Animal Therapy

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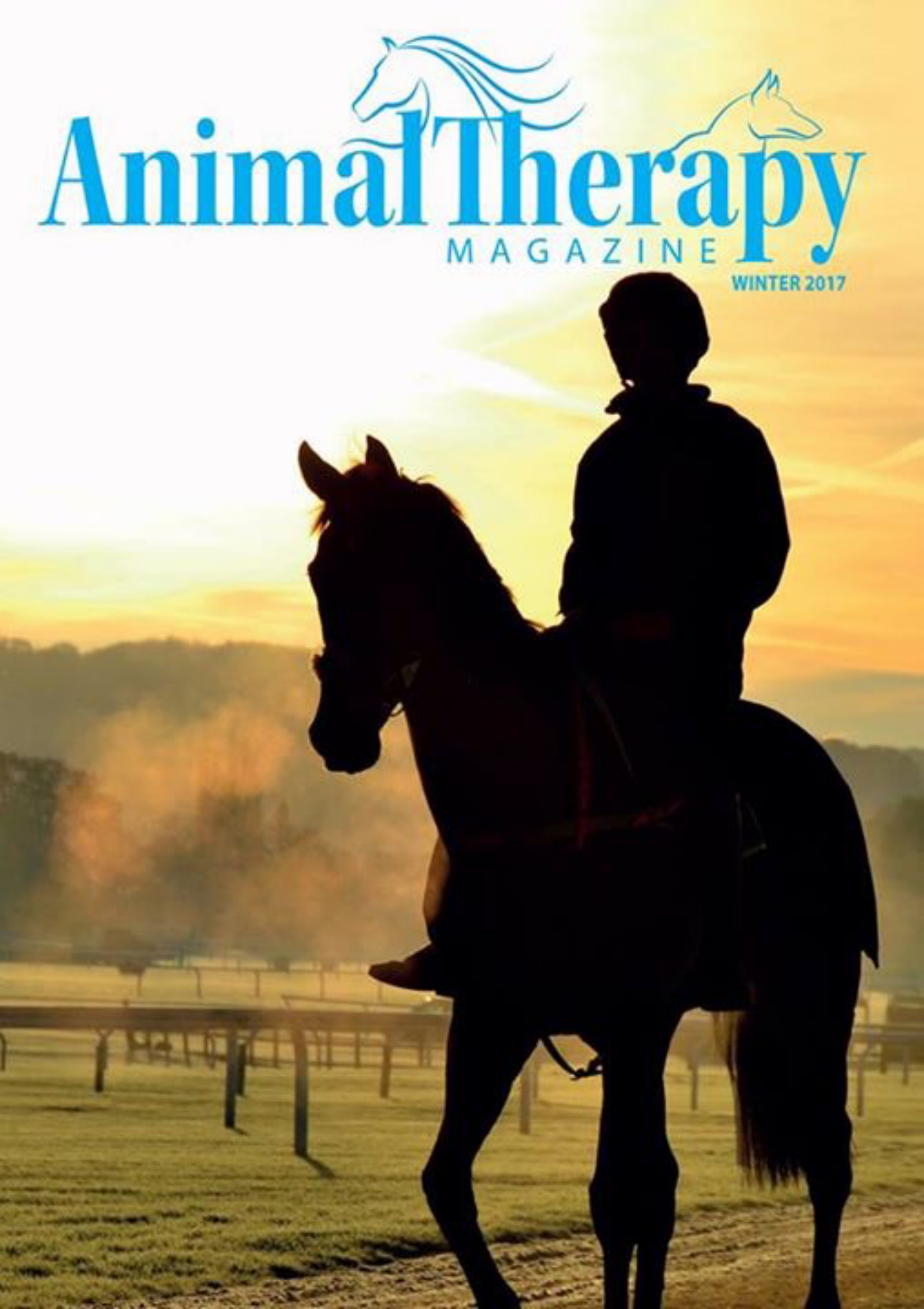

The use of ultrasound therapy on tendon injuries in horses

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CLOUDY is an 8 year old Thoroughbred gelding. He competitively and successfully raced until he unfortunately struck into himself, left hind into left fore damaging the superficial digital flexor tendon. Initial scan shows a midline split to tendon.

Cloudy was initially put on box rest with a return to work once sound, however, intermittent lameness forced a decision to retire him from racing. He was moved to me for further treatment in the hope we could get him sound enough to enjoy a new career. Due to his tendency to box walk and weave, he was turned out into a small paddock area, with the sun on his back and time to enjoy a bit of Dr grass!

Upon first inspection he had significant scar tissue and presented 2 - 3 tenths lame. He was ultrasound scanned so we had a starting point of reference and treatment began.

Having previously gained very positive results from therapeutic ultrasound treatment to check ligaments, deep and superficial digital flexor tendon injuries, it was decided to proceed with an intensive course and re-scan in 3 months to gauge improvement.

Using an EQultrasound machine and the protocol submitted by BAC, he was treated daily to start with, followed by every other day.

CLOUDY JOKER

On clinical examination the superficial flexor tendon was enlarged on palpating in the distal third.

On ultrasound scan of the region there was a generalised enlargement of the superficial digital flexor tendon (sdft) within the digital flexor tendon sheath. There was a reduced echogenicity in the overall appearance of the sdft when compared with the contralateral limb, the enlargement and hypoechoic appearance was seen over approximately 4cm length of tendon. A complete loss of fibre pattern and hypoechoic appearance centrally suggested a complete split in the tendon. Tendon above and below this 4cm region appeared normal.

In the longitudinal plane a linear area of fibre pattern loss and hypoechoic appearance confirmed a tear within the body of the tendon.

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then every 3rd day until we reached the 3 month mark.

It is essential that any ultrasound therapy is carried out by a qualified and trained professional as there are many contraindications to this form of therapy which can bring serious consequences.

After one month of ultrasound treatment, and confirmation of soundness, controlled walk exercise was introduced to encourage strengthening of the tendon. It is believed that to put a structure under a bit of pressure, encourages it to stimulate natural healing, but this must be introduced steadily.

He was started on 15 minutes walk exercise either being ridden or lead. This was increased by 10 minutes each week until he reached 45 minutes. After 1 month, trot was introduced allowing just short periods at first and increasing gently, keeping a close eye on soundness at all times. Canter work was introduced after his 3 month scan.

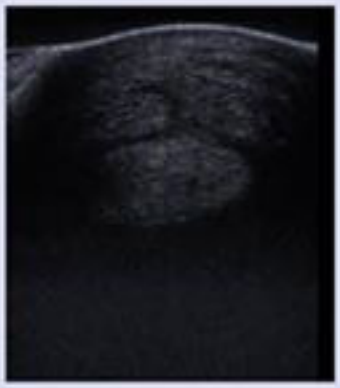
Another essential aspect of the rehabilitation was to encourage good head carriage and posture. Cloudy is a very 'busy' horse who likes to speed along with his nose in the clouds. Not only does this make riding him quite tricky, but it is also a very jarring posture to work in. A high head carriage will invert the back making it braced. A braced back can not only damage the vertebral column and surrounding muscles but it will also make movement in-elastic and jarring on all joints. Foot fall will become very heavy and could further damage the already weak tendon.

Cloudy was encourage to work in a soft outline, lifting and engaging his back. This further lifted his shoulders allowing his muscles to absorb the concussive forces rather than his joints and tendons. This posture will also encourage muscle development, and the more muscle, the better the shock absorption!

Following a positive result from his 3 month scan and as there had been no return of lameness, canter work was slowly introduced ensuring he

continued overleaf

At the 3 month follow up scan, Cloudy presented sound. The overall size of the damaged area of tendon was slightly reduced. It is likely the sdft will remain enlarged. The echogenicity had increased and fibre pattern was aligned in a more linear pattern. The hypoechoic split centrally was still apparent, however the bordering sections of tendon were more defined, it is likely the split will remain present throughout the horses life.



only worked on a quality, sure footed surface. Ultrasound continued once weekly or after harder work. He also wears good quality, supportive, breathable boots when exercising and turned out and therapeutic leg wraps while in the stable.

It has been documented that should tendons reach 42 degrees, this may affect the health and functionality of the all so important tendon cells. Whilst tendon temperature is difficult to measure (most studies measure the outside temperature of the leg making it hard to establish the actual tendon temperature accurately) it is advised to be careful in your choice of leg covering and support. Bandaging appears to create the greatest temperature when worn during exercise!

Work now continues taking each day at a time and ultrasound treatment continues at least once a week to maintain the health of the tendon. He has started jumping and his owner is hoping to do a charity flat race in a few months providing his leg continues to remain settled and he maintains soundness.

WHEN NOT TO USE ULTRASOUND THERAPY

Whilst ultrasound is a great form of therapy, as with everything, there are times it isn't appropriate, and this is the reason you should only work with someone who is fully trained.

Do NOT treat the following areas: head and eyes, uterus and testicles, heart area.

Treatment should NOT be performed if the horse / dog has any of the following conditions: phlebitis, thrombosis, thrombophlebitis, pregnancy, tumors or cancers, prosthesis.

With some machines, it is not appropriate to use ultrasound on pregnant animals or young animals where growth plates are still active. Other machines have indicated positive results, so this must be checked with the supplier.

Inflammation and infection can be treated but with caution and again the therapist will know whether it is appropriate or not.

Due to the nature of ultrasound therapy, there have been incidences of over exposure to bone, weakening the structure with some cases of spontaneous fractures. Your therapist will set an appropriate programme ensuring this doesn't happen.

HOW ULTRASOUND WORKS

EQultrasound therapy can be successfully employed to treat musculoskeletal conditions, including tendon injuries, tendinopathies, desmitis and ligament injuries.

The tendon and ligament healing processes require cellular, vascular and extracellular matrix changes.

The non-thermal acoustic effects of EQultrasound therapy (stable cavitation, acoustical streaming and microstreaming) can stimulate cell migration, proliferation, and collagen synthesis of tendon and ligament cells.

EQultrasound low-frequency ultrasound treatment promotes tendon and ligament tissue healing by increasing protein synthesis, fibroblast proliferation, angiogenesis and collagen reorganization. Its most significant benefits occur during the inflammatory, granulation, and proliferative phases of the tendon and ligament healing processes.

Furthermore EQultrasound non-thermal acoustic effects induce a sort of micro-massage at cellular level enhancing reabsorption of excess fluids and therefore decreasing soft tissue edema. The thermal effects of EQultrasound therapy (diathermy) induce vasodilation, increase cellular metabolic activities and increase collagen extensibility, which also contribute for a positive effect on tendon and ligament healing.

On acute conditions you can see immediate results (in one or two treatments). EQ therapy helps draining all excess fluid build-ups (edema and hematomas) and promote a much faster recovery due to the induced acoustic effects (cavitation, acoustical streaming and microstreaming), which stimulate tissue repair and regeneration.