemodialysis who volunteered for this procedure were randomly selected to undergo either FIR or heat pad (HP) therapy to determine the impact of FIR treatment on these patients. Both the activities of the autonomic nervous system and changes in quality of life were measured before and after treatment to determine the effectiveness of the FIR treatment. Results from this study show that FIR therapy decreases both stress and fatigue levels of these patients. It also stimulates autonomic nervous system (ANS) activity in patients who are diagnosed with end-stage renal disease (ESRD) and are receiving regular hemodialysis (HD). Therefore, benefits of FIR stimulation on these patients are clearly demonstrated in this preliminary study.

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13. Z Rheumatol.
1993 Sep-Oct;52(5):289-91.

The influence of heat and cold on the pain threshold in rheumatoid arthritis.

[Curković B](#), [Vitulić V](#), [Babić-Naglić D](#), [Dürriegl T](#).

Department of Rheumatology and Rehabilitation, University Hospital, Rebro, Zagreb, Croatia.

ABSTRACT

Superficial heat and cold are commonly used therapeutic methods in patients with rheumatoid arthritis. Both procedures have analgesic effect. In 30 in-patients with rheumatoid arthritis the pain threshold was measured before and after warm bath and ice massage. Rheumatoid patients had significantly lower pain threshold compared to the healthy subjects in normal circumstances. Heat and cold remarkably raise the pain threshold right after the application. The pain threshold is also raised 10 and 30 min after cryotherapy, but not after the warm bath. Between investigated groups there were no statistically significant differences in the pain threshold values in any observed time. We consider that both methods have a reasonable place in the therapy of rheumatoid arthritis.

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By Dr. Aaron M. Flickstein
Safety of Infrared Radiant Energy
Is Infrared Radiant Heat Safe For Me?

What exactly is radiant heat? No need to worry - - it has nothing to do with either ultraviolet radiation (which gives you a sunburn and damages your skin) or atomic radiation (the kind from a nuclear bomb).

Radiant heat is simply a form of energy that heats objects directly through a process called conversion, without having to heat the air between. Radiant heat is also called infrared energy (IR). The infrared segment of the electromagnetic spectrum is divided into 3 segments by wave length, measured in microns or micrometers (a micron = 1/1,000,000 of a meter): 0.076 – 1.5 microns = near or close; 1.5 – 5.6 = middle or intermediate; 5.6 – 1000 = far or longwave infrared. The infrared segment of the electromagnetic spectrum occurs just below or "infra" to red light as the next lowest energy band of light. This band of light is not visible to human eyes but can be seen by special cameras that translate infrared into colors visible to our eyes. We can, however, feel this type of light which we perceive as heat. Our sun produces most of its energy output in the infrared segment of the spectrum. Our atmosphere has a "window" in it that allows IR rays in the 7 – 14 micron range to safely reach the earth's surface. When warmed, the earth radiates infrared rays in the 7 – 14 micron band with its peak output at 10 microns.

According to Dr. Tsu-Tsair Oliver Chi in his summation on the mechanism of action of infrared devices tuned to the human body, these rays are selectively absorbed by the tissues needing a boost in their output. The internal production of infrared energy that normally occurs within our tissues is associated with a variety of healing responses and may require a boost to a maximal level to insure the fullest healing response possible in a tissue under repair. After boosting a tissue's level to maximum, the remaining rays pass onward harmlessly. This phenomenon is called "resonant absorption".

The sun is the principal source of radiant energy that we experience daily. Have you ever been outside on a partly cloudy day of about 50 F and felt quite comfortable when suddenly the sun was obscured by a cloud? Although the air temperature had not had time to drop, you felt chilled, as the cloud would not let the warming infrared rays through to reach you.

Our bodies radiate infrared energy out through the skin at 3 – 50 microns, with most of their output at 9.4 microns. Our palms emit infrared energy at between 8 – 14 microns. Palm healing, which has a 3,000 year-old tradition in China, has been based on the healing properties of these natural infrared rays. The Yogis in India also use such palm healing and recommend it especially for relieving eye strain.



DEEP PENETRATING INFRARED THERAPY

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Far Infrared Therapy Technology Comes of Age
by Rita Lambros-Segur, M.H.

What exactly is infrared, or radiant heat?

No need to worry - it has nothing to do with either ultraviolet radiation (which gives you a sunburn and damages your skin) or atomic radiation (the kind from a nuclear bomb).

Radiant heat is simply a form of energy that heats objects directly through a process called conversion, without having to heat the air in between. Radiant heat is also called infrared energy (IR). Our sun is the principal source of radiant energy that we enjoy daily (some more so than others).

Have you ever been outside on a partly cloudy spring day of about 50 degrees F. and felt quite comfortable until the sun was suddenly obscured by a cloud? Although the air temperature had not had time to drop, you felt chilled, as the cloud would not let the warming infrared rays through to reach you.

Infrared light is an important energy force that promotes healing - a raising of the white blood cell count. Why is that good? Because more white blood cells mean greater immunity. Greater immunity means greater health and a better quality of life.

Energy medicine is an ancient practice and Chinese health practitioners would use healing touch therapies for improved cell growth, DNA synthesis and protein synthesis in cells. Although these ancient practitioners did not know the technical terms as to why their therapy improved health, they were sure their patients got better.

Over the past 25 years, Japanese and Chinese researchers and clinicians have done extensive research on infrared treatments and reported many provocative findings. Whole-body infrared therapy has been used for over 80 years by German physicians in an independently developed form.



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Natural Healing with Dr. Mark Stengler

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New Pain Relief: INFRARED LIGHT

Chronic medical conditions, such as arthritis, low-back pain, fibromyalgia, and others, can leave sufferers in near-constant pain. Managing this ongoing discomfort is a huge challenge for patients and their doctors. Pain medications, such as ibuprofen, often bring relief, but long-term use can cause gastric bleeding and other troubling side effects.

At last, patients have a better option – a new noninvasive pain-relief therapy that has no side effects. The technology is called *far infrared (FIR) light therapy*, and it is delivered via a pad similar to a standard heating pad. The technology is available in special pads for home use, and an increasing number of medical practitioners are using FIR therapy in their offices.

I recently began prescribing this gentle, nontoxic therapy for arthritis patients, as well as patients with muscle, neck or back pain... lymphedema (swelling of arms and/or legs due to inadequate draining of lymph fluid)... peripheral neuropathy (nerve damage sometimes caused by uncontrolled diabetes)... carpal tunnel syndrome... and other conditions. So far, I have seen the technology produce some remarkable results – greatly reducing pain and stiffness after just a few treatments.

One of the first patients I treated with FIR therapy was a 68-year-old woman who had chronic low-back pain from arthritis and several degenerated discs. According to her conventional physician, her only treatment choices were cortisone injections or surgery. I thought FIR therapy might help her. For five consecutive days, she came to my office to spend 35 minutes lying on an infrared pad. She felt so much improvement that she decided to purchase her own infrared pad to keep up the treatments at home. The pain she thought was permanent has virtually disappeared.

Another patient, a 51-year-old woman who suffered from chronic fibromyalgia, had terrible pain all over her body. The pain was so severe that she couldn't get a good night's sleep. I recommended that she purchase an infrared pad to use every evening before bed. After her first treatment, she was able to sleep through the night – and after months of regular use, she sleeps soundly.

HOW FIR GOES FURTHER

Certainly, light and heat therapy are not new – various forms have been around for centuries. But FIR therapy is different because it uses infrared light (one of the types delivered by the sun). Infrared light is made up of three different wavelengths, referred to as near, medium, and far. The far wavelength, used in



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FIR therapy, is the most compatible with human tissue. That is because FIR light vibrates at the same frequency as human cells, so it is readily absorbed.

Like the sun, FIR light also produces heat, a critical factor in the therapy. But do not confuse this technology and its results with those of ordinary heating pads.

HOW FIR THERAPY IS UNIQUE...

- Rather than heating just the surface of the skin, infrared heat penetrates as far as 2.3 inches under the skin to reach muscles, blood vessels, and lymphatic glands and nerves.
- The body works to create a steady temperature throughout – so when the infrared heat raises the temperature in a particular area, blood rushes in to normalize it, carrying with it additional oxygen and nutrients. This helps improve lymphatic flow, allowing the body's lymphatic system to excrete waste products, and reduces edema (swelling caused by fluid retention).
- The increased circulation also helps regenerate tissue – for example, in the tendons associated with tennis elbow.
- FIR therapy helps clear our toxins, such as lactic acid, which contribute to inflammation in the body.
- FIR heat improves the ability of collagen (a type of connective tissue) to stretch. This is especially valuable when treating ligaments, tendons and other soft tissue for range-of-motion problems.

One small study performed at St. Boniface General Hospital in Winnipeg, Manitoba, Canada, produced extremely encouraging results. Forty-two patients who suffered from either rheumatoid arthritis or osteoarthritis, along with low-back pain, were treated with FIR therapy pads for seven days. While that is less than the advised treatment time for best results, 65% of patients still reported that they felt very noticeable relief. The rest – most of whom had severe long-standing disease – continued treatment for two additional weeks. At the end of the study period, 87% of patients reported significant pain relief.



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Prof. Li Dong Qi of China carried out clinical test involving 1409 patients at three large hospitals in Tianjin, China.

The results showed that FIR rays could be effective for a range of conditions for the majority of patients:

No.	Type of Disease	Number of Patients	Effective	Non Effective	Effectiveness
1.	Arthritis	413	361	52	87.41%
2.	Rheumatism	189	161	28	85.19%
3.	Spinocerebellar Disorder	347	317	30	91.35%
4.	Neck Dissection	311	262	49	84.24%
5.	Prostatitis	34	31	3	91.18%
6.	Diabetes	8	6	2	75.00%
7.	Vaginitis	30	28	2	93.33%
8.	Osteoporosis	16	12	4	75.00%
9.	Emphysema	44	40	4	82.35%
10.	Neuritis	17	14	3	87.44%
	Total	1409	1232	117	87.44%