Equine seizures:

Seizures are rare in horses, but can occur. *Richard Piercy FRCVS,* professor of comparative neuromuscular disease at the Royal Veterinary College, talks to Catherine Welton

VERY few people have witnessed a horse having a seizure.

"We're more likely to observe a seizure in pet dogs than a horse that is out in a field for most of the time," says Richard Piercy, who has dealt with hundreds of cases of equine seizures over the years. "So while it's not a very common condition, I think it's probably more common than we realise."

A seizure is defined as abnormal electrical activity in the brain. Richard explains: "It's an electrical problem that spreads between excitable cells." Excitable cells – those capable of generating and conducting electrical impulses – are primarily nerve and muscle cells.

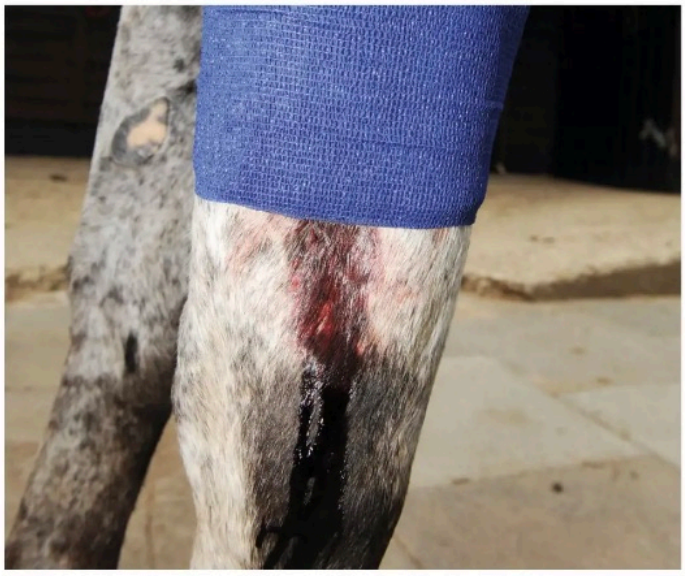
The period leading up to a seizure, or the "prodromal" phase, is often experienced by humans as mood changes, light-headedness and other behavioural changes.

"In horses, there is often a very subtle change in behaviour that's usually missed by the owner or rider," says Richard.

The "ictal" phase – the seizure itself – can be focal (affecting one part of the brain) or generalised. This means the signs of a seizure can vary.

"Depending on which part of the brain is affected, it results in different clinical signs, not all of which are obvious, which can make it difficult for owners and even vets to identify," Richard explains.

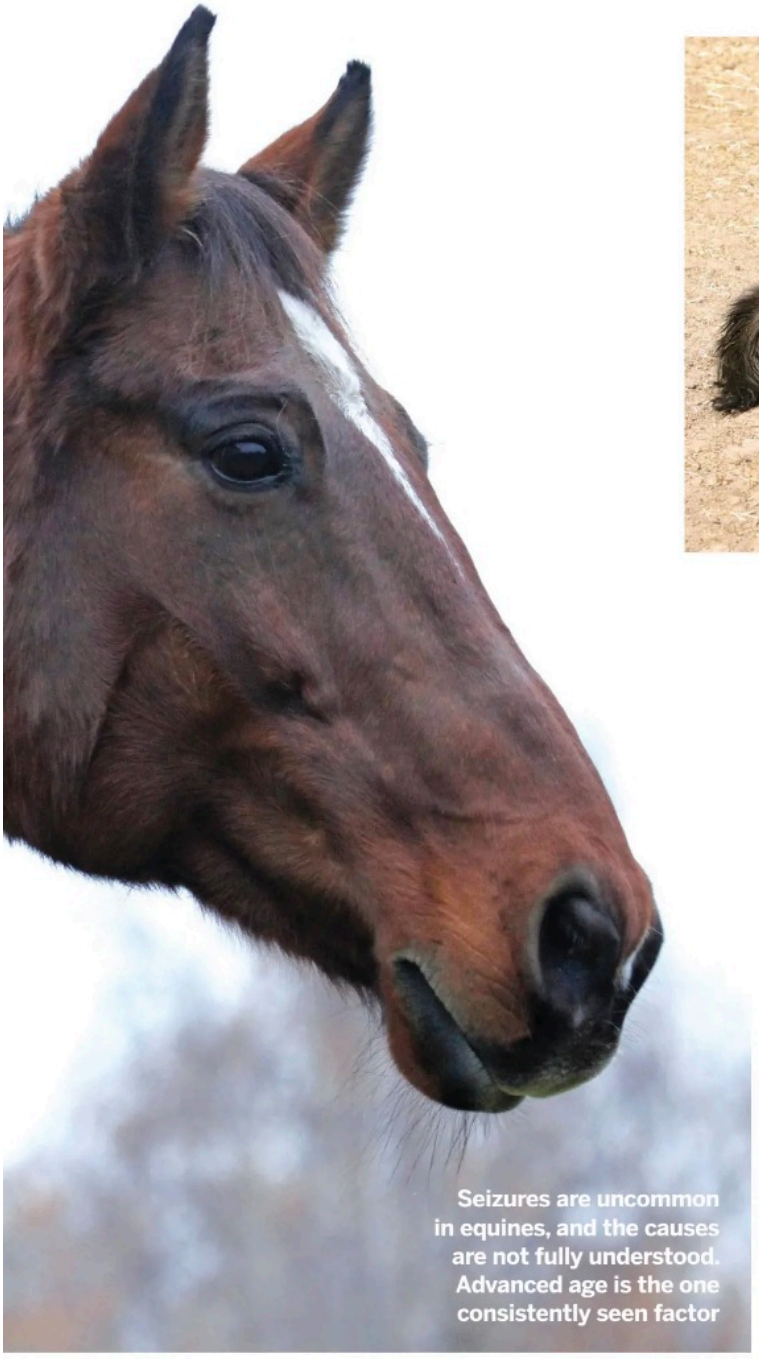
"If there's a seizure in one part of the motor cortex [the surface of the brain associated with controlling muscle contraction and movement], you'll see rhythmical muscle contractions in the part of



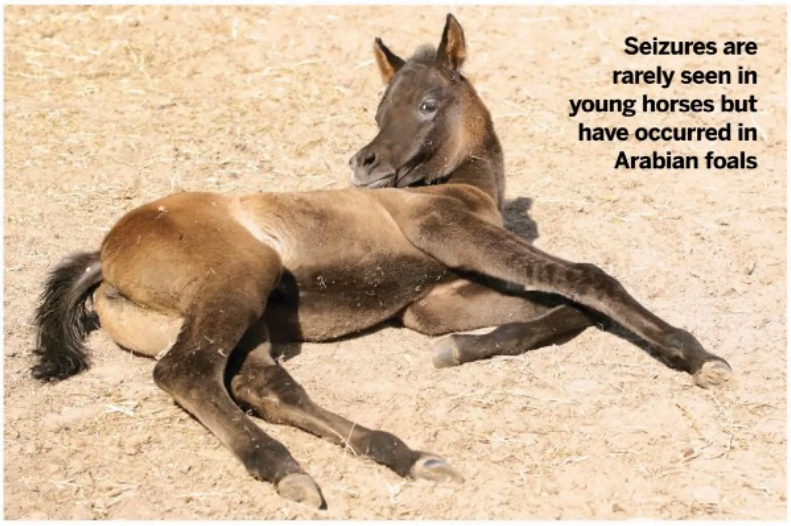
The appearance of cuts with no clear indication of cause may possibly be a sign that a horse has suffered a seizure

Pictures by Alamy, Getty Images and Steve Bardens

what we know



Seizures are uncommon in equines, and the causes are not fully understood. Advanced age is the one consistently seen factor



Seizures are rarely seen in young horses but have occurred in Arabian foals

The recovery period

ONCE a seizure is over, it can take several hours for the brain to recover.

"After a big seizure, the horse can be depressed, their head might hang low, and they can sometimes be blind," says Richard.

Aftercare in this situation is focused on safety and allowing the horse to rest.

"If the horse is standing quietly out in a field, they're best left alone," he advises. "Move any other horses away and if the horse is close to a fence, it's best to move them away from it as, if they're blind, they might injure themselves. If they're in a stable, again leave them, reduce noise on the yard and wait for them to recover."

Allow a horse to rest and recover after having a seizure

the body associated with that part of the motor cortex. If the seizure becomes more generalised, then more and more muscle groups become affected."

WHAT HAPPENS?

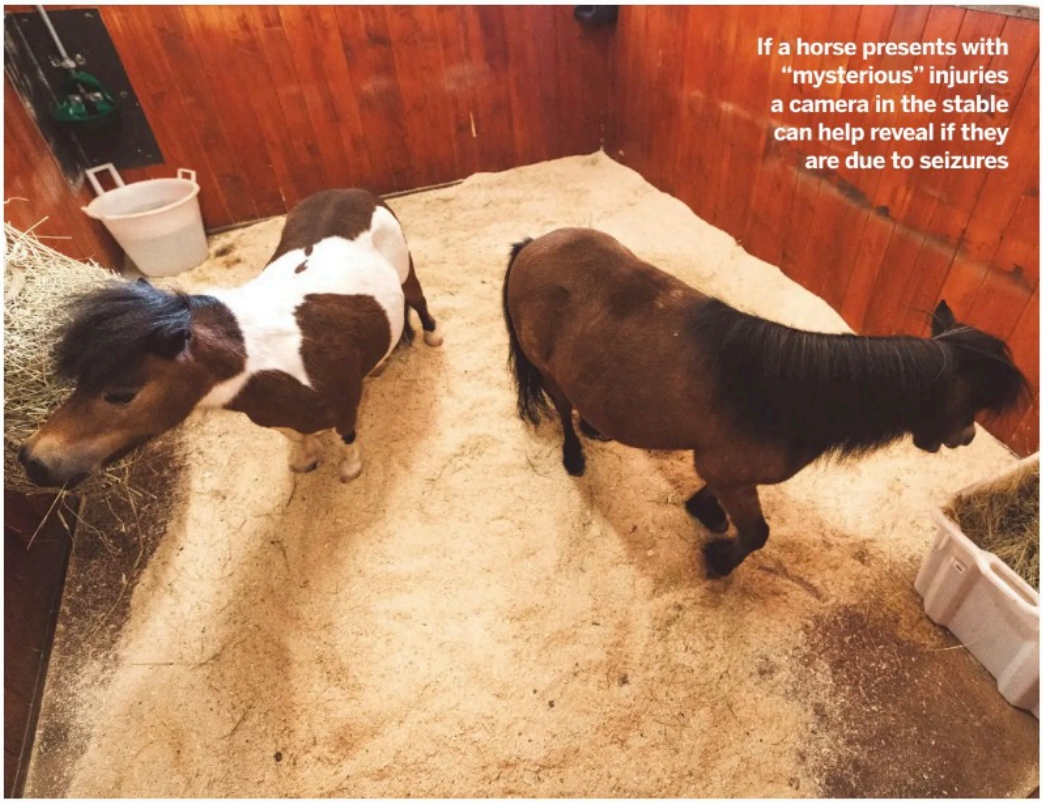
IT'S not uncommon in horses for a seizure to begin in the lip muscles before moving down the neck and then elsewhere, which Richard suggests might be because they're grazers.

"Regions of the body associated with very fine movements have larger regions of the brain assigned to them, and those regions are more likely to be affected by a seizure than others," he says. "Because horses graze, the muscles that control the lips probably have a large brain area assigned to them."

If the entire motor cortex is affected, it results in "status epilepticus", or a severe generalised seizure. In this instance, the horse's behaviour is unmistakable.

"Typically, the horse would display rhythmic contractions of multiple muscle groups, often at the same time, also rigidity, and usually the horse falls over. It can last two or three minutes or more and is very distressing."

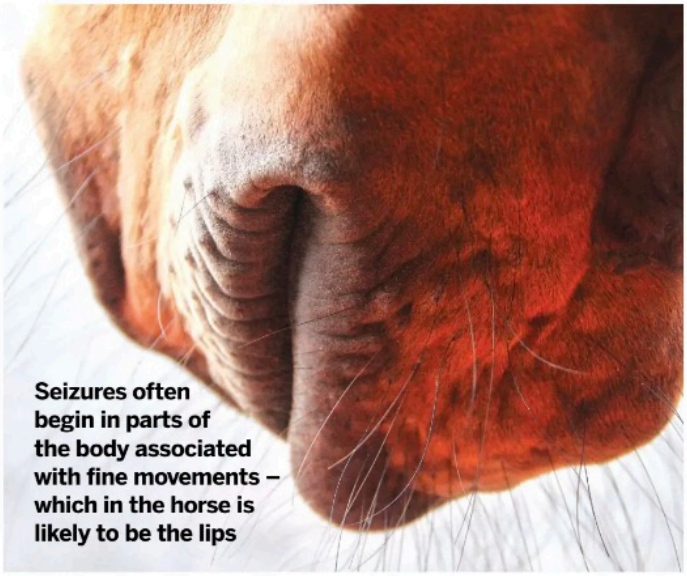
As the horse is not in control of its movements, it's also potentially dangerous.



If a horse presents with "mysterious" injuries a camera in the stable can help reveal if they are due to seizures

"It becomes a safety issue for riders and handlers, and it's also potentially a welfare issue for the animal because they can seriously hurt themselves while having a seizure," says Richard. "In severe cases, I've seen them fracture bones in their legs and if they fall, they can damage the eye that's against the ground."

Sometimes, it's a series of unexplained injuries that points Richard towards a possible diagnosis of seizures: "Quite commonly, these horses have histories of being found with cuts on them and then later it becomes obvious that it's because they've been having seizures. It's quite useful in these situations to set up video cameras in their stables."



Seizures often begin in parts of the body associated with fine movements – which in the horse is likely to be the lips

WHY DOES IT HAPPEN?

THE cause of a seizure is usually unknown.

"If the seizures are repeated and manifest in the same way, that tells you that there is a localised region of the brain that has some abnormality," says Richard. "But why that particular region might be like that, who knows."

Richard has noticed one common theme in the cases he's seen – the age of the horse.

"They're usually 10 years plus, which suggests it's more likely to be a secondary issue rather than inherited." Although there is an exception to that: "It is seen occasionally in very young Arabian foals, but they typically grow out of it."

When presented with a case, Richard starts with a thorough physical and neurological examination.

"Often blood tests, sometimes cerebrospinal fluid. Sometimes we'll anaesthetise the horse for an MRI scan, but that's very expensive. The problem is that most of the tests come back normal. Only on very rare occasions might you detect an obvious cause like a tumour."

Other possibilities range from an injury to inflammation or recent viral infection.

"The same is true in dogs and many humans," Richard points out, "so it's perhaps not surprising we don't get to the bottom of it in horses either."

WHAT CAN BE DONE?

RICHARD advises thinking carefully about how much investigating to do.

"You're looking at several thousand pounds that could have been spent on treatment instead. If the tests come back as normal, and the horse is still having seizures, then the vet's role is to advise the owner appropriately about the tricky decisions ahead.

"If the seizures are very mild and transitory, then the option might be to do nothing and accept that it happens occasionally. If the horse is having frequent, generalised seizures involving collapse, then that's potentially dangerous because you never know when it will happen."

Richard's advice depends on the individual circumstances: "I will spend an hour or more talking to an owner to find out how experienced they are, are there children involved, are there other horses around and so on."

Anti-seizure medications are available, but they have varying degrees of success and are expensive: "Sometimes people run out of money and are forced into a decision they possibly should have made six months earlier, especially if the medication isn't controlling the seizures."

Richard would like to see further investigation of the efficacy of anti-seizure medications.

"We don't really know how well they work – a lot of what we know is taken from humans or dogs." But he acknowledges it's not easy to do. "The challenge is, it would need to be a large-scale study using horses with naturally occurring seizures, but they're not very common and difficult to identify."

When medication does work, a horse can return to ridden work if certain criteria are met.

"I base it on the DVLA's advice for drivers with epilepsy," says Richard. "I typically recommend no ridden work for at least six months to a year and suggest that the owner keeps a diary of episodes. If the horse is seizure-free for the agreed period, they can think about ridden exercise again." **H&H**

NEXT WEEK **Joint injections: potential problems and reducing the risk**

Pictures by Getty Images and Alamy