Equitation science conferences inspiring future generations

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Following the trend set by the International Society for Equitation Science, the 2013 Assessment and Asymmetry Conference, UK will provide another opportunity for scientists, technical experts and practitioners to work closely together, this time to specifically discuss how asymmetry impacts on horse performance, comfort and welfare, and how we can better understand and study it.

In preparation for the post-conference report which will appear in the April edition, Lisa Ashton sets the stage and explains how science in general and asymmetry in particular are delivering an evidence-based, ethical and sustainable approach to equitation.

Animal Health Trust

The end of another year, and what a year! The London Olympics served pessimistic predictions of transport and security nightmares months before the opening ceremony. Those fears never materialized, in two words... Britain delivered. Not least because the sun shone (most of the time!) having endured months of ceaseless rain, but in those two weeks the world witnessed an abundance of British peak performances and 'personal bests'.

For the first time Britain won medals in dressage and show jumping (last seen back in the 70's!) and delivered under pressure, satisfying a whole nation's expectations.

So what worked for Team GB? Was it simply the 'home advantage' effect, or something more?

During the past decade the British Equestrian Federation (BEF) with the support of lottery funding, has invested huge resources to produce a World Class Performance Programme, providing depth and breadth of knowledge and performance support for riders leading up to and during the Olympics.

Although the aim was to optimise the performance of the handful of Olympic horse-rider combinations, the knowledge and momentum acquired during the past decade can now trickle down and become accessible to all levels of participation in equestrian sports.

To this effect, early in 2013, riders, therapists, saddle fitters, farriers, coaches, and equestrian professionals will have direct access to some of Team GB's knowledge base. The 2013 Assessment and Asymmetry Conference which will take place on 23rd and 24th February in the UK, an initiative of Horses Inside Out, will showcase international experts including BEF's performance manager Yogi Breisner, consultant farrier Haydn Price, and rider physiotherapist Andy Thomas.

> *"Asymmetry is a complex issue that involves studying the interaction of horse, rider and saddle; so what direction will research take in the future?*
>
> *The 2013 Horses Inside Out Conference challenge is to assess the impact of asymmetry on welfare and performance."*

The conference aims to dissect the role that asymmetry plays in the multi-factorial and complex field of performance and soundness, investigating the balance between training for performance whilst preventing injuries.

Since 2005, the International Society for Equitation Science (ISES), has provided international annual conferences to disseminate the latest in equitation research and provided a forum to effectively bridge the gap between the lab and the arena, being one of very few scientific societies to encourage the participation and dialogue between practitioners (coaches, trainers, riders and other horse owners) and academics. As a result, interest in the role of science in equitation is increasing at a dramatic rate, and research in all areas, including assessment and asymmetry of the horse and rider is rapidly developing.

The link between conformational symmetry and soundness

It will come as no surprise that scientific evidence highlights prevention of injuries through early recognition of problems as the most effective and ethical approach to optimal horse welfare.

During the 2012 ISES conference in Edinburgh, Dr Sue Dyson, Head of Clinical Orthopaedics at the Animal Health Trust (AHT), in Newmarket UK, highlighted asymmetry as one of the specific risk factors for lameness.

Dr Dyson's work shows that conformational asymmetries, in particular uneven front feet, have shown to be a potential cause of lameness.

Advanced diagonal placement is another area of asymmetry which Dr Dyson believes warrants further investigation. This occurs when in trot, the hind limb hits ground before the forelimb, a characteristic that seems to be more frequently seen in the extravagant moving young horses that are bred for elite dressage.

The number of horses suffering from suspensory ligament injuries, and the variable outcome of treatment and management has inspired the AHT to collect and analyse data to improve prevention strategies, and positively influence the welfare of dressage horses.

One study currently being conducted by the AHT is the investigation of suspensory ligament function in dressage horses with different types of movement. Last month horses and riders were grouped and filmed at trot using high speed video on 2 different but quality arena surfaces.

Two groups of horses, one young (7 years and under), and one mature (10 years and over working at advanced or FEI level dressage) were divided according to their movement scores:

a) very extravagant moving (achieving scores of 7 or 8 and above for paces)

b) less extravagant moving (achieving scores of 6 or less for paces)

Horses were ridden by their usual riders in straight lines at collected, working, medium and extended trot (and piaffe and passage for horses trained to that level).

Riders were provided with feedback on the gait (including joint flexion angles) and asymmetry of the horse, rider position, and advice on exercise programmes and performance to prevent or reduce the risk of suspensory ligament injury.

Technological advances allowing more accurate measurements

Advances in the technology that can 'measure' equitation are keeping up with the growing interest from scientists and industry. Each year, the equitation science conferences are showcasing the incredible innovation and resourcefulness that results from scientists, riders and tech experts working together to solve the many challenges.

A keynote speaker at the upcoming Asymmetry Conference, Professor Lars Roepstorff also presented at the 2012 Equitation Science conference. An active researcher in equine biomechanics at the Swedish University of Agricultural Sciences, Prof Roepstorff, spoke at length about the opportunities and challenges of using and developing technology to accurately measure and assess the different aspects of equine sports. Some of the more difficult lie in the validation and subsequent interpretation of the resulting data. Equitation science technology is in its infancy and will continue to develop and become more accurate the more it is used in the laboratory and the field.

Dr Elizabeth Gandy later spoke specifically about the need for further research on asymmetry and the interactions between horse, rider and saddle, and explained the software developed with the help of the Saddle Research Trust and the University of Sunderland which aims to simplify and deliver a user-friendly computer program that allows scientists and nonscientists alike to evaluate asymmetry.

The influence of laterality

Laterality preferences (one-sidedness) and its affect on a horse's performance has now produced evidence for what practitioners already know; horses and riders are asymmetric.

Specific anatomical sites of the horse have been recorded; one example being the pelvis (axial rotation) and interventions to facilitate asymmetry.

Saddle Fit and asymmetry

Saddle fit and asymmetry between horse, rider and saddle is also a hot topic of research. The data collected from a brand new and novel saddle solution to this problem was shared at the ISES 2012 conference, the detail of the saddle and how it works fully protected by a confidentiality agreement before any disclosure!

Saddle slip a sign of lameness?

The AHT recently identified saddle slip as an important risk factor for hind limb lameness. 128 horses of varying age, size and type were assessed, concluding the saddle consistently slipped to the side in 54% of horses with hind limb lameness. According to Dr Dyson, detection of saddle slip provides owners, riders and trainers the opportunity to detect low-grade and sub-clinical lameness.

Is it strength and coordination, or pain related?

Being able to differentiate between gait irregularity (reflecting lack of musculoskeletal strength and coordination) and pain-related lameness seems to be the most recurring challenge for veterinary and equestrian professionals.

To help with this challenge, technology can now isolate and target specific muscle groups during exercise of racehorses and carriage horses (so far) to assess the use of a pair of muscles and detect asymmetries.

How prevalent is asymmetry?

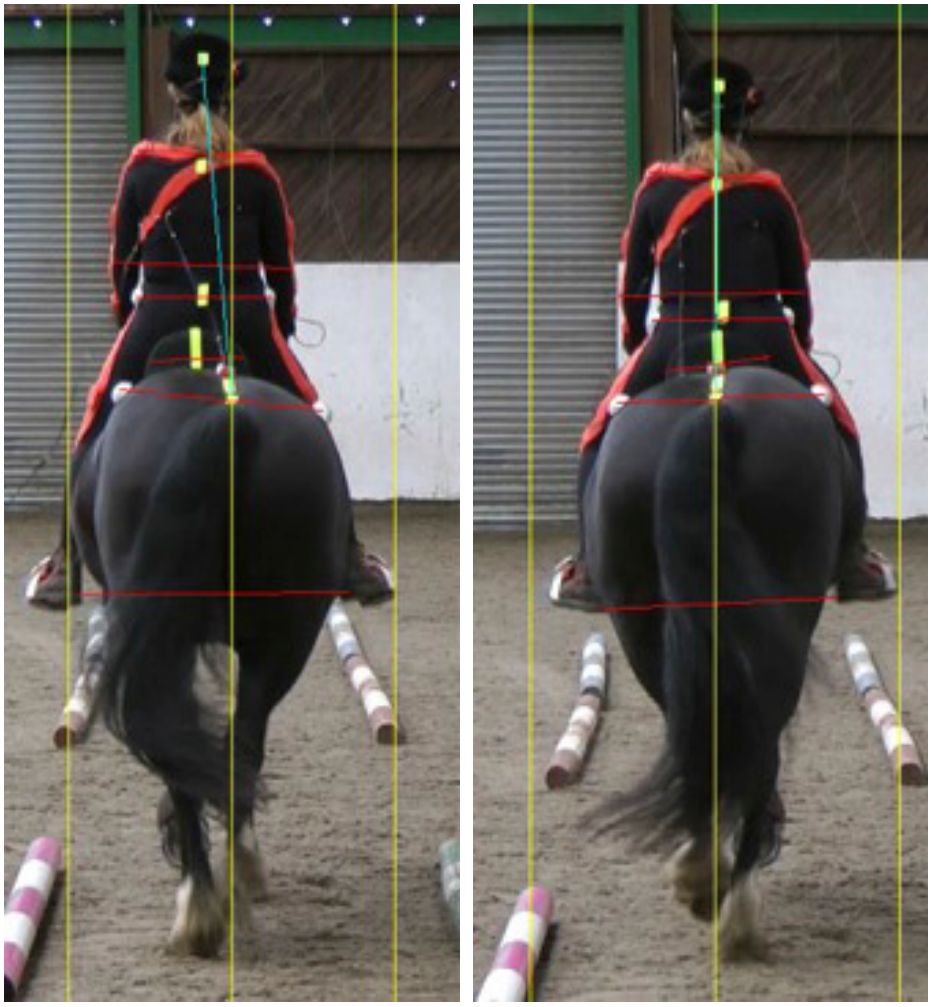
Alarmingly, results of a recent study by the University of Sunderland and the Saddle Research Trust (SRT) suggest that more than half of the UK's horse population could be slightly lame.

"Our project needs a lot more enquiry but we have been looking at every sort of horse, from riding school, to advanced and elite horses, and our preliminary suggestions show that the majority of horses presented for the study showed some asymmetry" said Anne Bondi of the SRT.

Over a period of two years, 30 supposedly sound horses were volunteered for a research project into synchronicity between horse and rider. The researchers found the majority showed asymmetry in their gait. "Much of the asymmetry was subtle but could affect the horses performance" said Mrs Bondi. "These are horses that are not particularly lame. When they move they just feel stiff or restricted. It is not something that can be easily seen."

These high levels of lameness do not surprise Dr Dyson who is about to embark on a national survey of lameness, the results of which will be available in 18 months.

With safety welfare and economic concerns surrounding lameness and orthopedic injuries, a more horse-centered approach may well be one, which assumes all horses are asymmetric. This highlights the need to continue feeding the growing hunger for equitation science, and disseminating the findings via conferences.



University of Sunderland/Saddle Research Trust

Using gaming technology and with the support of the Saddle Research Trust, researchers at the University of Sunderland have developed EMAS™ (Equine Motion Analysis System), a user-friendly computer program that provides detailed analysis of symmetry at the click of a mouse and can be used by everyone.

The 2013 Assessment and Asymmetry Conference

The 2013 Assessment and Asymmetry Conference is one that can help inspire future generations of; riders, therapists, saddle fitters, farriers, and coaches, and facilitate the rise 'golden-age' of equitation, where the practices and performance of all equestrians, from beginners to Olympians, will be driven by scientific evidence, ethics and sustainability.

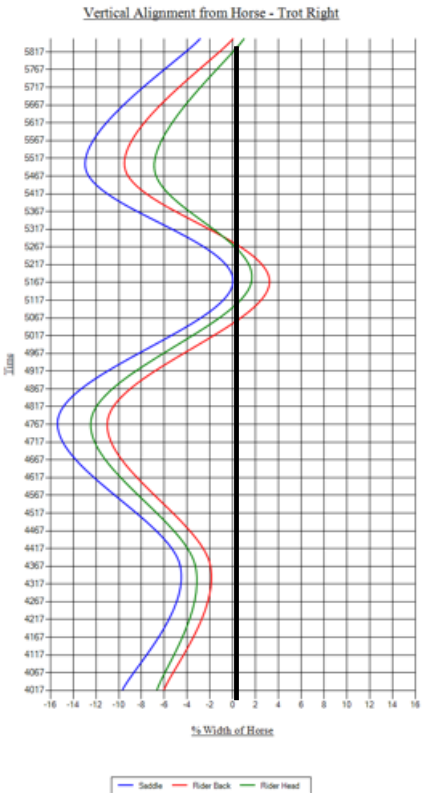
So mark your diaries and head to the UK's Assessment and Asymmetry Conference, an initiative of Horses Inside Out, that will take place at Arena UK, Grantham, England on 23rd and 24th February 2013.

The speakers will be looking at:

- The foot, hoof balance and limb length differential (Haydn Price and Dr Meike van Heel)
- Handedness. Are horses left or right handed from birth or is this something we alter with our influence? (Dr Meike van Heel)
- The horse's back as influenced by the saddle and rider. What exactly happens at this interface? (Dr Lars Roepstorff)
- The back, musculoskeletal system and basic compensation patterns (Gillian Higgins)
- Rider Asymmetry. Understanding more about the rider's musculoskeletal system and how this affects the way they move and ride (Andy Thomas)
- The way we train horses on the flat for straightness and the role of correct training in helping to maintain soundness (Adam Kemp FBHS)
- Jumping and pole work training, exercises to promote straightness and correct development of the musculoskeletal system (Caroline Moore FBHS)

All details are available from Shirley Higgins +44 1159212648, shirley@horsesinsideout.com or at www.HorsesInsideOut.com

For those who can't possibly attend, I will be attending and reporting exclusively for Horses and People magazine, so look out for the post-conference report in the April 2013 Edition!



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