



Tendinitis

G. Tam¹

- Evaluated the outcomes of low level laser therapy, corticosteroid injections or a wait-and-see policy on the periarthrititis of the shoulder
- Ga-As (904 nm), 60 W maximum power, peak power per pulse 27 W, pulse frequency 1280 Hz, average point region 2-8 J; dose/point = 3-4 J; total energy density 24 J/cm².
- At 6 weeks, corticosteroid injections were 90% (18) compared with 52% (11) for LLLT and 35% (7) for wait-and-see policy
- Long-term differences between injections and LLLT were significantly in favor of LLLT. Success rate at 52 weeks were 14 (70%) for injections, 19 (90.5%) for LLLT, and 16 (83%) for wait-and-see policy

Marcos et al²

- investigates if a safer treatment such as low-level laser therapy (LLLT) could reduce tendinitis inflammation
- As LLLT seems to act on inflammation through a selective inhibition of the COX-2 isoform in collagenase-induced tendinitis

¹ Effects of LLLT on the periarthrititis of the shoulder: A clinical study on different treatments with low level laser therapy, corticosteroid injections or a wait-and-see policy; G. Tam; Oral Health Prev Dent. 2007;5(1):63-71.

² Photochem Photobiol. 2011 Nov-Dec;87(6):1447-52. doi: 10.1111/j.1751-1097.2011.00999.x. Epub 2011 Oct 7.



Effects of low-level laser therapy in combination with physiotherapy in the management of rotator cuff tendinitis.



Eslamian F, Shakouri SK, Ghojazadeh M, Nobari OE, Eftekharsadat B.
Lasers Med Sci. 2011 Nov 4.

Objective of this study was to evaluate the possible additive effects of low-power laser treatment in combination with conventional physiotherapy endeavors. In this study, twenty-five of the above patients were randomly assigned into the control group and received only routine physiotherapy. The other 25 patients were assigned into the experimental group and received conventional therapy plus low-power laser therapy (670 nm, 2 J) at each point over a maximum of ten painful points of a shoulder (up to total 5 min duration). Measurements were assessed at the end of 12th week, and statistically significant difference was detected in all outcome measures (compared to baseline) ($p < 0.05$). Comparison between two different groups revealed better results for control of pain (reduction in VAS percentage) and shoulder disability problems in the experimental group versus the control (3.1 ± 2.2 vs. 5 ± 2.6 , $p = 0.029$ and 4.4 ± 3.1 vs. 8.5 ± 5.1 , $p = 0.031$, respectively) after intervention. Positive objective signs also had better results in the experimental group, but the mean range of active abduction (144.92 ± 31.6 vs. 132.80 ± 31.3) and external rotation (78.0 ± 19.5 vs. 76.3 ± 19.1) had no significant difference between the two groups ($p = 0.20$ and 0.77 , respectively).

Gallium-arsenide low-power laser combined with conventional physiotherapy has superiority over routine physiotherapy from the view of decreasing pain and improving the patient's function..



Low power laser therapy of shoulder tendonitis.



*England S; Farrell AJ; Coppock JS; Struthers G; Bacon PA
Scand J Rheumatol. 1989;18(6):427-31.*

Study:
30 patients with shoulder pain and disability were randomized to receive either laser therapy or drug therapy for 2 weeks. The laser therapy group received 30 pulses of 904 nm laser light three times weekly for 2 weeks. The drug therapy group received naproxen sodium 500 mg twice daily for 2 weeks. The laser therapy group demonstrated significant improvement over the drug therapy group for all seven assessments and over dummy laser for all three objective measures and pain. Naproxen sodium significantly improved only movement and function compared to dummy laser.

Outcome:
Shoulder laser therapy produced significant improvement over drug therapy for all three objective measures and pain. Naproxen sodium significantly improved only movement and function compared to dummy laser.

Conclusion:

These results demonstrate the effectiveness of laser therapy in tendonitis of the shoulder.



Tendinitis is tendinitis

- Except when it involves different parts of body
- Negative outcomes are **OFTEN** the case when utilizing doses from other studies or body part...



The efficacy of low-level laser therapy in supraspinatus tendinitis



Liz Saunders

Clin Rehabil May 1995 vol. 9 no. 2 126-134

These data suggest that, in this small group of patients, laser therapy, advice and education improved certain symptoms of supraspinatus tendinitis.

Twenty-four subjects were randomly assigned to two groups to assess the effectiveness of low-power laser therapy for supraspinatus tendinitis. A low-power laser using a 820 nm, 40 mW probe operating at 5000 Hz to produce a thermal effect was compared with a similar, but dummy, laser (DL). The design of the trial was double-blind; patients, therapists and assessors being ignorant of the laser used. Both groups received identical advice and educational material. Perceived pain was assessed and tenderness and secondary muscle weakness were measured before and after treatment. The data revealed that the L group had less pain ($p < 0.05$), less secondary weakness ($p < 0.01$) and tenderness after the treatment than before. No such changes occurred in the DL group; indeed, secondary weakness and tenderness increased slightly in the latter group after treatment. The degree of pain, tenderness and weakness of the two groups was similar before treatment. Comparing the two groups after treatment, L had less pain ($p < 0.05$) and less weakness ($p < 0.001$) than DL. These data suggest that, in this small group of patients, laser therapy, advice and education improved certain symptoms of supraspinatus tendinitis, while the same advice and education but treatment with a dummy laser had no such beneficial consequences. Based on the results, low-power laser therapy with the parameters and dosage used in this study is recommended as a useful treatment for tendinitis, but the trial was limited by small numbers.



Laser Treatment for Tendinitis

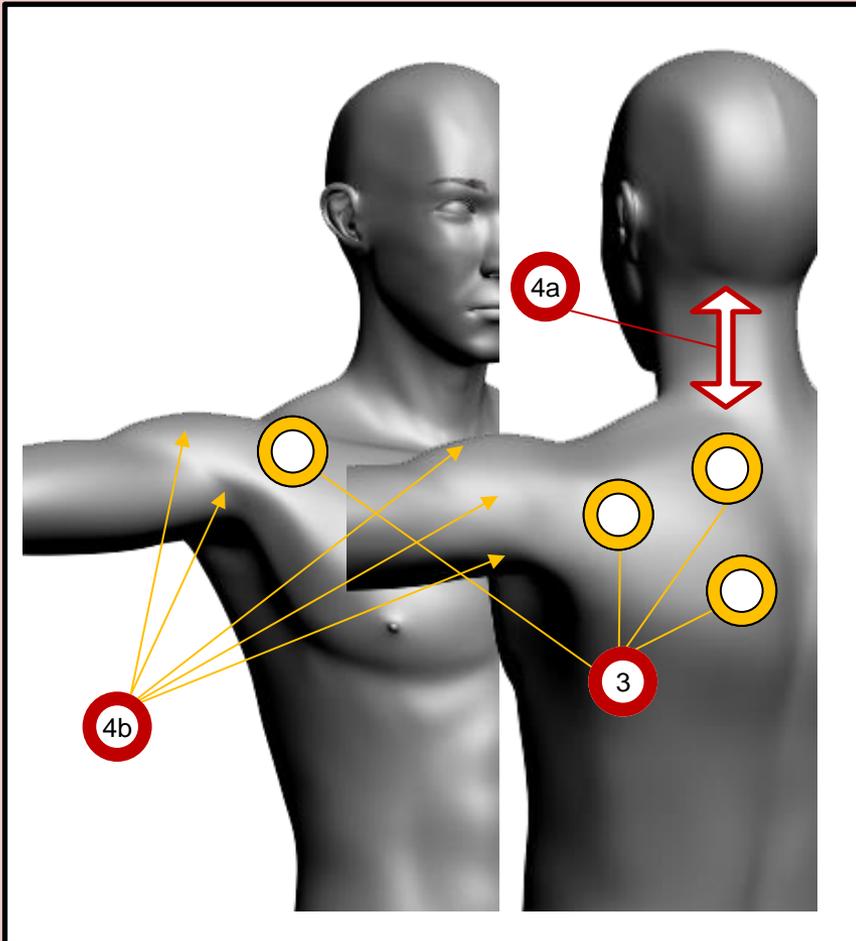
Jan M. Bjordal, PT-MSc

http://www.laser.nu/llt/llt_editorial6.htm

Location	CW IR 620, 830, 1060	SPL 904
Lateral epicondylitis	2 J/cm ²	0.5 - 2 J/cm ²
	1 - 2	1 - 2
Rotator cuff	2.5 J/cm ²	0.8 - 6 J/cm ²
	2 - 4	2 - 4
Patellar	8 J/cm ²	0.8 - 6 J/cm ²

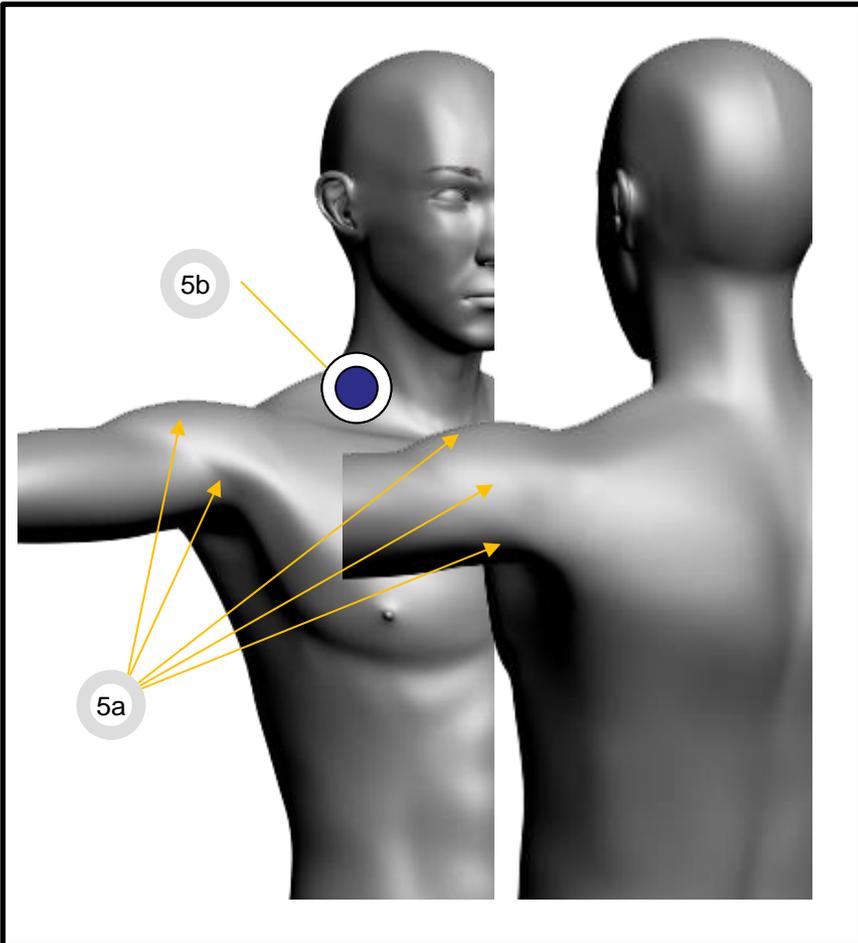


Priority Principle™: Rotator Cuff Tendinitis



	Priority	Principle	Tendinitis	Time
Ultrasound, Massage, Taping /Bracing	3rd	Spasms	1000 Hz with Probes	Pontinen's Principle
	4th (a)	Pain (Systemic)	1000 Hz NRT	3-5 minutes
	and/or			
	(b)	Pain (Local)	1000, 3000 or 5000 Hz	1-2 minutes per point

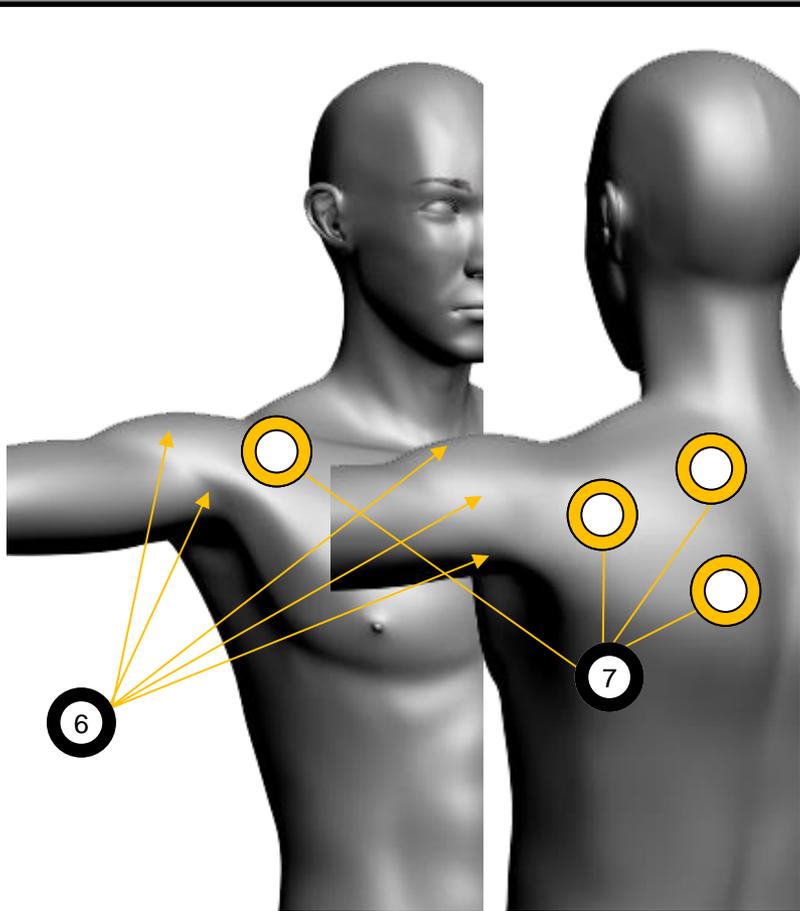
Priority Principle™: Rotator Cuff Tendinitis



	Priority	Principle	Tendinitis	Time
Ultrasound, Massage, Taping /Bracing	5th (a)	Tissue Repair (Primary)	5-250 Hz	DOSE all TARGET identified areas
	and			
	(b)	Tissue Repair (Secondary)	50 Hz PHT to suprascapular artery	5 minutes

Positioning Photo

Priority Principle™: Rotator Cuff Tendinitis



Priority	Principle	Tendinitis	Time
6th	ROM	1000, 3000 or 5000 Hz	1-2 minutes per point
7th	Functional Strength	5-250 Hz	1-2 minutes per point

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