A scheme to manage and treat horses with back troubles

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THE APPROACH TO THE POTENTIAL BACK CASE

Sore backs are an all too common and often underrated problem in performance horses. The conditions involved may be primary or may arise secondarily as the result of some form of lameness, faulty tack or even inadequate schooling. It is worth remembering that the most common reason for presentation of a back problem is for poor performance rather than overt back pain. Diagnosis of back problems is notoriously difficult and always requires a thorough and systematic examination. Despite attention to detail and the application of sophisticated clinical aids, definitive diagnosis of a back injury is often only be made by elimination of all other conditions.

Quantifying the degree of pain in animals and establishing the precise site of pain has always been difficult, and horses with back pain are no exception. The situation is further complicated as the major clinical sign recognised in many horses with a back problem is impaired performance not thoracolumbar pain. On the other hand there must be many horses that apparently perform satisfactorily in spite of some low-grade back pain. To add to this confusion some animals appear to be naturally sensitive or "thin-skinned" and resent being palpated along the back. The evasive response produced can be wrongly interpreted by both owners and clinicians as a sign of pain resulting from an underlying spinal lesion.

SCHEME FOR EXAMINATION OF A HORSE WITH A POTENTIAL BACK PROBLEM

The protocol used to examine horses with a potential back injury should be standardised as much as possible.

- Importance of clinical history

The value of obtaining a thorough clinical history cannot be underestimated, as the clinical signs of thoracolumbar disorders are many and varied. Details right back to the time of first acquiring the horse are extremely helpful in deciding whether or not one is dealing with a genuine back problem. In this regard queries concerning information on management, tack and performance should be sought. There seems to be a correlation between nervous or temperamental animals and the incidence of back trouble. One consistent feature of a longstanding back problem is some alteration in the animal's behaviour or temperament. This may be insidious in onset and it may be some time before the owner fully appreciates that the change has taken place (e.g. a normally good natured animal becomes sour and rather fractious to handle and work).

- Clinical examination at rest

The clinical signs exhibited by a horse with a back complaint are varied, often subtle and frequently inconsistent between individuals.
Visual Inspection: The examination should begin in the loose box with a general appraisal of the animal and its conformation. It is important to note the general bodily condition of the animal and to differentiate poor condition (i.e. cachexia) from specific muscle wastage of the longissimus dorsi, gluteal masses and thigh muscles. The presence of any lumps, scars, saddle marks on the back or any undue curvature of the spine must also be noted as they may have some bearing on the underlying condition. At this time some assessment of the animal's temperament and response to gentle palpation of the back, loins and quarters can be performed.

A more detailed examination of the back is best carried out with the horse restrained in stocks. However, it is important that the animal is not stressed or tense, as this will make assessment of back pain even more difficult. If the horse resents walking calmly into the stocks it is better to carry out the examination in the stable. The dorsal midline of the back is viewed from above (i.e. by standing on a chair behind the quarters) to see if it is straight and correctly aligned with the horse standing squarely on all four limbs. Any lateral curvature of the spine is suggestive of a degree of muscle spasm on one side (i.e. spastic scoliosis). The presence of a so-called "hunter's bump" may be seen in some horses although it is not necessarily associated with overt clinical signs of a back problem. This feature is associated with a prominence of the lumbar dorsal spinous processes or the tubera sacrale caused by lack of muscle of the longissimus dorsi and gluteal muscles.

The horse should be examined for any apparent asymmetry of the pelvis or muscle wasting over the hindquarters. This is a crucial part of the examination and needs to be carried out in as objective a fashion as possible. It is unwise to assume that all horses with asymmetric hindquarters or a "hunter's bump" are caused by sacroiliac damage. Careful inspection of the major anatomical landmarks of the quarters is necessary with the horse standing squarely on level ground. Visual acuity is high and even slight (<5mm) deviations can be perceived. Confirmation of pelvic bone asymmetry can be performed by getting two assistants to identify the main skeletal features (i.e. tubera coxae, sacrale and ischii) for comparison of left and right sides.

Palpation of the thoracolumbar spine: A test of the horse's reaction to gently running a hand along its back from the withers to the base of the tail is made. It is very difficult to palpate more than the tips of the dorsal spinous processes although in most normal horses the interspinous spaces can usually be identified, particularly in the lumbar region. It should be possible to detect spasm of the longissimus dorsi muscles as well as any protrusion or displacement of the summits of the dorsal spinous processes. Thin-skinned or hypersensitive horses will cringe when this is done, but unless there is a really dramatic response (e.g. kicking-out, rearing, grunting), this should not be considered of clinical significance. Palpation of the tips of the sacral spinous processes should be carried out, particularly in horses used for harness racing.

Pain may be palpable in the dorsal sacroiliac ligament or over the tendinous insertion of the longissimus dorsi muscle on the spines of S2 and S3. Chronic sacroiliac disease is not usually a painful condition but, if asymmetry of the hindquarters is present and pain is evident on deep palpation just lateral to the tuber sacrale, further investigation for stress fracture is the wing of ilium should be carried out. The tail and croup region should be examined for any flaccidity or perineal paralysis that may be a sign of early neuritis of the cauda equina.

When there has been a history of trauma a rectal examination should be carried out to determine the presence of damage to the pelvic canal, sublumbar group of muscles and/or the sacroiliac region. In chronic cases this part of the examination is best done after the animal has performed an exercise test. It is rarely of much positive assistance in vertebral fracture of the caudal thoracic or lumbar spine.

Manipulation of the thoracolumbar spine: By alternate pinching of the midline in the caudal thoracic and sacral region, it should be possible to make the animal flex (i.e. ventroflex or arch) and extend (i.e. dorsiflex or dip) its spine. Reluctance to perform this manoeuvre and rigidity of the back are often significant findings, as they may reflect some underlying pain due to soft tissue or lesions of the thoracolumbar spine. Pain or discomfort produced by carrying out these tests is often accompanied by spasm of the longissimus dorsi muscles on one or both sides of the back. Areas of pain are located as precisely as possible for comparison with the results of any bony abnormalities noted on radiographic or scintigraphic examination. If there is active damage to the muscles or ligaments in the sacroiliac region, then pressure exerted above each tuber coxae and on the midline at L4- L5 usually produces pain or discomfort.
Skin sensitivity over the back and loins has proved an unreliable test, as it seems to be so variable between individuals. However, firm stroking of the longissimus dorsi muscles with a pencil to produce muscular contraction and lateral flexion of thoracic and lumbar spine is a very useful technique. There should normally be no marked resentment to this test unless there is some painful muscle involvement. If some chronic bony or muscular problem is present in the mid-back, then a reluctance or difficulty in lateral flexion in one or both directions is often seen.

• Examination at exercise
In hand: On a loose rein the animal is first walked and then trotted in hand in a straight line to detect any obvious abnormalities in gait. Many horses with chronic back trouble show a restricted hind limb action with poor hock flexion and a tendency to drag the toes of one or both hindlimbs. If there is moderate to severe pain a wide straddling hind limb gait is usually seen, but in the horse with a low grade problem the action behind will be very close (i.e. plaiting). Next, the animal is turned as short as possible in both directions with the intention of making it flex the spine laterally. If back pain is present and there is loss of suppleness, turning is often difficult resulting in rather jerky movements and spasm of the back muscles. On backing there is sometimes an initial reluctance to move, then the head is raised, the back arched more then usual and some spasm of the back muscles occurs. Another sign of discomfort is the dragging of the forelimb toes on moving backwards. Horses with chronic sacroiliac damage will often resent being backed up or down a slope. Severe lameness in one or both hindlimbs is not usually a feature of a thoracolumbar disorder and diagnostic nerve blocks should be used to differentiate this from a genuine back problem. Mild shifting lameness or simply an unlevelness of action of one hind limb is much more commonly seen. Flexion tests (i.e. spavin test) rarely have any effect on the gait, but are very useful in distinguishing hock or stifle problems.

Lunging exercise:
A session of 10 to 15 minutes exercise on the lunge rein in a sand ring is given to critically assess the horse's gait. This also provides an opportunity to see any improvement or deterioration in the action as the horse warms up. Horses with stiff backs often show exaggerated contractions or spasms of the longissimus dorsi muscles with each stride although this is also seen in horses that are very unfit. Animals with restricted hind limb gait often show poor tracking of the hind feet (i.e. placement of the hind feet behind the imprint of the ipsilateral forefoot) and a tendency to drag or plait with the hind toes. The head carriage may be elevated and the animal looks uncomfortable in its work. A poor action is usually best seen at the trot. Some horses with back pain will lunge only at a collected canter. Some difficulty is often seen when changing pace along with an inability to lead on the correct leg (i.e. disunited). The action behind appears to lack impulsion, and swishing of the tail is often a feature. However, tail swishing is not always indicative of back pain. The assessment of pain by placing a surcingle around the thorax and tightening it has also been used to demonstrate active back pain.

Ridden or driven exercise: It is useful to see the horse saddled up and to note if there is any pain or resentment to tightening the girth or when mounting. An animal may have a "cold back" when mounted, but this does not necessarily imply an underlying spinal problem. Its regular rider should next ride the horse, if possible and an assessment made of the action at the walk, trot and canter. If the horse is a showjumper it should also jump over the type of fences that usually cause the most trouble (i.e. combination-type fences). For harness racing horses it is of great benefit to have the animal driven so as to assess the performance and trotting or pacing gait at fast exercise.

After a period to allow the animal to cool down, the horse should be exercised in hand again to see if there is any change in the action. This is particularly useful in horses with a low-grade exertional myopathy (i.e. mild azoturia or tying-up) as they show increased stiffness of the hock and hindquarters.

• Clinical aids to diagnosis

A number of useful clinical aids to diagnosis have been listed, but there is no point in embarking on these until a careful evaluation of the history and clinical examination has been carried out. The techniques of imaging currently in use include:

• Radiographic examination;
• Nuclear imaging (scintigraphy);
• Ultrasonographic examination;
• Thermographic examination.

Two other modalities that may become important in the future are Magnetic Resonance Imaging (MRI) and Computed Tomography (CT).

Radiographic examination: Radiography is particularly valuable, but should only be performed if adequate facilities are available. The presence of radiographic findings can be difficult to interpret particularly if related to overriding of the dorsal spinous processes. Many horses exhibit radiographic abnormalities, but do not suffer from a back complaint.

Nuclear imaging (scintigraphy): A useful adjunct to clinical diagnosis in recent years has been the advent of nuclear medicine for horses (i.e. scintigraphy). The technique involves intravenous injection of 4-6 GBq of technetium99-MDP and detection of 'hotspots' of increased radioactivity in the bone phase by use of a gamma camera. Scintigraphy is helpful in detecting overriding spines, vertebrae fracture, osteoarthritis, spondylosis, some sacroiliac problems and stress fractures of the wing of ilium. It is particularly valuable in identifying bony lesions at sites not accessible to conventional radiography.

Ultrasonography: There has been considerable interest in the last few years concerning sonographic imaging of the epaxial structures of the thoracolumbar spine. However, there is only limited published material to date (Denoix 1996; 1999). The technique utilises 7.5 or 10 MHz transducers and requires a good knowledge of gross anatomy of the region for satisfactory interpretation of the sonograms. It is possible to detect ultrasonographic changes by surface contact in the supraspinous and dorsal sacroiliac ligaments and to demonstrate overriding of the summits of the dorsal spinous processes and chronic damage in the longissimus dorsi muscles. With a transrectal approach it is possible to investigate the lumbosacral intervertebral disc, intertransverse articulations between the lumbar transverse processes and the ventral aspect of the sacroiliac joint.

Thermography: There is now very sophisticated thermography equipment available that can be used to monitor thermal changes in the back region of horses (von Schweinitz, 1999). However, the temperature increase is only related to the skin and may not reflect deeper muscle or bone injury. Thermography may have a more important role in establishing sites (e.g. gluteal muscles) of excessive heat load after strenuous exercise rather than specific muscular injuries.

A number of other clinical aids to diagnosis are available: -

Clinical pathology: A full haematological and biochemical profile should always be carried out. This is chiefly an eliminative procedure to identify other causes of lowered performance (e.g. anaemia, systemic parasitism, intercurrent infection). The determination of the muscle-derived enzymes aminoaspartate transferase (AST) and creatine kinase (CK) in association with a standard exercise test can be helpful in diagnosing exertional rhabdomyolysis (i.e. azoturia or tying-up) or some other serious muscle damage to the back. A blood sample is taken at rest and then the animal is lunged for 10-15 minutes. Post-exercise blood samples are then taken immediately and at 18-24 hours. Active muscle damage is indicated by a 2- to 5-fold increase in resting levels.

Muscle stimulation: An assessment of soft tissue damage to the back and loins (i.e. muscular strain) can be made more objectively by using a muscle stimulator (or Faradic machine) than by simple palpation.

Slap test: For horses that show signs that are suggestive of mild hind limb incoordination (e.g. chronic sacroiliac damage) the possibility of low-grade cervical cord compression should be considered. Cervical radiography is helpful in some cases, but a more practical method for assessing this is by evaluation of the laryngeal adductory reflex or "slap test".

Local anaesthesia: Another technique can be used when crowding or overriding of the summits of the dorsal spinous processes ("kissing spines") is suspected. This involves the assessment of the animal's performance before and after the injection of some local anaesthetic in the interspinous spaces of the mid- or distal back. The sites to be anaesthetised are located by study of the radiographs. Each area is prepared and a small quantity of local anaesthetic is injected subcutaneously and then a 3.75 cm 18-gauge needle is inserted down into the interspinous space. It is essential that the needle is correctly placed and its position can be checked by radiography or screening with an image intensifier. Then 5-10 ml of local anaesthetic is injected in and around the interspinous space. In severe cases with extensive overriding and false joint formation between the spinous summits it may be necessary to use a longer 8.75 cm spinal needle and to inject a larger quantity of anaesthetic.

Nonsteroidal administration: A useful and simple test in the longer standing case is to administer a short course (2-3 days) of a non-steroidal anti-inflammatory drug (e.g. phenylbutazone) as this will often assist with differentiation of soft tissue and bony injuries. If some chronic skeletal bone damage exists then some temporary improvement in the clinical signs will usually occur.

DISORDERS OF THE THORACOLUMBAR SPINE OF THE HORSE

The list of conditions that may be confused with a genuine back injury (Table 1) are deliberately presented before the section on conditions affecting the horse's spine. It is not uncommon for owners to blame poor competitive ability on a condition of the thoracolumbar spine when it is simply due to problems of schooling, poor tack or rider equitation. It should be remembered that the signs of a "cold back" on tightening the girth or mounting is not necessarily an indication of an underlying spinal problem.

Hind limb lameness (e.g. bilateral hock problem) is probably the commonest differential diagnosis, but also remember that both fore and hind limb lameness can result in secondary back soreness and stiffness themselves.

GENERAL CATEGORY	SPECIFIC LESIONS/PROBLEMS
TEMPERAMENTAL PROBLEMS	Apparent hypersensitivity of back or "*cold back*".
MANAGEMENTAL PROBLEMS	Poor schooling and equitation Badly fitting tack (saddle, bridle, bit).
LAMENESS	Forelimb lameness: Bilateral carpal or fetlock damage; laminitis; Navicular disease. Hind limb lameness: Originating from pelvic region; Stifle problem (e.g. partial fixation of the patella); Hock lesion (e.g. spavin)
HINDLIMB INCOORDINATION	Spinal cord damage in cervical or thoracolumbar regions.
MISCELLANEOUS CONDITIONS	Head-shaking and dental problems. General debility and stiffness (e.g. laminitis). Traumatic cervical damage with neck stiffness.

Table 1

The range of conditions to be considered in differential diagnosis of a thoracolumbar disorder in horses.

• Conditions affecting the thoracolumbar region

The size and anatomical complexity of the thoracolumbar spine of the horse predispose it to a wide range of problems that may lead to locomotor dysfunction. A list of the specific lesions that have been reported to cause back pain and discomfort in horses is shown in Table

GENERAL CA TEGORY	SPECIFIC LESIONS
DEFORMITIE S OF VETERBRAL COLUMN	Congenital or acquired curvat ure of the spine (scoliosis, lordosis and kyphosis). Synostosis (congenital vertebral fusion). Sacralization of L_5/L_6 verte brae.
SOFT TISS UE INJURIES	Muscle strain of lon gissimus dorsi and/o r sublumbar muscles. Strain o r damage to supraspinous and associated ligaments of the back. Tying -up (setfast; myositis) or cramping of back muscles.
FRACTURES	Dorsal spinous process es - single or multiple ove rriding fractures. Vertebr al bodies and neura l arch.
OTHER VER TEBRAL AND ARTICULAR LE SIONS	Spondylosis deformans. Crowding and overri ding of the dorsal spinous process es ("kissing spin es"). Osteoarthritis and fusion o f the dorsal spinous, transverse and articular processes. Chroni c sacroiliac problems (instabilit y and spur formation).

Table 2
Conditions of the thoracolumbar spine that may directly cause back problems in the horse.

• Alleged back problems

There is another category of so-called or alleged back problems which, despite popular opinion they have limited anatomical or patho-physiological evidence to support their occurrence (Table 3). It is this group that forms the basis of much controversy between veterinarians, physical therapists and horse owners. These difficulties are exacerbated by the fact that many horses suffer low grade and chronic lesions. The major clinical sign is always a loss or reduction in performance whatever the underlying pathogenesis; other clinical signs may be more difficult to precisely define.

In spite of the tendency for intervertebral discs to degenerate with age in the thoracolumbar spine they do not appear to cause any clinical signs similar to those seen so commonly in man and in dogs. Nerve "pinching" and peripheral nerve lesions are often claimed to be important causes of back problems, but as yet there has been no scientific evidence to substantiate this belief.

GENERAL CATEGORY	SPECIFIC PROBLEMS
VERTEBRAL SUBLUXATION	Subluxation of thoracic or lumbar vertebral bodies. Malalignment of dorsal spinous processes in thoracic or lumbar region.
DISC INJURIES	Intervertebral disc prolapse and herniation.
PERIPHERAL NERVE INJURIES	Pinching of peripheral nerves to epaxial structures of the thoracolumbar spine.

Table 3 Conditions alleged to cause back problems in horses for which there is currently no definitive scientific evidence.

THERAPY AND MANAGEMENT OF SPINAL PROBLEMS

The list of treatments for thoracolumbar disorders in horses is extensive (Table 1). Many of these methods are used in combination, either at the same time or concurrently (e.g. rest, medical treatment plus some form of physiotherapy). As yet there are few lines of therapy that have been objectively assessed for efficacy and there is also no doubt that some of the methods listed here are used simply as placebos. This lack of precise data results in some therapies becoming fashionable with owners and trainers. A few years ago it was to request surgery for back problems, and then swimming became very popular, followed by manipulative therapy. It looks now as if the trend for the future may well be in natural medicine (i.e. acupuncture and laser techniques). It should also be noted that many of these types of treatment are performed by non-veterinarians; some are qualified physiotherapists, but a considerable proportion are not. The best text available is the Veterinary Clinics of North America, Equine Practice "Back Problems" (1999) edited by K. Haussler where all of the techniques referred to here are dealt with in detail.

Rest

For most types of thoracolumbar complaint a period of rest usually proves to be all that is necessary. Many of the earlier veterinary practitioners and farriers advocated rest as the most effective remedy for back troubles. In some animals the addition of some form of physiotherapy may be beneficial and in others the periodic use of anti-inflammatory medication is indicated. However the assessment of any line of therapy for back injuries is difficult because of the tendency for spontaneous recovery to occur.

For horses with musculoligamentous damage, rest in a loose box can be recommended until the signs of acute pain have subsided. After this the animal can be turned out in a small paddock or yard for a period ranging from one to twelve months depending on the site and extent of the injury present. Often no other specific therapy is necessary, but a gradual return to exercise is always advisable the application of heat by way of an infra-red lamp is sometimes reported to be of benefit in the acute stages of muscle strain or for other soft tissue injury to the back.

GENERAL CATEGORY	INDIVIDUAL METHODS
REST	Box rest followed by period at pasture.
MANAGEMENT	Replace saddle and use sheepskin numnah; Change stable and work routine; Attempt reschooling; Attention to rider's equitation.
MEDICAL TREATMENT	NSAI drugs by oral, parenteral or local injection; Muscle relaxants; Sclerosing agents injected locally.
PHYSIOTHERAPY	Heat therapy: infra-red or heat lamp; poultice, charges or counter irritation; shortwave diathermy; light therapy; lasers; solarium. Ultrasonic therapy; Muscle stimulation and faradism; stretching Cyclotherapy (Niagara, Equissage); Magnetic field therapy; Swimming and hydrotherapy; Shockwave therapy, Graduated exercise programme often combined with other forms of physiotherapy.
MANIPULATIVE THERAPY	Osteopathy/chiropractic in the standing animal or under general anaesthetic.
"NATURAL MEDICINE"	Acupuncture - conventional - laser beam therapy Radionics ("Black box"); Homeopathy; Iridology; Faith healing.
SURGERY	Compounded fracture of withers; Overriding of dorsal spinous processes.

Table 1 List of techniques known to be used for treatment of back problems in horses.

Management

The general management of a horse with a potential back problem is very important. Many "backy" horses have a temperamental or psychological component to the clinical picture, particularly those with a "cold back". The use of a sheepskin numnah is frequently found to be beneficial; another practice is to give the animal a short period of lunging after it has been tacked up and before it is mounted.

A change of stable routine and the type of work often seem to be beneficial and this can involve a reschooling or changing the type of exercise for a period in an attempt to renew enthusiasm for work (e.g. by sending the animal hunting or swimming). The replacement of the saddle often alleviates lowgrade back troubles. Many owners spend a good deal of money on a heavy saddle which is really designed for more advanced dressage, when all they need is lighter general purpose one for hacking and hunting.

Once it has been decided to put the horse back into work a graduated programme of exercise is always advisable starting with ground work and lunging to build up to back muscles and improve the animal's suppleness In this regard the use of a chambon to lower the head and neck damage during lunging can be very helpful. Also massage or gentle strapping or the back muscles after exercising is a useful procedure in horses convalescing from a thoracolumbar disorder.

Medical treatment

In horses with acute or severe back pain (e.g. fractured spinous processes of the withers) parenteral analgesic medication is indicated for the first few days. This may be followed by oral nonsteroidal anti-inflammatory (NSAI) drugs such as phenylbutazone, flunixin meglamine, naproxin, meclofenamic acid and orgotein, which can be given for as long as the horse is really uncomfortable. After this the animal should be rested and further oral NSAI drugs only given association with a return to work. In acute cases muscle relaxants such as dantrolene and methocarbamol may be useful as a 3 to 4 day course to relieve muscle spasm. Longterm therapy with any of these drugs is contraindicated.

Some practitioners have used local injection of long acting steroids into the interspinous spaces in cases of overriding spinous processes quite successfully. The practice of injecting sclerosing agents between the spinous processes and into the central sacroiliac ligaments has been used with mixed results.

Physiotherapy

The application of heat by various means has been used for acute back injuries for many years, although whether they have any real advantage over rest and medication is equivocal. Good results have been reported for various methods of physiotherapy, such as faradic stimulation of muscles, shortwave diathermy and ultrasonic therapy. Deep massage by cyclotherapy has also been used particularly in the United States and therapy by swimming horses has also been advocated. Recently the use of stretching exercises has become a popular form of physiotherapy. Poorly fitting saddles occur commonly, but are not always the primary cause of the back problem. They can, of course, exacerbate an underlying condition and will prevent effective recovery particularly with soft tissue injuries. Replacement of the saddle is important but only after ensuring a proper fit by a saddler or other expert. However, no controlled trials on the benefits of these lines of physiotherapy compared with rest or not treatment at all have yet been made. Muscle stimulation (Faradism), cyclotherapy and swimming appear to be valuable aids to recovery from basic problems once the acute signs and pain have subsided. Recently other techniques such as pulsed-high frequency electromagnetic energy and magnetic field therapy are being used for soft tissue injuries, although it is difficult to judge their efficacy at this stage. There is a new modality that has been receiving quite a lot of attention recently and that is shockwave therapy for chronic back problems including osteoarthritis. There are no reports in the literature yet as to its efficacy.

A gradually increasing programme of exercise following a back injury is always advised. Initially lunging exercise in a sand ring is recommended to assist in building up the back and quarter's muscles and improving spinal flexibility. This can be coupled with a course of physiotherapy and, if there has been some overriding of the spinous processes or sacroiliac damage, then a month's course of an oral NSAI drug is often beneficial.

Manipulative therapy

This line of therapy, which includes chiropractic and osteopathy, is now routinely performed throughout the world. It is reported to give an immediate but transient relief to horses with back injuries. However, few critical or controlled trials of its efficacy nor the exact mode of its action have yet been published. The technique is performed either in the standing animal or under general anaesthesia. A thorough knowledge of equine vertebral anatomy, biomechanics and pathology is required to understand the principles and theories behind chiropractic evaluation, and to apply its techniques properly. Chiropractic provides additional diagnostic and therapeutic means that may help equine practitioners to identify and treat back problems. Specialised training in the evaluation and treatment of vertebral join dysfunction and neuromusculoskeletal disorders place chiropractic in the forefront of conservative treatment of spinal-related disorders. However, limited research is currently available on equine chiropractic in veterinary medicine. The future of equine chiropractic is dependent on formal research into the clinical effects of chiropractic techniques and the basic pathophysiology or spinal-related disorders in horses.

"Natural"

Methods of natural or "fringe' medicine are becoming increasingly popular to treat horses with back problems. Acupuncture has been investigated quite extensively in the United States and good responses to its use have been reported. These workers concluded that the technique did work, but that correct diagnosis and proper judgement of treatment application were essential for effective acupuncture therapy. More recently the use of lasers are being introduced to produce the same sort of beneficial analgesic effect.

One other line of treatment, which appears to have no veterinary basis at all, is that referred to as radionics or the so-called "black box". This technique involves sending a hair from the mane of the patient to the operator of the black box. The hair is placed in the box and then it is claimed that an exact diagnosis of the animal's condition can be made and the horse can be put on to treatment at the same time. It is hard to envisage how this technique can have any medical or scientific foundation although there are a number of proponents in the UK and USA who claim beneficial results.

Surgery

Surgical resection of part of the summits of the dorsal spinous processes in the thoracolumbar spine was first described for crowding and overriding to relieve pain and thereby eliminate the associated lameness. The technique was originally performed on 9 cases with apparently encouraging results. Since then a number of modifications of this method have been described. However, with the improved understanding of the pathogenesis of the condition conservative therapy is now being more widely used.

CONCLUSIONS

Back problems are clearly an occupational hazard in both racing and performance horses. The conditions that may result are often difficult to diagnose accurately, but it is worth remembering that: -

- some horses can perform badly without suffering from a back problem.
- horses can perform adequately in spite of having a back problem.
- spontaneous recovery from many types of back problem is quite common.

Finally, the simple recourse to a period of rest followed by a graduated programme of exercise is all that is required in many cases. This can often be supplemented by various techniques of physiotherapy. Surgery is limited to resection of overriding spinous processes in selected cases where the diagnosis has been confirmed by radiological examination and local anaesthesia of interspinous spaces. Further studies on the biomechanics of the vertebral column and pathology of thoracolumbar injuries are essential to better understand pathogenesis and from this sounder principles for therapy can be established.

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