Case Study: the Efficacy of Equine Cymatherapy® Bioresonance on Severe Disruption of the Superficial Digital Flexor Tendon (95% Involvement by Multiple Core Lesions) in a Thoroughbred Racehorse

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Initial Clinical Evaluation

The Frac, a four year old racehorse gelding, was first seen on 6-16-04 by Keith Cooper DVM, for a comprehensive clinical examination that included ultrasonographic imaging. The Frac initially presented with a clinical picture of lameness Grade 3 out of 4 of the left front limb. Lameness is graded on a scale of Grade 1 (least lame) to Grade 5 (most lame) in horses.

Ultrasound scan images during this primary clinical evaluation showed a very severe disruption of the left superficial digital flexor tendon (SDFT) that involved 95% of tendon tissue integrity with multiple core lesions (resembling a slice of Swiss Cheese.)

The Frac's initial clinical presentation on examination was severe pain to flexion and palpation of the digital flexor tendon area. There was severe, visible swelling as well as heat to the tendon area, and edema in the tendon sheath area on palpation. The multiple lesions were positively confirmed by ultrasonographic imaging on the day of the first comprehensive clinical examination and were diagnosed by Keith Cooper DVM as multiple core lesions of the superficial digital flexor tendon (SDFT) that involved 95% of this tendon. These diffuse multiple lesions encompassed the Zone 1B and 3B areas.

Rehabilitation: Physical Exercise Program

At the time of this examination, the gelding's program of physical activity consisted of stall rest for the first 30 days.

Initial Treatment

Standard veterinary ancillary treatments included hydrotherapy and icing twice daily. Standard veterinary inflammation prophylaxis consisted of Phenylbutazone 1 gm twice daily.

The primary treatment of choice was a protocol of Equine Cymatherapy® Bioresonance that consisted of applications of bioresonance to the tendon area, acupuncture points and acupuncture meridians.

The initial primary bioresonance treatment was administered on 6-16-04 as directed by Dr. Cooper to the acupuncture meridians as follows: Small Intestine, Heart, Pericardium, Liver and the Gallbladder meridians.

The bioresonance treatments to the acupuncture points were further broken down into 2 segments. The first treatment segment was a Ting Point treatment schedule. The Ting Points are located around the coronary band of the feet. The Ting Points treated on the front feet were; Small Intestine 1, Large Intestine 1, Pericardium 9 and Heart 9. The Ting Points treated on the rear feet were; Liver 1 and Gallbladder 44.

The second treatment segment consisted of local points around the tendon area on the effected limb and included distal points to facilitate energy flow, enhance circulation and stimulate the healing process.

The local acupuncture points treated with Cymatherapy® Bioresonance were: Small Intestine 1, 3, 4 and 5; Large Intestine 1, 2, 3, 4, 10 and 11; as well as Lung 10.

The distal points treated with bioresonance were: Small Intestine 16, Triple Heater 13, Large Intestine 16, and Gallbladder 34 on the rear limb. The Bladder Meridian such as Bladder 14, 15, 18, 19 and 27 were also used.

Continuing Treatment Protocol

The acupuncture point treatments administered consisted of the Cymatherapy® Bioresonance commutation for Acupuncture Block Removal applied to the acupuncture points as stated in the initial treatment.

Cymatherapy® Bioresonance commutations administered to the SDFT core lesion itself, for 5-10 minutes in duration each, were the codes for: Flexor Tendons, Adhesions, Connective Tissue, Tissue Damage, Cell Regeneration and Circulation.

Treatment Frequency Schedule of Equine Cymatherapy® Bioresonance

- Every day for the first week
- Every other day for the second week
- Three times per week for one month
- Once per week until sent off to training

Primary Diagnostic Ultrasonographic Images 6-16-04

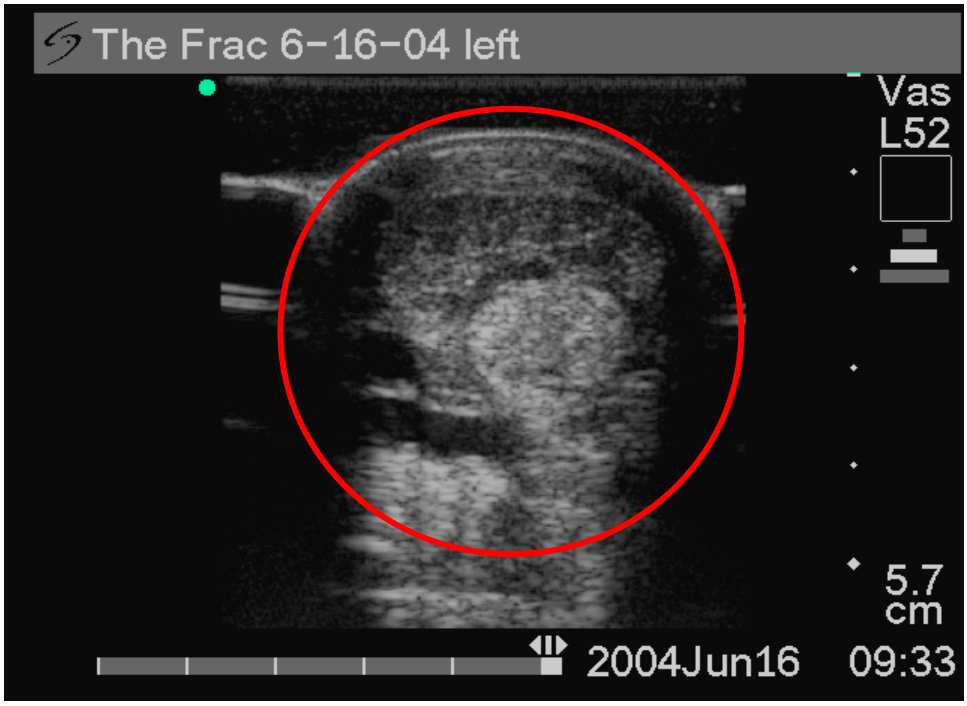

Image 1:1. Short axis ultrasonography of the SDFTs 6-16-04

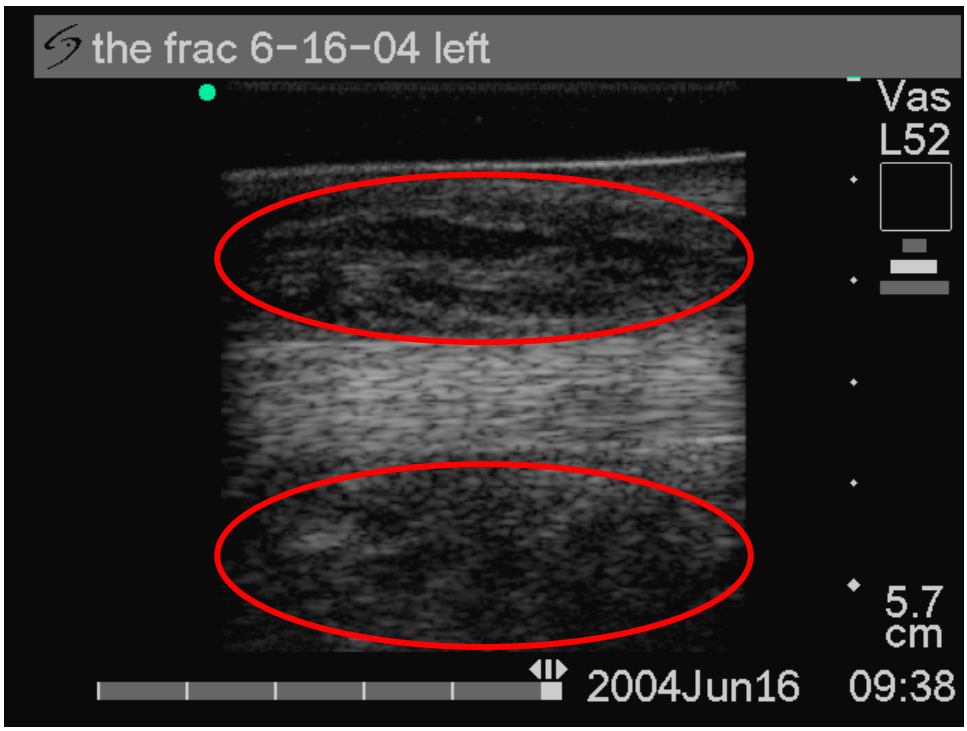

Image 1:2. Long axis ultrasonography of the SDFTs 6-16-04

First Follow-up Ultrasonographic Image and Clinical Evaluation 7-1-04

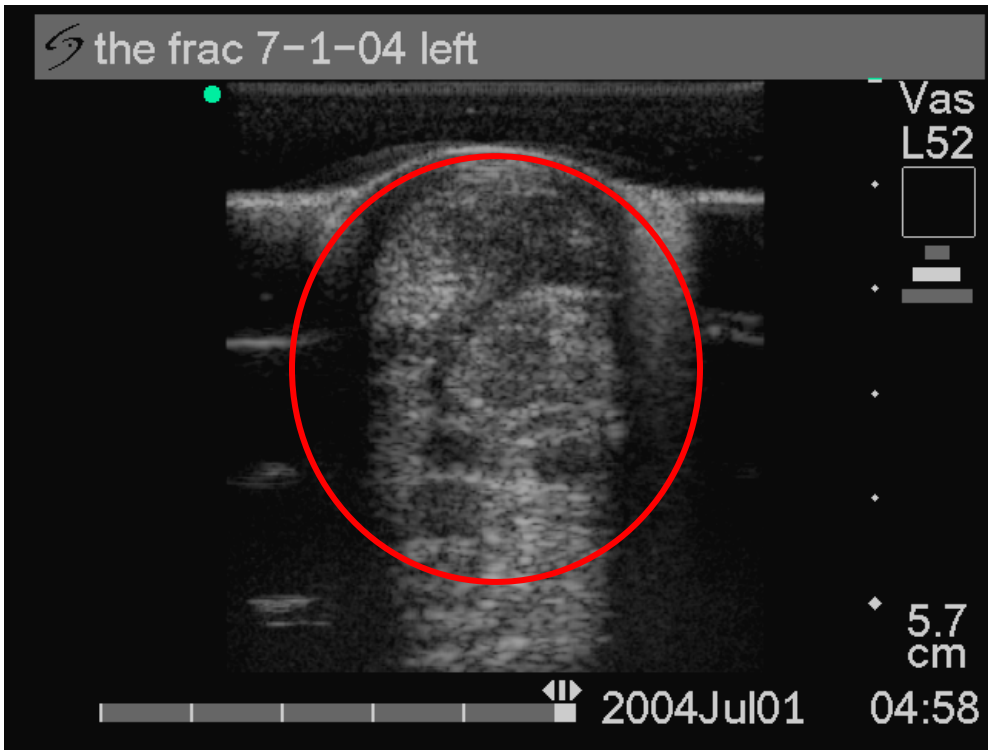

Image 2:3. Short axis ultrasonography of the SDFTs 7-1-04

Clinical Evaluation

The first follow-up ultrasound scan was much improved: the SDFT core lesions greatly decreased in size. Tendon cell density, fibrin deposition and collagen fibril formation showed a clear indication of hypoechogenic healing of the SDFT tendon lesions especially in the most improved zones 1A to 2B.

Clinically, there was a decrease in lameness from a Grade 3 to Grade 1-2 of 4. There was decreased sensitivity to flexion and palpation of the flexor tendon in the left front limb. Pain levels were decreased by 80%. There was also a 70% decrease in swelling and no more heat felt on palpation to the tendon area or the limb. There was some tissue thickening remaining.

Treatment Protocol

At this time daily treatments consisted of hydrotherapy twice per day and Cymatherapy® Bioresonance every third day.

Rehabilitation: Physical Exercise Program
Hand walking was increased to 15 minutes per day for the next 30 days.

Second Follow-up Ultrasonographic Images and Clinical Evaluation 7-15-04

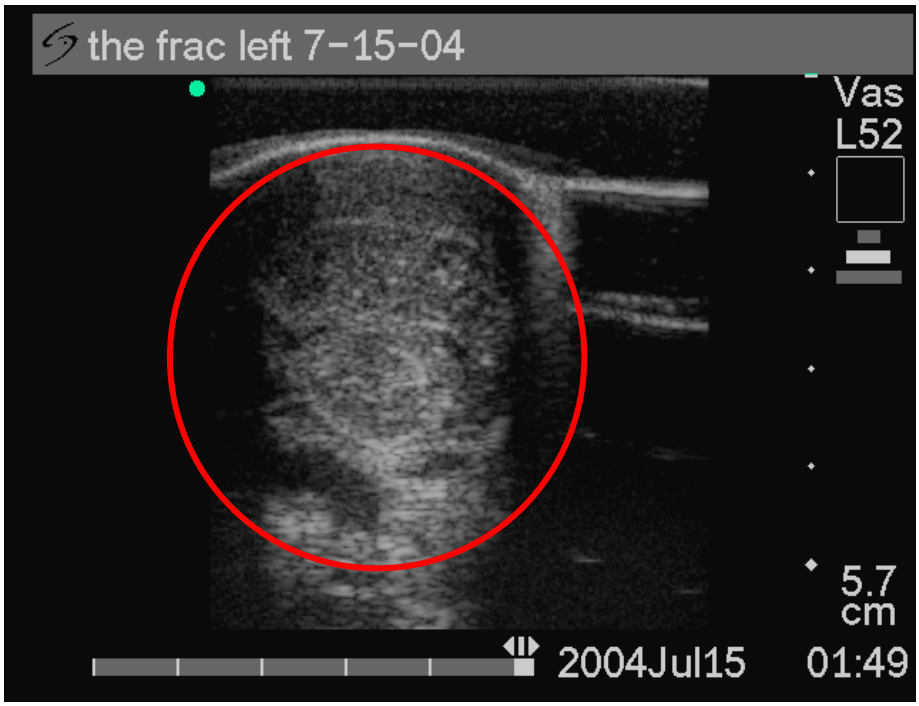

Image 3:4. Short axis ultrasonography of the SDFTs 7-15-04

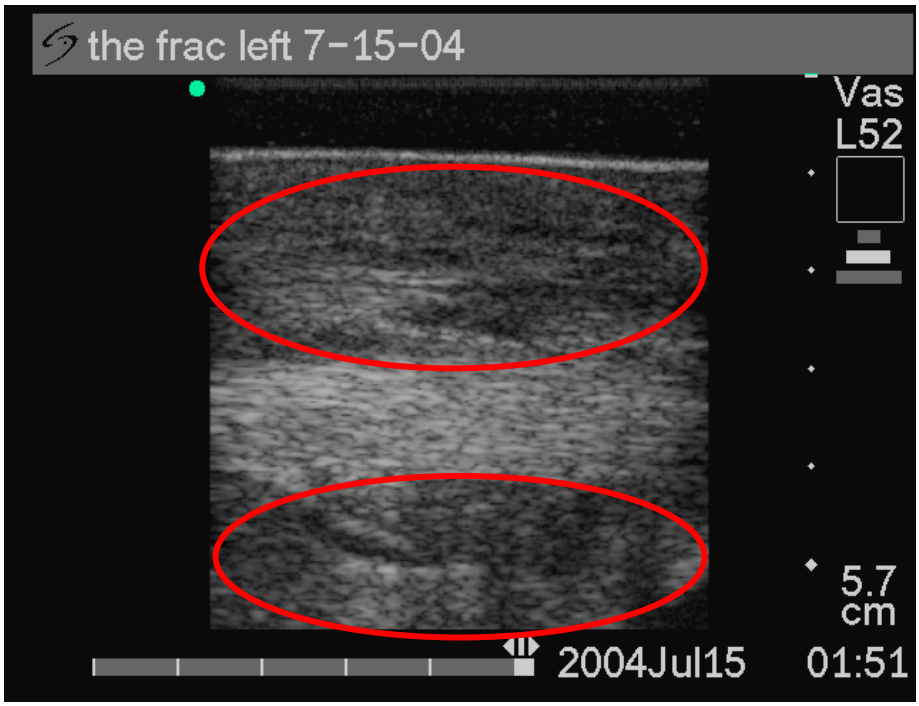

Image 3:5. Long axis ultrasonography of the SDFTs 7-15-04

Clinical Evaluation

Ultrasound scan imaging showed a transition to a more uniform echogenicity in zones 1B and 2B. Zones 3A and 3B were somewhat slower to heal than 1B and 2B. The overall improvement was excellent given the extensiveness of the core lesions present at baseline that involved 95% of the tendon tissue. In the primary lesion zone 3B the overall improvement of the core lesions was 50%.

At this time clinical signs showed no lameness at the walk. There was no pain elicited during flexion or palpation. There was no visible swelling or heat felt during palpation.

Treatment Protocol

At this time daily treatments consisted of hydrotherapy twice per day and Cymatherapy® Bioresonance every third day.

Rehabilitation: Physical Exercise Program

Hand walking was done once per day as well as walking on the Hot Walker for 30-40 minutes once per day. This stage of the rehabilitation program was followed for 25 days.

Third Follow-up Ultrasonographic Images 8-9-04

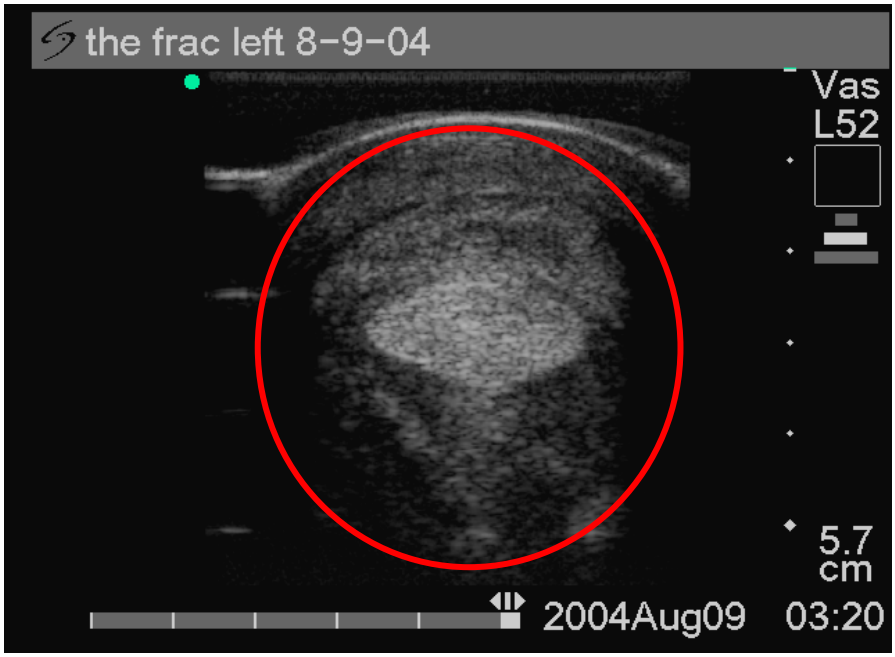

Image 4:6. Short axis ultrasonography of the SDFTs 8-9-04

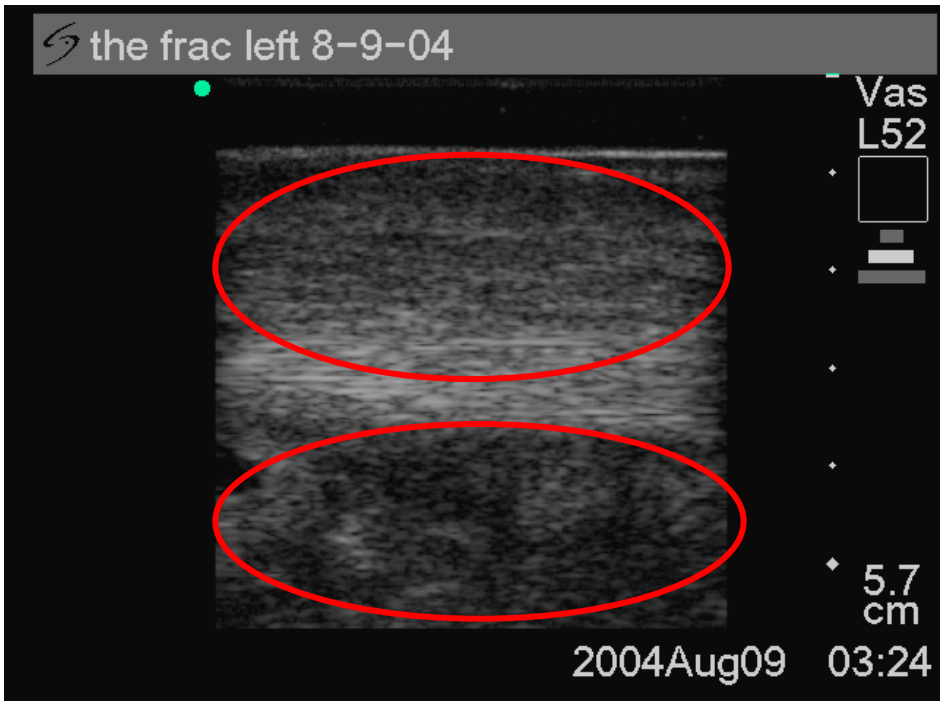

Image 4:7. Long axis ultrasonography of the SDFTs 8-9-04

Clinical Evaluation

Image 4:6. Ultrasound scan showed a uniform and normal echogenicity with a complete reduction of the SDFT core lesions to a well defined tendon cell regeneration area with no evidence of prior SDFT lesions, scar tissue or adhesions. The above areas show evidence of fibrin and collagen filling indicative of an accelerated healing process.

Image 4:7. Ultrasound scan showed proper tendon cell and collagen fiber alignment with no further evidence of prior SDFT core lesions.

At this time clinical signs showed no lameness at the jog or gallop. There was no pain elicited during flexion or palpation. There was no visible swelling or heat felt during palpation even after the increase in physical activity at the jog or gallop. There is no more evidence of lameness to date.

Treatment Protocol

Cymatherapy® Bioresonance treatments were continued once per week until The Frac was sent off for training.

Rehabilitation: Physical Exercise Program

Training was increased to light work on the track.

Discussion

The prognosis for return to use following injury to the SDFT in athletic horses has historically been graded fair to poor. According to the literature, the healing process can take from 6 to 24 months to occur and usually terminates with further evidence of disruption of normal fiber alignment and variable loss of echogenicity at the endpoint of study per follow-up ultrasonography.

Continued evidence of disruption of normal fiber alignment and variable loss of echogenicity are usually a result of adhesions and scar tissue that occur during the course of the healing process of an injured tendon. Any disruption, malalignment or change from the normal tendon cell alignment or consistency does predispose the horse to future reinjury [Crevier-Denoix N et al 1997.]

The high cost in veterinary diagnostics, care, treatment and maintenance, as well as the loss in value of the athletic horse is difficult to recuperate by the horse owner rendering the promising horse athlete a very high cost to maintain without gainful return. The high morbidity rate in the tendon injured horse, coupled with the continued threat of reinjury, translates into a substantial financial loss to the horse owner over time.

Conclusions

In this case study we attempted to duplicate the rate of healing and the success that was shown with our first case study on Rarely Found [E.B. Bauer, K. Cooper, A.H.J. Fleming, 2005]. Our goal was the restoration of full function of a valuable thoroughbred race horse athlete.

The successful duplication of an initial treatment plan is a valuable form of direction or check in research. If research shows that a treatment can be duplicated with the same rate of success time-and-time-again it is a clear indication that future cases may be treated as successfully as the first.

In the case of The Frac we were faced with challenges that far surpassed the measure previously set by Rarely Found. In comparison, Rarely Found's 25-30% SDFT single lesion was a mere shadow to The Frac's extensive multi-lesion, tendon lattice destruction of 95%.

The Frac was initially viewed as a humanitarian salvage effort as well as an extreme case of tendon disruption to study. Our goal was to heal a horse that once, before his career ending injury, showed great promise, but, at the onset of diagnosis and treatment The Frac's only asset was his heart for racing.

In this extreme case study, we have found a rapid rate of tendon healing as well as tendon healing with the ultrasonographic evidence of the return to normal and

homogeneous tendon cell integrity as proven by the uniform and normal echogenicity without scar tissue or adhesions.

The duration of healing time, as evidenced by ultrasonography, as well as the clinical signs of healing and rapid return to function was 54 days; from the first diagnostic ultrasound scan on 6-16-04 to the last ultrasound scan on 8-9-04 to date.

The Frac was sent off to train shortly after the last ultrasound scan shown. He has remained sound for 18 months after his last Cymatherapy® Bioresonance treatment.

The Frac's healing success was clearly reflected in his win on Sunday, March 26, 2006, at the Oaklawn Park racetrack, in Hot Springs Arkansas. In a Starter Allowance race at Oaklawn, The Frac, running five and one half furlongs, won the 8th race (ridden by Jockey Corey J. Lanerie, under trainer, Joseph Petalino.) For complete results of The Frac's race at Oaklawn racetrack see following link: http://www.oaklawn.com/entries/entry_detail.asp?dt=3%2F26%2F2006. Not only did he win this race, but, he had the fastest run of the meet. His racing record at Oaklawn Park can be found at (http://www.oaklawn.com/this-season/standings.asp?t=Horse&y=2006.

These results clearly show that Equine Cymatherapy Bioresonance treatments have surpassed any standard veterinary treatment of the SDFT injured horse by approximately 5 to 22.5 months ahead of any known standard treatments provided in the literature.

The high quality of the homogeneous, healed, tendon tissue, per ultrasonographic evidence, have translated into a low to null continued morbidity or threat of reinjury as evidenced by The Frac's racing performance and soundness 18 months after his last Cymatherapy® Bioresonance treatment.

The cost savings in veterinary diagnostics, care, treatment and maintenance over 18 months post Cymatherapy®, as well as the preservation in value of this athletic horse will continue to insure this horse owner a gainful return on his substantial financial investment.

Evaluation

This case study demonstrated a significant improvement in pain and swelling, as well as objectively measurable functional improvements. Objective markers such as clinical improvement in ROM, function and return to work with no signs of lameness at the jog, gallop, or while racing continued 18 months after the last Cymatherapy® Bioresonance treatment. The primary goals for the researchers in the care of this gelding were realized. The Frac, that began his Cymatherapy®

journey as a humanitarian salvage, has been fully restored not only as a winner but a financial asset to his new owner.

With the encouraging results of these case studies, further investigation of the efficacy of this acoustic device is warranted.

References

E.B. Bauer, K. Cooper, A.H.J. Fleming. The effects of acoustic frequencies on core tendon lesions of the thoroughbred racehorse. 27th annual meeting of Bioelectromagnetics Society (BEMS); Dublin, Ireland, June, 2005. http://ww.unifiedphysics.com.

Crevier-Denoix N. et al. Mechanical properties of pathological equine superficial digital flexor tendons. Equine Vet J Suppl May;(23):23-6 1997

Goodship A.E. The pathophysiology of flexor tendon injury in the horse. Equine Vet Educ;5:23-29 1993

Further information on the Cyma® 1000 may be obtained at: http://www.cymatherapy.com