

MATT AND THE EQUINE GAIT ANALYST
UNEVEN LOADING

MATT Hicks has brought along his 11-year old British-bred gelding, Solent Spice. Russell Guire of Centaur Biomechanics applies markers to the horse's major joints and then films his movements in walk and trot. The report is sent to Matt several days later.

"Spice's forelimb kinematics are pleasing," explains Russell. "Stance duration [which measures whether there is greater loading on one side of the body or another] showed no meaningful difference between the left and right fore limb."

Both Spice's hind fetlocks hyperextend to the same degree which indicates that the vertical forces are equal. However, the analysis highlighted uneven loading on the outside edge of Spice's right fore.

"The right fore is loaded on the lateral side of the hoof first as is the right hind," explains Russell. "Matt should discuss this with his farrier."

Where a foot is unevenly balanced, weaknesses in joints and structures can occur, as can a deterioration in locomotion. There is a similar loading to the lateral side of the hind legs.



Solent Spice in trot sporting the white polystyrene markers stuck on the joints



Matt and his support team examine the computer images as they are recorded with Russell Guire

What is gait analysis?

EQUINE gait analysis provides information about the horse's movement when perceived sound and, as such, it is a valuable aid for measuring any future performance or soundness issues.

Markers are placed at the centre of the horse's joints — in this case polystyrene spheres stuck on with double-sided tape (see left). The horses are then walked and trotted on a hard, flat surface.

Cameras capture the action from all sides. They operate at 50-1,500 frames per second. The human eye registers around 12 frames per second. This 3-D record allows the team of vet, farrier and/or physiotherapist to quantify the effects of changes in management or shoeing.

Russell Guire says: "The 'Winning Edge' riders now have an advantageous tool in their kit — an invaluable blueprint of their horse's locomotion."

"Once a rider has a blueprint, any subtle changes that occur due to age, performance, or wear and tear can be quantified and tracked.

"If any asymmetries/weaknesses are identified, then preventative methods can be employed immediately to support any weakness, thus helping to maintain well-being and performance," adds Russell.



The outside edge of the right fore hits the ground before the inside edge



Similarly the outside edge of the hind limbs hits the ground first

Who uses it?

THE BEF's senior teams have access to gait analysis as do some of the 2012 and Beijing Olympic potential horses.

LOUISE AND THE EQUINE NUTRITIONIST
WATCH THE STARCH

DONNA Case, BSc (Hons) Equine Studies, Spillers' southern region competition nutritionist, explains to Louise that one of the key issues with eventers is getting the balance right

between quick release starch on one hand, and slow release fibre and oil on the other.

"Often starch isn't listed on feed tickets so it's best to check with your manufacturer. You may not be aware that you're feeding abnormally high levels (over 30% starch), which can contribute to problems such as colic and azoturia."

Donna is concerned that Evamore receives enough vitamins and minerals in her ration

as Louise feeds a local manufacturer's own brand. Donna suggests that Louise checks that the feed contains enough vitamin E (ideally 250iu/kg), which is important for helping competition horses resist viruses.

It's also essential to check if the ticket says: "Suitable for competing under FEI rules" or "Tested for caffeine and theobromine". Contamination with these substances could lead to a positive drugs test.

MICHAEL AND THE PHYSIOTHERAPIST
LEFT SIDE WEAKNESS

ANDY Thomas, a chartered physiotherapist working with the World Class Programme says: "Show jumpers tend to be tight in the hips. They have a lot of controlled rotation in their pelvis, from turning at speed, but not much backwards and forwards motion." The male anatomy generally has less

pelvic movement than the female, so Michael is at a natural disadvantage. However, he has relatively good pelvic movement for a show jumper, meaning he should find it easier to sit deep and soften, rather than relying purely on his upper body for control, as men tend to do.

Andy discovers that Michael's left side is weak, which Michael has noticed through stiffness on the left rein and the saddle shifting. Another indicator of stiffness on one side could be a pronounced spur or boot mark.

Andy says: "No matter how much you practise on the difficult rein, you won't

improve unless you get the fundamental weakness sorted out with the correct exercises."

Michael works on his exercises. For more information see week six of The Winning Edge



Pictures by Trevor Meeks and Charlie Murphy