

LIFETIME ACHIEVEMENTS AND A LEGACY OF RESEARCH

Dr Sue Dyson, expert in equine orthopaedics, has returned from the University of Kentucky having been inducted to their Equine Research Hall of Fame. As Head of Orthopaedics in the Equine Clinic, where she has dedicated almost 35 years to treating hundreds of patients each year, she is honoured for her service and contribution to equine research. Sue collected her award surrounded by her peers, colleagues and previous inductees, who have nominated her for this accolade.

With a strong background as a rider and a particular interest in lameness and poor performance in sports horses, Sue has an in-depth knowledge and understanding of performance problems in horses of all disciplines. Her contribution to horse health, welfare and improved performance is justly recognised with this world-renowned achievement.

"As a lameness clinician, I feel humbled and honoured to have been elected to join an elite band of scientists in the Equine Research Hall of Fame. I owe a huge debt of gratitude, not only to the friends and colleagues with whom I've had the privilege to work, but of course also to the horses, which provide endless challenges. I have been constantly inspired to try to improve the welfare of these fantastic athletes," said Sue.

Some of Sue's most ground breaking research includes validating the usefulness and limitations of ultrasonography, scintigraphy and MRI for routine diagnostic use. This data has then been translated into practical benefits for improving the accuracy of diagnosis and treatment for all horses suffering from injury, at the AHT Equine Clinic and beyond.



BODY LEAN IN DRESSAGE

Animals can minimise the risk of falling by leaning into a curve. We have observed that young untrained horses lean more than older trained horses. We have also noted that some lame horses lean more than might be expected, especially on one rein. We aimed to compare body lean in circles versus straight lines, ridden versus in-hand and trot with canter in sound dressage horses. We also wished to investigate the influence of age, rein and ridden work-quality in trot (1-10 Fédération Equestre Internationale scoring system) in horses. Thirteen non-lame horses were assessed prospectively in a non-random, cross-sectional survey. The horses were trotted

in straight lines, lunged and ridden on both reins. A global positioning system-aided inertial measurement unit attached to the skin over the tuber sacrale quantified body lean and recorded the velocity and the radius, which were used to calculate predicted lean. Horses ≤ 6 years of age leant more than predicted (mean \pm standard deviation $2.9 \pm 2.6^\circ$) and more than horses ≥ 7 years' old ($0.4 \pm 3^\circ$) ($P = 0.01$). Horses that scored ≥ 7 in ridden work-quality leant less than predicted ($-1.1 \pm 2.7^\circ$) and less than horses which scored ≤ 6 in ridden work-quality ($2.4 \pm 1.5^\circ$) ($P = 0.02$). There were no significant differences between trot and canter, either on the lunge or ridden ($P = 0.3$), or between left and right reins ($P = 0.2$). This study has developed objective parameters for body lean for sound dressage horses of different age categories and quality of work in trot and canter. Asymmetry of body lean between reins may be abnormal and may be helpful for recognition of lameness.

Greve, L., Dyson, S. Body lean angle in sound dressage horses trotting in hand, on the lunge and ridden. The Vet J 2016, doi.org/doi: 10.1016/j.tvjl.2016.06.004



Sue with Prof Wayne McIlwraith from Colorado State University who nominated her for the award.



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SARCOID TREATMENT UPDATE

Radiation treatment has long been the gold standard for the treatment of periorbital sarcoids in the horse. Brachytherapy, or local radiation therapy, is the only suitable method in this location, as the eye itself is extremely sensitive to the effects of radiation and brachytherapy allows a high dose to be given to the tumour with a very low dose given to surrounding normal tissues. Until relatively recently, low dose rate brachytherapy (LDRB) using iridium wires was the only method of delivering radiation therapy for these lesions in the UK. This technique has excellent success rates (75-100%) but has significant drawbacks: the implants are left in place for several days meaning that the horse must be isolated due to radiation safety concerns; the radiation dose delivered by these methods can only be crudely calculated making unwanted side effects very common; and there is significant operator exposure to radiation during implantation and removal of the wires.

More recently, a technique of high dose rate brachytherapy (HDRB) using a high activity iridium source and a mechanical delivery system has been adapted for use in horses under standing sedation at the AHT. This technique has several advantages over the LDRB method. Catheters are placed into the tumour and specialised imaging techniques are used to create a 3D model of the lesion. This allows computer-based planning for treatment delivery, and a bespoke treatment can be given to each horse, with different areas of the tumour receiving different doses where this is required. Although catheter placement, imaging and planning of the treatment is quite involved, the treatment itself is very quick, taking between 2 and 6 minutes to deliver a dose for typical periorbital sarcoids. Each horse receives two 'fractions' or treatments, which are given a week apart. In between the treatments the catheters are removed and the horse is able to be treated as normal as there is no residual radiation. They remain on anti-inflammatory medication during this period, and for a short time after the second treatment. The treatment protocol is designed to give an effective dose whilst minimising side-effects, and to date, the results are excellent.



Above: multiple periorbital sarcoids on a horse immediately prior to HDR treatment
Below: 6 weeks post treatment.

REGENERATIVE LASER THERAPY

Regenerative Laser Therapy (RLT) has been used in horses for a number of years with reported success in treating orthopaedic injuries. Currently the AHT is the only referral centre in the UK offering laser treatment using the Smart RLT machine, from the United States, which has the greatest number of documented follow-up of treated horses.

How does it work?

The Smart RLT machine delivers pulsed high intensity laser therapy, which has been demonstrated to aid repair and remodelling of ligament and tendon lesions, reduce scar tissue within and around tendons, aid normalisation of muscle fibres and function, have anti-inflammatory properties, promote collagen production and cell proliferation.

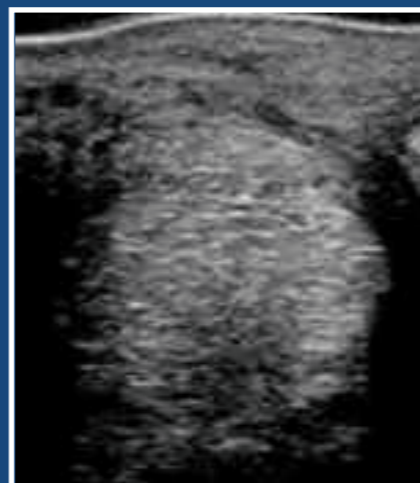
What injuries can be treated?

Any horse with tendon or ligament injury is a potential candidate for treatment. We are particularly looking forward to treating horses that have injuries for which we currently have no effective or long lasting treatment, such as suspensory branch injuries with periligamentous fibrosis, deep digital flexor tendon lesions of the fetlock, pastern and foot, chronic proximal suspensory desmopathy and proximal lesions of the accessory ligament of the deep digital flexor tendon. We are also hoping that RLT will help our cases that have multiple injuries and are therefore not suitable candidates for certain treatments, such as horses with a combination of hindlimb proximal suspensory desmopathy and sacroiliac joint region pain that are poor candidates for the otherwise successful plantar neurectomy and fasciotomy because of the severity of sacroiliac joint region pain.



Clinical research

Every case that undergoes RLT at the AHT will be closely followed in order to be able to scientifically document the effect of RLT on various injury types. Results will be shared with the veterinary and equestrian community and will therefore benefit horses and referring practices.



How can I arrange RLT treatment and how long does it take?

We are happy to accept cases for RLT that have been diagnosed by the referring veterinary surgeon as well as offering treatment to horses that have been investigated and diagnosed at the AHT. Horses need to be treated 2-3 times a week, for approximately 8-10 weeks, depending on the type, severity and chronicity of the injury. We are happy to hospitalise horses for the treatment period and offer a rehabilitation programme (including exercise and physiotherapy if indicated) or treat horses on an outpatient basis.



NEW STUDY ON ENDURANCE HORSES – DIAGNOSIS AND CAUSES OF LAMENESS IN ENDURANCE HORSES IN THE UK

Researchers at the Animal Health Trust are collecting data to investigate the incidence of various causes of lameness in endurance horses in the United Kingdom (UK), diagnosed by veterinarians in first opinion practice. Data are also being collected on how this diagnosis was achieved.



It has been shown in a recent study that 80% of endurance horses had been lame at least once in their career and over 50% had been lame at least once in the past 12 months. Unfortunately a great proportion of these lameness episodes do not get investigated by a veterinarian. The aims of the current study are to learn more about causes of lameness in endurance horses in the UK and also to raise awareness of the number of undiagnosed lameness episodes that may result in more serious injury and/or recurrent lameness. By sharing the results with veterinarians and the endurance community, we are hoping that we can increase the proportion of lame horses that

undergo veterinary investigation and therefore appropriate treatment and rehabilitation, which gives horses the best chance to return to full athletic function.

Horses eligible to participate: any horse undergoing endurance training and/or competition. Veterinarians eligible to participate: any veterinarian who is the first veterinarian to investigate the lameness.

An online questionnaire has been designed, which takes approximately five minutes to complete and is anonymous; there is no way to identify who submits a questionnaire. We do ask for the owner's (or trainer's or rider's) email address in order to obtain their consent for participation in this study. This is compulsory for any research project. Owners will not be contacted directly for any other reason and the email database will be deleted at the end of the study. To minimise recall bias, the questionnaire has to be collected within 72 hours of the lameness investigation.

Data will be collected for two years (September 2016 - August 2018). A complete questionnaire on at least 200 lameness episodes is required for meaningful results. Regular reminders will be sent throughout the study period.

We would be very grateful if you could contribute to this project.

To complete the questionnaire, please visit www.surveymonkey.co.uk/r/endurancelameness

If you have any queries please contact Annamaria Nagy on annamaria.nagy@aht.org.uk or 01638 751 908.

