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EXCELLENCE IN PRACTICE

# EQUINE

review

**AUTUMN 2008**  
XLVETS OCTOBER EDITION

**EQUINE  
INFLUENZA**  
THE ANIMAL HEALTH TRUST

**JOINT INJURY  
& DISEASE**



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**XLVets** is a novel and exciting initiative conceived from within the veterinary profession. We are all independently owned, progressive veterinary practices located through Great Britain committed to working together for the benefit of our clients.

**Our intentions...**

Our vision is that by sharing experience, knowledge and skills we can deliver the highest standards of service and care to all our clients. As members of XLVets, we have worked hard to create a model of how veterinary practices can work together as an extended national team, sharing the latest ideas and passing on the benefits that arise to all our clients.

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FOR IMPROVED HEALTH, BETTER PERFORMANCE  
AND A HAPPIER HORSE.

# horse

## HEALTH PLANNING

Build a trusting relationship with your veterinary surgeon to look after your horse's health and allow us to help you get the support and backup required from other paraprofessional such as farriers, physiotherapists and nutritionists.

**Introduction by Lesley Barwise-Munro**

BSc, BVM&S, Cert EP, MRCVS

Alnthumbria Veterinary Group

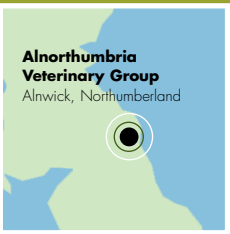
The core programmes for horse health plans are:

- Routine vaccination against:
  - Equine Influenza
  - Tetanus
  - Equine Herpes
- Routine dental care
- An effective worm control programme
- Annual horse health checks:
  - especially important for geriatrics
- Appropriate feeding and nutrition
- Regular foot care

In addition to these your equine vet can assist and advise you about other aspects of your horse, pony or donkeys well being and performance.

This newsletter explains some of the health issues that can be taken into consideration by horse health planning.

**Lesley Barwise-Munro**  
Alnthumbria Veterinary Group

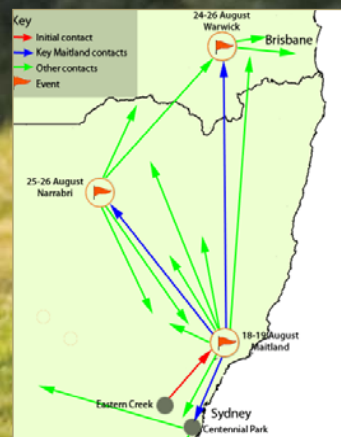


WAGING A WORLD WAR ON DIFFERENT FRONTS

# CONTROLLING EQUINE INFLUENZA

Dr Richard Newton

Head of Equine Epidemiology and Disease Surveillance  
Animal Health Trust, Lanwades Park, Kentford, Newmarket



A simplified diagram of tracing horse movements during the first week of the Australian equine influenza outbreak showing the impact of events in the spread of the disease. (Figure courtesy of New South Wales Department of Primary Industries)

## EQUINE INFLUENZA

Many horse owners in the UK will be aware that between August and December 2007 Australia, that large 'island' in the southern hemisphere, suffered its very first outbreak of equine influenza following the introduction of the disease via infected horses imported from Japan.

Unfortunately the quarantine procedures designed to specifically contain any such disease incursion proved inadequate in containing the infection and the virus managed to be transferred to the highly susceptible horse populations of New South Wales and southern Queensland. In this article we examine the situation regarding equine influenza in the United Kingdom and review how horse owners in this country can protect their animals against this infection and contrast the approaches taken in Australia and elsewhere around the world with dealing longer term with equine influenza.

### A brief guide to equine influenza

- Equine influenza viruses are similar to influenza viruses that affect humans and birds, although they are specifically adapted to mainly affect horses. Transmission of infection is via small aerosol droplets emitted from the respiratory tract during harsh coughing and sneezing, which are particular clinical features of influenza.
- Equine influenza viruses can be characterised according to two proteins on the outer surface of the virus. The H (haemagglutinin) and N (neuraminidase) proteins are given different numbers according to their type and their combination determines the strain of virus that is involved. For example we have heard much in the news about H5N1 bird flu that can be particularly harmful when it infects humans.
- The only equine influenza viruses that are currently circulating are H3N8 viruses and recently these have been shown to be able to also infect dogs as well as horses. There have been several examples of the transfer of infection from horses to dogs in the USA, UK and most recently in Australia.
- Susceptible horses infected with H3N8 equine influenza virus will typically show clinical signs of fever, loss of appetite and depression, harsh-dry cough and nasal discharge. A particular feature of the disease is the very rapid spread among and between groups of animals. This was

a particular feature of the early stages of the Australian outbreak, in which almost all horses in affected areas were fully susceptible to the infection.

- The rapid spread of the disease makes controlling it difficult among large populations of animals, especially if they are mixing together and moving around such as when attending shows and events. Controlling the infection is best achieved by restricting movement and mixing of horses and use of vaccination which greatly reduces or even eliminates the shedding of virus.

The UK has been intermittently affected by H3N8 equine influenza virus since the infection first transferred to Europe in 1965 following its initial recognition among racehorses in Miami, Florida, USA in 1963. A large outbreak in the UK in 1979 had a significant impact on the British horse industry and affected many racing and non-racing horses throughout the country. Mandatory vaccination of racehorses was subsequently introduced in the UK in March 1981 in response to the impact of this outbreak. Since then many other equestrian organizations, including the Pony Club, have adopted similar compulsory vaccination programs in order to help prevent the damaging effects of this infection on their activities. Indeed a respected researcher in South Africa said following the large outbreak in that country in 2003 following the scrapping of mandatory vaccination only a few years earlier - 'Equine influenza doesn't kill horses, but it does kill horse events!' The fact that no days racing have been lost in the UK due to equine influenza since mandatory vaccination was introduced in 1981 demonstrates a measure of success of the mandatory vaccination program.

### Influenza vaccination requirements under the Jockey Club Rules of Racing:

- 1st vaccination of the primary course is given on day 0.
- 2nd vaccination of the primary course is given between 21 and 92 days (i.e. 3 weeks to 3 months) after the 1st vaccination.
- 3rd vaccination ('six month booster') is given between 150 and 215 days

after the 2nd injection (i.e. 5 to 7 months).

- Subsequent booster vaccinations are given at intervals of no more than 12 months ('annual booster').
- No horse is permitted to race unless vaccinated 7 or more days previously and the primary course has been completed.

Equine influenza vaccines in Europe are licensed for use on the basis of proven efficacy and safety. Several different makes and technologies of vaccines are available and their use ultimately depends on the preference of the individual veterinary surgeon. Mandatory vaccination requirements (the so-called 'Jockey Club Rules') mean that all racehorses and most high level competition horses, are vaccinated against equine influenza but vaccination remains largely optional for the pleasure and recreational horse population, although some events require vaccination. Based crudely on estimates of horse numbers and known vaccine dose sales, it is believed that probably only up to 30% of horses in the UK are vaccinated against equine influenza. Although equine influenza is diagnosed most years in the UK, particularly among non-vaccinated horses that mix at shows and events in the summer months, since 1979 there have only been two large equine influenza outbreaks, one in 1989 the other in 2003. In neither year did the outbreaks lead to mandatory movement restrictions being enforced nor any race meetings being cancelled.

It is widely accepted that horses vaccinated against equine influenza do not necessarily have 100% protection against the disease. However, it has been repeatedly shown, that horses that are vaccinated against the virus shed significantly less virus for a shorter period of time compared to non-vaccinated horses. Consequently, vaccinated horses are less likely to contribute to the onward spread of equine influenza than non-vaccinated horses. By way of example there were markedly different financial and welfare consequences of significant influenza outbreaks that occurred in Thoroughbreds in 2003 in the UK and South Africa in which

## Controlling Equine Influenza Dr Richard Newton Continued...

mandatory vaccination was and was not respectively adopted. These differences may serve to highlight both the financial as well as animal welfare benefits of equine influenza vaccination in horses, particularly where there is little prospect for disease eradication. In these areas the threat of emergence or introduction of the infection from national and international trade in horses within and between large trading areas such as the EU and North America is in reality ever present.

Periodically, vaccinated horses do develop clinical signs of equine influenza. Investigations conducted to identify reasons for this apparent failure of vaccine efficacy (so-called 'vaccine breakdown') have shown that there is need for inclusion of epidemiologically relevant viral strains in the most potent and/or technologically advanced vaccines in order to maintain protective immunity. On-going monitoring of the evolution of circulating equine influenza through global surveillance is critical to maintain up to date vaccine strains of H3N8 equine influenza virus.

'Herd immunity' is the phenomenon whereby vaccination of a proportion of a population confers protection on the remaining non-vaccinated portion of that population. Although it is widely accepted that for an infectious disease such as equine influenza the proportion of vaccinated animals required for effective herd immunity is very high (perhaps in excess of 90%), experience in the UK indicates that this most significantly applies to those parts of the population that move and mix most frequently and are consequently at highest risk of contracting and passing on infection. The young, mobile racing Thoroughbred population is an example of this and consequently it is believed that the relatively low frequency

of non-epidemic equine influenza that occurs in the UK despite relatively low overall vaccine coverage is in large part due to the protective effect from targeted vaccination in Thoroughbreds and other highly mobile horses. The racehorse population is therefore significantly less important in the transmission of influenza around the UK than if they were not vaccinated. In this way the strategic vaccination of the most highly mobile and mixing parts of the equine population in the UK, irrespective of their breed and use, is a critically important factor in preventing the spread of this potentially highly infectious disease and contributes to the relatively low level of disease that is seen in the UK.

The control and eradication of equine influenza in Australia was the clearly stated aim of the Australian Government veterinary authorities throughout the outbreak and indeed this does appear to have been achieved as the last confirmed case of equine influenza was in December 2007 and Australia was declared officially free of the disease in June of this year. Although many in Australia readily accept the important role of vaccination in assisting with the control and eradication of equine influenza, this was used only as an emergency measure. Therefore, it is likely following a national debate on the subject that with eradication of the disease, vaccination against equine influenza will again be banned in Australia.

However, it is unlikely that a similar eradication program and stopping of vaccination could ever be realistically achieved in the UK or elsewhere in the EU and USA as the disease is non-notifiable, has been ever-present for over 40 years ('endemic') and is in large part effectively controlled already by vaccination. This contrast in approach to control equine influenza highlights the different sides of the same coin that apply to the 'cost' of animal disease control. Whilst 'endemic' areas such as the EU and USA have an on-going cost of vaccination and surveillance to pay for in achieving control, the Australians will need to pay for on-going stringent pre- and post-importation quarantine and biosecurity procedures in order to remain free of equine influenza in the future. However, as events in Australia and Japan in 2007 and those in South Africa in 2003 demonstrate, these measures may not always be enough to

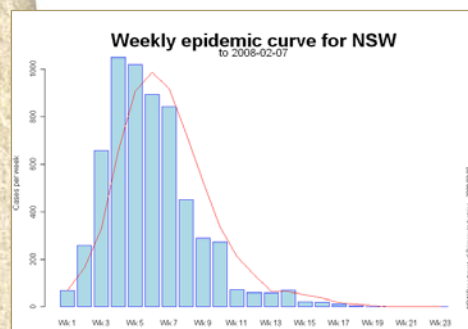
prevent the introduction of equine influenza into a country with a largely susceptible horse population. It is possible that with equine influenza eradicated, quarantine may again be breached in the future resulting in similar levels of disease and associated financial and social impacts. The threat of significant failure of vaccination and consequential widespread disease similarly hangs over those areas that live with the 'endemic' form of the infection.

In conclusion, we should commend Australia in its measures to achieve eradication of one of the world's most highly infectious diseases of any species and to do this in such a short period of time. This provides an exemplary blueprint for others around the world dealing with similar exotic animal disease threats. In the meantime we continue to try and effectively control equine influenza in the UK and elsewhere using a different approach and animal health professionals worldwide do all they can to ensure that there is no further incursions of equine influenza into Australia from the wider 'endemic' areas, with which Australia continues to trade.

### About the Animal Health Trust

The Animal Health Trust (AHT) is an independent charity located just outside Newmarket, Suffolk which has been improving animal health and welfare for more than half a century. Employing over 200 scientists, vets and support workers, it conducts research aimed at developing better means of diagnosing and treating diseases of companion animals. Its two clinics, one for dogs and cats and one for horses, provide specialist referral services to the veterinary profession.

The Trust represents the science behind animal welfare, with its clinics and research facilities working closely together to benefit not only individual cases, but the veterinary profession as a whole, internationally. Disease and injury is the biggest threat to the health of our pets, and we aim to bring these statistics down as much as we can. The AHT's successes in research include major breakthroughs in anaesthesia and surgical techniques, as well as the development of vaccines against diseases such as canine distemper and equine influenza.



The number of new infected premises recorded each week of the outbreak to the end of December 2007. A 3-week rolling average number of new cases is also shown (red line). (Graph courtesy of New South Wales Department of Primary Industries).

The Trust's aim is to gain a clear understanding of diseases in animals through scientific endeavour and its application to their welfare. AHT develops new technology aimed at improving diagnosis, prevention and cure of inherited, infectious and non-infectious diseases. Multidisciplinary teams investigate disease at the molecular, cellular, whole animal and population level and we apply state of the art equipment and resources to develop our expertise in specific clinical and scientific disciplines.

The Animal Health Trust has long been renowned for its work on the prevention, diagnosis and treatment of equine infectious diseases. In particular, the Trust has focused on monitoring and surveillance and, with funding from the Horserace Betting Levy Board, and has established a programme for detailed surveillance of equine influenza in the United

Kingdom. To enhance the achievements of this programme the AHT has developed a sentinel practice scheme through which equine veterinary practitioners throughout the UK participate and contribute to the Trust's overall surveillance endeavours. This scheme is kindly supported by Intervet/Schering-Plough Animal Health.

The Trust receives no government funding and is heavily dependent on generous donations and grants, to maintain its position at the forefront of veterinary progress for the benefit of generations of companion animals around the world. To find out more about the work of the Animal Health Trust, its surveillance into equine infectious diseases including influenza and how you can support it please visit the Trust's website at:

<http://www.aht.org.uk/>

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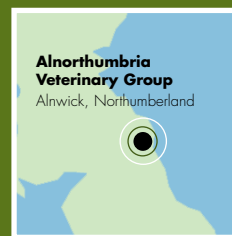


# THE FUTURE OF EQUINE WORM CONTROL

Edward Chinn BVetMed MRCVS  
Alnorthumbria Veterinary Group



Alnorthumbria  
Veterinary Group  
Alnwick, Northumberland



## The two main ways to help control worms in horses

**1 Pasture Management**  
The aim is to minimise  
pasture contamination  
with worm eggs.

**2 Worming Medicines**  
To kill adult worms and  
therefore reduce worm  
eggs in faeces: There  
are 2 main strategies:  
i) Routine worming  
ii) Targeted worming

**Edward Chinn**, Alnorthumbria Veterinary Group

Intestinal worms resistant to worming medicines are a real concern with no new classes of worming medicines due to be released in the foreseeable future. It is the responsibility of horse owners to minimise the number of resistant worms developing.

There are two important ways to help to achieve and minimise the number of resistant worms developing:

1. good pasture management
2. responsible use of worming medicines

Targeted use of wormers will usually reduce the amount of wormers used whilst still controlling worm infestation in the horse. In turn this will reduce worming medicine bills, reducing unnecessary medicine exposure and is more environmentally friendly.

**To test for worm resistance to worming drugs you need to have a faecal sample analysed before and 10-14 days after worming.**

1 Pasture Management

Good practice:

- Picking up pasture droppings is a very effective way of reducing worm eggs on pasture and thus reducing the worm burden on that pasture.
- Co-grazing with sheep and cattle: Sheep and cattle will graze close to horse droppings mopping up the worm larvae which will not cause harm to them, but result in a reduction in the number of horse worm eggs on the pasture. Sheep and cattle are affected by different gastrointestinal worms to horses.
- Rest over-grazed pastures for at least three months. This allows worm eggs to hatch and die before they can infect another horse.
- Stocking density: Ideally no more than one or two horses per acre.

Caution

- Harrowing scatters horse faeces including worm eggs and larvae over the pasture. In a dry hot climate spreading out the faeces leads to rapid drying and killing of the worm larvae. In a damp humid climate this is not helpful as the worm larvae survive and contaminate the entire pasture. Most of the U.K. for much of the year is damp and therefore harrowing pasture is harmful.
- Shared grazing with horses of a high or unknown worm burdens.

2 Worming medicines

The aim of using worming medicines is to reduce faecal worm egg output and therefore reduce contamination of the pasture. To ensure the wormer works effectively and to reduce the risk of resistance developing:

- Use the correct dose for your horses weight, do not under dose (one syringe will not be enough for many large horses). Use a weigh tape or a weigh bridge at your veterinary surgery.
- Do not over use wormers. Follow manufacturers dosing intervals. Table 4 shows the manufacturers recommended dosing intervals for some wormers.

To test for worm resistance to worming drugs you need to have a faecal sample analysed before and 10-14 days after worming.

Routine Worming	Targeted Worming
Use wormers at fixed intervals according to manufacturers recommended dosing interval.	Use wormers when guided by results of faecal worm egg counts after discussion with your vet.
Use tape wormers twice yearly after the first frost and 6 months later.	Use tape wormers once or twice yearly depending on circumstances. This can be guided by results of blood samples.
Treat against encysted stages at least once yearly (autumn).	Treat against encysted stages at least once yearly (autumn).

Table 1

**i) Routine worming** involves worming horses at the manufacturers recommended dosing interval and rotating the class of drug used each year (see table 4 for the different classes of drugs, not different trade names). Horses are often wormed more than is necessary using this method increasing the likelihood of resistance developing. If your horse is sharing grazing with young stock, horses of unknown or high worm burdens and you can not collect faecal samples from individual horses, then this may be the safest strategy.

**ii) Targeted worming** - Only use wormers when you need to.

This strategy relies on regular testing of faecal samples, wormers are given in association with the results of worm egg counts. Advice will depend on the circumstances. Only use worming medicines on those horses with greater than 200eggs per gram of faeces. Recent research has shown that low levels of worms within the gut can increase a horses natural immunity to worms without

compromising their health. When worming medicines are used it is best to alternate the class of wormer used on a yearly basis, see table 4 for the different drug classes. This method of worming is usually cost effective by reducing the amount of wormers used saving money and the likelihood of resistant worms developing on the pasture. There are certain limitations to this strategy:

- Tapeworm burden cannot accurately be determined in faecal samples, Tapeworms must be treated a minimum of once a year, however twice a year is necessary if there is a high turnover of horses or high stocking density. Blood samples can be used. Encysted small red worms will not be found in faecal samples. It is advisable to treat once yearly, with an effective wormer (either five days of Panacur equine guard or Equest).

As part of our clients individual and yard health plans we send out reminders when faecal samples are required.

Advantages of a targeted worming program
Most horses are exposed to less wormers
Reduced wormer bills
A low worm burden will increase a horses natural resistance to worms
Reduces the likelihood of resistant worms
Reduces the amount of wormers excreted onto the pasture where they kill other insects such as dung beetles.

Table 2

Yards

All horses sharing pasture should ideally follow the same worming program although this can be difficult to achieve when there are many different owners involved. If your horse is grazing with other horses of unknown worm burdens then you do not know what your horse is being exposed to. It is still advantageous to get faecal samples analysed by your veterinary surgeon but it is advisable to use a wormer a couple of times a year even if the faecal worm egg counts are at a very low level. It is always best to get advice from your veterinary surgeon about the best worming strategy for your horse for your individual circumstances.

When new horses arrive on a yard they should be wormed, seek guidance from your vet as to the most suitable product. This should ensure that they will not spread worm eggs onto the pasture. There is no one single worming program that is ideal for every horse. Your own veterinary surgeon is the best person to advise you on an appropriate worming program for

your horse as part of an individual or yard health plan.

Young Stock

Foals and horses up to four years of age have less natural resistance to worms and are therefore are more susceptible to worm infestation. In most situations this can still be controlled with a targeted worming program, testing faecal samples and blood test for tape worms to decide when horses need worming. It is beneficial for these horses to have low levels of worms for them to develop their own natural resistance to worms. In most instances foals do not need to be wormed until three months of age. It is important to rotate the class of drug used as there are reports of resistant worms in young stock. See Table 4 for the different classes of wormers.

Pregnant Mares

It is important that pregnant mares are wormed as part of either a routine or targeted worming programme but check that the medicine is licensed for used in pregnant mares.

Trade Names	Drug Class	Duration of Action	Action
Equest	Moxidectin	13 weeks	Highly effective against adult and encysted stages of red worms. Persistent effect.
Vectin Eqvalan Eraquel	Ivermectin	8-10 weeks	Highly effective against red worms but not encysted stages of tapeworms.
Strongid P Pyratape P	Pyrantel Tartrate	4-6 weeks	Kills red worms. Double dose kills tapeworms.
Equitape	Praziquantel	6-12 months	Tapeworms only.
Panacur	Fenbendazole	6 weeks	Kills red worms, some resistance. 5 day course kills encysted stages. No effect against tapeworms.
Equimax Eqvalan Duo	Praziquantel+ Ivermectin	8-10 weeks	Highly effective against tapeworms and red worms. Not encysted stages.
Equest Pramox	Moxidectin + Praziquantel	13 weeks	Highly effective against adult and encysted stages of redworms and tapeworms.



**Opposite:** Table 4: The classes of worming medicines currently available and some of the trade names.



# Care of the OLDER Horse

As your horse gets older, you may notice some changes in his behaviour and appearance. The problems most often noticed include difficulty eating, stiffness, changes in coat and changes in weight, however other conditions may also occur. This article is designed to address the common problems encountered in the older horse.

By Heather Urquhart  
Scarsdale Veterinary Group

Heather Urquhart BVMS MRCVS  
Scarsdale Veterinary Group



## Dental Problems:

As some of you may be aware, horses are born with their adult teeth already formed, and these erupt constantly throughout life and are naturally ground down as the horse eats. It therefore follows that these teeth will eventually wear out. Each tooth tapers towards the root, and, as the horse gets older and the teeth erupt further through the gums, 2 main problems can occur. Firstly, as more of the tooth root becomes exposed, diastemata, or gaps, can form between the cheek teeth. These gaps can then easily become impacted with food material, which can cause pockets of infection and related gum disease if left untreated. Secondly, teeth will become loose and eventually fall out when the root is sufficiently short to prevent good hold by the gums. In addition, the opposing tooth can become overly long as it will have nothing to grind against. This can result in the horse being unable to chew food properly, which causes food to drop from the mouth, commonly known as 'quidding', and ultimately lead to weight loss.

It is advisable to have your elderly horses teeth checked at least every 6 months by a veterinary surgeon, and more frequently if you notice problems such as weight loss or 'quidding'.

## Weight Loss and Feeding:

Your horse may lose weight as he gets older. This is often noticed more during the winter months when the grass is poorer and weather colder, although it may also be noticed during the summer.

There are many possible reasons for the weight loss, including poor teeth, insufficient food, cold weather, worm burden and health problems such as liver disease or tumours.

If you are concerned about your horses weight then it is important to have a check up with your veterinary surgeon. In most cases a full clinical examination will be performed, including examination of the mouth, and a blood sample and faecal sample will be taken. Further tests may be required depending on clinical findings and initial test results - these may include a rectal examination, ultrasound scan and abdominal tap to obtain a sample of peritoneal fluid.

In some cases we need to amend the horses diet. If your horse has few teeth left or is suffering from other dental problems, then it may be necessary to introduce a hay replacement diet. This consists of large volumes of sloppy, easily digested food to substitute for the hay and grass normally eaten. In other

cases the normal diet can be altered to increase energy and protein availability. It can be useful to work out the horses exact diet, weighed in grams, and have this information available when the vet visits.

It is worth noting that many weight loss problems can be resolved with a dental rasp and increased food intake, however some may require more extensive treatment. It is also important to remember that thinner animals will feel the cold more, and therefore may need rugging and/or stabling during the winter months, even if they happily lived out with no rugs during their younger years.

## Stiffness and reluctance to move:

You may notice that your horse becomes more reluctant to move, slower moving or lame as he gets older. This is often attributable to osteoarthritis, especially if your horse has had a long or hard ridden career. It is important to contact your vet if you notice any problems like this - in some cases it may be advisable to perform a lameness work up to diagnose the exact problem, in others your vet may prescribe non-steroidal anti-inflammatory drugs such as phenylbutazone, and a joint supplement to help prevent further damage. Please see the article on joint conditions for more information.

Some older horses may also have difficulty getting up after they have been lying down or rolling, and this often results in them becoming cast (stuck) in the stable. It is therefore important to ensure that the stable is sufficiently large for the size of horse, and is well bedded with bedding material banked up the walls to protect your horse should he become stuck. Many horses will be able to get to their feet if moved to the middle of the stable, however some do require sedating in order to move them, and most benefit from some pain relief before attempting to encourage them to rise. If you do find your horse cast and cannot encourage him to get up then it is important to remain calm and contact your veterinary surgeon - whilst waiting for a visit it is usually beneficial to ensure you have plenty of manpower to help move him and get him to his feet.

It is also important to keep your horse warm in cold weather, as often chilly or damp conditions can exacerbate the problems.

## Other problems:

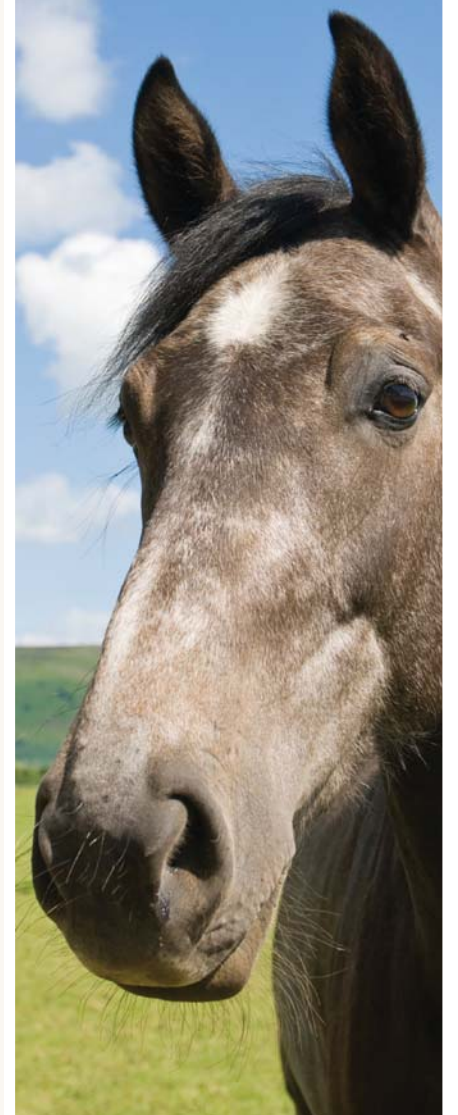
You may notice that your horses coat seems to be getting longer than usual during the winter months. This may be completely normal, however may be a sign of Cushings syndrome, an endocrine disease of older horses and

ponies. Other signs to look out for include drinking more than normal, bulging fat pads above the eyes, and a tendency to develop laminitis.

Eye problems such as cataracts are also more common in older horses, as are some heart conditions.

Many XLVet practices offer Annual Health Checks. Most of the problems discussed in this article would be highlighted during such examinations. Hopefully by dealing with problems at an early stage your horse can continue to enjoy a good quality of life for a long time to come.

It is advisable to have your elderly horses teeth checked at least every 6 months by a veterinary surgeon, and more frequently if you notice problems such as weight loss or 'quidding'.



# HOUSING AIR HYGIENE & *Respiratory Health*

**Colin Mitchell**, Scott Mitchell Associates

After musculoskeletal disease, respiratory disease is possibly the next most common cause of poor athletic performance or days lost from training.

Respiratory disease has multifactorial causes and can depend on complex interactions between:

- the horse (ie - age, immune status, genetic predisposition)
- the disease (virus, bacteria and their ability to cause disease)
- the environment (exercise, mixing, air hygiene)

Much is known about the causes, prevention and treatment of respiratory disease and attention is increasingly focussed on air quality and its association with disease.

The signs of respiratory disease can be mild or more severe, but usually include:-

- reduced athletic performance
- increased respiratory rate
- increased respiratory effort
- nasal discharge
- ocular ( around the eye ) discharge
- cough
- enlarged lymph nodes under the jaws
- high temperature/off colour/reduced appetite.

Your vet will need to perform a clinical examination if respiratory disease is suspected. In many cases, this may also be confirmed by further investigative tests such as blood samples or endoscopic examination. This is a procedure where a flexible camera (endoscope) is passed up the nostrils, across the back of the throat and then down into the windpipe to the entrance of the lungs. The area from the larynx ('voicebox') to the nostrils is known as the upper respiratory tract (URT), while the windpipe and lungs are known as the lower respiratory tract (LRT).

Along this 'journey', the vet is examining the respiratory tract for swellings, presence of mucus, lymph node enlargement and foreign bodies. In many cases, horses will tolerate the examination very well, since their respiratory tract is not as sensitive as ours. Sedation is usually required, but not always. Another useful adjunct to endoscopy, which is normally carried out at the same time, is either a tracheal wash (TW), or a broncho-alveolar lavage (BAL). There are pros and cons to each technique but the principles are the same - a sample of mucus from the lungs is taken and examined microscopically which can be very useful in confirming a diagnosis of lower respiratory disease, particularly when the only presenting sign may be poor athletic performance.

**Colin Mitchell** BVM&S CERTEP MRCVS  
Scott Mitchell Associates



Historically, URT disease was thought to be very common, but the tide of opinion seems to be shifting towards LRT disease being more significant and possibly, in some cases, a cause of suspected URT disease.

**Broadly speaking, LRT disease falls into two main categories:-**

1. Infectious respiratory disease
2. Inflammatory Airway Disease

Although some degree of overlap is possible.

**The infectious agents that can cause disease are:-**

1. Viruses - influenza, Herpes virus and rhinovirus.
2. Bacteria - Streptococcus zooepidemicus/ pneumoniae/equi (Strangles) and Mycoplasma

All of these infections will cause signs of respiratory disease which, although not usually serious, can disrupt training and exercise regimens. They can also trigger an episode of Inflammatory Airway Disease in the lungs - a condition which can have a very protracted recovery and can, in many circumstances, remove a horse from competitive work for the rest of the season.

Most will be aware of the recent difficulties of the Strangles vaccine, which is unavailable at present. However, influenza and herpes virus vaccinations are available, used widely in competitive horses and are safe and effective.

It is safe and acceptable for horses to remain in work following influenza virus vaccination.

Vaccines available today represent up-to-date biotechnology which is also used in the manufacture of human vaccine products.

**In summary -**

Influenza virus causes an explosive outbreak of respiratory disease due to its very contagious, (that is, easily spread) properties.

Herpes virus is slower to spread and can cause respiratory disease in individuals and outbreaks, abortion, illness in foals and occasionally a form of neurological disease that causes paralysis. These signs can be prevented with simple vaccinations.

Additionally, almost all competing horses require a valid influenza vaccination card to enter competitions and shows.

Inflammatory Airway Disease ( IAD ) is a syndrome of lower airway inflammation, signs of which may include cough, nasal discharge, reduced high speed performance and protracted recovery after exercise. Affected horses are not 'sick', but signs of respiratory infection ( high temperature, cough, 'pus-like' nasal discharge and enlarged lymph nodes under the chin) may initiate an episode of IAD. However, IAD is frequently without signs - coughing is only present in 1 in 3 horses with IAD.

IAD has been most extensively investigated in young Thoroughbred racehorses because it is relatively common and because it is recognised as a common cause of reduced athletic performance. Even in the absence of infectious agents viruses/ bacteria), high speed exercise, younger individuals, mixing of

horses, transport, ambient air temperature, high stable dust concentration, genetic predisposition and airway hyper-sensitivity have been implicated in IAD.

Airway hypersensitivity can occur after a period of infectious respiratory disease. This is an increase in sensitivity of the airways to inhaled dust, bedding and urine fumes etc. The reaction of the airways is exaggerated and they become inflamed, narrow in size and produce more mucus in response to the 'triggering factor'. Research has shown that after a respiratory infection it takes the lungs 4 - 8 weeks to fully recover back to normal. This period represents a time of potential hypersensitivity and continuing IAD.

Simply housing horses will stimulate airway inflammation. Both the composition and concentration of stable dust are heavily influenced by the nature of feed, bedding, ventilation and management practices. Innocuous components can become significant in the face of airway hypersensitivity due to pre-existing inflammation. Horses stabled in environmental conditions likely to induce IAD are more likely to suffer IAD and take longer to recover.

Intense exercise has a number of effects on the airways : the increased movement of air increases particulate contamination of the airways; cold ambient conditions can result in micro-damage to the lining of the airways; the lungs own immune defence mechanisms are reduced.

Studies have shown that there is increased incidence of IAD when stables have no individual windows and the stable air has a 'smell' (for example - bedding.)

Sadly, much of the traditional buildings used for stables in the UK are less than ideal for horses - this is because they usually lack enough windows for air inlets and outlets. Combine this with the traditional hay fed diets and straw bedding, and we have a recipe for lung disease.

Most professional horse keepers would agree that a haylage based diet with a change of bedding optimises lung health. The choice of bedding depends on many factors, but generally includes one, or a combination of:-

- Shredded paper
- Rubber matting
- Sand
- Shavings/sawdust (MUST be dustextracted)
- Wood chip/wood bark products

The ideal stable has windows, above horse height, at the front and back of the stable as well as a vented roof. Deep litter bedding systems are generally best avoided, as is mucking out whilst the horse is in the stable. Even with the best stable management possible, the air inside is not as clean as outside air.

In conclusion, respiratory disease represents a significant problem to most equine athletes and attention to air quality and hygiene can reduce likelihood of disease as well as improving recovery time from respiratory disease.



Victoria Copas MA VetMB MRCVS  
Hook Norton Veterinary Surgeons



Hook Norton  
Veterinary Surgeons  
Banbury, Oxfordshire



# DERMATOPHYLUS

## INFECTION (MUD FEVER)

By Victoria Copas  
Hook Norton Veterinary Surgeons

Mud fever is a general term to describe a bacterial infection of the skin of the lower leg. It is also called 'cracked heels' or 'greasy heels'. It is a painful and unpleasant infection and can be distressing for the horse and owner to treat. All but the most straightforward of cases warrant examination and treatment from your vet. In this article, we hope to explain how the bacteria invade the skin, why it is a challenge to treat and offer techniques to help combat the infection.

### The culprit

The bacteria that causes the infection is called *Dermatophylus congolensis* (*Dermatophylus* means skin loving). It lives in the soil and can survive for years in the environment. The bacteria cannot penetrate healthy skin, but once the skin's defences are impaired the bacterial spores enter and cause an acute inflammatory reaction. The same bacteria can also infect the skin of the back, shoulders and rump which is called rain scald.

### Weakened skin defences

Factors predisposing to mud fever relate to weakened skin defences:

- Constant wetting of the skin or frequent cycles between wet and dry skin reduce natural oils creating inflexible skin prone to cracks.
- Bacteria can enter the skin through any cut or abrasion (including friction from exercise boots). Muddy conditions are not always necessary to cause infection.
- Bandaging wet legs cause the skin to remain damp underneath - this opens the skin's pores unnaturally leading to bacterial invasion.

### Signs of infection

Mud fever can be extremely painful to touch. The skin oozes serum which causes the hairs to matt together. Scabs and crusts reveal yellow/green pus or reddened ulcers when pulled away from the skin.

The infection is usually seen around the coronet, heel bulbs and pastern. The limb often needs to be lifted and the heels opened out to see the true extent of the infection. The scabs can reach higher up the legs and belly in some cases. It is more common on white legs with pink skin, and in horses with feathering and frequently affects more than one limb.

In more advanced cases, the bacteria multiply rapidly under the skin which causes pain, swelling and lameness. In severe cases, the whole limb can swell up and a secondary lymphangitis can develop.

### Treatment

There are no hard and fast rules to treat mud fever - what works for one horse is often hopeless in another! However, there are some basic principles which should be followed to maximise the chances of clearing the infection.

### Remove the cause

Keeping the skin clean and dry is the basis of treating the infection. This may require the horse to be taken off the mud and stabled. No matter how good your antibiotic cream is, the infection will not be eradicated if the horse is standing continuously in deep mud, or the legs are frequently wet.

### Debridement

Scabs should be removed since they harbour large populations of the bacteria. Avoid abrasive scrubbing and peeling of scabs since it is extremely painful and can damage the underlying skin. It is better to debride the skin gently over 12-24hrs by applying an emollient cream (petroleum jelly, Dermisol, Aqueous cream) to the skin. Wrap the legs loosely in clingfilm and cover with gamgee and a bandage and leave for 12 hours.

Next, wash the legs gently in dilute antibacterial wash (Hibiscrub, Povidine, Malaseb). Work the wash into a lather, leave on the legs for five minutes and rinse thoroughly with warm water. The debridement can be repeated if debris is still present. The hair should be clipped from affected areas. In painful cases debridement and clipping may require sedation.

### Topical treatment

Once down to pink clear skin, antibiotic gel or ointment should be applied deep into the cracks to combat the infection. Please contact your veterinary surgeon for advice on a suitable ointment/gel. If the skin is very red and inflamed, a steroid cream can be used in the short term to soothe the skin.

A barrier cream (water-proofer) should be applied before the horse is turned out or

exercised. The legs should be hosed off after exercise/turnout and then dried naturally or with paper towel. Antibiotic ointment or gel should be applied after this, and the area left open to the air.

### Systemic Treatment

When the affected limb is swollen or painful, veterinary attention should be sought so that the horse can be treated with systemic antibiotics and anti-inflammatories. You should also ensure that your horse is vaccinated against tetanus. A horse with secondary lymphangitis (severe swelling of the whole limb) requires intensive veterinary attention in the form of intravenous antibiotics and anti-inflammatories.

### Long term treatment

It is often hard to completely eradicate mud fever, since the skin remains damaged for some time and the bacteria are present throughout the horse's environment. It is important to persevere with daily bathing and antibiotic treatment until the skin is completely clean and healed. The legs should be checked each day for signs of mud fever returning.

In problem cases, especially those with only white legs affected, your vet may take a blood test to check liver function.

### Prevention

- Ensure bedding is clean and dry.
- Avoid over-washing legs (try brushing dry mud rather than repeated hosing).
- Ensure legs are clean and dry before applying bandages.
- Rotate paddocks to avoid poaching.
- Block off gateways with electric fencing.
- Consider barrier creams if your horse is prone to mud fever (oily bases such as lanolin, petroleum jelly, Vitamin E, sulphur). Apply to clean, dry legs.
- Remain vigilant - early identification of the infection makes for rapid treatment and is the best way to prevent a lengthy and costly recovery.

Chris Lehrbach, Chapelfield Veterinary Partnership

# EQUINE JOINT INJURY AND DISEASE

Equine joint disease is typically associated with a stiff, arthritic, worn out joint in an old horse, following a busy athletic life. The reality is that joint pain is a sliding scale of severity ranging from minor sprains involving only peripheral soft tissues, through to a degenerate, rigid joint with little or no cartilage which is completely immobile. Pain can originate from any of the joint tissues including bone, cartilage, joint lining, capsule and ligamentous tissues.

As well as resulting from wear and tear, joint disease can follow a joint fracture, penetrating joint injury or juvenile developmental conditions, initiating joint pain and in some cases a degenerative process within the joint.

## CLINICAL SIGNS

Just as joint pain varies in severity, the associated clinical picture also varies. Acute traumatic fractures usually have moderate to severe pain and lameness and the joint will normally swell significantly. Acute soft tissues injuries of a joint often have a similar pattern of sudden onset lameness and localised swelling, although some joints have a tight capsule, preventing much, if any, visible swelling following trauma. Joint infections following a wound may have minimal lameness for several days before marked lameness appears, while

developmental orthopaedic disease may not cause any lameness, although the joint may be very swollen such as in osteochondrosis dissecans (OCD) of the hock.

Many horses with wear and tear injuries and cumulative joint inflammation do not have obvious lameness, but present with a range of non-specific signs, often perceived as behavioural changes.

These include an increasing reluctance to exercise, bucking, biting when being tacked up, generalised stiffness, poor gait and back pain. Back pain is frequently a secondary problem occurring in horses with multiple limb and joint lameness. Many horses are diagnosed with back injuries by lay 'back' people and are treated, frequently unsuccessfully, before veterinary attention is sought.



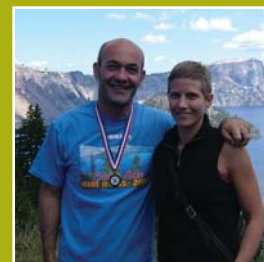
**Above:** Equine joint disease is typically thought of as a stiff, arthritic, worn out joint in an old horse, following a busy athletic life.

**Below Left:** A completely degenerate, rigid joint with little or no remaining cartilage.

**Below:** Acute traumatic fractures usually have no obvious site of moderate to severe pain and lameness and the joint will usually swell significantly.



**Chris Lehrbach**  
BVMS MVM Cert ES (Orth) MRCVS  
Chapelfield Veterinary Partnership  
with his wife Leslie.

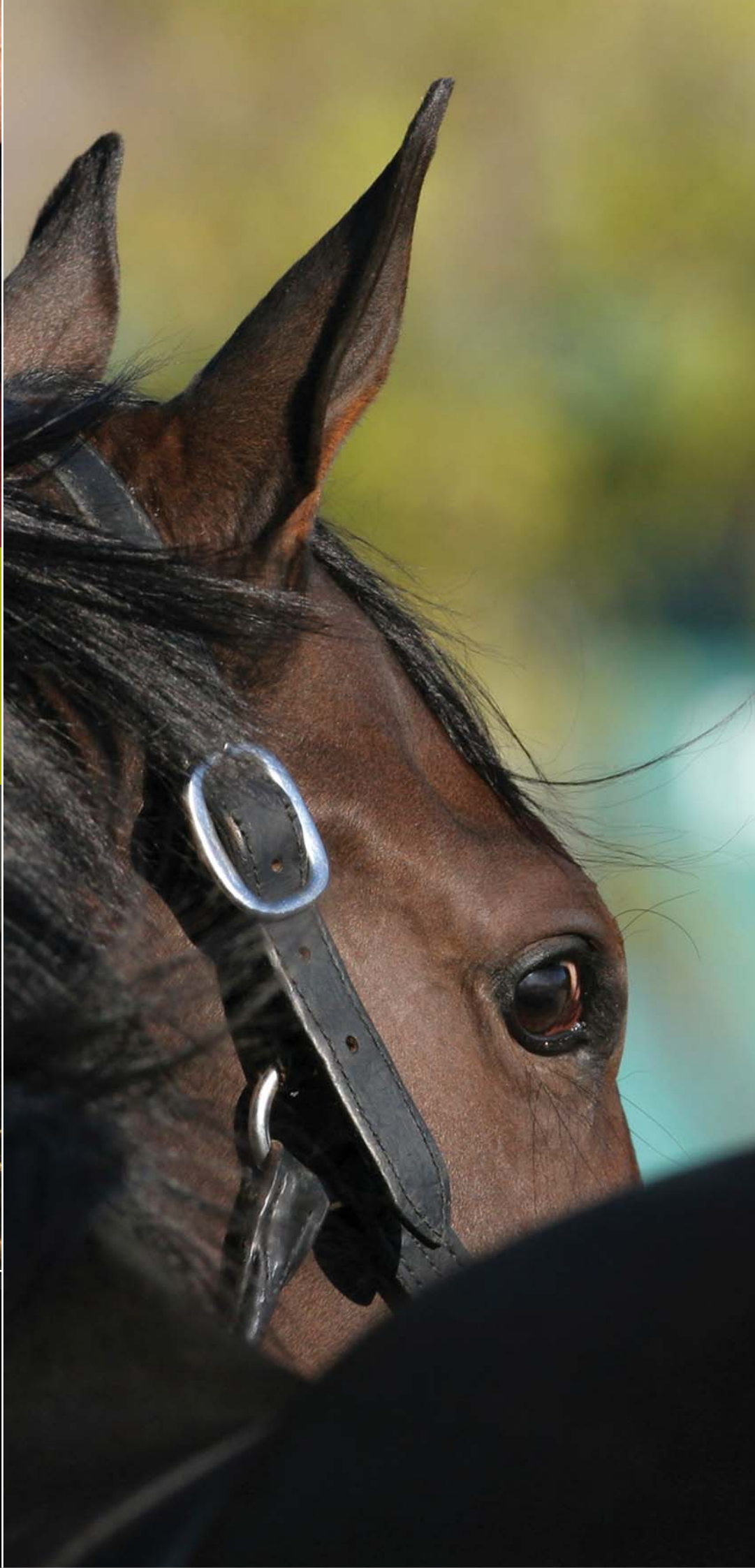




**Above:** Joints may be very swollen, as seen with OCD affecting this hock joint.

**Below:** A penetrating injury

**Bottom:** Ultrasonography can determine the extent of damage to the joint surface in a case of stifle OCD.



## DIAGNOSTIC INVESTIGATION

A diagnosis of joint injury can be straight forward requiring little more than a clinical examination, whilst in others, identifying multiple painful joints requires complex investigations including the use of nerve blocks, radiography, ultrasonography, nuclear scintigraphy (bone scan) and MRI, in varying combinations. The more involved the investigation the greater the expense. There is always more than one way to approach the investigation of joint pain and a thorough discussion with your vet is essential to decide on the most appropriate course of action for the particular circumstances.

## MANAGEMENT

Just as there are a range of disease conditions and severities affecting equine joints, a similarly diverse range of treatment options continues to evolve in the ongoing development of improved therapeutics.

Exercise modification is an integral part of treatment, ranging from complete retirement to variable periods of rest and controlled/graduated exercise, in an attempt to return the patient to the optimal level of exercise. In many cases this can be to the pre-injury level or greater. However, the working life of the individual may be extended by reducing the level of exercise. Many horses with stiff arthritic joints benefit from physiotherapy to help maintain mobility of limbs and muscle development, where certain muscle groups might otherwise tend to waste through under use.

## MEDICAL THERAPY

Drug therapy at the most basic level involves the long term intermittent or continuous use of anti-inflammatories, most frequently phenylbutazone (Equipalazone) or suxibuzone (Danilon). Although there are some risks to

long term usage, these drugs are generally very well tolerated and if used strategically and tailored to the individual patient needs, they can be a very effective means of managing pain.

The mainstay of drug therapy in equine sports medicine involves the direct injection of substances into affected joints. This might involve a single injection of anti-inflammatories for a joint sprain, through to regular intra-articular medication of a degenerate joint. The drugs most frequently used in joint therapy include cortisone products of variable longevity, alone or in combination with hyaluronic acid. Both are anti-inflammatories in their own right, the latter also encouraging joint repair, healing and normalisation of joint fluid. Poly-sulphated glycosaminoglycans (Adequan) are given as a course of intramuscular injections and work by breaking the cycle of inflammation within affected joints whilst encouraging joint healing and providing the building blocks for tissue repair.

A recent advance in treating arthritis of the hock involves the use of a drug called tiludronate (Tildren), a substance used to counter the development of osteoporosis in post menopausal women. Tildren inhibits bone breakdown in hock joint degeneration and can effectively reduce pain and associated lameness.

## SURGICAL THERAPY

In some cases of joint disease surgical therapy is either the most effective means of management or is used when non surgical management has failed.

Treatment of OCD usually involves removal of loose bone and cartilage fragments with the aid of an arthroscope (keyhole surgery). This minimally invasive technique allows a rapid return to normal joint function and physical activity.

Acute fractures affect joints in one of two ways; long bone fractures extend variable distances from the joint surface through the bone while chip/slab fractures involve pieces of bone breaking away within the joint itself. Any disruption to the cartilage surface over the fractured bone initiates an immediate inflammatory reaction, which will ultimately lead to degenerative joint disease if the fracture is not stabilised and the cartilage surface re-aligned. Continuing advances in equipment and surgical techniques have greatly enhanced the equine surgeon's ability to effectively repair long bone fractures that would previously have resulted in euthanasia. Similarly, arthroscopic removal of chip fragments allows healing of the joint surface, reducing the likelihood of degenerative changes developing.

Joint infections are very serious conditions which, at worst can result in euthanasia of the affected horse and if not treated promptly can result in degenerative joint disease. Prompt surgical flushing of infected joints with wide bore needles or using an arthroscope, following penetrating wounds, can return the joint to normal before irreversible changes occur. Foals with joint infections caused by bacteria entering from the blood stream require surgical flushing to prevent the catastrophic effects of bacterial destruction of cartilage.

Certain joints that have developed advanced degenerative changes can be surgically fused, stopping all movement and associated pain. These primarily involve the lower hock and pastern joints. Fusion of the hock by removing joint cartilage has been used very successfully to return horses to a range of athletic activities, while pastern joint fusion is generally reserved for horses with very degenerate joints or potentially catastrophic joint fractures where the aim is pasture soundness or very light ridden work.

Equine joint injury and disease includes a complex, multi-factorial range of conditions, some requiring basic investigations and treatment with a good prognosis for soundness. However, joint injuries can be difficult to localise and assess fully, necessitating prolonged investigations and therapies in order to give the patient a reasonable chance of returning to its previous athletic function.