Regenerative Laser Therapy

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The Hilt Domain by the Pulse Intensity Fluence (pif) Formula.

High intensity laser therapy (HILT) or HILT systems was born to induce a non-invasive regenerative therapy with a non-painful and non-invasive therapeutic system.

Secondary objective of the HILT is the treatment of deep lesions, such as joint lesions.

Since their discovery lasers have been advocated as alternatives to conventional clinical methods for a wide range of medical applications. For many years high powered and highly focused lasers have been used to cut and separate tissue in many surgical techniques. More recently, therapeutic and biostimulating properties of high power laser were discovered. It is believed that laser radiation stimulates several metabolic processes, including cell proliferation and cell differentiation, synthesis of collagen and other proteins, immunomodulation.

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www.asalaser.com/sites/default/files/documenti/energy-for-health/e4h5_hilt_domain_12_19.pdf

RLT VET
regenerative laser therapy

RLT induces all three laser effects
1. Photomechanical
2. Photothermal
3. Photochemical

Whereas the LLLT laser cannot induce the photomechanical effect. It is the pulsed wave and the energy that allows the regeneration to be stimulated deep in the tissues.

Nd:YAG Laser Source

Type	Value
Wavelength	1064nm (1,06µm)
Laser beam delivery method	1000µm optical fiber and handpiece
Maximum output energy	2000mJ
Output mode	Multimode circular
Pulse length	130µs max
Diameter of laser beam (spot size)	5 mm, 10 mm, 8,2 mm*
Divergence output of handpiece full angle) [mrad]	40 (5mm spot size) 60 (10mm spot size) 240 (10mm spot size w/ “OCT”)
Nominal Ocular Hazard Distance (NOHD)	209m

**value of 10mm handpiece with the Optical Contact Tip (OCT)*

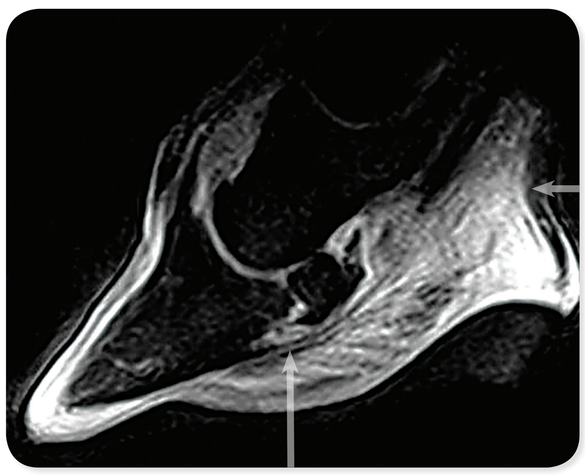
Deeper Penetration to Target Tissues

Nd:Yag	Only this Solid State laser can deliver up to one million times more energy per pulse than other conventional therapy lasers such as diodes.
Pulsed	Duty cycle of .01% induces photomechanical effect with high peak power, creating greater depth of penetration and provides cells time to relax between pulses.
1064 Wavelength	Less absorption by water, melanin, and blood or hemoglobin means deeper penetration to target tissues.
Power	A peak power output of 16 kilowatts, means more photons safely delivered to deeper structures, faster.

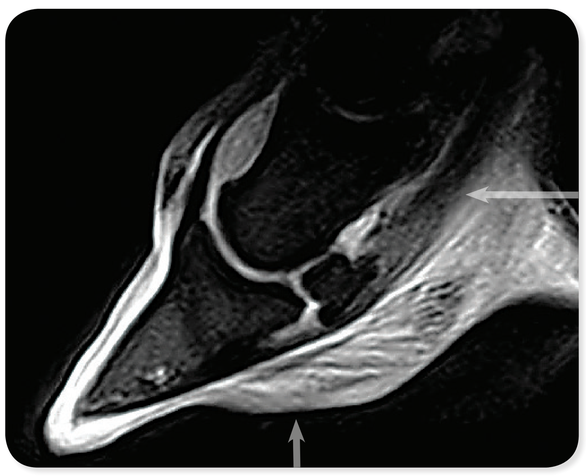
Clinical Studies

Case History: Deep Digital Flexor Tendon

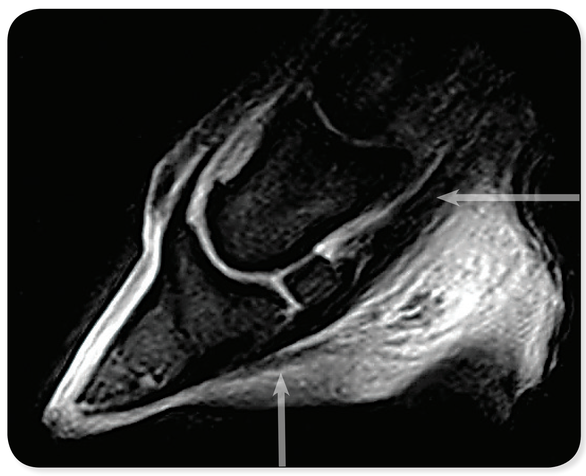
Images courtesy of California Equine Orthopedics



March 2012
Sagittal gradient echo stir image of the foot confirming a nearly complete loss of normal signal level of the deep digital tendon.
Image acquired at beginning of treatment.



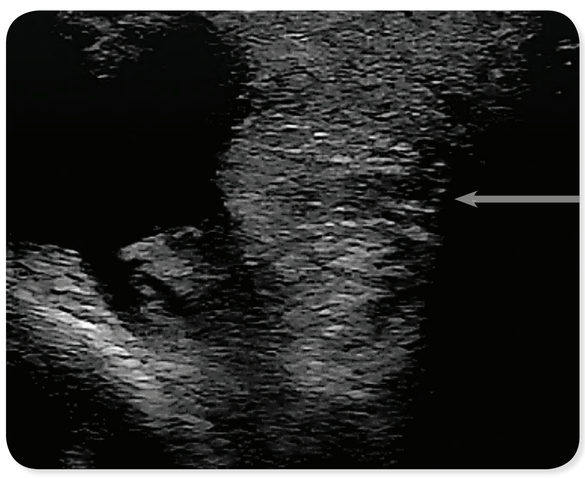
May 2012
Increased signal along the path of the tendon indicating tissue regeneration.
Image acquired three months after beginning of treatment.



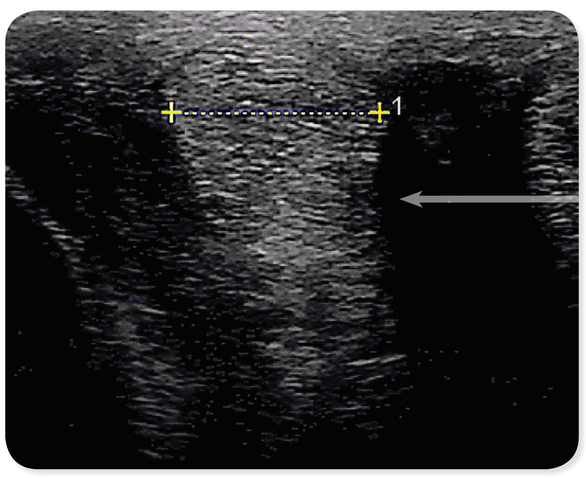
November 2012
Follow-up image. There is a near normal regeneration of the tendon in this plane.
Image acquired eight months after beginning of treatment.

Case History: Suspensory Branch

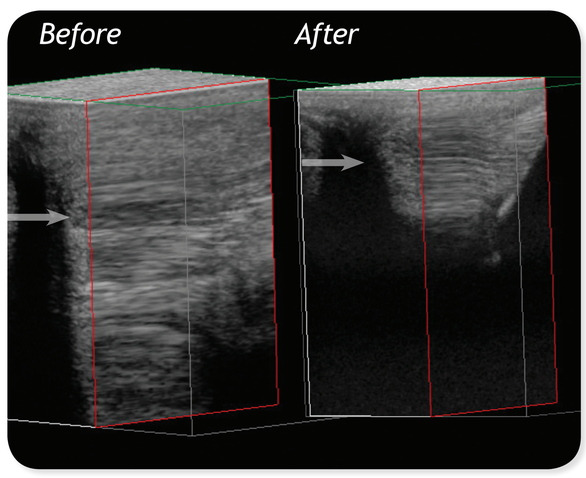
Images courtesy of California Equine Orthopedics



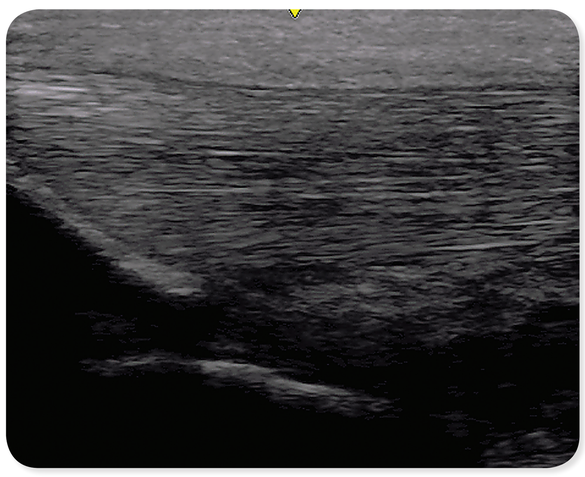
March 2012
Nine year old quarter horse used for working cattle. Four year history of chronic swelling of fetlock. Recently suffered an acute suspensory branch injury.



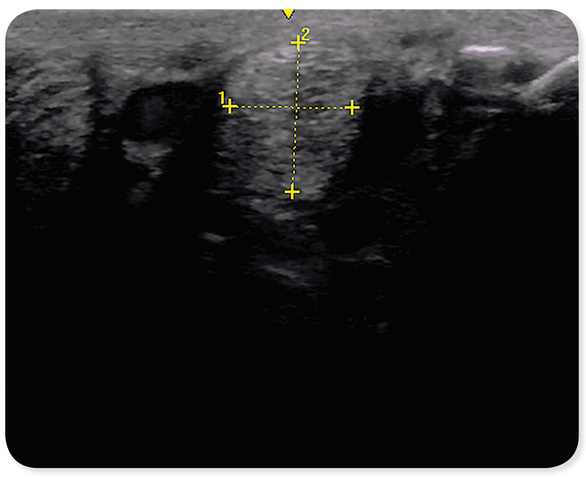
October 2012
Post-treatment: less scar / fiber, separation not visible.
Image acquired seven months after beginning of treatment.



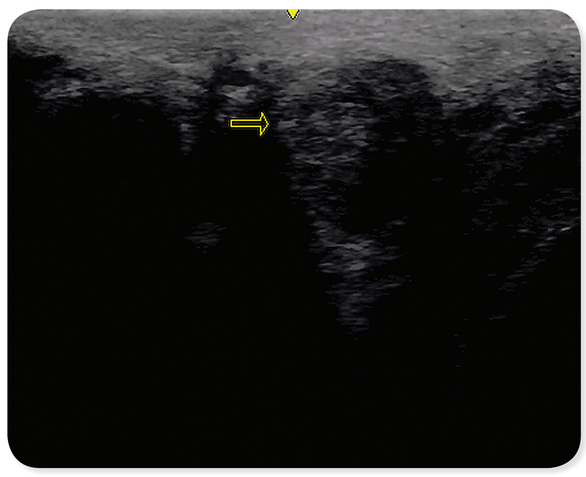
October 2012
3D view of wound repair and fiber regeneration at seven months.



February 2014
Two Year Follow-up: Long Axis



February 2014
Two Year Follow-up: Cross-Section Measurement



February 2014
Two Year Follow-up: Off-Axis Image showing a small remnant of scar tissue left behind