Histopathological Evidence of Equine Tendon Fiber Reconstruction after Regenerative Laser Therapy

W. Jahn[1], V. Sill[1], I. Lorenz[1], El.En. Group2, [1]Pferdeklinik Bargteheide, Germany, [2]Florence, Italy

RLT VET
regenerative laser therapy

sound
A COMPANY

ABSTRACT

Dr. Werner Jahn treated a 13 year Warmblood with Regenerative Laser Therapy (RLT) for approximately 3 months (every other day for a total of 41 treatments) for a left fore deep digital flexor tendon injury in the distal pastern level. The horse was improving following the therapy, but became acutely lame from another problem and euthanasia was performed.

The deep flexor tendon was submitted to the El. En. Group, Florence, Italy, for histopathological examination to determine the status of the treated tendon. Sub gross examination and histopathology confirmed the presence of regenerating tendon fibers in the area of the injury (see Fig.3,4)

Lesion: DDF in the pastern and hoof region LF (see Fig.1)
Case History: Jan. 2013, grade 1 lameness. End of February grade 4, No treatments before
RLT: Started: March 26 – June 28 (3 Mos. Tx) , 41 treatments
Euthanized: June 30

Fig.1

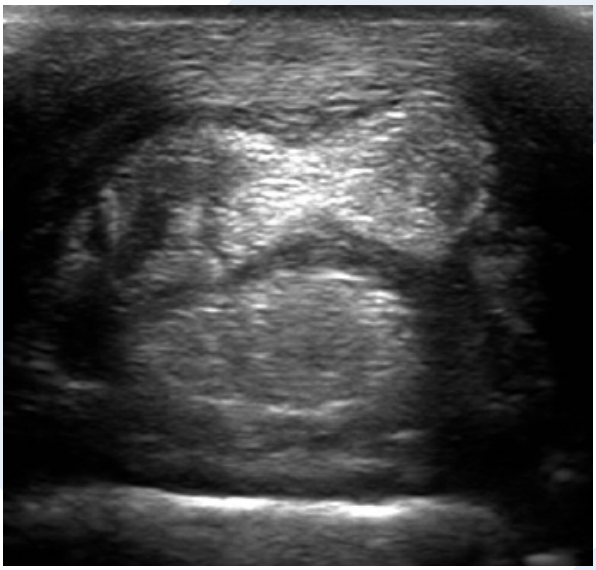
BACKGROUND

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 surgical applications.

More recently, therapeutic and biostimulating properties of high powered lasers were discovered. High Intensity Laser Therapy (HILT) (Technology employed by the RLT Vet) was designed to allow non-painful, non-invasive therapeutic applications for treatment of soft tissue and bone injuries deep to the skin surfaces. Laser energy application is thought to stimulate several metabolic processes, including cell proliferation and cell differentiation, synthesis of collagen and other proteins and immunomodulation.

Fig.2

March 18



June 18

MATERIALS & METHODS

The Photothermal and Photochemical effects are common to all lasers. It is the Photomechanical property of the RLT Vet that stimulates the repair and regeneration of the tissues. Nd:YAG Laser Source; Wavelength 1064nm (1,06µm); Laser beam delivery method 1000µm optical fiber and handpiece; Maximum output energy 2000mJ. Duty cycle of .01% induces photomechanical effect with high peak power, creating greater depth of penetration and provides cells time to relax between pulses.

RLT Vet induces all four laser effects

1. Photomechanical
2. Photothermal
3. Photochemical
4. Photoacoustic

Fig.3

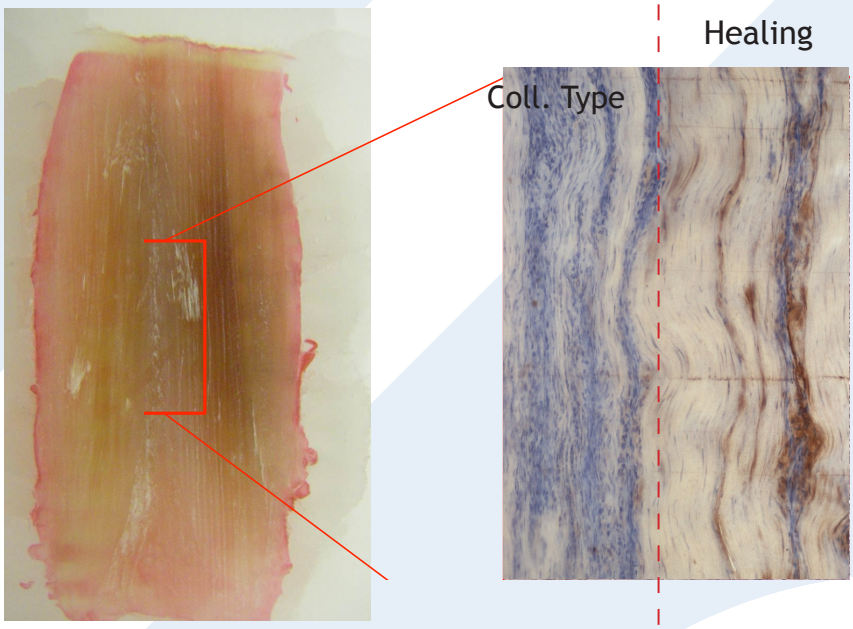
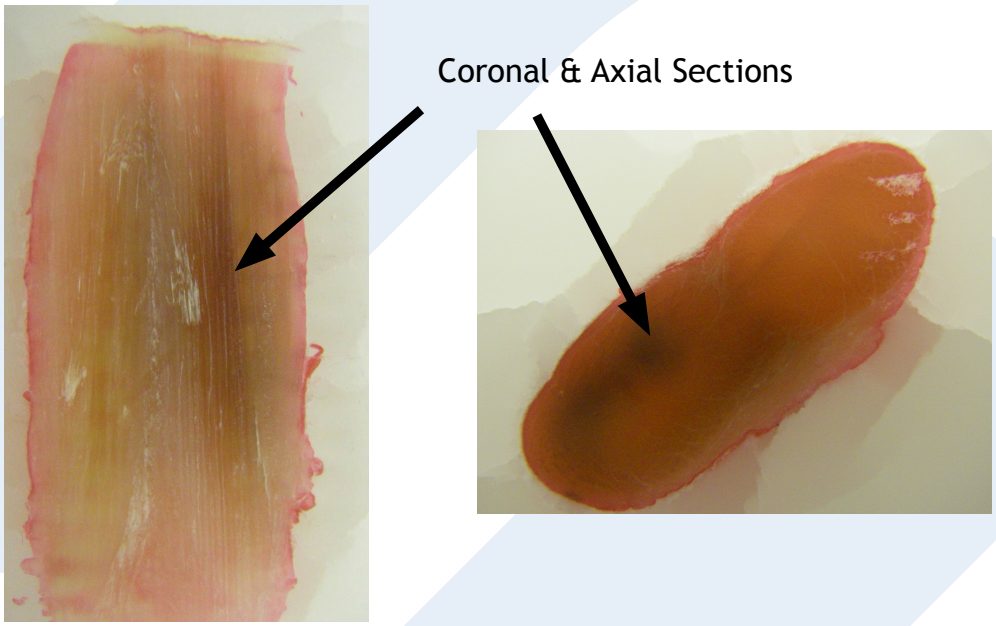


Fig.4



CONCLUSION

The histopathology findings are conclusive evidence of tendon fiber regeneration and lesion repair. The RLT Vet served as a noninvasive, effective modality in the treatment of this tendon. Large numbers of horses have been treated with the RLT Vet and similar results are common based on sonographic evidence of healing and return to performance (See Fig.2). The opportunity to examine this injury site at post mortem further confirms that the RLT Vet provides efficacious treatment of tendon and ligament injuries in horses.

REFERENCES

1. Proc. Natl. Acad. Sci. USA Vol. 94, pp. 1852–1856, March 1997
2. The HILT domain by the pulse intensity fluence (pif) formula.
Fortuna D.1 , Masotti L2 . Published in Energy For Health

For more information contact:

R.J. Poston
General Manager,
Regenerative Medicine Division
Sound (A VCA Company)

Mobile: +1 (858) 345-7496
Office: +1 (760) 893-8638
Email: rposton@soundvet.com
www.rltvet.com | www.soundvet.com