AIMS
The aims of this module are to provide the student with the information needed to practice correct procedures expected of an animal physiotherapist and to develop the key skills of communication.

OBJECTIVES
At the end of this module you should be able to:

- Demonstrate complete understanding of the legal aspect of animal physiotherapy practice.
- Demonstrate a knowledge and understanding of equine and canine behaviour traits and have the skills to approach an animal in a correct and safe manner.
- Demonstrate the good communication skills required for the clear transmission of information between the vet, the owner and the animal physiotherapist.
- Write clear, informative reports and implement an effective system of record keeping.
- Recognise and use common abbreviations of veterinary terminology.
- Demonstrate a basic overview of the different veterinary diagnostic imaging techniques and draw comparisons between them.

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INTRODUCTION
Alongside being a good physiotherapist it is essential to be a good communicator. People need to like you to use your services. Animals need to respond well to you in order for you to get the desired results of your treatment. Vets need to know that you respect the boundaries of your work and they need to feel that you are an easy, organised and uncomplicated person to work with. Clear communication with all involved parties - including the patient - is paramount for smooth, organised treatment and is significant towards developing and maintaining a good reputation.
SECTION 1
LEGAL ASPECTS OF ANIMAL PHYSIOTHERAPY

The Veterinary Surgery (Exemption) Order – 1962
The Veterinary Surgery (Exemption) Order of 1962 allows for the treatment of animals by physiotherapy provided that the animal has first been seen by a veterinary surgeon who has diagnosed the condition and decided that it should be treated by physiotherapy under his/her direction. Physiotherapy or physical therapy is seen as a manipulative therapy and this exemption includes osteopathy, massage therapy and chiropractic, and McTimoney animal manipulation therapy.

All physiotherapy work undertaken must be under veterinary referral. It is important to get a signed consent form before every treatment. The difficulty with gaining this signed consent is that Vets have limited time to be writing consent forms for each client. The best way round this problem is, after ringing the practice, faxing a form with all the details to the Vet for him/her to sign and fax (or email) back. This should be done as soon as possible after the appointment is booked to allow enough time for the form to be completed.

If the Vet contacts you directly and passes you the client he/she will normally send you a case history of the patient. This is obviously vital information and you must design your treatment plan for the diagnosis you have been given. When you are asked to treat an animal due to a drop in performance or for a routine treatment it is essential that you report any unusual findings back to the Vet. It is not within our remit to prescribe or comment on medication or to make any diagnosis.

Insurance
It is essential to have insurance. Never be tempted to treat an animal if you are not covered by an adequate insurance policy. You will be offered guidance regarding insurance at the end of this course.
Homeopathy and Acupuncture

It is illegal for anyone other than a Veterinary surgeon, who must have undertaken correct training, to treat an animal with Homeopathy or Acupuncture. Physiotherapy is a non-invasive therapy. **Never** puncture the skin or carry out any treatment that could be deemed as an invasive therapy.
In order to be a successful therapist you must be able to communicate with animals. You must be able to recognise signs of distress, warning signs, and with your body language and voice be able to relax the animal that you are treating. At best, physiotherapy treatment on a nervous or tense animal will have little or no effect - at worst a distressed animal could become aggressive and injure you or/and your client. Sometimes your first treatment can be working on gaining the animals trust. In your practical training you will be shown how to do this and how you can use physiotherapy equipment to assist you in relaxing the animal and putting him/her at ease.

**Fight or flight response**

If an animal feels threatened, in normal circumstances, the flight response will be initiated and the animal will flee from the threat. This is why animals tend to defecate when they are nervous as they are emptying their gut in order that they can run faster. The fight response can be initiated for a number of reasons, for example:

- When the animal is restrained
- While the animal is protecting their young
- Survival – If there is food present
- Procreation

If an animal you are treating is frightened, as it will be restrained and can not just run away from you, the fight response may be initiated and they may become aggressive. Many animals are protective of their own space are better treated out of their stable or kennel.
**Equine behaviour**

There are several good texts on equine behaviour; therapists who will be treating horses must ensure that they are familiar with equine behaviour in order to be able to safely and effectively treat the horse. The student is referred to the BHS manual of horsemanship and/or the BHS veterinary manual as a good starting point for the study of equine behaviour.

**Canine behaviour**

Fear and aggression are closely related. It is not surprising; therefore, that a dogs’ attitude can change very quickly from that of fear to that of aggression. For example a dog that is frozen in fear and appears to be showing signs of submission can suddenly attack. As mentioned before, if a frightened animal is restrained and cannot take “flight” then often the “fight” response is initiated. In order to remain as safe as possible and deliver maximum therapy benefits it is essential to be able to interpret your patients” body language.

Some signs of potential aggression are:

- Tense, upright posture.
- Erect tail.
- Hackles up.
- Ears pricked – usually forwards but can also be backwards in an fear aggressive stance.
- Eyes wide open – challenging stare.
- Mouth closed or slightly open in a dominant stance – can be bearing teeth in an aggressive stance.
- Growling or barking – usually low growling means fear
- Note that the tail may be wagging in a fearful or aggressive dog – a wagging tail does not mean a happy dog

Some signs of fear and anxiety are:

- Cowering and crouching – posture may be lowered and tense – shivering and trembling with fear.
- Tail partially lowered or tucked between legs, may be wagging or still
- Ears laid back.
- Eyes narrowed or averted – can roll back with fear.
• Mouth closed or slightly open. It is common for the dog to appear to be grinning.
• Moaning, whining, yelping or low growling.
• Leaking urine and anal gland secretion.

Submission. There are two obvious submissive body postures: active and passive. Some signs of submission are:
• Body posture – lowered to the ground, crouching, creeping forwards, front paw raised (active) or lying on side or back, exposing belly raising one back leg, leaking urine (passive).
• Tail between legs.
• Ears laid back and flattened against head.
• Eyes narrowed or averted.
• Grinning, nuzzling - licking others particularly on the face.

Some signs of a friendly, happy relaxed dog are:
• Relaxed or excited wiggly posture – jumping up and running circles. Front end lowered back end up in the air.
• Tail wagging and away from body.
• Ears pricked or relaxed.
• Eyes alert, wide and happy.
• Mouth closed or slightly open in a smile.
• Excited barking, yapping and whimpering and soft playful growling.

Approach

Your approach to the animal can be the determining factor to the success of your treatment. The animal will be trying to read your body language in the same way you are his. The animal will interpret your stance, facial expression, voice and smell and react accordingly. Always remember the following points from the animals’ perspective:
• The animal will have sensed a change in their owner because you are coming and their normal routine may have been disturbed.
• You are a strange new person.
• You will smell of the last animal you have treated and that must be investigated.
• Approaching with a machine over each shoulder you appear much wider and bigger than you actually are (facing an animal straight on and with your arms wide is an aggressive stance. This is often mimicked when carrying machines).
• Many animals you treat will have been through some trauma for example surgery or injury and may have had a lot of veterinary attention. As far as they are concerned you could be coming to give another injection or to clean the wound again. The animal will feel protective over their ‘sore area’ and as that is what you will be working on they may object.

Some animals are very laid back and love the attention. However, if you approach an animal too swiftly without allowing them the time to check you over and accept you, you may get a response even the owner was not expecting.

**Tips for a good approach**

• Approach the animal quietly and gently. Generally, animals are alarmed by loud or high-pitched voices and this can make them anxious.
• Never rush, even if you are running late.
• Don’t use any aggressive behaviour or move too quickly.
• Don’t stare the animal in the face. Make your approach towards the shoulder and not straight to the head.
• Allow the animal to come to you.
• **Always** allow the animal to sniff you and lick you. This is very important.
• If an animal is particularly frightened, turn your body slightly so that you appear narrower and less threatening.
• Do not stand over the animal or lean down. This is a dominant posture. This is rarely a problem when treating horses due to their size but care must be taken with smaller animals.
• Reward the animal and make your treatment a pleasant experience.

**Professional conduct towards behaviour**

It can be very frustrating to treat an ill-mannered animal. Some animals are in control of their owners and not the other way round. However, this is the owners’ problem and not yours. If it means that you cannot treat the animal then so be it. **Never** take these problems into your own hands. It is completely unprofessional to reprimand an animal you are treating, regardless of your opinion on how it should be disciplined.
SECTION 3  
COMMUNICATION WITH VETS AND OWNERS

Communication with Vets
Vets are very busy people and sometimes pinning them down is difficult. As no work can be undertaken without veterinary permission it is essential that a signed form from the vet be obtained. Usually a telephone conversation followed by a faxed (or emailed) form is the most efficient and convenient method for obtaining the information on the case and the vets permission.

For routine check ups this process is usually quite straightforward. The owner telephones you and you arrange an appointment to see their animal. You then contact the vet by telephone to ask his permission to treat the animal. Advise the vet that you will be faxing (or emailing) through a permission form and please could he/she could sign it and return it. Then ring the surgery and speak to the receptionist. Tell him/her that you will be faxing (or emailing) through a permission form for the treating vet to sign and could he/she please see that the vet gets the form and ensure it is returned. The form should be straightforward, clear and uncomplicated.
**FAXBACK FORM**

F.A.O. Janie
To: Jo Bloggs MRCVS – The Equine Veterinary Clinic
Date: 5th September 2005

RE: Owner: Mrs Smith – Horse: Danny

I have been asked by the owner to treat this horse in my capacity as an animal Physiotherapist. For this I seek your permission. I am hoping to see this horse on Wednesday 10th September 2005.

I would be most grateful if you could sign and fax back this form to me at your earliest convenience.

If you require any more details please don’t hesitate to contact me. I will of course fax you a report following treatment.

Many Thanks
Peter Lawrence

*Please fax back to 01844 290474*

*I am happy for you to treat this animal with physiotherapy and understand that you will refer to us any concerns you may have*

Signed __________________________

Print __________________________

Date __________________________

**Fig 1. Example faxback form**

If the vet has directly referred the case to you then ask them to send you a history of the case including copies of any reports they may have. Prepare a similar form as above for them to sign including more specific details if necessary.

If you will be based in a veterinary practice, it is often the case that the vet will be in the vicinity so that you can keep them involved with the animals’ progress. With large animals, and complicated cases, it is not uncommon for the physiotherapist to meet the vet on site. Whatever the circumstances it is
essential that you record all your findings and treatments. You should file these reports and a copy should be sent to the vet to go in the clients file at the surgery.

**REPORT**

To: Jo Bloggs MRCVS – The Equine Veterinary clinic  
**Date:** 11th September 2005

Re: Owner: Mrs Smith – Horse: Danny

I visited the above horse on Wednesday 10th September 2005.

**Owners observations**  
The owner had reported that the horse has been finding it increasingly difficult to bend to the left and is unhappy about being tacked up.

**Assessment notes**  
On palpation I noted muscle soreness and spasm on the right side in the mid-thoracic region and in the Semitendinosus muscle of the right hindlimb.

**Treatment**  
Phototherapy and massage to the back muscles. Longwave ultrasound treatment to the Semitendinosus muscle of the right hind followed by stretches.

**Conclusion**  
The horse moved more freely after treatment and signs of muscle soreness and spasm were no longer present. I have advised the owner to have her saddle checked as it has not been checked for a while.

Thank you for your referral. If you require any more details, please don’t hesitate to contact me.

Kind Regards  
Peter Lawrence

**Fig 2. An example report sheet**

Good working relationships with your referring vets are essential. You should make time to meet each vet and introduce yourself when you first start work. Always stay within your remit and refer any problems, outside the areas that you have been given permission to treat, back to the vet before you endeavor to treat them. Remember **never** make a diagnosis and **never** question the vet’s diagnosis or authority.
Each Vet will have his or her own way of communicating with you. Some will use abbreviations in their reports and some will make methodical and lengthy reports. Follow what your vet prefers when communicating with them to make it easy for them to use your services. If you write a report to a vet who never uses abbreviations and you give him a short, heavily abbreviated report, it will be an effort for him to read and he may not interpret it as you had wished. This can lead to misunderstandings.

Some of the following abbreviations are sometimes used in reports:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abd or abdo</td>
<td>abdomen or abdominal</td>
</tr>
<tr>
<td>ax</td>
<td>axial</td>
</tr>
<tr>
<td>cd</td>
<td>caudal</td>
</tr>
<tr>
<td>FQ or F1/4</td>
<td>forequarters</td>
</tr>
<tr>
<td>HQ or H1/4</td>
<td>hindquarters</td>
</tr>
<tr>
<td>jt</td>
<td>joint</td>
</tr>
<tr>
<td>LF</td>
<td>left fore</td>
</tr>
<tr>
<td>LH</td>
<td>left hind</td>
</tr>
<tr>
<td>RF</td>
<td>right fore</td>
</tr>
<tr>
<td>RH</td>
<td>right hind</td>
</tr>
<tr>
<td>TL</td>
<td>thoraco-lumbar</td>
</tr>
<tr>
<td>LS</td>
<td>lumbar-sacral</td>
</tr>
<tr>
<td>SI jt</td>
<td>sacro-iliac joint</td>
</tr>
</tbody>
</table>

Table 1: some commonly used abbreviations

When referring to the vertebral column, or regions along it, abbreviations will almost always be used. These will usually be the abbreviation for the region followed by the number or numbers of the vertebrae. For example: T10 – T13 would be the abbreviation for thoracic vertebrae 10 to 13 and C2 – C5 would be the abbreviation for cervical vertebrae 2 to 5 etc.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#</td>
<td>fracture</td>
</tr>
<tr>
<td>Dx</td>
<td>diagnosis</td>
</tr>
<tr>
<td>Px</td>
<td>physical examination</td>
</tr>
<tr>
<td>Tx</td>
<td>treatment</td>
</tr>
<tr>
<td>ROM</td>
<td>range of movement</td>
</tr>
</tbody>
</table>

Table 2: some other common abbreviations

Communication with clients
It is a good idea to have an answer phone at home and a mobile phone. Having a mobile phone means that clients can make a first contact with you and vets can get hold of you if they need to. It is also very useful if you get
lost. Where possible always ring a client if you are running late. Traffic and unexpected problems cropping up at previous appointments are an occupational hazard and even the most punctual therapist will sometimes be running late. It is both courteous and good business practice to keep the client informed of your estimated time of arrival. However, when mobile, you cannot always take calls, for example when you are driving or in an area of bad reception. Also it is best not to answer your mobile phone while you are with a client or only answer it to say that you are with a client and you will ring back. It is best that your client and patient feel that they have got your undivided attention!

Try to return calls and emails on a daily basis. It is best to integrate some time into your daily schedule for communicating with vets, clients and to complete your paperwork. This can be a drag to do at the end of the day as you will be tired from your days work and an important point to remember is that you will not be able to contact vets in the evening. You will need to make time during the day to do this. Some therapists set aside some time every morning for an hour or so, some choose to have a few mornings a week in the office. However, in order not to keep people waiting it is best to answer your calls every day.

After your treatment you may choose to leave a report for the client. Often a verbal report of what you have found and what you have done will be enough. However, if you are leaving the client with equipment to use, or exercises to complete it is a good idea to give them a plan of what you expect them to do.
Directions for the treatment of Oscar

**Equipment**

For the next 2 days: use the magnetic field machine as shown, 3 times a day for a period of 10 minutes each session. The sessions should be at least 4 hours apart.

Use settings of base 50Hz and pulse 10Hz.

For the following 10 days: use the magnetic field machine as shown, 3 times a day for a period of 10 minutes each session. The sessions should be at least 4 hours apart.

Use settings of base 50Hz and pulse 17.5Hz.

**Exercises:** until my next visit to Oscar in 12 days time, use the massage techniques and limb movement exercises I showed you, in the evening, after his pulsed magnetic field treatment.

**Management:** keep Oscar strictly to his prescription diet. Take him for 2 or 3 short walks a day. Do not throw the ball for him. In a few days time, as he starts to feel more mobile, don’t let him run around too much. A gentle lollipop alongside you is fine but he should make no sharp turns or sudden fast runs. If you take him out in the car, make sure he uses the ramp effectively. Don’t let him jump out of the car. The pulsed magnetic field therapy and the massage will aid the removal of debris from his system. Ensure he always has clean water available as his drinking may increase to help flush out the toxins.

Please ring me if you have any problems or set backs, but otherwise I will see you at our next appointment.

*Fig 4. Treatment plan for Oscar. An 8–yr-old Lab with Osteoarthritis*

Ensure that you keep clients informed of costs throughout treatment. For example if you rent out a machine and the client thinks this is included in the cost of your treatment, they will have a bit of a shock when they open a bill for a larger amount. Also, if it is necessary for you to visit an animal in a few days time for a follow up treatment, ensure that the client realises this will be charged as another treatment and is not part of the cost for the first treatment.
Some therapists include a follow up telephone call or email as part of their service, a short while after the appointment. This is good practice as it reassures the client and can sometimes initiate another treatment. Due to time limitations, it is not always possible to make this contact. However you may decide to make time to contact the owners of your more complicated cases for an update on the patients’ recovery.

**Patient records**

Keep a record of all your treatment and correspondence. You should keep on file:

- Reports and correspondence to and from the treating vet
- Your signed consent form from the vet
- Reports and correspondence to and from the client
- Details of clients payment account
- Clients and vets contact details

According to the Data Protection Acts of 1984 and 1994, anyone has a right to be told about any personal data relating to themselves on payment of an administration charge. Although this is less likely to occur than is the case with personal medical records, you should always be prepared for the fact that clients may want similar access to their animal’s records.
SECTION 4
DIAGNOSTIC IMAGING

The Veterinary surgeon will often use diagnostic imaging as an additional tool for diagnosis. Occasionally you will have the opportunity to see the results of these procedures and discuss them with the vet. It is not within your remit to interpret these images, but to able to see the exact location of a lesion, and the extent of damage, can assist you in the development of your treatment plan.

Radiography (X-ray)
Radiography is one of the most used methods in the diagnosis of musculoskeletal disease. X-rays are directed through a body part and captured on specially sensitised film in order to produce a two-dimensional image. Most practices will have the equipment necessary to take radiographs. The important factors for an accurate interpretation of a radiograph are:

- Quality of the exposure
- Ability of the interpreter
- Correct positioning of the body part
- Sufficient number of views

The structures that appear white on the x-ray are those that absorb the most amount of x-rays and those that absorb the least amount appear black:

Air – Fat - Soft tissue (fluid) – Bone – Metal

Black >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> White

Fig 3. Appearance of structures on radiographs
Fig 5. A radiograph

Ultrasonography
Imaging by ultrasound is a widely used and relatively inexpensive diagnostic tool. High frequency sound waves of between 2.0 and 14.0MHz pass through the patient reflecting off tissues and returning to the probe. The computer then calculates the depth of the returning echo to form an image. This process is poor at imaging bones except their external surfaces (and therefore can be useful in diagnosis of rib fractures in some cases) but is a good and commonly used technique
for the examination of soft tissues. Ultrasonography is non-invasive and is usually performed on conscious animals.

**Nuclear Scintigraphy**

Nuclear Scintigraphy is a useful tool in diagnosis of conditions of soft tissue, bone, organs and systems. This technique involves the internal administration of a short life radioactive substance that emits gamma rays. This substance collects in areas with good blood supply. These gamma emissions are then detected by a gamma camera to produce two-dimensional images of the distribution of radioactivity in the tissues.

The rate of isotope uptake occurs at different times in the varying tissues. Therefore, information on these different tissues can be gained at specific times:

- **Within minutes** – Detection of ischemic injuries, vascular disturbances and acute inflammation.
- **2-20 minutes** – detection of soft tissue injuries such as tendon and ligament injuries.
- **3 hours** – Injuries and disease to bone. Particularly useful in the detection of incomplete fractures and can usually provide earlier detection than radiography.

The animal remains radioactive for a couple of days after scintigraphy is carried out and needs to be managed under strict conditions. The vast majority of nuclear scintigraphy scans are used to diagnose obscure bony lesions; the soft tissue and vascular applications are unreliable and rarely used in the clinical setting. Nuclear scintigraphy is often referred to as a ‘bone scan’.

**Computed Tomography (CT scan)**

This procedure produces cross-sectional images using x-ray beams, a scintillation camera and a computer to reconstruct the images. This procedure provides a higher tissue density image than conventional radiography and can be used in the diagnosis of inter-cranial problems such as neoplasia, hydrocephalus and hemorrhages.
Variations in tissue, such as blood, cerebral spinal fluid (CSF) and grey and white brain matter, are clearly displayed as different entities. However, CT’s major application is in the imaging of complex bony areas and lesions, such as the head of horses (especially useful for spinal disease) and complicated fractures in horses and dogs, as the 3D reconstruction of the lesions can be used to plan surgical procedures. Its other major application is in emergency cases, as although its soft tissue imaging is inferior to MRI, it is much quicker to achieve a CT scan and major soft tissue damage is usually clearly visible.

CT is more expensive than conventional radiography and is not as widely available, restricted to larger referral centres.

**Magnetic resonance imaging (MRI)**

MRI uses strong magnetic fields to affect free electrons in the body. These are then detected by computer and converted into images. Unlike radiography, CT and scintigraphy, MRI does not use radiation and is a very safe form of diagnostic imaging. MRI is able to give very detailed information across small sections of the body and its major application is detailed soft tissue imaging. This process is also excellent for the detection of abnormalities in the brain and spinal cord such as intervertebral disc disease, tumours, haemorrhages. MRI is showing to be a useful tool in the exploration of disease of the equine hoof. Using this process it is possible to provide images that indicate conditions previously only detectable post-mortem. MRI is expensive and time-consuming to gain the scans. Any small movement renders the image almost useless, so the animal usually has to be given a general anaesthetic (except in the equine distal limb and hoof, when heavy sedation is used and the image quality is inferior to that achieved with the bigger, more expensive small animal MRI units. MRI units are restricted to larger referral centres.
Thermography

Thermal imaging detects body surface temperature differences using an infrared thermography camera. These images may be useful in the detection of inflammation or ischemia in the neuromuscular system. However, it is often the case that, once an area of disturbance is found, further investigation is needed to make a diagnosis. There is limited scientific data on the interpretation of thermographic images, and the information is heavily influenced by ambient temperatures, so its utility remains questionable.

There are advantages and disadvantages to all modalities. The two most restricting factors are the availability of equipment and cost limitations. Some
of the more advanced modalities are only found at referral centers and a number of the procedures are too expensive for owners to justify.

For your own information, research the veterinary practices in your area to find out what diagnostic equipment they have. Include referral centers. Try to locate your nearest MRI, CT, scintigraphy and thermography equipment.

Using the Internet or other sources, complete some further reading on the above information making sure you understand the advantages and disadvantages of each modality and the average cost of each imaging session.