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Magnetic Resonance Imaging (MRI) - Client Information Sheet

What is MRI?

MRI is an advanced imaging modality that is based on the mobility and density of hydrogen protons in the tissue to create an image of the body. It uses a powerful magnetic field to create highly detailed images, particularly of soft tissue structures and thus is ideal for evaluating the musculoskeletal and neurological systems.

MRI produces cross-sectional images of the area of interest, in several orientations and using various sequences. It allows 'slices' of tissue to be examined, thus eliminating the problems of superimposition (several overlapping structures) that is encountered in radiography. The computer software is also able to create three-dimensional images of the area to identify the exact location and extent of any pathology (diseased tissue).

Why use MRI?

MRI is a powerful, non-invasive tool for diagnosis of many conditions. Because MRI uses a magnetic field to create images, there is no 'ionizing radiation' involved (as is used in radiography, CT and scintigraphy) and thus there are no risks or side effects from the procedure.

The high quality images often enable a more accurate diagnosis of a disease, which in turn can allow a correct treatment plan to be followed. This will hopefully result in an improved outcome and recovery for the horse.

What are the specific indications for MRI?

MRI is beneficial in horses with lameness (or other problems) that have been localised with clinical examination and possibly nerve blocks, but where the specific cause cannot be determined using conventional imaging methods. MRI is particularly useful for evaluating soft tissue areas which cannot be accessed otherwise, such as the ligaments and tendons in the foot and masses within the head as well as the knee, hocks and stifles.

Our experience has shown that many horses with chronic lameness affecting the front feet have a variety of soft tissue injuries which cannot be accurately diagnosed without the use of MRI. Furthermore, the increasing use of MRI in horses over the last decade has increased our ability to diagnose and understand of many causes neurological problems and problems of the teeth and sinuses.

Our MRI scanner is in a new, purpose-built building and one of very few worldwide (and the only one in the UK) that allows imaging of the head, cranial cervical region (neck), foot, pastern, fetlock, carpus (knee), hock and stifle.

How does the MRI process work?

With our scanner, the patients must be anaesthetised to properly position them and eliminate movement. Although there are MRI units that produce images with the horse standing, heavily sedated, these images are of a lower quality due to movement and thus have the potential to 'miss' lesions. They are also unable to image the upper limb of the horse and are limited primarily to the foot and fetlock.

After the horse is induced (placed under general anaesthesia), it is placed onto a padded table and moved into the MRI room. The procedure will last approximately 1 hour, after which the horse will have an assisted recovery all of which is overseen throughout by a dedicated veterinary surgeon fully trained in anaesthesia.

What are the risks of MRI?

MRI is considered a very safe imaging modality. However, any metal close to the scanner can cause artefacts and interfere with the images. For this reason all shoes must be removed from the horse prior to the MRI scan. The risks of general anaesthesia are still present and a full examination (including pre-operative blood) will be undertaken prior to the scan. Anaesthesia and recovery are carried out by a dedicated veterinary surgeon fully trained in anaesthesia.

What happens after the MRI?

The MRI scan will be interpreted by a board-certified veterinary radiologist (a specialist who has had many years of experience interpreting equine MRI scans). The results of the scan will be sent to the veterinary surgeon primarily involved in the case the next day who will then discuss the diagnosis and treatment options.

Please contact us on 01684592099 and we will be more than happy to answer any questions regarding your horse's MRI scan.

Magnetic Resonance Imaging (MRI)- Client Instructions

How to prepare for MRI

As the MRI examination requires no movement, it will be necessary for your horse to undergo a general anaesthetic for the procedure. To prepare for this, your horse will need to arrive at the hospital the night before the MRI. If possible, all four shoes should be removed by your farrier prior to arrival.

Please remember to bring your horse's passport and any rugs or special feeds required whilst he is hospitalised (we have various feeds so please contact us prior to arrival if you have any questions). If your horse is insured, please contact your insurance company to notify them of the procedure and obtain consent for the scan. Please also take all insurance documents with you.

The MRI examination

1. Your horse will undergo a complete examination and blood test prior to general anaesthesia. The shoes will be removed (if not already done) and radiographs of the feet will be taken. This is to ensure that no metal is left behind which may be a safety hazard and also compromise image quality and create artifacts.
2. An intravenous catheter will be placed and your horse will be anaesthetised with injectable anaesthetic agents. A combination of injectable and inhalational anaesthetics will be used to maintain anaesthesia.
3. Your horse will be moved on a padded bed to the MRI room and the scan performed. This usually takes around 1-1.5h.
4. Recovery from anaesthesia will be assisted and you will be contacted when your horse is back in the stable. They will be able to go home later in the day, or the following day, depending on the case.
5. The MRI examination will be interpreted by several veterinary surgeons, including a board-certified radiologist (a specialist who has spent many years interpreting equine MRI scans). The written reports will be sent to your veterinary surgeon within 2-3 days of the scan and they will discuss the findings and treatment options with you.

If you have any further questions regarding the procedure please contact us on 01684 592099 and one of our veterinary surgeons will discuss these with you.