Welcome to the



Low Level Laser Therapy Treatment Guidelines

Treatment Guidelines

An Introduction to the MedX Phototherapy System

Within these pages you will discover highly effective and efficient protocols for the delivery of Superluminous Diode (SLD) and Low Level Laser Therapy (LLLT). A resource informed by 35 years of world-wide research, thousands of published papers and our eight years of design, research and development, manufacture, and direct clinical experience.

The MedX Treatment Manual is organized into 5 segments corresponding to "head-to-foot" anatomical zones. These detailed protocols demonstrate specific treatments of MedX Phototherapy for over 65 common conditions.

These treatment protocols have been developed for use with the MedX Phototherapy Treatments Systems including the MedX 1100 Console with laser and SLD Clusters, the Hand-held Portable Laser and the MedX HOME unit with SLD Cluster.

The balance of this chapter outlines the science of phototherapy, how to properly follow the guidelines and administer phototherapy treatments, treatment principles, and treatment steps as well as references for material used in this publication. Use these resource pages to familiarize yourself with the technology

and how to effectively administer MedX Phototherapy Treatments. If you have any questions do not hesitate to contact us at info@medXhealth.com or 1-800-363-3112.

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Mechanism of Action

Phototherapy is a physical treatment modality using SLD and LLLT* diodes to emit photons (light) in very specific regions of the electromagnetic spectrum. Photons of near infrared (808nm and 870nm) and visible red (633nm) penetrate the skin stimulating a cascade of clinical benefits. Light energy absorbed by elements in mitochondria and cell membranes is converted into biological energy, inducing the processes detailed in the accompanying diagram. Understanding these Mechanisms of Action can lead to significantly enhanced patient outcomes.

Phototherapy is both an art and science. Ongoing familiarity with the most recent research as well as your own clinical observations will help inform best practice. Numerous excellent resources are listed at the end of this section.

It is the special combination of MedX LLLT and SLD that provides the balanced distribution of light energy needed to initiate these Mechanisms of Action, encouraging the body to heal itself.

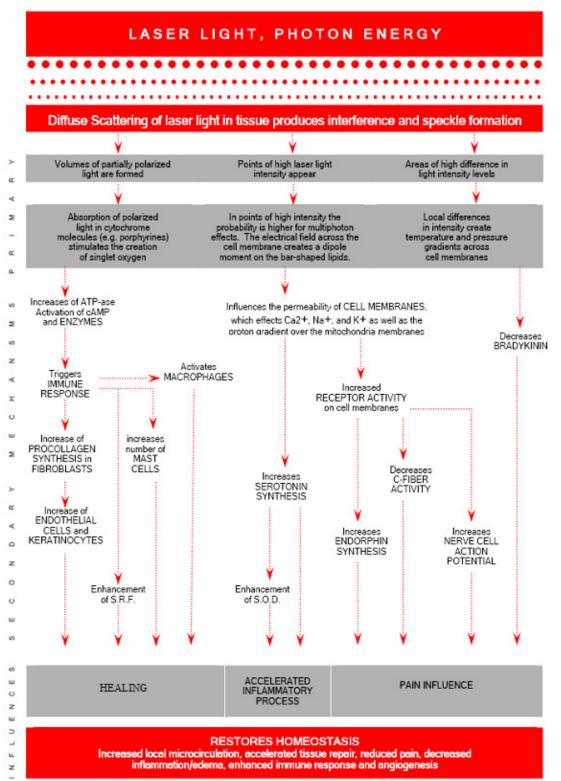
The coherent, focused laser energy penetrates deeply to stimulate target tissue while the SLD delivers a non-coherent, broad beam producing evenly distributed visible red and infrared energy over a much larger area. Hence,

recruitment of a larger area of surrounding tissue enhances the healing and normalization processes.

It is this balanced approach to treatment that is detailed in the illustrated MedX Guidelines which follow.

*variously referred to as "cold laser", "low intensity laser" or "therapeutic laser".

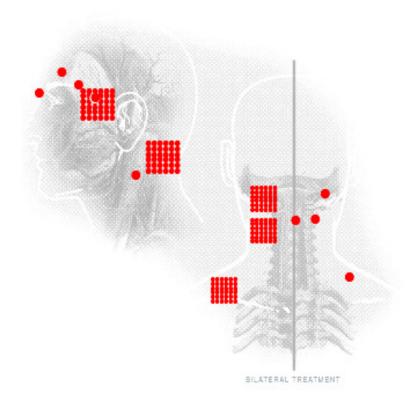
Mechanism of Action



This chart has been modified from "Laser Therapy Clinical Practice and Scientific Background" 2002 with permission of Jan Tuner and Lars Hode

Getting Started

TREATMENT SCHEDULE	X per WEEK	# of WEEKS
MIGRAINE	daily	PRN
TENSION	2-3	4-6
CERVIOCOGENIC	2-3	4-6



TREAT Below mastoid process, semispinalis, upper trapezius and sternocleidomastoid muscles.

	10-14 10-14	Continuous Pulsed @ low	010 (E) 0 - 014 (E) 0 010 (E) 1 - 014 (E) 0
	Joules Dose	Pulsing	CONSOLE SETTING Code
•	8 12	Continuous Continuous	008 (E) 0 012 (E) 0

TREAT Select 4-6 sites based upon pathology. Trigger points; semispinalis, upper trapezius, sternocleidomastoid muscles and points tenderness. For retro-orbital headaches treat Liv 3 acupuncture point.

Guideline Explanation

TREATABLE CONDITIONS

Related clinical conditions are clustered and treated with a similar protocol. Selection of treatment sites are based upon assessment and diagnosis.

TREATMENT SCHEDULE

Generally, for the first week: Treat up to 5x per week reduced to a lower range by week 2. Acute conditions often require 1-2 daily treatments as warranted. Chronic conditions: Longer duration and less frequent treatments (2-3x weekly).

LASER, SLD, LASER + SLD ICONS

Use treatment sites for both Laser and SLD providing a comprehensive approach based on the pathology. Select the most appropriate treatment sites. Also refer to Treatment Notes.

BILATERAL TREATMENT

For purposes of clarity, treatment sites for Laser and SLD have been illustrated on one side of the body only. Treat bilaterally as required.

TREAT

Additional information to assist with using the specific treatment guideline.

JOULES

A joule is a unit of energy. One joule is the equivalent of one watt of power radiated or dissipated for one second.

PULSING

Photon energy can be delivered in a continuous stream or pulsed (bursts of energy per second). Guidelines provide both continuous (black) and pulsed settings (grey). Generally continuous mode is used. Pulsed mode is most

frequently used when optimum results are not obtained during the first couple of treatments or if treatment results plateau. MedX pulsed settings: **Low** = 8 pulses / second, **Medium** = 146 pulses / second and **High** = 1000 pulses / second.

Pulsed mode can also be combined with **continuous mode** in the same treatment.

CONSOLE SETTINGS

Consult your Operation Manual for full operational details for the MedX Console and Phototherapy Devices. The numerical sequence listed is a rapid method of programming the treatment console settings and must be used under the "Manual" category. Example:



Note: For the Portable Laser - delivers one of the three dosages (6, 8 or 10 Joules) then automatically shuts off. The three rapid beeps indicate when selected cycle is complete. Please refer to your LCS portable unit operating manual for details.

Treatment Principles

The effects of phototherapy can be influenced by the following:

Underlying Pathology

e.g. Acute, Sub-Acute or Chronic

Specific Goals of Treatment

determined in collaboration with patient

Idiosyncratic Characteristics of the Patient

Body Mass: Adipose tissue and significant muscle mass will also necessitate larger doses.

Your assessment and diagnosis will determine which relevant anatomical components require treatment: Comprehensive delivery of energy results in more rapid and more successful outcomes.

- ♥ Entire injured or affected area
- Nerve root or superficial nerve trunks
- ♦ Motor or trigger points
- Referred areas of pain
- Solution Acupuncture and / or auricular points

Other modalities are often unnecessary with phototherapy.

Sequence of treatment, however, **is important**:

If icing, use **before** phototherapy (vasoconstriction decreases blood flow, enhancing penetration of light).

If massage or heat generating therapy (e.g. ultrasound, e-stim) is used, apply *after* phototherapy (vasodilation increases blood flow, diminishing penetration of light).

Treatment Steps

- Degrease / cleanse skin with alcohol.
- Position patient for direct access to target tissue.
- Use clear plastic wrap as a protective barrier if skin has been broken (e.g. wound, abrasion, lesion).

- Protective goggles to be worn by patient during laser treatment. (Unnecessary when using SLD devices).
- Apply SLD / LLLT with firm contact. (Maintain position throughout duration of treatment).

Acute Conditions

Treatments can be administered daily for the first week until significant symptom relief is achieved, especially for patients with trauma, herniated discs and acute back pain. When treating competitive athletes, treatment may be delivered 2-3 times per day with a minimum of 2 hours between treatments, for rapid response. Once sufficient improvement is achieved, treat 2-3 times per week until 75% - 100% improvement is achieved. Treatments in acute situations may require 1-3 weeks.

Chronic Conditions

Occasionally, pain can increase following the first few treatments, (2-4 hours post treatment until the next day). This is referred to as a treatment reaction, an indication that the light energy may have "pushed" the chronic condition into an acute phase of healing. If the patient is forewarned, ice or analgesics may be used. Once this pain subsides, pain levels are generally less than pretreatment ratings. You may wish to decrease the number of joules (dose) by 2 joules next session. This dosage can gradually be increased over time, if necessary.

Those with frail constitution, small children and patients with rheumatoid arthritis and fibromyalgia, should be treated, initially, with smaller doses, gradually working up to full dosage. Patients may initially state they feel "fatigued" by treatment.

Treatments can be administered 2-3 times a week until significant improvement is noted, varying from 6-25 sessions to achieve significant improvement or resolution of signs and symptoms. Weekly maintenance treatments may be necessary for 2-3 months. Clinical evaluation should dictate continued care.

Discharge is appropriate when: patient is asymptomatic or reaches a plateau, range of motion is full and near full, medications are eliminated or reduced and functional activities of daily living have been optimized. Overall, the quality of life for

the patient should improve. Patients may need to return periodically for a short series of 3-4 treatments if symptoms begin to return.

Contraindications

Do not treat:

- Directly into the eyes (retinal exposure to Class 3b laser, (not SLD) may cause eye damage)
- ♥ Over a pregnant uterus
- ♦ Over any suspicious lesion or cancer
- ♥ Over thyroid gland
- Over an area injected with steroids or other anti-inflammatory medication in previous week

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Second Edition 2005

Credits

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David Saltmarche Design Toronto Design, Illustration, Digital



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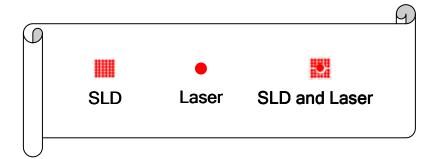
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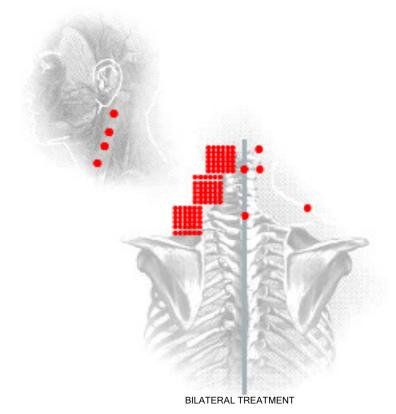


1

Cervical Spine	1-1
Facial Pain	1-2
Headache	1-3
Temporomandibular Joint Dysfunction	1-4
Sinusitis	1-5
Herpes Simplex	1-6



X per WEEK	# of WEEKS
daily	PRN
3	4-8
2-3	2-4
2-3	4-6
2-3	4-6
2-3	4-8
2-3	4-6
	daily 3 2-3 2-3 2-3 2-3



TREAT Areas of pathology: including para-cervical muscles from C1-T2. Select appropriate SLD cluster positions. Treat bilaterally or unilaterally based on symptoms.

	10	Continuous	010 (E) 0
	10	Pulsed @ med	010 (E) 2
	Joules Dose	Pulsing	Console Setting Code
•	10 to	Continuous	010 (E) 0
	14	Continuous	014 (E) 0

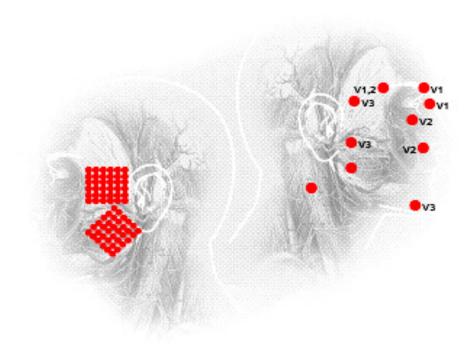
TREAT Areas of pathology and pain: including para-cervical nerve roots from C1-C7. Trigger points or tender points: mastoid process, semispinalis, upper trapezius and along the posterior margin of the SCM muscles. Additional acupuncture points: Li 4 and Si 3.







TREATMENT SCHEDULE	X per WEEK	# of WEEKS
BELL'S PALSY	3	36
ATYPICAL FACIAL PAIN	2-3	3-6
TRIGEMINAL NEURALGIA (V1, V2, V3)	3	3-6
POST HERPETIC NEURALGIA	3-5	2-4



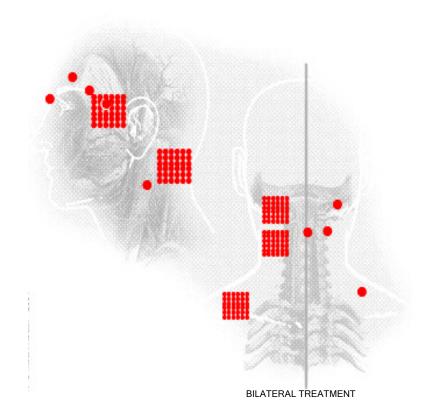
TREAT Over TMJ and masseter muscle. Treat bilaterally.

	10 to	Continuous	010 (E) 0
	20	Continuous	020 (E) 0
	Joules Dose	Pulsing	CONSOLE SETTING Code
•	6 to	Continuous	006 (E) 0
	10 per site	Continuous	010 (E) 0

TREAT Trigger/acupuncture points. Select 4-6 points based on symptoms.



TREATMENT SCHEDULE	X per WEEK	# of WEEKS
MIGRAINE	daily	PRN
TENSION	2-3	4-6
CERVIOCOGENIC	2-3	4-6



TREAT Below mastoid process, semispinalis, upper trapezius and sternocleidomastoid muscles.

	10-14	Continuous	010 (E) 0 - 014 (E) 0
	10-14	Pulsed @ low	010 (E) 1 - 014 (E) 1
	Joules Dose	Pulsing	Console Setting Code
•	8	Continuous	008 (E) 0
	12	Continuous	012 (E) 0

TREAT Select 4-6 sites based upon pathology. Trigger points; semispinalis, upper trapezius, sternocieidomastoid muscles and points of tenderness. For retro-orbital headaches treat Li 3 acupuncture point.



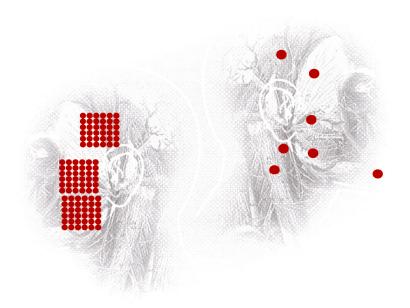
TREATMENT SCHEDULE

X per # of WEEKS

4-6

2-3

Temporomandibular Joint Dysfunction (TMJ)



TREAT TMJ, masseter and temporalis muscles, bilaterally. Select cluster sites appropriate to pathology.

	10-20 10-20	Continuous Pulsed @ med	010 (E) 0 - 020 (E) 0 010 (E) 2 - 020 (E) 2
	Joules Dose	Pulsing	Console Setting Code
•	10 to 18	Continuous Continuous	010 (E) 0 018 (E) 0

TREAT TMJ (mouth closed) and posterior aspect of joint (mouth open). Trigger points: masseter and temporalis muscles. Treat bilaterally.

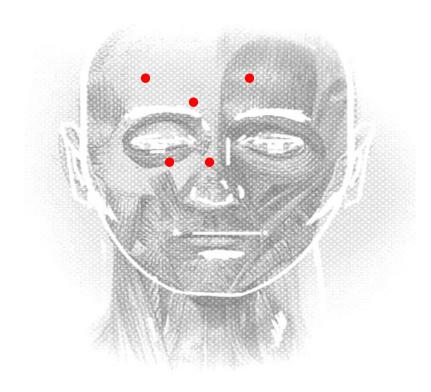




X per # of WEEKS

ALLERGIC SINUSITIS MAXILLARY SINUSITIS

1-2x daily as required.

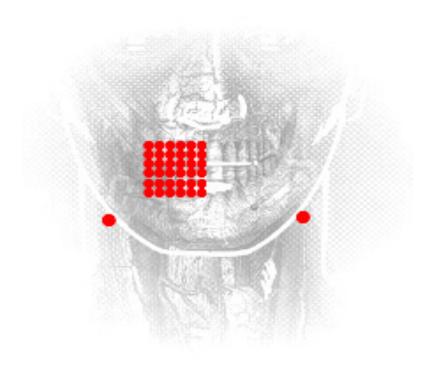


	Joules Dose	Pulsing	Console Setting Code
•	6 to	Continuous	006 (E) 0
	8 per site	Continuous	008 (E) 0

TREAT Over the maxillary and frontal sinuses bilaterally, as indicated.



1 - 2x daily until resolved.



TREAT Lesion using direct contact. Cover SLD cluster with clear plastic wrap.

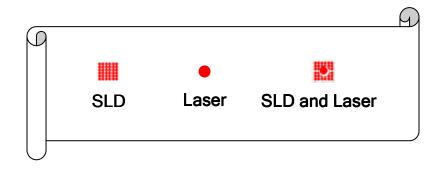
	6	Continuous	006 (E) 0
	Joules Dose	Pulsing	CONSOLE SETTING Code
•	6	Continuous	006 (E) 0

TREAT Treat tender lymph nodes.



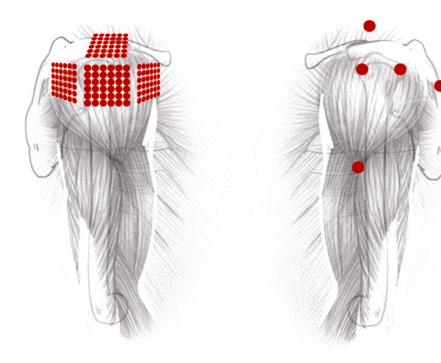
Shoulder & Arm

Shoulder	2-1
Elbow	2-2
Hand	2-3
Carpal Tunnel Syndrome	2-4





X per WEEK	# of WEEKS
2-3	4-8
2-3	3-6
2-3	3-6
2-3	3-6
2-3	3-6
2-3	3-6
2-3	3-6
2-3	3-6
	2-3 2-3 2-3 2-3 2-3 2-3 2-3

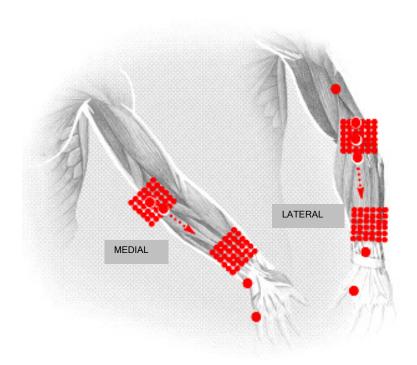


TREAT Surround area of pathology, potentially including trapezius muscle, insertion sites and trigger points for supraspinatus, infraspinatus, teres major (rotator cuff), anterior and posterior joint capsule.

	10	Continuous	010 (E) 0
	10	Pulsed @ med	010 (E) 2
	Joules Dose	Pulsing	Console Setting Code
•	10 to	Continuous	010 (E) 0
	14	Continuous	014 (E) 0

TREAT Over area of pathology. Acupuncture points Li 14, 15, 16 TW 14 and Si 9, 10, 11.



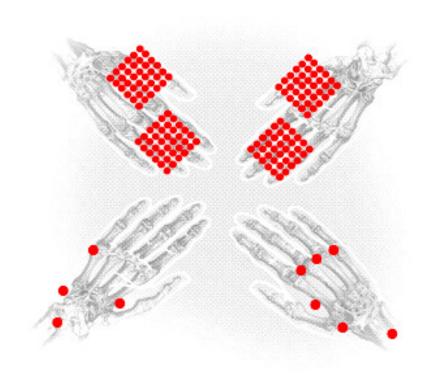


TREAT Over area of pathology, medial or lateral epicondyle or bursa. If pain radiates, treat along the involved muscle.

	10	Continuous	010 (E) 0
	10	Pulsed @ med	010 (E) 2
	Joules Dose	Pulsing	Console Setting Code
•	8 to	Continuous	008 (E) 0
	12	Continuous	012 (E) 0

TREAT Medial epicondyle and flexors. Laterial epicondyle and extensors. If pain is present on palpation, repeat treatment up to 3 times. Lateral may require larger treatment doses.



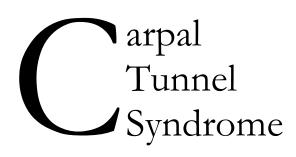


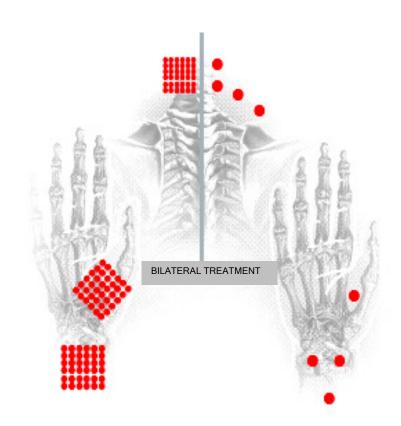
TREAT Dorsal and palmar aspects of affected areas.

	10	Continuous	010 (E) 0
	10	Pulsed @ med	010 (E) 2
	Joules Dose	Pulsing	Console Setting Code
•	8 to	Continuous	008 (E) 0
	12	Continuous	012 (E) 0

TREAT Dorsal and palmar side of site(s) including trigger point on thenar muscle. Additional acupuncture points: SP 6 (immune point for RA).







TREAT Over transverse carpal ligament and tHenar muscle. Follow the course of the median nerve based upon symptoms. Also treat C5-T1.

###	10	Continuous	010 (E) 0
	10	Pulsed @ low	010 (E) 1
	Joules Dose	Pulsing	Console Setting Code
•	10 to	Continuous	010 (E) 0
	12	Continuous	012 (E) 0

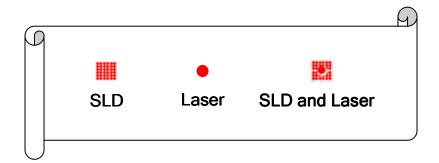
TREAT Over area proximal to flexor retinaculum to mid palm following the course of the median nerve. If pain radiates up arm, follow along median nerve. Also treat para-cervical region and tender points along SCM muscle. Additional acupuncture point Li 4.



Spine & Hip

3

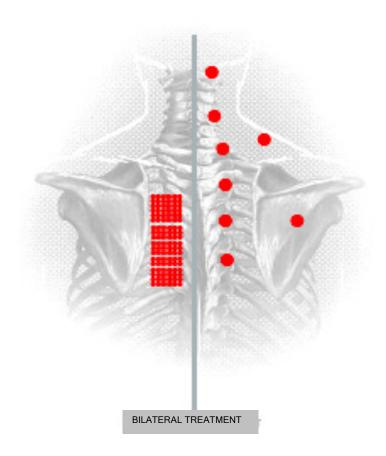
Thoracic Spine	3-1
Lumbosacral	3-2
Hip	3-3
Herpes Zoster	3-4





Thoracic Spine

TREATMENT SCHEDULE	X per WEEK	# of WEEKS
MYOFASCIITIS	2-3	4-6
COSTOCHONDRITIS	2-3	2-4
COMPRESSION FRACTURE	3-5	2-4
DISC HERNIATION	3-5	4-8



TREAT Select one or more SLD cluster positions as indicated by pathology. Repeat until affected area is covered.

	12	Continuous	012 (E) 0
	12	Pulsed @ med	012 (E) 2
	Joules Dose	Pulsing	Console Setting Code
•	6	Continuous	006 (E) 0
	12	Continuous	012 (E) 0

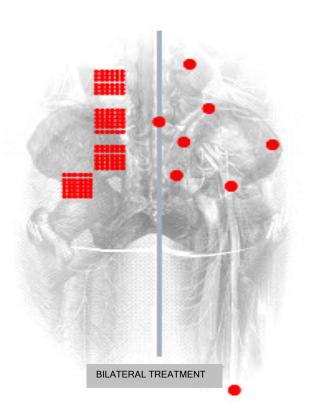
TREAT Trigger points, below mastoid process, semispinalis, trapezius and rhomboid muscles.

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Lumbo-sacral

TREATMENT SCHEDULE	X p	oer EK	# of WEEKS
DISC HERNIATIO	N	3-5	4-6
SCIATIC NEURALG	Α	2-5	4-8
LUMBAR FAET SYNDROM	E	2-3	2-4
LUMBOSACRAL STRAIN/SPRAI	N	2-3	2-4
SACROILIAC JOINT DYSFUNCTIO	N	2-3	2-4
OSTEOARTHRITIS + - FORAMAL STENOSI	S	2-3	4-8



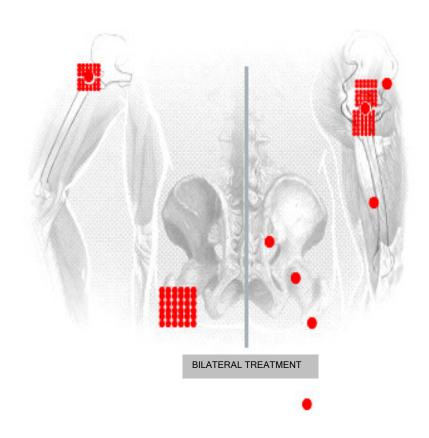
TREAT Treat bilaterally or unilaterally based upon pathology. Select appropriate SLD cluster sites. Apply over SI joint if involved. If required, increase pulsing to high.

	14 14	Continuous Pulsed @ med	014 (E) 0 014 (E) 2
	Joules Dose	Pulsing	CONSOLE SETTING Code
•	8 to 18 per site	Continuous Continuous	008 (E) 0 018 (E) 0

TREAT Over SI joint and a total of 4-6 points based upon pathology. Acupuncture points GB 34, GB 31, ST 36, BL 57, BL 60 and SP 6.



TREATMENT SCHEDULE	X per WEEK	# of WEEKS
OSTEOARTHRITIS	2-3	4-8
CAPSULITIS	2-3	3-6
TROCHANTERIC BURSITIS	2-3	3-6



TREAT Anterior and posterior hip. Repeat over lateral hip. At least one pulsed setting should be used.

	10 10 10	Continuous Pulsed @ med Pulsed @ high	010 (E) 0 010 (E) 2 010 (E) 3
	Joules Dose	Pulsing	Console Setting Code
•	12 to 18	Continuous Continuous	012 (E) 0 018 (E) 0

TREAT Anterior, posterior and lateral hip can be treated with both SLD and Laser simultaneously.

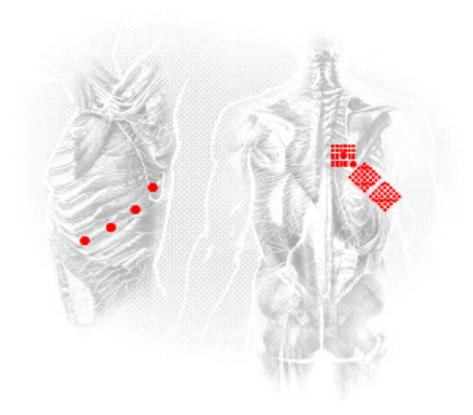


Herpes Zoster (Shingles)

TREATMENT SCHEDULE X per # of WEEK WEEKS

INITIALLY 2-4

FOLLOW-UP 3 4-8



TREAT Cover cluster with clear plastic wrap prior to treatment. Treat involved nerve root(s) and dermatomes. Initially hold cluster .5-1 inch above lesions until sufficient pain control achieved. When possible, use direct skin contact.

####	10	Continuous	010 (E) 0
####	10	Pulsed @ med	010 (E) 2
	Joules Dose	Pulsing	Console Setting Code
•	8 to	Continuous	008 (E) 0
	12	Continuous	012 (E) 0

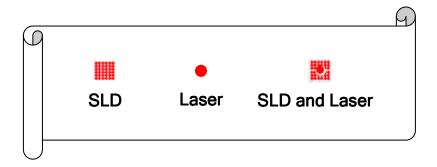
TREAT Cover area with clear plastic wrap prior to treatment. Treat the involved nerve root(s) and dermatomes. Initially treat .5 -1 inch above lesions until sufficient pain control achieved. When possible, use direct skin contact. Acupuncture points: Li 4, ST 36, K 3 and P6.





4

Knee	4-1
Achilles Tendonitis	4-2
Ankle & Foot	4-3
Plantar Fasciitis	4-4

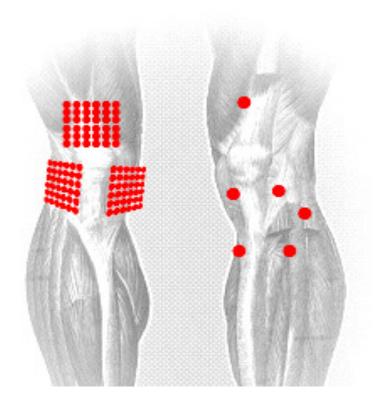




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TREATMENT SCHEDULE	X per WEEK	# of WEEKS
OSTEOARTHRITIS	2-3	4-8
CHONDROMALACIA PATELLA	2-3	4-6
LIGAMENTOUS INJURIES	2-3	3-6
OSGOODE SCHLATTER'S DISEASE	2-3	3-6
MENISCUS INJURIES	2-3	3-6
POST-OP REHAB	3-5	4-6



TREAT Treat with knee flexed to open up joint space. Treat over joint line and include upper quadrant and popliteal space if indicated by pathology.

	10	Continuous	010 (E) 0	
	10	Pulsed @ med	010 (E) 2	
	Joules Dose	Pulsing	CONSOLE SETTING Code	
•	10	Continuous	010 (E) 0	
	18	Continuous	018 (E) 0	

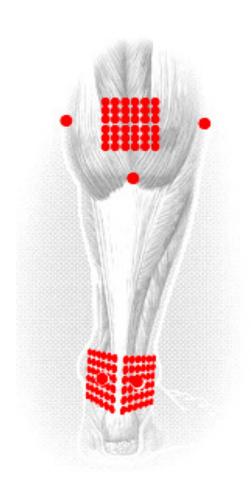
TREAT Medial and lateral joint lines and other sites of pathology.



TREATMENT SCHEDULE X per # of WEEK WEEKS

3 4-6

A chilles Tendonitis



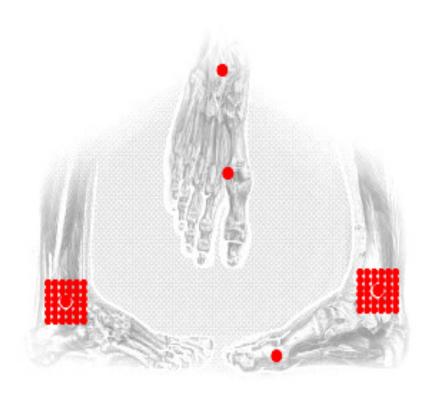
TREAT Over tendon insertion at calcaneus. Medial and lateral aspects of Achilles tendon.

	12	Continuous	012 (E) 0
	10	Pulsed @ med	010 (E) 2
	Joules Dose	Pulsing	Console Setting Code
•	10 to	Continuous	010 (E) 0
	18	Continuous	018 (E) 0

TREAT Tendon insertion at calcaneous and origin of soleus and gastrocnemius muscles.



TREATMENT SCHEDULE	X per WEEK	# of WEEKS
SOFT TISSUE INJURIES	2-3	3-4
ANKLE SPRAIN	3-5	3-6
OSTEOARTHRITIS	2-3	4-8
BUNION	2	2-4
FRACTURE	3-5	2-4
REFLEX SYMPATHETIC DYSTROPHY	2-3	4-6



TREAT Over affected area(s). With extensive swelling, first treat lymphatic drainage in groin, posterior knee and finally, injury site.

	10	Continuous	010 (E) 0	
	10	Pulsed @ low	010 (E) 1	
	Joules Dose	Pulsing	Console Setting Code	
•	10 to	Continuous	010 (E) 0	
	14	Continuous	014 (E) 0	

TREAT 2 - 4 most painful points over affected area(s).

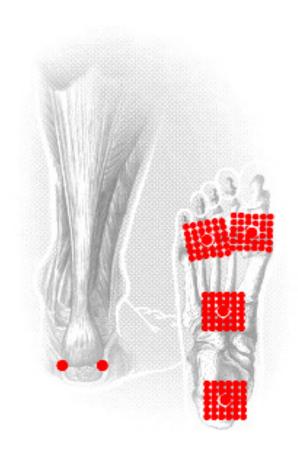
Totes



Plantar Fasciitis

TREATMENT SCHEDULE X per # of week weeks

2-3 3-6



TREAT Over insertion of fascia at metatarsals and origin of plantar fascia at calcaneus.

	14	Continuous	014 (E) 0	
	14	Pulsed @ med	014 (E) 2	
	Joules Dose	Pulsing	Console Setting Code	
•	12-20 per	Continuous	012 (E) 0	
	site	Continuous	020 (E) 0	

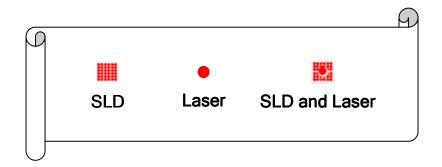
TREAT 3 - 5 most painful areas, including over insertion of fascia at metatarsals and origin of plantar fascia at calcaneus.

Totes





Fibromyalgia	a	5-1
, ,		
Charts of Ac	cupuncture Points	
₩	Skelton Front View	5-2
₩	Skelton Back View	5-3



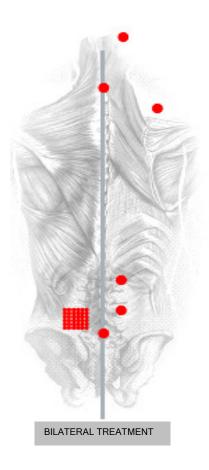


Fibromyalgia

TREATMENT SCHEDULE

X per # of WEEKS

3 4-6



TREAT

	10 10	Continuous Pulsed @ med	010 (E) 0 010 (E) 2	
	Joules	Pulsing	Console Setting	
	Dose		Code	
•	6	Continuous	006 (E) 0	

TREAT **Option 1**: Treat tender points: suboccipital area, lower cervical spine (transverse process of C5-C7), upper trapezius, supraspinatus, 2nd rib (costochonial junction), lateral epicondyle (2 cm distal), gluteal, greater trochanter of femur, medial fat pad at the knee.

Option 2: Treat as indicated on diagram. *Montitor patient's level of fatigue and decrease time per site if needed.* Do not exceed at total of 60 joules laser energy.



