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EXCELLENCE IN PRACTICE

EQUINE review

SPRING 2009

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BEVA Trust

PREVENTION OF COLIC
THE CAUSES EXPLAINED

EQUINE ANAESTHESIA

National DENTAL awareness MONTH
APRIL 2009

pony pages
NEW... FOR OUR YOUNGER READERS

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Excellence in Practice

SPRING 2009
XLVETS EQUINE REVIEW
THIRD EDITION

XLVets is a novel and exciting initiative conceived from within the veterinary profession. We are all independently owned, progressive veterinary practices located throughout 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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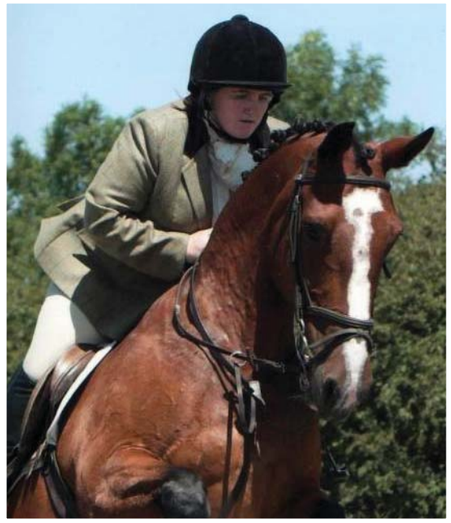


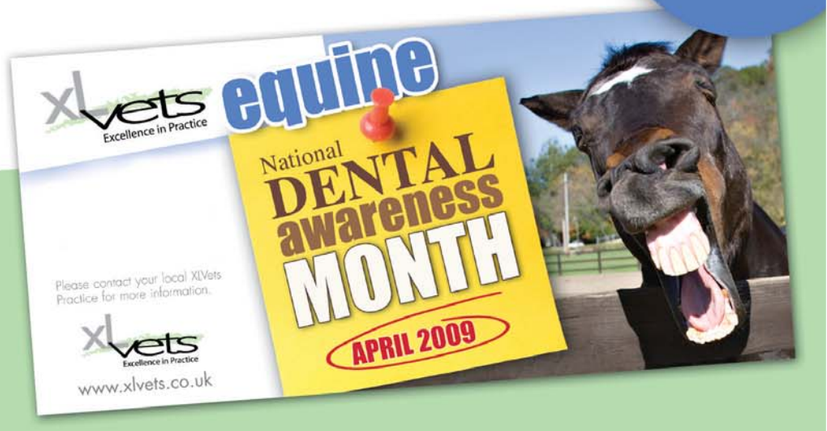
Welcome

This issue of the XLVets equine newsletter covers many important topics and we hope they will be of benefit to you and your horse. In this issue we have also introduced 'Pony Pages' which we hope will be of interest to our younger readers.

XLVets practices will be having an Equine Dental Awareness Month in April. Ask your local XLVets practice what they are doing for this month, as many will be having promotions, or offering further education on this important topic. XLVets is committed to preventative health care and regular dental work by veterinary surgeons or qualified equine dental technicians is essential.

Wendy Furness
Scarsdale Veterinary Hospital

COMING SOON



the prevention of COLIC

JULIAN RISHWORTH *BVetMed, MRCVS*
THE MINSTER EQUINE VETERINARY CLINIC

The term colic merely means the physical signs we see a horse showing when the horse experiences pain in its abdomen. The possible causes for the pain are a multitude and the term colic is often used as a general term to encompass all those potential causes.

Some research work done to try and identify things that might increase the risk of horses getting 'colic', surprisingly, showed the only statistically significant factor was not having free access to water. It was found that not having free access to water for 7 hours in a 24 hour period, raised the risk of getting a bout of colic 7-fold.

However, despite the lack of statistically significant research evidence there are several causes of colic where the risks can be reduced by the actions of you, the owner.

advice...

Following general good feeding practice; by making any changes to feed very gradually, feeding little and often rather than two large individual feeds and feeding to condition and level of work will go a long way to reducing the risks of colic bouts.

Prevention is better then cure! For further information and advice please contact your local XLVets Practice.

...the causes

Tapeworm

We know that horses carrying a high number of tapeworms in their intestine are more likely to suffer the bouts of colic pain for which we struggle to identify a cause, clinically. Tapeworms sit in a single location in the horse's gut at the junction of the end of the small intestine and the caecum. Here they can affect the passage of food material through that region of the intestine. Only in the last few years have we had a reliable test to identify which horses have tapeworms and how badly they are affected, since traditional faecal worm egg counts don't identify tapeworms accurately. Routinely, horses should be treated once a year for tapeworms (with either a double dose rate of Pyrantel or a product containing Praziquantel). If a horse is identified by the blood test as having a high Tapeworm Burden, it should be re-tested 3-6 months after treatment and if the result is still or has returned to a high level, then twice yearly tapeworm treatments would be justified.

Epiploic Entrapment

We know statistically, that we see this type of colic more commonly in horses that display wind-sucking behaviour. The Epiloic Foramen is a natural 'hole' in the abdomen, and the wind-sucking is thought to increase the chance of small intestine getting into the Foramen. While some horses develop wind-sucking as a vice, others may start as a result of pain from something like stomach ulcers; it is suggested that the endorphin release in the brain, dulls the pain of the ulcers. So ways to reduce this type of colic would be to check for Gastric Ulcers and treat for those if they are found. Trying to change the horse's environment and management to reduce the amount of wind-sucking behaviour will also reduce the risk of this type of colic.

Grass Sickness

This is a terrible condition that all too often leads to the death of affected horses. We are learning more about the condition all the time. We know that young horses are affected and that the horses are often new to the pasture on which they were grazing when the condition occurred. We know certain fields or areas have high risks and once a case of grass sickness occurs on a particular field, it should be considered high risk for the future. We see cases in two broad seasonal groups, one group during winter months (more commonly in the northern UK) and the other group in the summer months (more commonly in the southern UK). Ways to try and reduce the risk of Grass sickness would be to introduce young horses onto any new pasture slowly, by allowing access only for a short period per day initially, and increase gradually. Feed hay while out at grass to dilute the amount of grass the horse eats. Don't turn young horses out to grass when there is a frost on the grass. Don't use mechanical methods for picking droppings out of fields that involve sweeping brush actions, particularly where young horses are grazing or in fields previously identified as high risk. If current theories about the cause of Grass Sickness are proven to be correct then there is a chance that a vaccine may be available in the near future, which will be of great benefit to horse health and welfare.

Gastric Ulceration

Gastric Ulceration can be present in lots of horses yet no signs are noticed. Sometimes, mild colic after eating hard feeds is noticed and some cases of pelvic flexure impaction respond well to treatment for Gastric Ulceration, suggesting there may be some interference in the gastro-colic reflex contributing to the development of the impaction.

Prevention of Gastric Ulceration can be helped by ensuring as much access to grass as possible, attempting to feed the horse in a trickle fashion and to keep as much of the horse's day as possible occupied by eating. After a therapeutic dose of the treatment Gastroguard, continuing treatment at a lower dose can be very useful in preventing return of the condition.

Worm Burden

Good worm control to keep the horse's abdominal worm burden to a minimum will help keep gut function to an optimum. Pasture management is the gold standard in worm control and picking droppings at least twice weekly is sufficient in most cases. Faecal worm egg counts can check the effectiveness and target horses requiring treatment with wormers. Using anthelmintics (wormers) appropriately; by rotating the active ingredient annually, treating for tapeworm once per year (early autumn) and treating for encysted redworm (late autumn or early spring).

the itchy HORSE

This article is going to take a brief look at some of the main reasons your horse may be itchy. Vets refer to itchiness as pruritus. There are parasites which live on or in the superficial layers of the horse's skin and these are referred to as ectoparasites, such as lice and mites. Biting insects can also cause pruritus and examples of these are the midges (Culicoides sp) causing Sweet Itch and the black fly.

Fiona Nobbs BVSc MRCVS
Hook Norton Veterinary Surgeons

ECTOPARASITES...

...Lice

There are two types of lice that may affect the horse, the chewing or biting louse and the sucking louse. Lice tend to affect unkempt horses and more commonly affect the horse in the winter months. The horse presents with matted hair, excessive scaling of the skin and the hair is lost in clumps. Lice can be seen by the naked eye often around the areas where the hair has fallen out. The sucking lice are more commonly found around the base of the tail and the mane.

Treatment options for lice involve topical treatments using a shampoo or wash. Normally two treatments are required 10 to 14 days apart. If you think your horse has lice then speak to your local XLVets practice regarding treatment. Lice do not survive for long off the horse but nevertheless the grooming kit, stable and rugs should also be treated using an insecticide.

...Mange Mites

Chorioptic mange

Chorioptic mange caused by Chorioptes bovis is commonly seen in the heavier type horse with eathered legs. Affected horses are often pruritic, manifested as stamping, biting, scratching or rubbing of their legs. They commonly develop secondary lesions including, crusting, scaling, hair loss and thickening of the skin.

These lesions can be found on both the front and hind legs, more usually on the lower limb. Some horses may only present with crusting on the lower part of the leg. The prevalence and severity of chorioptic mange increases in the winter. A diagnosis is often made based on clinical signs, however the mites can be found by taking superficial skin scrapes, brushings or tape impressions. There are no drugs specifically licensed to treat chorioptic mange in the horse, however vets do use several different products, your local XLVets practice will be able to provide further information and advice.

The life cycle of the mite is about 3 to 4 weeks, but in suitable conditions adult mites can survive for up to 69 days away from the horse. Therefore the environment should be treated as well to prevent re-infestation using a pyrethroid spray such as Acclaim or a product called Ban Mite.

Harvest mite

Trombiculidiasis is caused by Neotrombicula autumnalis (harvest mite) larvae infestation. It tends to affect horses at pasture and is more commonly seen on chalky soils. The disease is seen in late summer to early autumn, coinciding with the larvae hatching. The mites are found on the lower legs and cause pruritus, secondary hair loss and self inflicted trauma, similar to chorioptic mange. Some horses may develop a hypersensitivity. Again there are no products licensed to treat this disease, your XLVets practice will be able to provide further information and advice on treatment options.

SWEET ITCH

Sweet Itch is the lay term used to describe a hypersensitivity to the Culicoides species of midges. It is a disease that affects around 3% of the horse population in the UK. Horses and ponies of all breed types are affected. This is a seasonal disease from March to October, although with the changing climate conditions this season is getting longer.

It is an excessive reaction to the saliva of the midge following a bite. This sets up an allergic reaction in the affected horse. The pruritus is very intense resulting in secondary lesions due to the self-trauma. These lesions are normally found along the dorsal midline, especially the mane and tail regions. They can also be found along the belly if the horse rubs its abdomen along the ground. Due to the severity of these secondary lesions Sweet Itch can present serious welfare and management issues.

There is no cure for this disease and the mainstay of treatment involves preventing the midge from biting the horse in the first place. This can be in the form of a rug that covers the whole horse including the head and lower abdomen. The rug should be close fitting to prevent the midges from flying under the rug and made of a tight mesh-like material. It should be used from the end of February until the end of the midge season.

Horses should be stabled at dawn and dusk, the times of day when midges are most active. If there is no stable available then use grazing on well drained land with no standing water as the midge breeds around water. Benzyl benzoate solution is licensed for the management of Sweet Itch. It should be applied twice daily to the mane and tail if there are lesions present and applied 3 to 4 times a week for routine use. Fly repellents containing the active product permethrin can prove effective, although due to requirement for frequent application they can prove expensive.

Antibiotics are often prescribed if the lesions become secondarily infected. The pruritus can be controlled short term with the use of corticosteroids in injection form, administered by your vet or using tablets. Corticosteroids should not be used for the long term control of Sweet Itch due to their side effects and the potential risk of laminitis. It is therefore important to try and prevent the midge from biting initially. Recent research has looked into a vaccine for Sweet Itch. If you are interested in the vaccine then your local XLVets practice will be able to provide you with more information.

Similium equinum (BLACK FLY)

This is a small black fly that likes to feed on the hairless areas of the body, such as the inside of the ears and also along the midline of the abdomen. These flies cause intense pruritus. It is often possible to see and feel crusting on the skin where the flies have bitten. The underside of the abdomen often swells as a result of the biting. The bites can become secondarily infected and this intensifies the pruritus. As with Sweet Itch preventing the flies from biting is the preferred option for management and this should include fly repellent, face masks that have full ears and rugs that cover the whole abdomen. If the bites become secondarily infected then they can be treated topically with an antibacterial wash such as Hibiscrub (hibitane) and also systemically with antibiotics.

IN CONCLUSION

Pruritus in horses is a common problem seen by vets. It can be seasonal in nature depending on the cause; lice and chorioptic mange are more often seen in the winter and the biting insects affect horses in the summer. Close observation and good general horse management can prevent many of these diseases arising in the first instance and also help with early and more effective treatment. If you think your horse is suffering from pruritus then please contact your local XLVets practice.

the BEVA trust

BEVA Trust; Assisting the association achieves its mission to encourage research into equine problems.

BEVA Trust; To promote the veterinary and allied sciences in relation to the welfare of the horse.

> ACE is a British equine charity that opened its doors 8 years ago as a small washing facility for owners to clean their animals. It has since grown into a large and extremely busy equine hospital with 30 in patient boxes and a team of 3 Egyptian vets.

The BEVA Trust, the charity of the British Equine Veterinary Association, was established in 1966. The Trust's main remit is to support equine education and research to improve the welfare of horses and donkeys, both at home and overseas. Over the last few years the Trust has increased its activity in the Developing World, and is currently funding educational courses overseas in collaboration with Animal Care Egypt (ACE).

The BEVA Trust is funding British vets to visit ACE to provide crucial practical training courses. Gigi Kay, Veterinary Consultant to ACE Luxor explains.

'The name Luxor conjures up images of glorious ruins dating back thousands of years, of sailing sleepily down the Nile on feluccas or wandering the markets buying gold and gems. What many people don't realise is that Luxor is also home to thousands of equids who work in the streets and fields in and around the city. In fact there often seem to be more horses and donkeys on the crowded streets than there are cars. Working long hours, pulling overwhelming loads and competing for space with lorries and buses it is no surprise that the incidence of serious accident and disease is high.

ACE is a British equine charity that opened its doors 8 years ago as a small washing facility for owners to clean their animals. It has since grown into a large and extremely busy equine hospital with 30 in patient boxes and a team of 3 Egyptian vets. ACE vets treat approximately 100 equids every day. This remarkable expansion has been funded mostly by British tourists who are constant visitors to the hospital and its patients. Accepting the care of a sick animal is always a serious responsibility but it is particularly so when the animal in question is the only means of income generation for its owner and his entire family. Therefore ACE is committed to providing the highest standard of veterinary care that is possible in these circumstances.

To help achieve this aim ACE is being very kindly supported by the BEVA Trust who has undertaken to provide funding for speakers for a series of CPD sessions on essential subjects in equine medicine. BEVA's support will bring both technical expertise and moral support to our team of young and committed equine vets and will vastly improve their confidence and competence.'

The BEVA Trust has also recently joined forces with World Horse Welfare to support an extensive education programme in Romania.

Project Romania is a five-year programme of re-education for all those involved with horses, the aim of which is to improve horse welfare. There are a million working horses (one horse for every 27 people!) in Romania and Project Romania will furnish those involved with their care with horse welfare expertise through practical courses and seminars.

Education will be tailored to the various categories including government vets, private practitioners and veterinary students, as well as farriers and saddlers and then dissemination on throughout the community. The welfare information is intended to be communicated with helpful, easy to implement ways of immediately improving the welfare of horses with the benefits of good management made clear to the owners - a prolonged working life and a fitter horse is more capable of meeting the demands of their job. Prof Sandy Love BEVA Trust Chairman confirms, 'The BEVA Trust is proud to support Project Romania. Project Romania is a practical, far reaching programme effective on many levels, concerned with best practice delivered in a practical realistic and, most importantly, sustainable manner.'

Much of the work of The BEVA Trust has been support for professionals who provide health services to the horse. However, increasingly the Trust has provided educational resource for those absolutely and directly involved with the horse, i.e. owners, trainers, riders and grooms.

In 2008 the Trust introduced nationwide Practice Client Meetings which have proved extremely popular. These are informative evenings in which The Trust funds a speaker to talk on an up-to-date veterinary subject. Designed for owners, trainers, riders and grooms, these evenings are able to raise awareness about various topics in an informal convivial environment.

FIND OUT MORE...

To find out more about the Trust or to make a donation to the work of the BEVA Trust please contact Jocelyn Telford, BEVA Trust Secretary

01638 723 555

jocelyn@beva.org.uk

www.beva.org.uk

With your help the Trust is able to continue its work both at home and overseas and so achieve its mission to improve veterinary science in relation to the welfare of the horse.

Registered charity number: 247 618

WHAT'S **INVOLVED** IN

equine ANAESTHESIA

Mark Tabachnik BVM&S, BSc, CertEP, MRCVS
Wright and Morten Veterinary Surgeons

Equine general anaesthesia (GA) is a really underrated speciality in veterinary medicine. We all know that from time to time a horse has to have an operation, and that must involve it going to sleep and then waking up again, but do you know much about the bit in the middle? The equine surgeon is always the headline grabber - the person who fixes the broken leg or sorts out the twisted gut, but what about the person at the other end doing the equally important job of keeping the horse asleep while the surgeon is working on it?

Although there has been a revolution in the number and type of equine drugs available to us, and improvements in anaesthetic monitoring equipment, the mortality rate from equine anaesthesia still remains at 1% (Box 1). That means that one in 100 healthy horses undergoing routine surgery will die under GA. The job of the anaesthetist is to try and minimise that, and make sure that this doesn't happen. This article will take you step by step through the stages involved.

1 THE PRE-OPERATIVE ASSESSMENT

Once a horse comes in for a GA it's important to first check it is fit and healthy. This involves a full clinical examination. We take the horse's temperature, listen to its heart and lungs and check for any illnesses. We also take a blood sample which gives us a good idea of the state of the internal organs, the liver and kidney function, and the red and white blood cells. This may be important for example if the horse has a mild infection as indicated by a change in white blood cells which would mean we may want to delay surgery until he was healthy again.

We then weigh the horse (Box 2). This is obviously really important. We need a really accurate weight so that we can administer exactly the right amount of anaesthetic drug.

Where possible, we clip the surgical site before surgery. This is to cut down on unnecessary delays that would lengthen anaesthetic time. We also remove the horse's shoes. This is both to stop the horse striking itself during induction of anaesthesia, and to protect the padded knockdown box floor.

2 THE PRE-MEDICATION

The horse is starved the night before surgery. This is to empty the stomach of food. A full stomach would press on the horse's lungs during GA and make breathing more difficult.

We then put a catheter into the horse's jugular vein. This means we can give the horse drugs without using any needles, and that we always have rapid access to the horse's circulation as well as a portal for administering fluids during the GA.

The horse is then pre-medicated with some sedatives. Commonly used sedatives include a group of drugs called 'alpha agonists'. These provide potent and reliable sedation, and are commonly used in equine practice for all sorts of standing procedures such as sedation for clipping or dental work. Sedation calms a horse down, keeping it nice and relaxed, and it is led into the knockdown box.

The knockdown box is a padded cell with padded walls and floor. The walls and floor are nice and soft so that the horse doesn't injure itself either during induction of anaesthesia when it goes from standing up to lying down, or during recovery from anaesthesia.

We also give the horse painkillers. These will be well into its system for when it really needs them - at the end of the operation.

3 THE INDUCTION

When the horse has been pre-medicated for about 5 minutes, we then give him the drugs for the GA. Presently the safest solution appears to be a combination of two drugs, diazepam and ketamine. After about a minute, the horse gently falls onto the padded floor. We then insert a breathing tube in through its nose and into the trachea, or windpipe. This is called an endotracheal (ET) tube, and it's then cuffed to ensure a solid seal.

We then winch the horse up, and out of the induction box onto the operating table. Once on the operating table, we connect the ET tube to a breathing circuit connected to an anaesthetic machine.

4 MAINTENANCE

Whilst the horse is asleep on the table we give it a combination of anaesthetic gasses and oxygen to breathe. The most commonly used anaesthetic gasses are called halothane and isoflurane. We can turn these up or down depending on whether we feel the horse is getting too deeply asleep or too awake (we call this the depth of anaesthesia).

The table the horse lies on is specially padded. It can be configured into various positions. It is designed to provide comfort and support to the anaesthetised horse.

This is really important as excessive pressure on individual muscles can cause them to become crushed and damaged (see Box 3). Horses are generally operated on whilst lying on their backs (we call this 'dorsal recumbency') or on their sides ('lateral recumbency') depending on the nature of the procedure required, and the ease of access for the surgeon.

Meanwhile, the surgical site is prepared by the nurses, thoroughly cleaned and scrubbed and sterilised using hibiscrub and surgical spirit. The surgeon scrubs up, gets into surgical gloves and a gown, and covers the horse in sterile drapes. The operation begins…

At the anaesthetist's end we are continually checking on the progress of the horse. We check certain eye reflexes to tell the depth of anaesthesia. We also check the heart rate and breathing rate. The horse is attached to various monitors. From these we can watch its ECG; that's the electrical activity of his heart, blood pressure, blood saturation with oxygen, and breathed out carbon dioxide levels. All of this information is important in establishing the health of the anaesthetised horse (Box 4). The duration of operations varies. It can take anything from an hour to three hours, depending on the procedure involved.

5 RECOVERY

After the operation is finished, the horse is winched back into the knockdown box. It is given pure oxygen to help it blow off the remaining anaesthetic gasses. We also give some sedation so the horse comes out of the anaesthetic as smoothly as possible. We try and keep horses as pain free as possible; the painkillers given during the induction will now be working, and we often also use opiate drugs such as morphine and pethidine.

Horses take various times to come around after a GA, from 15 minutes to an hour. We try to keep them calm and quiet because we want them to stand up again very smoothly. There is a risk if the horse crashes around that he might damage himself, or even fracture a bone. When the horse finally stands up, we check them all over for injuries, and then leave them quietly in the box while they find their feet. After an hour or so, we take them back to their own box for a well-earned feed.

box 1...

...Why is equine anaesthesia so risky?

That's a good question, and it's one that has been asked by numerous vets, scientists and researchers over the last decade. Whereas the death rate for humans undergoing general anaesthesia is less than one in 10,000 cases, and less than one in 700 for dogs and cats, the equivalent death rate in horses remains at 1%. This figure is much higher for horses undergoing colic surgery. Studies have highlighted various risk factors. These included horses undergoing fracture repair, surgery out of hours at night or weekends, and very young foals, below one month of age. The risk of death also increases with age from 14 years and older. Of those healthy horses which unfortunately die under anaesthetic, a third of cases are related to heart attacks or collapse of the cardiovascular system and a third of cases are due to horses fracturing limbs or myopathies during the recovery phases of anaesthesia (Box 3).

box 2...

...the importance of weighing horses

Because all anaesthetic drugs are given on a weight based dosage, it is very important to have an accurate weight for a horse. Both underdosing and overdosing of anaesthetic can be very harmful. Too little, and the horse may have a poor induction and become excited, almost 'fighting' the anaesthetic. Too much and the horse may be anaesthetised too deeply. Traditional weigh tapes can be used, but they can be inaccurate by as much as 10% body weight. Better are measurements of horse's girth and length, which are then put into algorithm tables. The gold standard is to weigh the horse on a weighbridge, which will give accuracy to better than 1%.

box 3...

... Myopathy

'Myopathy' is a complication peculiar to the horse. It literally means 'inflammation of the muscles'. Horses' muscles need a constant supply of oxygen-rich blood to function. Without it the muscles will become starved of oxygen and start to cramp. This is common during equine anaesthesia as the horse spends a long time lying down in one position whilst being operated on. The weight of the horse literally squashes the muscles it is lying on and prevents blood entering.

As anaesthetists, we can attempt to lessen this effect using a number of techniques. We used padded operating tables, which the muscles can sink into like a soft bed, and we position horses carefully, removing pressure on individual muscles wherever possible.

We also monitor the horse's blood pressure. Blood pressure is a good gauge of how well the blood is flowing into these lower muscles. At high blood pressures, the heart is able to pump blood through the muscles, but at lower pressures, the muscles will not have an adequate blood supply.

We can attempt to keep the horse's blood pressure at optimum limits by using plenty of intravenous fluids pumping around the body, and by using as little inhaled anaesthetic as possible. If blood pressure falls to unacceptable limits, we used drugs such as dobutamine and phenylepherine to increase it.

Nevertheless, some horses will still suffer from myopathies. In its mildest form this would be a 'pins and needles' cramping sensation which is relatively treatable and which a horse will recover from in a few days. In its more severe form, when a lot of damage has occurred, the horse will be in much pain. Sometimes they are unable to stand after anaesthesia, as the muscles are unable to support their weight.

box 4...

...Monitoring equipment

The age-old adage is that the best monitoring equipment is the anaesthetist's hands. This is quite true. The anaesthetist will be able to tell you far more about the state of a horse undergoing anaesthesia than any individual monitor, and will be juggling a great deal of rapidly changing information about the state of the horse, and adjusting his anaesthetic plan accordingly. Helping them along are various machines:

AN ECG MACHINE

This gives a measure of the horse's heart rate, and rhythm, and will record abnormal heart electrical activity or abnormal heart beats.

A BLOOD PRESSURE MONITOR

These can be either attached directly to an artery via an indwelling catheter or to a cuff around the horse's tail. The blood pressure information is essential in helping prevent myopathy, particularly in longer duration anaesthetics.

A CAPNOGRAPH

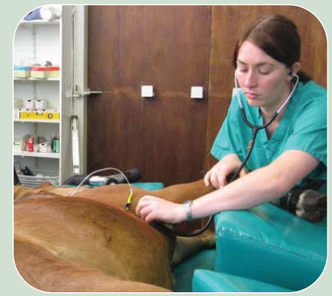
This machine measures carbon dioxide concentration in breathed out air, which gives us information as to whether a horse is breathing properly or not.

A PULSE OXIMETER

This is attached to the horse's tongue via a small clip. It measures the percentage of blood saturated with oxygen. This tells us whether the horse is breathing in enough fresh oxygen.

ARTERIAL BLOOD GASSES

Referral and University hospitals may well have blood gas machines. These can analyse an arterial blood sample and detect whether oxygen and carbon dioxide levels are acceptable.



ANGULAR LIMB DEFORMITIES in foals

RICHARD PARKER *MA VetMB CertES (orth) MRCVS* ENDELL EQUINE HOSPITAL

In all horses and ponies correct limb conformation is essential to ensure athletic ability and the prevention of **premature degenerative joint disease** (arthritis) causing lameness.

Straight limbs and even foot placement are crucial to the well-being of all horses and ponies. From the time a foal is born until the age of 2-3 years, an incredibly fast process of growth and maturation takes place. Within this period the most crucial time in terms of limb conformation is the first three months of life. This is the period of fastest bone growth in the foal. A combination of long legs and rapid growth rate can predispose foals to the development of bent or crooked limbs.

Many people will have seen foals born with 'knock knees' or 'splay legs' and in most foals these apparent problems will resolve themselves quickly as the foal becomes active and the joints tighten and stabilise in the first 14 days after birth. In some cases, however, deformed legs may still be apparent after several weeks or can even begin to develop in the first three months of life. In these foals, treatment is often required to ensure straight limb growth and normal development.

Definition of angular limb deformities...

A foal with 'wonky' legs is said to have an angular limb deformity (ALD, angular limb deviation) which refers to a deviation of the normal straight limb conformation when viewed from the front or rear. Foals born with 'knock knees', have a 'carpal valgus deformity'. Valgus refers to outward (lateral) deviation of the limb below the point of the deformity. The term varus refers to the medial (inward) deviation of the limb below the point of the deformity.

There are two types of angular limb deformities in the foal; congenital deformities (present at birth) or acquired deformities (the problem develops days to weeks after birth).

CONGENITAL DEFORMITIES

Congenital angular limb deformities may be caused by several different factors. They may occur in twins or premature foals. They may commonly occur in dysmature (growth retarded) foals, which have not developed correctly due to various factors such as health problems in the mare or nutritional imbalances during pregnancy. Genetic factors and abnormal positioning of the foal in the uterus may also play a role. The small bones of the knee and hock may be incompletely ossified (soft cartilage) at birth which leads to crushing damage to these soft bones during exercise in the first few days of life.

ACQUIRED DEFORMITIES

In older foals (over 8 weeks) acquired angular limb deformities may occur due to physical injury to a joint or growth plate (physis) of a bone. There can be a discrepancy in growth at the growth plate between the inside and outside of the leg leading to the limb deformity. Angular limb deformities can also develop as a result of bone infections and joint ill, which directly affect the growth plate. In addition, developmental factors such as an unbalanced diet, excessive exercise and trauma can result in ALD in older foals.

Although all breeds are susceptible to the development of ALD, thoroughbreds appear to be particularly affected. There have been reports of up to 11% in this breed. There is no difference in the incidence of ALD between colts and fillies.

CONSEQUENCES OF ALD IN FOALS

The consequences for foals with bent or crooked limbs can be very serious. A crooked limb will place abnormal loads on developing joints, especially in the knee and hock.

A consequence of this is early degenerative joint disease (arthritis) causing lameness and loss of performance, with affected foals never realising their potential as athletes. Uneven foot placement on the ground will also result in problems in the lower leg such as abnormal hoof growth.

1 A foal with a carpal valgus deformity.

2 A fetlock varus in a hindlimb.

3 X-ray of a case of carpul valgus. In the foal there is faster bone growth on the inside of the leg causing the limb to deviate outwards.

...it is common practice to examine foals regularly on a flat hard surface and walk them up and down.

the Diagnosis...

On many stud farms it is common practice to examine foals regularly on a flat hard surface and walk them up and down to assess limb conformation, footfall and breakover. This enables any angular limb deformity to be noticed and treated early. It is a good idea that if you have any concerns regarding the conformation of your foal in the first few weeks of life then you should contact your veterinary surgeon. All foals that are born premature or dysmature should be examined by your vet within the first 24 hours of life in order to assess the condition of the cuboidal bones and joints (knees and hocks) in general. Often diagnosis of ALD is relatively easy, simply by visual inspection of the leg. Palpation (feeling) of the limbs may help identify joint laxity or slackness. Radiography (X-rays) may also be used. It is particularly important to identify foals with incomplete ossification of bones in the knee and hock and by taking an X-ray of the limb your vet can pinpoint the exact point of deviation in the limb affected.

Surgical intervention for correction of ALD is commonly required if the deformity worsens during the first several months of age and fails to respond to conservative management.

Treatment...

There are many ways in which ALD may be treated in foals, ranging from simple hoof trimming and shoeing to advanced surgical techniques. The method of treatment of ALD in foals depends on several factors;

1. The age of the foal and the growth plate or joint affected.
2. The degree of the deviation; with large deviations often requiring more time and more invasive methods of treatment.
3. Foals born with poorly developed cuboidal bones within the knee or hocks are treated with confinement and splints or limb casts to prevent damage to the soft cartilage in these foals. These foals require intensive veterinary and nursing care.

CONSERVATIVE METHODS

1. Farriery

A combination of farriery and controlled exercise and stall rest are commonly used in the treatment of mild to moderate cases of ALD. Minor adjustments in hoof trimming and management can produce excellent results and straight limbs. Corrective farriery every 2-3 weeks can be extremely effective; the outside hoof wall is rasped for outward deviation and the inside wall for inward deviation. Special glue-on shoes are available for foals with medial or lateral extensions which encourage straightening of the limbs. By trimming the foot in these special ways the foal adjusts its posture, which encourages straightening of the leg. In many cases the foal is then allowed restricted exercise on a daily basis to encourage weight bearing but unrestricted exercise is not allowed. The rapid growth rate in the foal often produces quick and satisfactory straightening of the legs

2. Shockwave Treatment

This a relatively new treatment in the horse and has been used in the treatment of ALD accelerating growth of the physis on one side of the bone, encouraging the limb to straighten.

4 Trimming the feet and creating extensions on the hoof with special acrylic glue.

5 A periosteal strip involves cutting and releasing thick fibrous membrane on the surface of the bone.

SURGICAL METHODS

Surgical intervention for correction of ALD is commonly required if the deformity worsens during the first several months of age and fails to respond to conservative management or if a moderate to severe (>12°) ALD fails to improve within 3 to 4 weeks of age. Several surgical treatments can be used in the correction of ALD and are designed to accelerate growth on the concave side of the limb or slow growth on the convex side.

1. Growth acceleration - 'periosteal stripping'

This procedure involves cutting the thick fibrous membrane that covers the surface of the bone on the side where growth is slow, or has stopped. Tension is released at the level of the growth plate resulting in new bone production and deposition on the operated side of the limb. This procedure can be very effective and may be repeated if necessary. Foals require a short general anaesthetic and the limb is bandaged for 10 -14 days with stall rest for 2 - 3 weeks and controlled exercise. The procedure is usually combined with remedial farriery.

2. Growth retardation - Screws, wires and staples

Transphyseal bridging is performed in either young foals (less than 3 months) with severe ALD or with foals with significant deviation in a bone after its rapid growth rate is completed. Growth retardation procedures are performed on the convex side of the deviated limb. The goal is to create compression across the physis (growth plate), slowing the growth on that side of the limb. Various stainless steel implants may be placed across the growth plate including, screws, screw and wire and staples or a combination. The implants must always be removed once satisfactory straightening is complete or the limb may become deviated in the opposite direction! The limb is radiographed every 10 -14 days to monitor progress. Once the deviation is corrected then a second surgery is planned to remove the implants.

6 Temporary stainless steel implants placed across the growth plate of the bone to retard growth.

...the implants must always be removed once satisfactory straightening is complete or the limb may become deviated in the opposite direction.

3. Corrective osteotomies

Osteotomy

A corrective osteotomy may be used for correction of severe angular limb deformities once the growth plates have closed. These major surgical procedures involve removing a wedge or step of bone from the cannon bone and then placing steel bone plates on the cannon bone in a straight position. These techniques are not used commonly in this country.

Prognosis

Angular limb deformities are readily identifiable in foals and easily treated if detected early. Always stand your foal on a flat level surface and check limb conformation at regular intervals. The vast majority of legs will straighten as the foal grows normally. Should your foal be born with a deviation or develop problems in the first few weeks of life then you should consult your veterinary surgeon and farrier who will advise you on the best course of action.

the Result...

Photographs of a foal with carpul vagus affecting both legs immediately after surgery (above) and three months later (below).

XLVETS **MERVYN DREVER**, OF ARDENE HOUSE VETERINARY PRACTICE OFFERS ADVICE ON ACQUIRING YOUR NEW 'FRIEND'.

Buying your horse OR PONY

SEVERAL YEARS AGO, A FRIEND OF MINE BEMOANED THE FACT THAT HIS DAUGHTER HAD DEVELOPED MORE THAN A PASSING INTEREST IN THE PONY WORLD. AS REGRETTABLE AS THIS WAS FOR HIM AT THE TIME, HAVING TO COMMIT TIME AND MONEY TO HIS BELOVED DAUGHTER'S HOBBY, HE IS NOW A VERY PROUD FATHER, AS SHE WENT ON TO FILL THE HALL CABINET WITH ALL MANNER OF SILVERWARE.

In many people's eyes, horse ownership is the ultimate dream. For youngsters, it has the added benefit of teaching commitment, discipline and caring in a relatively safe environment. I have always found the livery yard environment to be a supportive and helpful one with a well-defined hierarchy in the people and the horses. Before buying a horse, there are many things that require careful consideration as owning one requires a big commitment in terms of time and finances.

...COST

There are two costs one should consider when buying a horse: the capital investment in buying the horse and the cost of keeping it. The value of a horse depends on many things, including size, breed, age, sex, type, track record and its potential. Basically, 'potential' refers to either, its genetic potential, its performance potential, or both. It's very difficult to quantify potential into a meaningful figure, but well-bred lines of a particular type would be more likely to win competitions than those that are not, at least that's the theory.

Proven performance speaks for itself and is usually easy to verify; one glance into the tack room where rosettes adorn every fascia speaks volumes. The monetary value of a horse varies greatly from several hundred pounds for an old hacking horse or unbroken youngster to about as many digits as we find on a microchip barcode reader.

The maintenance costs should not be underestimated. A non-exhaustive list includes livery, feed, farriery, worming, insurance and vets' fees. These total about £6,000 a year for a horse on full livery. The type of livery you choose affects this figure markedly. A more basic service with no box or help included (often termed grass livery) will be much cheaper than a full livery service.

You might also need to budget for tack, rugs, and suitable and safe clothing. There are also the less-obvious costs such as dental care, physiotherapy, show entrance fees, a trailer or lorry and the knock-on effect of driving your gas-guzzling cathedral which pulls your trailer in daily use.

Insurance can sometimes appear a moderate monthly investment and there is a temptation to forgo it. Please don't be tempted to do this. Many insurance companies provide excellent value for money, offering cover against theft, third-party liability, vet fees and the reinstatement value of your horse. The cost of insurance depends on the type of cover you take and the value of your horse.

One other cost which should be factored in is veterinary examination. This varies considerably from a basic two-stage insurance vetting, up to the recommended five-part pre-purchase veterinary examination. A vetting is always highly recommended and your XLVets practice will be able to offer further advice and pricing information.

...TYPE

The most important single consideration in the whole process of purchasing a horse or pony is encapsulated in one word - suitability. You should choose the correct size, sex, breed, age, ability and, most important, correct temperament. Also decide where it is to live, whether it will be out-wintered or stabled. There are some general features which are also essential and these are the ability to box, catch and shoe, and in a children's pony it should be traffic-proof. A novice rider should think carefully if buying a horse under six years old, as these are still mentally immature and have many new experiences to encounter.

Any potential owner should be realistic about their own riding abilities. To buy a horse well beyond their capabilities can lead to regret or even present a danger to themselves and others. If you are a nervous novice, consider a 'schoolmaster' type; which will teach you from its wealth of experience and compensate for your mistakes.

A good tip is to make a list of the essential features you desire in your new horse, and ones that are desirable. Your new horse should have all the essential qualities, and several of the desirable ones.

...CONSIDERATIONS

When you arrive for the first time to visit your potential new charge, take your time; hang back and observe the horse and its environment. A horse or pony should look bright and interested in its surroundings and show no malice to you or its handler as you approach it. Its coat should be shiny and the body should have a reasonable covering of fat and muscle. Make sure its behaviour is normal and it isn't chewing wood excessively or exhibiting strange atypical traits that might indicate a behavioural problem.

Go prepared to ride the pony or horse. It is essential that you feel comfortable, safe and that there is a degree of compatibility. To help in this assessment, take your riding instructor or some other experienced horse person with you.

Ask to see the passport and vaccination records and make sure they correspond to the horse you are viewing. Ancillary information such as dental records and competition results may also be indicative of a horse's wellbeing. The vendor may be willing to release his past medical records which can be useful to discuss with your chosen vet.

If you decide to proceed with the purchase, you should make your offer subject to the horse having been deemed suitable in the veterinary pre-purchase examination. Try and be present at the vetting as you may have questions you wish to ask, or information you wish to share.

Finally, make sure you insure your new purchase before transportation home, as many accidents happen during this period either in transit or when mixing with their new peer group. Re-establishment of the field hierarchy can be quite physically challenging at times.

...WHERE TO PURCHASE

There are numerous sources of horses and ponies including private purchases, horse dealers, internet sites, local press and riding schools. It appears that some people shun purchases from dealers, but there are advantages in buying from this source.

Dealers, breeders and agents are covered by the Trade Descriptions Act and must provide an animal of 'satisfactory quality, fit for the purpose and as described', whereas if you are buying from a private seller you have fewer rights and the horse must be 'as described'. This would suggest that if buying from a private source it is even more important to get it checked out.

If all the above has a positive outcome, then you are about to enter the happy and interesting world of the horse. Remember the time, effort and money you have spent acquiring your new chum was well spent, as hopefully the horse will be with you for a long time.

Preparing your mare to FOAL!

JOE IVEY *BVCs MRCVS*
ROSEVEAN VETERINARY PRACTICE

11 months can seem like a long time to wait for the new addition to your equine family. It is therefore important that during her final stages of pregnancy you manage her in such a way as to minimise the chance of complications and maximize the health of the mare and foal.

WORKING OUT AN APPROXIMATE FOALING DATE

It is important to determine when your mare is due to foal so that you can manage her accordingly. The average gestation period for mares is 335 to 342 days, but in extreme circumstances can range from 320 to 400 days. (It would be very rare however, for her not to foal within 3 weeks of the average period).

There is some evidence that mares giving birth in early spring have longer gestations than those in late spring and summer but unfortunately this cannot be relied upon. If the mare goes over her expected date of foaling it is not generally recommended to induce her. An approximate foaling date can be achieved using the average gestation period in combination with the approximate date they are covered or thought to have conceived. This date may be confirmed by the early ultrasound examinations performed by your XLVet.

Unfortunately it is not possible to predict exactly when foaling is going to occur due to this wide range of gestation, but having a rough date in mind will enable you to time her management better.

THREE TO FOUR MONTHS PRIOR TO FOALING (THE LAST TRIMESTER)

FEET AND EXERCISE

You should ensure the mare's feet are trimmed and kept in good shape. It is generally best not to ride them during this period in most cases but regular paddock exercise is recommended.

FEEDING

60-65% of the foal's birth weight will be gained during the last 3 months of pregnancy and with the mare gaining a total of 12% of her body weight during gestation it means the nutritional demand on the mare during those final stages is very important. It is therefore advisable to feed a purpose made stud mix or stud cubes along with good quality hay or grass in order to provide the nutrients they need in these final 3 months. It is also important to have a common sense approach and monitor the mare's weight throughout pregnancy, changing the diet in accordance with her condition.

VACCINATION

Foals are born with no immunity of their own and rely initially on gaining this immunity from the mare's colostrum. Colostrum gives the foals immediate protection against infection which lasts for those first few weeks of its life. It is therefore vital that the mare's immunity is as strong as possible so that she can pass on the antibodies that will provide this protection. It is helpful to keep the mare in the environment that the foal will initially live, so that the mare and foal's immunity mirrors the challenges in their environment. It is also important to vaccinate the mare to provide protection against certain diseases that can cause problems during pregnancy and to make sure that the foal also gains immunity to these diseases. In an ideal world your mare should be up to date with 'flu and tetanus vaccinations and they should be given a booster vaccination during month 9 or 10 of pregnancy.

It is also advisable to vaccinate the mare against Equine Herpesvirus 1 and 4 (EHV 1 & 4) during the 5th, 7th and 9th month of pregnancy. Whilst EHV 1 is not overly common it can cause abortion, neurological disease in adult horses and neonatal death in foals. EHV 4 is generally less serious and in most cases does not significantly affect the mare but can cause abortion of the foal and respiratory disease in both the mare and foal.

Consult your XLVet as to what vaccinations are recommended for your situation.

WORMING

The mare should be on an effective worming programme and approximately 1 month before foaling and before the mare moves into her foaling box/pasture she should receive a single dose of wormer (e.g. Ivermectin or Moxidectin) to remove adult roundworms.

> "Most mares will foal during the night between the hours of 11pm and 4am but they are remarkable at postponing active labour if they do not feel safe or secure."

TWO TO SIX WEEKS PRIOR TO FOALING

LOCATION

The mare should be moved to where she will foal to allow her to become accustomed to the new situation and routine. There are several factors to consider when deciding where to keep your mare for foaling:

- The area should be clean and free from infectious material
- The area should be quiet to avoid the mare being disturbed by people or other horses
- The mare and foal may need to be protected from bad weather

A small paddock with a shelter may be appropriate provided the mare can be monitored adaquately. Alternatively a foaling box can be used. This should be larger than a normal stable (e.g. 6m x 7m).

Most mares will foal during the night between the hours of 11pm and 4am but they are remarkable at postponing active labour if they do not feel safe or secure.

ROUTINE...

The mare should be checked at least twice daily and then more frequently as she progresses towards foaling. Whilst there is no guaranteed way of predicting when the mare is about to foal, there are several signs which may help you predict the event:

- About 1 month before foaling the mare's udder will start to develop. The most noticeable changes will occur in the last 2 weeks and a final enlargement 48 hours before foaling. In maiden mares this tends to take longer than in older mares that have foaled before. 72 hours before foaling a waxy secretion may be noticed at the tip of the teat, this is known as waxing up. These timings can be very variable so do not rely on them completely.
- The composition of the udder's secretion changes during the last month of pregnancy and in the days leading up to foaling, electrolytes such as calcium can be measured to help predict the time of foaling. There are commercial kits available for this but again they are not completely reliable and they require stripping some of the udder's secretion on a daily basis which is not without its disadvantages.
- From about 2 weeks prior to foaling the pelvic ligaments start to relax and the muscles of the croup and tail head become progressively more slack, soft and pliable. This is most noticeable 1 to 2 days before foaling. At the same time the vulva (external opening of the birth canal) and anus will soften and the vulva may swell and become longer in appearance.
- The mare is likely to become more restless and it is possible that she may have some abdominal discomfort due to the foal's position, movement and pressure on other internal organs. This may present as colic which can pass on its own or may need gentle walking. If it is not resolving then it may need veterinary intervention. This will often occur before the mare goes into the first stage of labour.
- The mare's appetite is also likely to reduce prior to the onset of labour.

WHEN YOU START TO NOTICE ANY OF THE ABOVE IT IS ADVISABLE THAT YOU CHECK THE MARE MUCH MORE FREQUENTLY IDEALLY EVERY HOUR OR AS OFTEN AS IS PRACTICALLY POSSIBLE.

WHAT SHOULD YOU DO IF YOUR MARE HAS HAD A CASLICKS OPERATION (STITCHING OF THE VULVA)?

A Caslicks operation is used post covering if a mare has poor external reproductive conformation or has had problems getting in foal. About 2 weeks before the mare is due to foal you should call your vet out to unstitch the mare and return her vulva to normal dimensions. This will need to be done with local anaesthetic and proper restraint.

WHEN SHOULD YOUR XLVET BE CALLED DURING THE PROCESS OF LABOUR?

- Once the waters have broken, if there is no progression to strong abdominal contractions after 15 minutes it is wise to investigate.
- If there appears to be a mal-presentation (e.g. anything other than a head and two legs).
- Should you see a red, velvety sac instead of a bluey-white sac at the vulva during stage 2 of labour this is called 'RED BAG' and is a real emergency.
- When the sac surrounding the foal ruptures if the fluid has a strong yellowish brown colour or if the foal is stained with the same colour, it may mean the foal has been stressed and it may have ingested its own faeces (muconium).
- If there is persistent colic that does not pass with gentle hand walking.
- If the placenta is not passed within 4 hours.
- If you have any concerns at all!

Hopefully none of these complications will occur and you will have a healthy mare and foal to enjoy.

Labour...

STAGE 1

This stage is normally about 50 minutes but it can be anywhere from 30 minutes to 6 hours in duration. In some circumstances mares can control stage 1 labour and put events on hold for hours or even days if conditions are not favourable.

It is at this point the cervix and pelvis start to relax and the uterus begins contractions.

You may see the mare:

- Sweating,
- Restless,
- Showing colic symptoms e.g. rolling,
- Frequently urinating and defaecating
- Dripping milk from her udder

Once the foetal membranes have burst releasing a tan-red coloured fluid (otherwise known as breaking of the water) the mare moves into stage 2 of labour.

Labour...

STAGE 2

Stage 2 results in the delivery of the foal and on average takes 20 minutes (so it is easy to miss), but it can range from 10 to 60 minutes. Whilst the mare will occasionally deliver the foal standing up most of the time she will lay on her side to push the foal out. Once the foal enters the birth canal it triggers hormonal reflexes that cause powerful abdominal contractions that should push the foal out. After the waters break at the end of stage 1, the sack that directly surrounds the foal (the amnion) is usually present. This appears like a blueish white balloon at the vulval lips. If it does not break naturally during the birthing process it is wise for you to break it manually once the foal's chest is clear of the pelvic canal so that the foal can breathe.

Immediately after foaling the umbilical cord will separate on its own as either the mare or the foal starts to move. The umbilical cord is best left to rupture naturally unless there is an obvious problem. The mare will be tired so she should be left to lie quietly for 30 to 40 minutes.

Labour...

STAGE 3

Involves the mare passing the placenta and this usually takes 1 to 3 hours. The placenta will hang from the vulval lips but if it is banging against the hocks or disturbing the mare it is a good idea to tie it up. Once the placenta has been delivered, place it in a bag and keep it cool for the veterinarian to examine.

pony pages

Welcome...

...TO THIS NEW SECTION OF THE XLVETS EQUINE NEWSLETTER FOR OUR YOUNGER READERS.

Dear Reader

Welcome to XLVets Pony Pages. We realise that there are many younger readers out there so we have done these pages just for you. Charlotte from Derbyshire wrote in and asked if we would include her advice to other pony owners about vaccines. Charlotte wants to be a vet when she leaves school - good luck Charlotte!

In the next newsletter we would like to feature some veteran ponies, so if you want to send a photo of your veteran pony along with some information then we will get some in print. If any of them have been poorly and your XLVets vet has helped to get them better let us know. Send in your photos/information with your crossword entry. **Happy Reading!**

Bandaging YOUR horse

Liz Jackson VetMB, BA, CertEP MRCVS
Paragon Veterinary Group

- ✓ Bandages can be applied to the legs for warmth, support and protection, and over wounds.
- ✓ Always put soft padding under a bandage - cotton wool and gamgee are best.
- ✓ Make sure the padding and bandage are evenly applied to prevent pressure sores.
- ✓ Never bandage too tightly it can stop the blood supply to the skin and cause serious wounds. Check you can easily insert 2 fingers under the bandage.
- ✓ Clean padding and a bandage applied to a bleeding wound will help stop the bleeding. If the blood soaks through don't remove the bandage just put more padding and another bandage on top.
- ✓ Always make sure the bandage is securely tied off at the end if in doubt apply tape over the bandage. Severe injuries can be caused by a loose bandage.
- ✓ Bandages over the hocks or knees need an experienced person to apply correctly. The joint must be able to move and the prominent bones must not have pressure on them.

pony pages

Crossword;
Question 5 Down

Pony Particulars

Hi. My name is Charlotte, I'm 12 years old, and I love horses! Some people think that looking after ponies is difficult, but really you just have to remember a few important bits, and then the rest of it is the fun stuff, like grooming and riding them.

One of the most important things to keep your pony healthy is to get its vaccinations done. This is like the jabs you have to have before you go to high school - it doesn't hurt (maybe just a little sting!), and it stops the pony getting diseases and passing them on to other ponies and horses. There are special injections for flu and tetanus. Tetanus is the most important, because without the vaccination, ponies can die if they catch this disease.

When the vet gives your pony the jabs, they will give you a certificate to show that they have done it. It is very important to keep this because you will need it when you enter shows, so get your mum or dad to put it somewhere safe! The first time your pony has its jabs, it will have to have a few to start with, and then after that they only need a vaccination once a year.

That's about it really, and the vet will send you a reminder when the vaccinations are due next, so you don't even have to remember!

I hope that helps!

Charlotte xx

READERS LETTERS
HAVE YOUR SAY...

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For further Equine Information, please contact your local XLVets Practice.

1st competition page

ENTER TODAY
GOOD LUCK...

Welcome

to the first XLVets crossword competition.

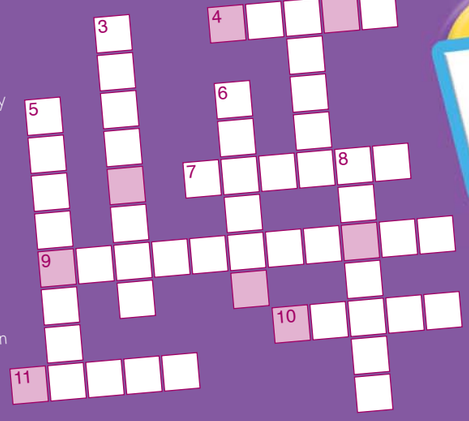
Simply put your answers to the clues into the crossword below. Then rearrange the letters in the highlighted boxes to reveal the answer to this question:
'A common condition that affects horses and ponies in the summer months - which is discussed in one article in this magazine is .....?'
Complete the entry form below, don't forget to include your answer to the question and send back to us for **YOUR CHANCE TO WIN.**

ACROSS

1 Every horse needs one of these to identify them
4 Tummy pain in horses
7 Group of vets that supply this magazine
9 Instrument used to take a horse's temperature
10 A horse's height is traditionally measured in...
11 Hard patch of skin on the back of the fetlock

DOWN

2 A bandage to draw a foot abscess
3 (3,5) Affects horses legs in muddy conditions
5 What sort of shoe is shown on page 3 (opposite)
6 Colour of a rosette for third place
8 Routinely vaccinated against



WiN!

A PINK GROOMING KIT

A winner will be chosen from all the correct entries received before the closing date, Friday 17th April 2009. Answers will be revealed in the next issue of Equine Review. The editors decision is final, no correspondence will be entered into.

ANSWER

Send your completed entry to: Crossword Competition No.1
XLVets, Carlisle House, Townhead Road, Dalston, Carlisle, CA5 7JF

Name
Address
Postcode
Daytime Telephone Number
Email
XLVets Practice Name

☐ I do not wish to receive further information from XLVets
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