



Grass sickness affects the horse's nervous system and is often fatal. The disease occurs almost exclusively in horses with access to grass but the cause is unknown. Until the cause is known, it is difficult to give sound advice regarding prevention, however, the more you know about the disease, the better your chances of preventing it occurring are.

What is grass sickness?

Grass sickness, also known as equine dysautonomia, is a disease of horses, ponies and donkeys in which there is damage to parts of the nervous system which control involuntary functions, causing gut paralysis and often colic. Unfortunately it is often fatal, but it should be remembered that it is much less common than other causes of colic from which it must be distinguished. The disease occurs almost exclusively in horses with access to grass but the cause is unknown. The disease occurs throughout the year but mainly between April and July with a peak in May. In some years, a second, smaller peak occurs in the autumn or winter.

Great Britain has the highest incidence of grass sickness in the world and it occurs in most areas of England, Wales and Scotland, especially on the east side. It also occurs to a lesser extent in northern Europe. It is very rare in Ireland and North America but a condition indistinguishable from grass sickness is seen in the southern part of South America and the Falklands.

What causes grass sickness?

The cause of grass sickness is unknown despite 100 years of investigation. Many potential causes have been examined over the years including plants, chemicals, bacteria, fungi, viruses, insects and metabolic upsets. A common suggestion by horse owners is that mineral or vitamin deficiencies may be the cause. None have any proven link with the disease, although selenium deficiency, which results in reduced levels of protective antioxidants in the body, may have some role to play. Grass sickness does not appear to be contagious and the type of damage to the nervous system suggests that a toxic substance is likely to be involved. A major line of investigation at present is the role of soil borne bacterium *Clostridium botulinum* type C as the cause of grass sickness. It has been discovered that the concentration of *C. botulinum* type C toxin is high in the intestine of acute cases and that horses with low levels of antibody to the bacteria and its toxin are at increased risk from the disease.

Grass sickness affects horses, ponies and donkeys, and there have even been cases in a captive zebra and a Przewalski's horse. It used to be thought that Clydesdales were more susceptible and that Shetland ponies and thoroughbreds were resistant but this has been disproved and the incidence in different breeds reflects their numbers in the general population in the worst affected areas of the country.

Grass sickness occurs at all ages from young foals to over 20 years but most commonly at 2-7 years with a peak at 3 to 4 years. The reason for the age distribution is uncertain although young foals are very rarely affected. The lower incidence in older horses, and surviving horses in a group in which a case has occurred suggest that animals exposed to the causal agent may develop a degree of resistance to the disease.

What makes my horse prone to the disease?

Grass sickness, as its name suggests, is strongly associated with grazing but occasionally there is no recent history of access to pasture. In these rare cases, hay has been implicated as the source of the causal agent. Most cases have been at grass full-time or during the day, but the disease can affect horses that have only a few minutes of access to grass daily. Giving concentrate feeds at grass does not have a protective effect.

Certain fields may be "bad" for grass sickness. Animals that have been on affected properties for less than 2 months are more likely to develop the disease. Commonly, only one horse is affected at a time but "outbreaks" with several cases in a period of a few weeks are not infrequent.

There is no clear association with type of pasture (new ley, permanent pasture, hill grazing, clean or 'horse-sick' pasture) but recent evidence suggests that high nitrogen content of soil and soil disturbance may be risk factors. While it was previously thought that grass sickness was more common in pastures with a high clover content, recent studies indicate that it can also occur on pastures with no clover.

Equine grass sickness (EGS)



Recent studies have shown that increased numbers of horses on the pasture, certain methods of mechanical droppings removal and presence of domesticated birds on fields may also be risk factors. In those studies, the authors did not differentiate between types of mechanical droppings removal, but they thought that paddock sweepers specifically increase the risk of recurrence of grass sickness on previously affected paddocks. This was thought to be due to soil disturbance and contamination of grass, and possibly spreading of causal factors or agents over the pasture. They also considered that if the soil remains undisturbed, vacuum droppings removal or manual removal might actually be protective against the recurrence of grass sickness.

Stress appears to be a factor in predisposing to the disease and a significant number of animals have a history of recent stress including recent purchase and mixing with strange horses. Animals in good to fat condition also appear to be predisposed.

Results of two surveys suggest that the risk of developing grass sickness is slightly higher in horses that are wormed more frequently with certain types of wormers. However, it should be emphasised that the consequences of not worming can be very serious and it is not suggested that owners should decrease their use of wormers. There is also no indication that wormers themselves are the actual cause.

In one survey of weather conditions in the two weeks preceding multiple-case outbreaks, it was found that cool, dry weather with a temperature between 7 and 11°C was recorded in a statistically significant number of instances. This may partly explain the higher incidence of the disease in the eastern side of Britain where such conditions are more prevalent.

How do I know if my horse has grass sickness?

Grass sickness occurs in three main forms, acute, subacute and chronic, but there is considerable overlap in the symptoms seen in the three forms. The major symptoms relate to partial or complete paralysis of the digestive tract from the oesophagus (gullet) downwards.

In acute grass sickness, the symptoms are severe, appear suddenly and the horse will die or require to be put down within two days of the onset. Severe gut paralysis leads to signs of colic, including rolling, pawing at the ground and looking at the flanks, difficulty in swallowing and drooling of saliva. The stomach may become grossly distended with foul-smelling fluid that may start to pour down the nose. Further down the gut, constipation occurs. If any dung is passed, the pellets are small, hard and may show a 'cheesy' coating of mucus. Fine muscle tremors and patchy sweating may occur and the eyelids droop. In this form, the disease is fatal and the horse should be put down once the diagnosis is made.

In subacute grass sickness, the symptoms are similar to those of the acute disease but are less severe. Accumulation of fluid in the stomach may not occur but the horse is likely to show difficulty swallowing, mild to moderate colic, sweating, muscle tremors and rapid weight loss. Small amounts of food may still be consumed. Such cases may die or require to be put down within a week.

In chronic grass sickness, the symptoms come on more slowly and some cases show relatively mild, intermittent colic. The appetite is reduced and there will be varying degrees of difficulty in swallowing but salivation, accumulation of fluid in the stomach and severe constipation are not a feature. One of the major symptoms is rapid and severe weight loss that may lead to emaciation. Previously, it was thought that nearly all such cases died and the few that survived made only a partial recovery and were subsequently useless for work. This is now known to be incorrect.

How can my vet tell if my horse has grass sickness?

If your horse shows suspicious symptoms, it is very important to call the vet out straight away. Not all affected animals show all these signs and it can sometimes be very difficult for your vet to distinguish grass sickness from other causes of colic, difficulty in swallowing and weight loss. This is compounded by the fact that there is no non-invasive test for diagnosing the disease in the live animal although some tests are useful in ruling out other causes of the symptoms.

A definite diagnosis can be made only by microscopic examination of nerve ganglia after death or by surgical removal of a piece of small intestine by opening the abdomen. Characteristic degenerative changes in the nerve cells can then be demonstrated in the tissues. A test involving application of 0.05% phenylephrine eye drops, which reverses the drooping eyelids seen in grass sickness, can also be useful.



Can my horse be treated for grass sickness?

As previously stated, treatment should not be considered in acute and subacute cases. However, in a chronic case, if your horse is not in much pain, can still eat at least a small amount and is still interested in life, treatment can be attempted.

The correct selection of potentially treatable cases using these criteria is essential, as not all chronic cases will respond. Treatment of chronic cases involves provision of palatable, easily swallowed food, eg chopped vegetables, grass and high energy concentrates soaked in molasses. It is essential that foods high in energy are consumed. Nursing is also vital; the patient requires constant stimulation by human contact, frequent grooming to prevent them becoming sticky with sweat and, in some cases rugging up, which has been found to reduce sweating and prevent hypothermia. Appetite stimulants may also help.

What will happen to my horse if it gets grass sickness?

All acute and subacute cases, where the disease comes on quickly and severely, are fatal. With careful attention to the management regime, about 50% of chronic cases with milder signs may recover. Contrary to commonly held views, 41% of recovered cases in one follow-up study were back in work, including hunting, racing and eventing; 33% were being hacked, preparing for competitive work or being used for breeding; the other 26% were still gaining weight and recovering at the time of the survey. None of the survivors were described as being of no use. This represents a major improvement in the outlook for chronic cases compared with the situation before the late 1980s.

How can I prevent my horse from getting grass sickness?

Until the cause is known, it is difficult to give sound advice regarding prevention. In areas where the disease is prevalent, stabling the animals during the spring and early summer will reduce the likelihood of disease. Following the discovery of an association with weather, some owners living in affected areas now stable their horses when dry weather with a temperature of 7-11 degrees C (44-52 degrees F) has persisted for 10 consecutive days.

Stabling is particularly advisable for a new horse that has been moved onto property where the disease is known to occur. If certain fields are "bad" for the disease, they can be grazed by other stock, especially in spring and summer. If a case occurs amongst a group of horses, it is probably best to move the others out of that field provided this does not involve too much stress associated with transportation or mixing with strange horses.

Avoidance of other risk factors should also help prevent cases occurring.

Do other animals get grass sickness?

In the early 1990's, a disease almost identical to grass sickness was discovered in hares, some of which occurred on pastures where there had been recent cases of the equine disease. Soon after, it was discovered that the disease also affects wild and domestic rabbits. However, there is no evidence that hares, rabbits and horses can pass the disease to each other. Dogs and cats also develop a similar disease but it is not associated with eating grass. Thankfully, there is no human equivalent of grass sickness.

Where can I find out more about grass sickness?

The Equine Grass Sickness Fund is an organisation dedicated to supporting and advancing research into grass sickness and further improving the treatment of it. Visit their website for information on current research, advice and much more.

Research into the cause and prevention of this distressing disease is expensive, so the Fund relies on donations from the public. If you would like to know more about supporting grass sickness research, contact the Equine Grass Sickness Fund, The Moredun Foundation, Pentlands Science Park, Bush Loan, Penicuik, Midlothian, EH26 0PZ, Scotland. Tel: 0131 445 6257; Fax: 0131 445 6235; Email: equine@mf.mri.sari.ac.uk; Website: www.grasssickness.org.uk.

If you want any other information on health issues concerning your horse please contact Hampden Veterinary Hospital on 01296 423666 and we will be happy to advise you.