

Four-beat canter — problem or progress?

We're all taught that walk is a four-beat gait, trot a two-beat gait, canter three and gallop four. But as dressage horses are bred with increasing uphill tendency and natural elevation of the forehand, are we compromising the purity of those gaits — and the canter in particular? And if so, does it really matter? **Alice Collins** investigates

HISTORICALLY, the term four-beat canter has been used negatively. It often describes a horse who struggles — permanently or occasionally — to maintain a clear three-beat rhythm. To the naked eye it looks as if the horse is not fluently working through its body energetically and into a supple contact (see box, pXX).

But research has proved that it's not quite that straightforward.

The sequence of legs in canter is outside hind, diagonal pair, then inside (leading) fore. The FEI dressage rulebook reiterates this.

There is also a moment of suspension. But many photographs clearly show that many horses considered to be outstanding movers show a "broken" diagonal pair landing on the ground at different times.

In gallop, the diagonal pair becomes disassociated, with the hindleg landing before the foreleg. So is a big-moving horse's desirable, uphill canter technically a gallop?

Is the extreme movement and elevation being bred into today's competition dressage horses actually damaging the clarity of their basic paces? Or is it about time we changed the definition of what those paces truly are in light of advances in biomechanical studies?

Russell Guire of Centaur Biomechanics has been working on a project studying this phenomenon.

"What you're seeing in elite young horses is the hind leg of the diagonal pair hitting the ground first, known as diagonal advanced placement [DAP]," he explains. "It is a disassociation between the hind limb and diagonal fore limb; in modern sport horses we're training to adjust the weight distribution to be shifted towards the back. Horses are naturally 60% on their forelimbs and 40% on their hinds and this disassociation demonstrates the horse's natural ability to take weight back. It's categorized as a positive thing as it's a sign of ability to collect."



As a young horse, Zidaane — a big, exuberant mover — touches down hindleg first

'It should never be four-beat'

THERE are those who cannot countenance a four-beat canter for any reason. These "purists" include Bedfordshire-based dressage trainer Simon Battram of Step Into Dressage.

"I don't believe it should ever be four-beat, full stop — the only exception being in the extreme collected canter required for the pirouettes," he asserts.

"DAP has been around for donkey's years. But it's down to the judges — these [top] horses shouldn't be getting the marks they are if they

A moment in time: Fine Time uses his front leg to help keep his forehand elevated, creating a front leg-first collected canter



aren't showing what is stipulated."

He reasons that riders will continue to produce horses without due attention to the purity of paces, if they are being rewarded with high marks for these extreme gaits.

"I know it's not riders' intention to train the four-beat canter, but it's a by-product of training that's being allowed to happen because judges aren't coming down hard enough. If it's going to be accepted, rules need to change to allow it.

"Maybe I'm stuck in the past, but I just want to keep standards up," he adds.

Olympic rider Richard Davison disagrees, citing the nebulous concept of perfect gaits as the root of the problem.

Pictures by www.kevinsparrow.co.uk, Jo Prestwich, Jon Stroud Media and www.trevor-meeks-photography.co.uk



Left: four-year-old Farouche lands hindleg first, but after two years of further training (right) she brings the front leg underneath her shoulder more quickly for support



"The purity of the gaits should be based on how today's best horses are moving," he says. "It's no good putting arbitrary conditions on their gaits and criticising them when they don't fit the mould we happen to have created. The reality is the purity, not the perception. You have to accept that the best horses are the best, then reassess the idea of purity. I'd like to do away with the term 'purity' altogether — it's emotive and problematic.

"You'd be hard-pressed to find a three-beat canter in the Spanish riding school, which is supposed to be pure dressage," he points out. "And is Paula Radcliffe running 'pure' when she bobs up and down? Probably not, but she gets results."

Richard observes that the painter Stubbs depicted horses in canter on their two hindlegs, but Eadweard Muybridge's first high-speed photographs of the pace blew that notion out of the water.

"Muybridge could have been accused of killing classical painting, but he wasn't, was he? We're at a similar crossroads with canter now," adds Richard. "Science is still showing us the difference between fact and perception."

'Part and parcel of a beautiful canter'

DR HILARY CLAYTON, a biomechanic researcher at Michigan State University and a leader in the field for horses, is keen to stress that a four-time canter is often a good thing.

"Young elite horses often show a diagonal dissociation, with the hindleg landing first, which is stage in their development as they learn to use their back muscles in a big, forward canter," she explains. "This represents a stage in training of the young horse.

"When the canter stride is shortened [in collection], talented, well-balanced horses show the opposite dissociation, with the foreleg landing first. This allows them to maintain the elevation of the withers and the uphill balance, so they don't roll over onto the forehand.

"The ability to maintain the uphill frame is also associated with less rocking motion in the canter," she continues. "So the foreleg-first contact is characteristic of collected canter."

She stresses that this dissociation is not visible to the naked eye as "the time between contacts of the diagonal foreleg and hindleg is extremely short and you would need slow-motion replay to see it. To me, it's not a fault; it's actually a sign of self carriage."

Rip up the statutes?

SO is it time to amend the dressage rulebook to

state that canter must "appear" to be a three-beat gait? If the dissociation is not obvious to the naked eye and doesn't affect the overall picture of harmony and balance, then that, surely, is sufficient for a good canter?

Simon Battram is nervous of any changes to judging criteria.

"If you start changing the rules to accommodate today's extreme horses, it's open season," he says. "If you start accommodating these faulty paces, then where does it end?"

Until a system similar to that of Hawk-Eye—a digital ball-tracking officiating system used to tell whether a ball is in or out—in tennis is considered for dressage, the beauty of canter will be in the eye of the judges. Someone in a strong position to adjudicate is trainer, rider and international judge Isobel Wessels.

"Luckily, we never have to judge from a photo, we judge real life in real time," she says. "We judge what we can see and don't wear special glasses. It's about what the naked eye can see from where you're sitting."

Isobel doesn't get hung up on the "purity" of the canter.

"When these horses have a powerful moment of suspension and the canter is clearly uphill, no one is worrying about

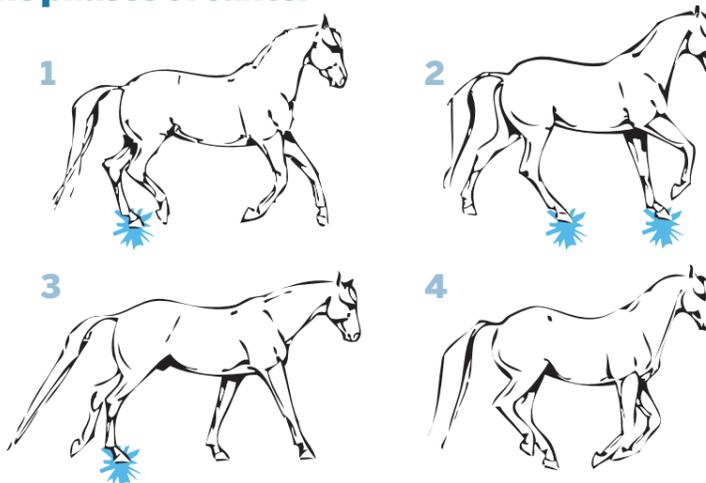
whether it's four-time," she points out. "Only when it looks laboured and clumsy, or if horse is struggling with circles or tight turns, do you analyse the balance and note the loss of quality in the canter."

Richard agrees that what you see should be what you get, adding: "If a high-speed film shows a 'faulty' canter, then so what? We shouldn't focus on whether a canter is three- or



In extended canter, Damon Hill's powerful natural ability to take the weight behind is clear to see

The phases of canter



1. The outside hind landing on the ground is the first phase of a canter stride. 2. The diagonal pair lands next (though, as we now know, not always at the same time). 3. The inside hind makes contact with the ground. 4. The moment of suspension — all four feet are off the ground at the same time

'The pirouette canter is a different pace altogether'

ALL the horses achieving 10s for their pirouettes in competition are doing so while in four-time canter.

Trainer Simon Battram concedes that horses "have to go four-beat, even though the judging criteria still says it has to remain three-beat".

"Perhaps the criteria should be altered and a mark added in for the transition from three-beat to four-beat canter to prepare for the pirouette. That way, we could see the transition, rather than the movement dictating the breaking of the pace."



All these horses (Totilas, Glock's Undercover and Valegro) have received 10s for their canter pirouettes — but they do not maintain a three-beat canter, as specified in the FEI dressage rulebook. So is it time to change the rules?

four-time — other criteria are more important when judging with the naked eye.

"Labelling anything in dressage is problematic and causes confusion: a four-beat canter, a lateral walk — ask 10 different people what they think these labels mean and you'll get 10 different answers."

Isobel agrees, saying: "I never write 'four-time canter' on a sheet. It's more positive to identify the reasoning behind the problem than just say it's four-time."

"When we judge, it's split seconds all the time — it's so fast you have to look at the whole picture and take in many things."

Ultimately, Isobel and Richard both feel that it's not worth getting hung up on whether a balanced and aesthetically pleasing canter is three- or four-time.

"One shouldn't overanalyse," says Isobel. "Sometimes someone says, 'This one has a four-time canter', and you're so busy looking and wondering whether it is that you miss everything else."

"If it's balanced, with relaxed energy and sufficient jump, everything else is taken care of."

And from a biomechanic perspective, Russell Guire and Hilary Clayton believe diagonal dissociation is a phase of training and a result of the modern demands of sport on horses.

"Conformation assessment on a young horse can show whether the horse is naturally willing to take the weight behind and is a useful tool in selection and assessment," concludes Russell.

So next time you see that catch-all phrase 'four-time' written on your dressage sheet next to an undesirable canter mark, it might be worth having a quiet word with the judge to unpick exactly what it is they think they've seen. [H&H](#)



In gallop, the hind foot of the diagonal pair touches the ground before the front foot

Isobel Wessels' Chagall demonstrates a front leg-first canter, as he uses the forelimb to prop up his shoulder and maintain an uphill balance in collection



So what is a faulty canter?

"WHEN the canter looks lumpy and bumpy — where the one-two-three rhythm gets too slow, and the [ground] contact of the leading front leg is too late. That's a faulty canter," says biomechanics expert Hilary Clayton.

"People call that four-time, but it isn't; it's just a disruption of the length of time between the footfalls."

"In a lateral canter, it looks to the naked eye as if both legs on the same side of body are more co-ordinated than they should be. These horses often display an obvious — and visible to the naked eye — front foot first diagonal dissociation."

However, simply looking at a snapshot of a horse and seeing the front leg hitting first doesn't give you the whole picture. Both elite, collected horses and unbalanced horses can exhibit this, so it must only be interpreted as part of the whole horse's way of going.

Judge Isobel Wessels diagnoses an incorrect canter with caution.

"I don't write 'four-time' on sheet. I mostly tend to say the horse isn't balanced or it's lacking jump — a faulty canter makes you almost rock in your chair," she says.

"Also, unless you're really looking at the diagonal pair — which maybe you can't see if [the horse is] going away from you — you can't always tell."

"I've often heard judges saying something's a four-time canter when it isn't. I get quite angry, especially at the lower levels, when horses are slated for four-time canters when that isn't what's happening."

"Perhaps the horse is slow behind or lacking jump or laboured. Really, all the horse is lacking is suspension and 'air time'. These are the qualities that make canter indisputably correct."



This horse is not in self carriage and is travelling on the forehand, displaying a front leg-first dissociation